

CHAPTER FIVE SUMMARY AND CONCLUSIONS

5.1 Summary

The application of bioarchaeological methodology to the Cis-Baikal skeletal and dental record has focused on health and lifestyle reconstruction of the region's Neolithic and early Bronze Age foragers with particular interest in the circumstances surrounding an alleged fifth millennium BC biocultural hiatus. The investigation of five skeletal populations – two representing the pre-hiatus Kitoi culture and three the post-hiatus Serovo-Glaskovo – has provided an excellent opportunity not only to characterize boreal forest foraging adaptation, but also to investigate cultural change in the region. Research has focused on three discrete lines of bioarchaeological inquiry: dental enamel hypoplasia, osteoarthritis, and paleopathology. Enamel hypoplasia, a condition of defective enamel structure, is commonly used by anthropologists as an indicator of nonspecific physiological stress during dental development, whether nutritional or infectious in origin (Aufderheide and Rodríguez-Martín 1998:405, Corruccini *et al.* 1985, Cunha *et al.* 2004, Goodman and Rose 1990, 1991, Lanphear 1990, Nelson 1999, Pechenkina *et al.* 2002, Powell 1988, Steckel *et al.* 2002, Suckling 1989, Van Gerven *et al.* 1990). Osteoarthritis, or degenerative joint disease, generally represents the cumulative effects of physiological wear and tear on joints and provides an important record of activity and mechanical stress levels experienced by individuals throughout their adult lives (Aufderheide and Rodríguez-Martín 1998:93, Bridges 1991, Jurmain 1977, Jurmain and Kilgore 1995, Kennedy 1989, Larsen 1997, Larsen *et al.* 1995, Moskowitz 1972, McCarty and Koopman 1993, Radin 1982, 1983). Paleopathology, the study of disease among past populations, is typically limited to those conditions affecting skeletal and dental tissues, predominately chronic diseases and mechanical alterations. Despite its

limitations, it is valuable in the reconstruction of diet, nutritional adequacy, exposure to pathogens, occupational and environmental hazards, interpersonal violence, cultural alterations, and treatment of the infirm (Aufderheide and Rodríguez-Martín 1998:xv, Buikstra and Ubelaker 1994:107, Lovell 2000, Ortner and Putschar 1985:2).

In the archaeological literature, the presence of formal cemeteries among prehistoric hunter-gatherers is often associated with greater sedentism, subsistence intensification, and increasing territoriality (e.g., Charles and Buikstra 1983, Goldstein 1981, Price and Brown 1985). The Cis-Baikal mid-Holocene is somewhat unique in this regard, as large formal cemeteries were utilized by foragers exploiting a potentially wide range of resources. However, the subsistence strategies employed in the region may have varied over time, even though environmental conditions remained relatively constant (Weber *et al.* 2002). Recent examinations of archaeological and stable isotope data from the Cis-Baikal suggest that pre-hiatus Kitoi and post-hiatus Serovo-Glaskovo peoples differed in their respective adaptive regimes (Katzenberg and Weber 1999, Weber 1995, Weber and Katzenberg 1998, Weber *et al.* 2002). If this assertion is correct, then differing subsistence patterns may have resulted in disparate levels of community health and patterns of activity and mobility, as reflected by the skeletal and dental remains.

The current understanding of pre-hiatus Kitoi and post-hiatus Serovo-Glaskovo adaptive strategies proposes decreased residential mobility due to a narrower subsistence base among the former. It has been suggested that Kitoi annual ranges were quite small, focusing on fish and fishing whether or not these were the most abundant or accessible resources. By contrast, the Serovo-Glaskovo people appear to have exhibited greater residential mobility and broader subsistence patterns focusing on both aquatic (fish and seal) and terrestrial resources. These apparent differences in Kitoi and Serovo-Glaskovo adaptive regimes are supported by archaeological and

