

APPLICATION OF CALIFORNIA METHODS OF MIDDEN ANALYSIS TO A NEOLITHIC SHELL MIDDEN IN THE RUSSIAN FAR EAST

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In 1997 the authors jointly conducted test excavations in the Zaisanovka-7 site, located at the southern tip of the Russian Far East. This shell midden excavation resulted in a radiocarbon date that set back the origin of the Zaisanovka Cultural Tradition by four hundred and fifty years along the coastal margins of the Primorye Region. More importantly, this discovery led to a reassessment of the diversity expressed by this archaeological cultural tradition that spanned a period of 1,700 years and covered a wide range of environmental landscapes. The most important result of this reassessment has been a greater appreciation of the explanatory power afforded by theoretical concepts associated with cultural ecology.

It is commonly accepted that mainstream North American archaeology has been rooted in theoretical and methodological paradigms related to cultural ecology since the 1950s. Walter Taylor (1948), Julian Steward (1955) and Lewis Binford (1962) all forcefully advocated precepts based on cultural ecology and related processual principals, which ultimately schooled a cadre of “New Archaeologists.” Many students of these ideas, including James Hill (1968), mentored a second generation of processualists, including Michael Glassow (1993), who in turn advanced the frontiers of cultural ecology, settlement pattern analysis, and subsistence reconstruction.

In turn, these second-generation processualists fostered a third generation of cultural ecologists, and advanced the boundaries of both California and North American archaeology. Although the other papers in this symposium are specifically dedicated to advancements in California archaeology, the goal of this paper is to point out that these theoretical and methodological influences have extended far beyond the boundaries of California.

Comparable to the founding of Historical-Particularism in North America by Franz Boas (1888), similar ideas were being advanced simultaneously in Europe and Russia by the Swedish archaeologist Gustav Montelius (1899). His materially based historical perspective served as the foundations for the “Formalist School of Russian Archaeology,” established by Count Aleksey Uvarov (Cassidy 2004; Trigger 1989). However, the Bolshevik revolution and the imposition of Marxist dogma served to greatly restrict the free exchange of academic thought for a period of over 60 years. During the last decades of communism, between 1970 and 1980, Russian archaeologists were gradually freed to openly return to their roots in historical materialism, although many have been openly suspicious of new theoretical perspectives.

However, even within a system of repressed dialogue, some students were able to gain exposure to new outside perspectives. As Yuri Vostretsov recalls, in 1979 the city of Khabarovsk, in the Russian Far East, hosted an International Pacific Congress where several American archaeologists attended. One of them presented us with a copy of *Advances in Archaeological Method and Theory*, Volume 1, edited by

Michael B. Shiffer. This book became an important experience in my life as a first-year post-graduate student, one who was not only a resident of a politically restrained nation, but also happened to live in the country's distant outskirts in the city of Vladivostok, which was forbidden to foreign visitors. That book contained an article on “The Concept of Carrying Capacity in the Study of Culture Process,” written by Michael Glassow. The article dealt with aspects of cultural studies generally ignored by Russian archaeologists, particularly the ecologic paradigm, human pressure on natural resources, and correlations between environmental and culture changes. Everything was extremely interesting and inspired me to apply those approaches to my own collections.

Yuri Vostretsov is among the second generation of archaeologists to specialize in the prehistory of the Russian Far East (Vostretsov and Zhushchihovskaya 1985). At that time, and still for many, the prehistory of the Primorye Region was conceived of as a number of static “archaeological cultures” defined by sequences of stylistic change among ceramic vessels and, to a lesser extent, stone tools. On the south coast this historical sequence commenced with the Boisman Cultural Tradition between 6,700 and 4,900 years ago. The only processes invoked to explain culture origins, change, or demise were related to either diffusion or migration from northeast China or North Korea.

However, as a result of his exposure to published ideas pertaining to cultural ecology, Vostretsov decided that a more productive approach would be to apply an environmental perspective to his research into the Boisman-1 site. As a result, Yuri was among the first archaeologist to investigate the effects of prehistoric climate change and correlated influences of sea level changes along the Primorye coast (Vostretsov 1998; see also Cassidy and Kononenko 2001, 2005; Kononenko and Cassidy 1999, 2000).

