

ANTHROPOLOGY

Deflating the myth of isolated communities

Individual mobility at early settlements raises questions about tenets of culture history

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From its early foundations, two schools of thought have dominated academic anthropology's perspective on deep human history (1). Whereas cultural evolution has charted broad, step-like trajectories toward large human aggregations, culture history subdivides cultural traditions in space and time. Guided by these perspectives, generations of archaeologists have pegged the transition from mobile foraging to permanent villages as a transformational shift in the human past. But new findings, including the deft integration of multiple lines of evidence by Mittnik *et al.* (2) on page 731 of this issue, raise questions about the categorical juxtaposition of mobility and sedentism.

More than a century of research has established that mobile foragers characteristically live at low demographic densities and

have relatively fluid, wide-ranging social affiliations, whereas decreased degrees of residential mobility correlate with an elaboration of material culture. Reliant on a small number of excavated "type sites" per region and guided by principles from culture history, researchers used this elaboration to define discrete style zones and local traditions, which in turn were equated with specific peoples and cultural groups. As such, patterns of material culture were implicitly wedded to biology, contrasting sedentary groups with their mobile predecessors.

Despite Boas's (3) early warning that biology, language, and culture rarely overlap neatly, the frequent conflation of biology and culture remains central to the use of culture-historical units in archaeology. Yet, this underlying premise has not been validated empirically. Subsequent to Boas's admonition, other investigators (4) cogently argued that human communities rarely are bounded or closed. Furthermore, carefully documented studies of forager mobility distinguished between the relative mobility of communities and the movement patterns

of their individual residents (5). Declines in community mobility do not necessarily coincide with the absence of individual migration, regular gene flow, or community boundedness (6). Indeed, mobility and migration now are recognized as integral to the human historical experience, even after the advent of sedentism. Migration is no longer used as reflexively to explain changes in culture-historical sequences. Current perspectives on human mobility see it as recurrent, multidirectional, and generally involving small numbers of people (7, 8).

The investigation by Mittnik *et al.* of an early sedentary community in Germany during the European Neolithic and Bronze Age affirms the simultaneity of decreasing community mobility and complex webs of long-distance individual movement. Their thoughtful research design integrates isotopic, genomic, and archaeological data that link individuals to specific residences. They found that biologically diverse females relocated to the community from multiple, often distant locales. Although men also were mobile (9), the movement of women appears

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to be a key mechanism for promoting widespread interaction in central Europe during this era (10, 11). Furthermore, human migration was not the sole basis for macroscale connectivity because many of the status-related items recovered at the settlement were not crafted locally.

In other global regions, the empirical foundations for examining the dawn of sedentism are narrower in scope. However, an expanding archaeological record and improved techniques for measuring chronology have similarly revealed individual mobility, social network permeability, and broad spatial connectivities (4, 12). Because the socioeconomic mechanisms and historical circumstances vary, it is reasonable to conclude that no uniform, categorical transformation from mobility to sedentism exists worldwide. Instead, increasing residential and community stability often coincided with individual movement, sometimes over extended distances. The resulting gene flow impedes a lasting correspondence between cultural identities and shared genetic ancestry across deep time.

If cultural and biological heritage are not tightly shared by long-enduring units and if human aggregations and social affiliations are open enough to allow for gene flow, then researchers must reevaluate the supposition that preindustrial communities were autonomous, self-sufficient, and isolated. Likewise, scientists can no longer rely

on key tenets of culture-historical framing, which define long-lived, cultural-biological units as purely sedentary and directly traceable across millennia to contemporary populations. If the aim of historical social science is to decipher the human past, then starting assumptions must be modified as new information becomes available, and extant theories built on inaccurate foundations must be reconceived. Rather than relying on invalid assumptions to define and label discrete social groups, archaeologists should begin by documenting material cultural and bioarchaeological variation across space and time. Questions about the movement of and interactions among past peoples should be conceptualized in terms of networks and shifting aggregations, rather than as closed homogeneous groups.

Archaeologists should question the categorical juxtaposition of mobility and sedentism as applied to humanity's past and recognize movement and cultural borrowing as consistent features of human history, even after the establishment of more permanent communities. This is not meant to diminish the importance of decreased residential and settlement mobility as a key hinge point in sequences of regional change. It is well established that increasingly sedentary ways of life foster population growth, larger community size (13), innovation (14), and cooperative relationships (15). However, the specific pathways

and institutional arrangements (household and settlement composition, modes of interaction, and social formations) appear to be markedly diverse from region to region. Applying Mittnik *et al.*'s multidisciplinary toolkit to more cases will enable researchers to unravel the complex and intersecting historical paths by which our species arrived at its diverse, yet shared, present. ■

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