some stable isotope (particularly $\delta^{15}\text{N}$) data. Although both cultural complexes encompass the entire Cis-Baikal region, most Kitoi sites are limited to river mouths, shallow coves, and river confluences, with site density corresponding to (modern) fish availability. Stable isotope analyses of skeletal material have documented noticeable differences in both $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values among various Kitoi sites, but minimal disparity among Serovo-Glaskovo ones. This may suggest higher interregional travel and/or broader and more diverse diets among the latter. Furthermore, fishing paraphernalia such as composite hooks and carved fish lures are frequent and abundant among Kitoi grave goods and within their habitation horizons. Serovo-Glaskovo grave goods and tool kits, on the other hand, are largely represented by hunting paraphernalia such as bows, arrowheads, harpoons, and spears. Finally, stable isotope values suggest a greater reliance on fish by the Kitoi people and an increased reliance on terrestrial foods by the Serovo-Glaskovo. However, some of these isotopic differences appear to reflect proximity to Lake Baikal itself, with adjacent populations of both temporal periods utilizing more aquatic resources than distant ones (Katzenberg and Weber 1999, Khlobystin 1969, Lam 1994, Okladnikov 1950, 1955, 1959, Weber *et al.* 2002, Weber and Katzenberg 1998, Weber 1995).

If these interpretations of distinct Kitoi and Serovo-Glaskovo adaptive regimes are correct, then associated differences in health and activity and mobility patterns may be visible on the Cis-Baikal skeletal and dental material. In general, two factors appear to be most influential on community health in pre-modern populations: population structure, particularly size and density which affect the spread of infectious pathogens, and diet, both quality and quantity (Steckel *et al.* 2002, Walker and Thornton 2002). Based on the number and distribution of mid-Holocene Cis-Baikal archaeological sites, it has been postulated that population size and density were higher among the Kitoi than the Serovo-Glaskovo, but that the former were limited in

their regional distribution and thus outnumbered approximately four to one by the latter (Weber *et al.* 2002). While these hypothesized distinctions in population structure are tentative at best, they are unlikely to have played a substantive role in potential community health differences between the pre- and post-hiatus groups. Population size and density in the mid-Holocene Cis-Baikal failed to reach levels attained by subsistence-intensive foragers living in permanent year-round settlements (e.g., Ubelaker 1988). As a result, dietary variation remains the most plausible explanation for any significant health differences discerned between Kitoi and Serovo-Glaskovo populations, but specific behaviors and activity patterns would have also played a role. A narrower subsistence base, for example, may have increased Kitoi susceptibility to stress during periods of seasonal or annual resource shortage, while higher mobility may have introduced the Serovo-Glaskovo to additional occupational or traumatic hazards.

Distinct Kitoi and Serovo-Glaskovo adaptive regimes may also have resulted in disparate levels of degenerative joint disease reflecting the variable physical stress associated with each strategy. For example, if post-hiatus individuals engaged in greater residential mobility, they would have suffered from increased levels of osteoarthritis throughout the body due to heavy and repetitive physical activity placing higher levels of stress on all the major joint regions. Traversing over the Cis-Baikal's rough and topographically severe terrain, particularly while transporting goods and resources, would have resulted in a higher prevalence of arthritic degeneration and an earlier age of onset for both males and females alike. Pre-hiatus peoples, on the other hand, appear to have been less residentially mobile and to have largely limited their movements within small annual ranges tethered to topographically milder waterways. If this is accurate, then the decreased physical stress associated with this lifestyle

would have resulted in a lower prevalence of osteoarthritis throughout the body and a later age of onset compared to that experienced by post-hiatus peoples.