In many respects, the middle Holocene Boisman Cultural Tradition resembled the Chumash cultural florescence of the late Holocene period (Arnold 2004). During the middle Holocene, Boisman bay consisted of a rich lagoon and estuarial environment encompassed by an open bay. Oyster banks, now covered by alluvial silt, filled the lagoon and provided a stable source of protein. Evidence of a maritime

focus among the Boisman people was revealed by the types of artifacts recovered from the middens and burials (Popov et al. 1997). The presence of many bone fishhooks attests to the importance of line fishing, both from shore and from boats. Also, several carved-bone fishing lures were recovered that suggest the use of boats for trolling with fishing lines. Numerous types of bone harpoons, including toggling harpoons, were employed by the Boisman people for capturing pinnipeds.

Multiple stratified shell midden deposits and associated burials have been excavated at the Boisman-2 site by Alexander Popov of the Far Eastern State University (Popov and Kononenko 1995; Popov and Yesner 2002). Burials consisted of both primary and secondary internments. Recent oxygen-isotope analysis of bone collagen from the burials has revealed that slightly over 50% of the diet was derived from marine resources (Yoneda et al. 1999). Some of the primary burials contained a number of utilitarian tools, as well as symbols of possible higher status buried with a man and with an elderly woman. Included among these was a burial with several harpoons, a fishhook, and a cache of finely ground elongated slate arrow points. Also accompanying some of the burials were shell bracelets, finely carved stone-bead ornaments, and an ornament of drilled oyster beads affixed with asphalt to a mammal longbone.

However, despite Yuri Vostretsov's efforts to develop a focus on specific adaptations influenced by local ecological conditions, the primary focus of archaeology in the Russian Far East remained on the typological classification of broad cultural traditions (Andreyeva 2005). Based on such schemes it is thought that around 4,900 years ago the Boisman Cultural Tradition disappeared and was replaced along the coast by the Zaisanovka Cultural Tradition, which is generally attributed to the migration of agriculturalists from the interior who expanded throughout the entire southern half of the Primorye Region (Vostretsov 2005).

The earliest type-site for the Zaisanovka Cultural Tradition was the Krounovka-1 village site, where early agriculture was first identified (Vostretsov 1987). However, this culture phase was thought to encompass a wide range of ecological niches and appeared to have lasted for over 1,700 years (Vostretsov et al 2003). Aside from assertions of population migrations from neighboring northeast Asia, no explanation was provided pertaining to how a single cultural expression could successfully occupy so many different environments, or continue relatively unchanged for such a long period of time.

During the summer of 1997, Mike Glassow, graduate student Christa LaFlam, and I were invited by Vostretsov to participate in ongoing excavations on the southern coast of Primorye. Yuri recalls: my second encounter with Professor Glassow turned out to be more personal. It was in 1997 when Jim Cassidy, Michael Glassow, and Christa LaFlam participated in fieldwork on archaeological sites along the Gladka River, in the southern Primorye Region of the Russian Far East. During that season we discovered two shell middens on a Post-Atlantic-period sandy bank that separated a lagoon from the sea. Mike Glassow, Jim Cassidy, and Christa LaFlam dug a 1 x 1-m test pit in the

site. The test pit yielded stratified oyster deposits and one unidentified ceramic sherd. Mike Glassow subsequently obtained a radiocarbon date derived from a shell sample of 4750±80 RCYBP (Beta-124174). To everyone's surprise this *Rapana* shell midden belonged to the Zaisanovka archaeological culture and at the time became the oldest date associated with this culture. To this date Zaisanovka-7 is only one of two known Zaisanovka-period shell middens (the second being Poset-1), and the only shell midden discovered within a time span of about 1,700 years along the Primorye coast.