Comparisons of enamel hypoplasia among the five Cis-Baikal cemetery populations point to a decrease in nonspecific physiological stress – and a possible increase in overall community health levels – experienced by post-hiatus groups compared to their pre-hiatus predecessors. Prevalence analyses indicate that a higher proportion of the pre-hiatus Kitoi population was affected by the condition, while the examination of the minimum number of stress event (MNS) means suggests that Kitoi individuals experienced more hypoplastic stress events than their post-hiatus successors. These assertions are largely in keeping with the present understanding of disparate adaptive regimes characterizing pre- and post-hiatus groups, respectively. The Kitoi employment of a relatively narrow subsistence base would have increased susceptibility to physiological stress resulting from fluctuations in resources availability. In contrast, the wider selection of resources available to the Serovo-Glaskovo may have acted as a buffer, at least to some extent, during periods of seasonal or annual shortage. However, regardless of the differences discerned between them, both pre- and post-hiatus occupants of the Cis-Baikal appear to have lived healthy and low-stress lives. Hypoplastic prevalence for both groups compares favorably with that documented for other archaeological populations (Table 2.5), suggesting that both the Kitoi and Serovo-Glaskovo employed adaptive strategies that were more than adequate for their survival

Another pattern to emerge from the site-to-site analyses of hypoplastic data is that of variability, rather than consistency, among post-hiatus Serovo-Glaskovo groups. Prevalence and MNS mean analyses indicate that affectation proportions may have been lower and hypoplastic stress events less frequent, respectively, among early post-hiatus populations compared to their immediate descendants (although both

groups experienced less stress than their pre-hiatus forebears) . This suggests that the latter experienced greater risk during periods of resource scarcity and inaccessibility compared to their forebears, possibly reflecting an increasingly narrow subsistence base. These findings do not seem to support previous suppositions of broad and comparatively more effective subsistence regimes employed by the Serovo-Glaskovo, but rather introduce the concept of adaptive variability throughout the mid-Holocene Cis-Baikal.

Finally, within-site examinations of prevalence and MNS means indicate similarity in enamel hypoplasia affectation across age and sex categories. Individuals who experienced hypoplastic stress events during childhood appear to have had the same success in attaining adulthood as those who did not. This suggests comparatively low levels of physiological stress and may also point to relative social equality, with no evidence of an obviously favored class, for both pre- and post-hiatus inhabitants of the Cis-Baikal. The fact that males and females from each site were equally affected by enamel hypoplasia is further evidence of gender equity in the region. This is in contrast to interpretations of Kitoi male dominance, supported in part by the inequitable distribution of grave goods among pre-hiatus groups (Weber *et al.* 2002). While these results provide some support to previous interpretations of distinct Kitoi and Serovo-Glaskovo lifeways, they also call attention to the commonality between them. Overall, the enamel hypoplasia data presented here reveal parallels between pre- and post-hiatus groups, particularly in the continued variability and relative effectiveness of their subsistence regimes.

Similarities in osteoarthritic prevalence and distribution among the five skeletal populations investigated are most easily explained by parallels in mobility and activity patterns undertaken by both the pre- and post-hiatus occupants of the Cis-Baikal. Prevalence data provide little direct support for interpretations of different

adaptive strategies involving distinct residential mobility patterns between the Kitoi and Serovo-Glaskovo people. However, it is probable that individual mobility – reflecting both residential mobility and logistical foraging – varied considerably throughout the mid-Holocene. Residentially stable units among the Kitoi, for example, may have been limited to seasonal fishing periods when waterways were most accessible. Furthermore, their low residential mobility would have been coupled with more extensive logistical forays for (terrestrial) resource acquisition, particularly by males. Finally, annual fluctuations in resource availability likely resulted in equally variable modifications to mobility patterns by both the Kitoi and Serovo-Glaskovo alike. This variation, over the course of whole lifetimes, could have equalized overall individual mobility among the pre- and post-hiatus peoples, resulting in similar osteoarthritic prevalence for both groups.

Minimal sexual disparity in osteoarthritic prevalence was also noted for each of the five Cis-Baikal cemetery sites, suggesting similar mobility and activity levels for males and females. Again, this seems to contradict earlier interpretations of Kitoi adaptation, in which low residential mobility would have resulted in sexually-disparate individual mobility due to increased levels of largely male-dominated logistical foraging (Weber *et al.* 2002). However, a more compatible explanation for the apparent sexual equity in overall levels of osteoarthritis throughout the mid-Holocene Cis-Baikal is the probable seasonal and annual variation in mobility experienced by pre- and post-hiatus individuals over the course of their lives. This variability may have largely balanced out the effects of sexual differences in mobility, resulting in the more or less equitable osteoarthritic prevalence observed here.

While osteoarthritic distribution is also remarkably equitable among the five populations and between the sexes, several significant differences were noted which suggest distinctions in the specific activities undertaken by them, if not in kind, then in

frequency and intensity. Activities resulting in elbow degeneration such as spear-throwing may have been more commonly engaged in by post-hiatus males than pre-hiatus males. This may indicate an increase in hunting, particularly large game hunting, among the former. Activities involving stress to the knee such as traveling over steep and uneven terrain appear to have been more frequently undertaken by pre-hiatus males than their post-hiatus counterparts, as well as pre-hiatus males compared to contemporary females. Increased logistical foraging by Kitoi males in response to reduced residential mobility may account for these discrepancies. Finally, activities causing vertebral degeneration such as carrying heavy items on the back and/or head may have been engaged in more frequently by post-hiatus females than their pre-hiatus counterparts and by pre-hiatus males compared to pre-hiatus females. Increased vertebral stress would have been experienced by those individuals undertaking higher residential mobility (e.g., Serovo-Glaskovo individuals) as well as greater logistical foraging (e.g., Kitoi males). Because these lend credible support to previous assertions of distinct subsistence strategies employed by Kitoi and Serovo-Glaskovo populations, it is more likely that the parallels observed in osteoarthritic prevalence and distribution reflect variation in the mobility and activity patterns undertaken by both groups. As such, the osteoarthritic data presented here shed additional light on mid-Holocene adaptive regimes in the Cis-Baikal by drawing attention to the likelihood of high variability employed by both the pre- and post-hiatus occupants of the region.

Despite the considerable etiological and symptomatic variation associated with the pathological conditions discussed here, substantial similarities in community health – and therefore, adaptive effectiveness – were observed across the Cis-Baikal. Comparisons of skeletal pathological categories between each of the five cemetery populations indicate that levels of traumatic injury, metabolic disturbance, congenital

anomaly, neoplasia, and infection all remained consistently low. Trauma and congenital defects were most frequently encountered, and although prevalence appeared to be higher at some sites than others, none of the perceived differences was statistically significant. Traumatic injury was more common among males than females, a probable indication of the formers' increased involvement in higher risk activities (e.g., large game hunting and travel over unfamiliar terrain), but congenital anomalies appear to have affected both sexes equally. Most cases of trauma and congenital anomaly were minor and thus compatible with life. However, the survival of a number of afflicted individuals who had undoubtedly suffered from some physical dysfunction, whether permanent or temporary, implies compassion and assistance by the able-bodied. All congenital defects were relatively minor and observed on post-pubescent individuals. While this may suggest disposal of infants and small children exhibiting severe malformations, it may also reflect the relative rarity of these more serious conditions in the Cis-Baikal. Not only did the occurrence of trauma and congenital anomalies remain consistent during the mid-Holocene period, but associated behaviors and responses also appear to have been similar.

Neoplastic prevalence was comparatively low in the Cis-Baikal and statistically similar between each of the five sites. No sex differences in affectation were evident, but the condition appeared to be more common among individuals of advanced age. Half of documented cases (both malignant and two benign) were severe, having caused grave illness and/or certain death, and like trauma and congenital defects, their relatively advanced progression is suggestive of care and assistance by others. On the other hand, the small proportion of metastatic malignancies, which are typically the most common neoplastic conditions encountered on skeletal tissues (Dorfman and Czerniak 1998:1009, Greenspan and Remagen 1998:367), may reflect rapid tumor progression in the absence of medical treatment

and death prior to skeletal involvement. Shortened mid-Holocene life spans may also account for the few metastatic neoplasms observed in region, particularly considering their tendency to affect older individuals. The influence of neoplasia on both community health and behavior appears to have remained stable all through the mid-Holocene.