The Zaisanovka-7 shell midden contained 18 species of mollusks; however, oysters comprised 98% of the deposit. Also, a measurement of the lengths of the shell hinges revealed that the sizes of the oysters being harvested diminished rapidly in the upper stratum, suggesting an intensified collection strategy (Vostretsov et al. 2002a).

At that time, Vostretsov was the only archaeologist in the Russian Far East who had attempted to integrate migration and ecological processes into interpretations relating to culture change. Even prior to 1997 he was attempting to link changes in sea surface temperatures and climate to cultural expressions. However, the discovery that the Zaisanovka Culture also included a maritime expression represented a monumental change in theoretical perspectives and greatly altered the way he viewed the processes of cultural ecology and subsistence patterns.

Vostretsov and his students have subsequently spent a number of field seasons excavating the Zaisanovka-7 site, which includes a 6,000-sq-m shell midden (up to 40 cm in thickness), and an associated surface dwelling. All soils removed from the dwelling were subjected to flotation for the removal and analysis of macrobotanical remains (Vostretsov 2002). Macrobotanical materials extracted from the site included acorn, walnut, hazelnut, wild grape, bird cherry, and raspberry, with acorn representing the greatest source of carbohydrates (Vostretsov 2002). A speciation of the small assemblage of terrestrial mammal remains showed that boar, roe deer, red deer, Nippon deer, Canidae, and birds were hunted and consumed on an opportunistic basis.

A large assemblage of bi-notched net sinkers was recovered from the site and size-sorted into three groups. The different sizes of net sinkers suggests that a variety of types of net fishing was practiced from the shoreline, and from boats. A speciation of fish bone from the site revealed 26 species of fish from a variety of water depths. These predominately included schooling fish such as mackerel (33%), flatfish (16.9%), and redeye (16.23%). Until last summer it was thought that the hunting of sea mammals did not take place at the site. However, the recent discovery of a bone toggle harpoon has resulted in a reassessment of this assumption (Vostretsov, personal communication 2006).

The Zaisanovka Cultural Tradition has traditionally been associated with the spread of agriculture into the Primorye Region, and the recovery of two types of handled hoes from the Zaisanovka-7 site has been consistent with this assumption. However, flotation analysis of macrobotanical remains from the site has yet to reveal the presence of cultigens, such as millet. Thus, the evidence of millet cultivation in the

site remains to be demonstrated, and it may be that the occupants were actually involved in stimulating the growth of other native plants (Vostretsov et al. 2002b).

An examination of what has been learned regarding Boisman vs. Zaisanovka subsistence activities reveals an increasing refinement in the scale of analysis. The Boisman site faunal assemblage has been well researched by T. Toizumi and Y. Vostretsov (Vostretsov 1998:321–53) for subsistence remains, but this analysis resulted in little information pertaining to the consumption of gathered plants. In contrast the intensive flotation of macrobotanical remains from the Zaisanovka-7 site has considerably improved our understanding of their settlement system and patterns of intensified subsistence procurement.

CONCLUSIONS

What can be concluded from this study is that the residents of the Zaisanovka-7 site occupied the coastal margin of the Sea of Japan during a period of cold and dry climate. While they evidently were familiar with agricultural practices, this did not constitute a significant part of their diet while at the site. The floral and faunal assemblages clearly demonstrate a year-round occupation and a broad-spectrum diet regime. Dietary stress may be evident in the intensification of relatively low-yield resources during the late phase of occupation, when the shell midden was formed and acorn consumption increased. The extent of the shell midden suggests multiple uses of the site over a number of seasons; however, the shallowness of the deposits suggests that it was not formed over a lengthy period of time.

The application of an ecological theoretical perspective, and fine-grained methods of subsistence analysis, have permitted the separation of this site from the overly generalized concept of a Zaisanovka archaeological culture, and demonstrated the fruitfulness of taking the time to appreciate what can be learned from an ecological scale of analysis. This ongoing exchange of perspectives between Californian and Russian archaeologists appears to be providing the genesis for a theoretical and methodological paradigm shift that will directly benefit our understanding of North Pacific prehistory.

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