Metabolic disturbances and infections were also uncommon, especially when compared to other archaeological populations (Tables 4.7 and 4.9), exhibiting statistically similar prevalence across the Cis-Baikal. Again, there is no evidence to suggest differing male and female affectation rates, but young individuals, particularly children, may have had an increased risk of metabolic disturbance. Across the region, skeletal manifestations of metabolic disorders are limited, indicating that nutritional deficiencies were rare and subsistence regimes more than adequate for survival. Skeletal infections were also mild and infrequent in the Cis-Baikal, further supporting this contention. As with all pre-modern populations, acute infectious diseases were probably a leading cause of death throughout the mid-Holocene period (Aufderheide and Rodríguez-Martín 1998:117-118, Ortner 2003:180-181). However, the low prevalence of periostitis, a common indicator of overall infection rates and general health levels (Larsen 1997:84), suggests that all occupants of the region enjoyed good community health, a consequence of their effective adaptive strategies. Thus, the metabolic and infectious data presented here indicate that pre- and post-hiatus populations were equally successful in exploiting the region's rich resource base.

Between-site comparisons of dental pathological categories indicate that levels of periodontitis and antemortem tooth loss, caries, and periapical abscess were also statistically similar throughout the mid-Holocene. Periodontitis and subsequent tooth loss represent the vast majority of dental pathological conditions and were frequently encountered among observable (adult) individuals. While no sex differences in

occurrence were discerned, there was a clear propensity of increasing prevalence with advancing age at death. As is common among ancient populations, severe dental attrition – reflecting tough and abrasive diets – likely played a substantive role in the progression of periodontal disease all through the mid-Holocene Cis-Baikal (Aufderheide and Rodríguez-Martín 1998:401). Carious lesions and periapical abscesses were uncommon in the region and consistently so across sites. Males and females appear to have been equally susceptible to both conditions, but while caries did not seem to exhibit an age predilection, periapical abscess tended to affect older individuals. The possible etiological agents behind both caries and periapical abscess are various; however severe dental attrition may have played a considerable role in the development of the latter. Overall, the examination of dental pathology in the Cis-Baikal suggests general parallels between pre- and post-hiatus groups in terms of dietary composition and some activity patterns (e.g., food preparation and oral hygiene).

Not only has the investigation of paleopathology served as a valuable tool for the reconstruction of community health levels, but it has also provided a number of insights into various aspects of Cis-Baikal adaptation associated with health. While all inhabitants of the region – both pre- and post-hiatus – appear to have enjoyed high and statistically similar levels of health, they also exhibited comparable patterns of behavior affecting and in response to illness, injury, and disability. The paleopathological data do not seem to support previous assertions of distinct Kitoi and Serovo-Glaskovo subsistence regimes. Rather, they expand the current understanding of lifeways in the region and point to commonalities shared throughout the mid-Holocene, particularly regarding adaptive effectiveness.

The bioarchaeological examination of Cis-Baikal skeletal and dental remains has provided numerous behavioral and biological insights into Neolithic and early

Bronze Age lifeways in the region. While an emphasis on the nature of cultural change, specifically that of the fifth millennium hiatus, has revealed some discrepancies between pre-hiatus Kitoi and post-hiatus Serovo-Glaskovo populations, the general pattern to emerge has been one of similarity between these two groups. Differences were discerned in the levels of nonspecific physiological stress and specific activity patterns characterizing pre- and post-hiatus groups, likely reflecting the distinctive adaptive strategies employed by them and supported by archaeological and some stable isotope data (Katzenberg and Weber 1999, Weber 1995, Weber and Katzenberg 1998, Weber *et al.* 2002). Yet, however different these subsistence regimes, they do not appear to have resulted in markedly disparate levels of individual mobility or overall health, both of which remained relatively consistent throughout the mid-Holocene period. Moreover, virtually all health indicators (e.g., Tables 2.5, 4.7, and 4.9) reveal high levels of community health, and thus successful exploitation of the region's abundant resources, by both pre- and post-hiatus populations. In sum, the investigation of bioarchaeological data has indicated substantial continuity between Kitoi and Serovo-Glaskovo lifeways, particularly in the continued variability and relative effectiveness of their subsistence regimes.

5.2 Directions for Future Research

This study is the first comprehensive bioarchaeological investigation undertaken in the Cis-Baikal but represents only one of many extensive research projects (both ongoing and upcoming) that examine the region's rich skeletal and dental record. These range in focus from the more detailed reconstruction of activity, mobility, and mechanical stress patterns, to an in depth analysis of subadult diet, physiological stress, and biological relatedness. Despite their distinctive objectives and methodologies, all continuing and future research ultimately aims to increase the

current understanding of hunter-gatherer adaptation in the region, both throughout the mid-Holocene and on either side of the alleged fifth millennium hiatus. While many adaptive characteristics have been identified by the current work, numerous questions remain regarding the lifeways and biological history of the Cis-Baikal foragers.

Musculoskeletal stress markers – activity-induced changes to muscle and ligament attachment sites – are often used by anthropologists to reconstruct specific activities and mechanical stressors experienced by past populations (e.g., Churchill and Morris 1998, Hawkey 1998, 1988, Hawkey and Merbs 1995, Kennedy 1989, 1998, Peterson 1998, Robb 1998, Steen and Lane 1998, Stirland 1998, Weiss 2004, 2003, Wilczak 1998, Wilczak and Kennedy 1998). This upcoming project, which constitutes the author's postdoctoral research, will focus on the examination of musculoskeletal stress markers of the appendicular skeleton, as these are generally most representative of overall mobility and specific activities (Wilczak and Kennedy 1998). A total of 50 muscle and ligament attachment sites on 373 individuals representing six Cis-Baikal cemetery sites – the pre-hiatus Kitoi sites of Lokomotiv and Shamanka II, and the post-hiatus Serovo-Glaskovo sites of Ust'-Ida I Serovo, Ust'-Ida I Glaskovo, Khuzhir-Nuge XIV, and Kurma XI – will be documented. The objective is to investigate the extent and distribution of stress markers among and within these populations in order to more fully reconstruct mobility and activity in the mid-Holocene Cis-Baikal. This research will build on the osteoarthritic examination presented in Chapter Three and will seek to substantially expand on its conclusions. As such, it will allow for a more detailed understanding of lifeways in the region and provide an interpretive framework for the examination of hunter-gatherer adaptation as a whole

The more comprehensive reconstruction of activity, mobility, and mechanical stress patterns in the mid-Holocene Cis-Baikal is an investigative problem being

pursued by two additional research projects, one current and one upcoming. The first, conducted by Jay Stock (Cambridge University), focuses on long bone diaphyseal robusticity, a characteristic that has been associated with differences in body size, age, bilateral asymmetry in limb use, sex, and mobility and activity patterns (Bouxsein *et al.* 1994, Bridges 1989, Feik *et al.* 1996, 1997, Fresia *et al.* 1990, Lazenby 1990, Mays 1999, Ruff 1981, 1984, Ruff and Hayes 1982, Ruff *et al.* 1984, 1993, Trinkaus *et al.* 1994). Cross-sectional geometric properties are documented in order to discern differences and similarities between and within the Cis-Baikal skeletal series as well as to compare them with other foraging populations of the world. A second project, comprising an upcoming doctoral dissertation by Kathleen Faccia (University of Calgary), will examine the effects of mechanical stressors on Cis-Baikal vertebrae as reflected by internal trabecular architecture, trauma, and pathology. Both projects will provide valuable insights into mid-Holocene activity patterns and allow for a greater understanding of Cis-Baikal adaptive strategies.

A third research project, also constituting an upcoming doctoral dissertation by Andrea Waters Rist (University of Calgary), focuses predominately on infant feeding practices and associated physiological stress, but also on the biological relatedness of Cis-Baikal populations. Stable nitrogen isotope and dental pathology data will be used to reconstruct diet and stress, while dental morphology will shed light on biological distance. Not only does this research build on some of the conclusions presented in this volume, but it also complements ongoing genetic and bone chemistry work being conducted in the region. As such, it will considerably expand on current perceptions of lifeways and biological history in the mid-Holocene Cis-Baikal.

The upcoming and ongoing investigations of the Cis-Baikal skeletal and dental material will substantially enhance understanding of hunter-gatherer adaptation both in the region and around the world. However, a number of investigative avenues, which

would provide equally important contributions, have yet to be explored. For example, the examination of post-cranial morphological variation would provide additional insights into the biological relatedness of Cis-Baikal populations, complementing dental morphological and genetic analyses. A thorough assessment of the biological history of the region's mid-Holocene occupants is essential for the reconstruction of their lifeways and the circumstances surrounding the fifth millennium hiatus. In addition, the application of dental metric data to fluctuating dental asymmetry would contribute further to the perception of physiological stress throughout the mid-Holocene period. As such, it would have considerable implications for adaptive variability and effectiveness. Thus, while much research is currently being pursued in the Cis-Baikal, there remain numerous opportunities to learn from the region's rich osteological and odontological record.

5.3 Concluding Remarks

Bioarchaeology has become an indispensable tool in the study of human biological history and adaptation. The sensitivity of skeletal and dental tissues to environmental fluctuations allows bioarchaeologists to interpret many aspects of the human condition that cannot be discerned from other archaeological lines of inquiry (Larsen 1997:5). By considering whole populations, bioarchaeological methodology can aid in the reconstruction of a wide variety of adaptive responses and behaviors characterizing past foragers and non-foragers alike (e.g., diet, nutritional quality, nonspecific physiological stress, mobility levels, specific activity patterns, environmental and occupational hazards, exposure to pathogens and other disease processes, treatment of the infirmed, and interpersonal violence). In the current study, this population approach has been applied to the Cis-Baikal skeletal and dental record

in order to better understand not only the adaptive strategies employed by the region's mid-Holocene foragers but also the nature of cultural change.

The analyses of Cis-Baikal bioarchaeological data have revealed some significant differences between pre-hiatus Kitoi and post-hiatus Serovo-Glaskovo peoples and lent some support to previous assertions of their distinct subsistence regimes. For example, pre-hiatus individuals appear to have suffered from more physiological stress than their successors, likely reflecting seasonal or annual fluctuations in resource availability, and to have engaged in distinct activity patterns suggesting increased (and sexually disparate) logistical foraging in response to reduced residential mobility. However, remarkable parallels have been observed between these two groups in terms of overall mobility, general health status, and numerous behavioral characteristics, suggesting a general pattern of continuity throughout the mid-Holocene period. Skeletal and dental data indicate that all occupants of the Cis-Baikal employed variable but effective adaptive strategies: despite their documented differences, both pre- and post-hiatus peoples were more than successful in exploiting the region's rich aquatic and terrestrial resources. Bioarchaeological research in the Cis-Baikal will continue to expand on current perceptions of mid-Holocene hunter-gatherer lifeways and the circumstances surrounding the fifth millennium hiatus. As such, it will make valuable contributions to the understanding of human adaptation and cultural transformation, both within the region and throughout the world.