

# Time Geography: a reanalysis of a spatial shift on the Great Hungarian Plain

Katie Grow

*In the 21st Century, Academic Archaeology has been characterized by two trends—an appreciation for scholarship outside the Anglo-American world, and continued utilization of interdisciplinary methods and theories. In the 1970s, Swedish Geographer Torsten Hägerstrand introduced a conceptual framework that emphasized an individual's existence as rooted in both time and space. Since then, Time Geography has allowed researchers to analyze and operationalize a number of currently favorable theoretical constructs, including agency, biography, and human relationships with space. Through a reanalysis of data collected on the Great Hungarian Plain, I intend to demonstrate the usefulness of Time Geography in examining a significant shift from the Late Neolithic to the Early Copper Age, highlighting a changing relationship between prehistoric human groups and their dynamic landscape.*

It seems quite obvious to say that all humans exist in both space and time. Because of this truth, it is not difficult to consider that as individuals we are bound by, and in some respects defined by, our physical existence in the space and time in which we live. In the 1970s Swedish Geographer Torsten Hägerstrand introduced a new idea and methodology for conceptualizing this idea of human existence as rooted in both space and time. Hägerstrand's Time Geography has highlighted a number of important concepts that were eventually noticed by archaeologists in the 1990s, when our field started to focus on concepts like agency and people's relationships with the landscape. By re-examining a spatial shift on the Great Hungarian Plain, I intend to prove that archaeological data can be viewed in a new light through this geographic method, allowing for the identification of patterns and consideration of new ideas about human interaction with the land.

In the 1960s Torsten Hägerstrand, a professor of Geography at the University of Lund in Sweden, became dissatisfied by the state of the Geography discipline. Appearing as just an endless collection of encyclopedic data, early 20th century Geography lacked defined perspective.<sup>1</sup> In an attempt to add depth to the discipline, Hägerstrand developed the concept of Time Geography, introducing the individual as a relevant actor, examining human paths travelled through space on a daily, weekly, or yearly time scale. Utilizing a conceptual tool referred to as a time-space prism, Hägerstrand introduced the idea of tracing different individuals' paths in diagrammatic form. The concept of the path indicates that the actions and events that make up the existence of an individual have both spatial and temporal qualities.<sup>2</sup> By tracing the course of a person through space and time, 'choreography' of individual existence is highlighted<sup>3</sup> and the biography of a person is seen as a continuous path

through time-space.<sup>4</sup> While this was an innovative introduction of humanist ideals into the field of Geography, it has equal value for archaeological questions and research. In the last couple of decades, landscape studies have grown in popularity in the archaeological discipline,<sup>5</sup> as we are learning that space and place, and human interaction with them, are anything but static concepts. Previously, landscape and space were portrayed only as a backdrop or stage on which human life played out. New research has revisited these concepts however; now examining them as more dynamic and interactive, both structuring and being structured by human actors. Time Geography allows us to conceptualize the interaction people would have had with their landscape in the past.

Important to this central goal of examining people's movements within their landscape is the idea that certain constraints exist on human paths. Some of these constraints are physical, including the limits to how far any individual can travel within a given time span; while others are socially based, authority and power relationships determining access or constraint on certain activities or admission to certain places.<sup>6</sup> In addition, an element of landscape perception should be added to these kinds of possible constraints. The way a group in modern times or prehistory may view their wider landscape or region might influence the extent of how far and where their paths might lead. When a region is viewed as hostile or dangerous, paths throughout the landscape might be significantly impacted. These constraints highlight the way people live as well as the way they view the world around them. Unquestionably, attempting these kinds of examinations in past human groups could highlight a number of interesting ideas about dynamic human groups.

While many time-space prisms trace individuals, highlighting individual paths

and projects, they can also be used to trace common or theoretical paths of a community. By concentrating on a group level, it may appear that all individuals are being portrayed as equal, without gender, specific identity, or social class. Other work in Time Geography has drawn specifically on definite identities, charting their paths and projects through space and time to reveal something about gendered, social, and individual existences. The intent of utilizing a group-level time-space prism however, is to consider larger, more expansive changes, occurring at the societal level and most likely impacting all members of the group regardless of gender, age, and class. The paths that have been charted are theoretical, based on archaeological evidence and data indicating the locations of certain activities. While the discovery of exact paths in specific space and time is not a feasible goal, the reconstruction of typical paths is possible<sup>7</sup> and the objective of these kinds of analyses. Finally, the charting and examination of past human paths is in no way an attempt to claim predictability. The activities and experiences of a specific individual are inevitably impacted by a number of factors that would be impossible to uncover archaeologically. By examining theoretical paths based on archaeological evidence of activity and where it occurred in relationship to the landscape, we can still make interesting observations and insights, without claiming the ability to recreate entire biographies of past individuals and groups.

Utilizing data published by Andrew Sherratt in the 1980s and William Parkinson in the 1990s and 2000s,<sup>8</sup> a re-evaluation of a shift apparent from the Late Neolithic to the Early Copper Age on the Great Hungarian Plain is conducted. Operating concepts and tools from Time Geography, the course of typical yearly paths of groups in both of these time periods displays a drastic change in landscape interaction and possibly world-views. By comparing time-

space prisms of two adjacent periods, a new kind of visual knowledge of this shift will add a way to conceptualize the changes in a broader, societal format. Once mapped, a number of observations can be made upon viewing the comparison of the two time-space prisms.

#### The Cultural Context

While many of the specifics are contested amongst archaeologists of the region, there are some accepted descriptions of the different cultures that inhabited the Great Hungarian Plain in different periods. This analysis is mainly concerned with the cultures of the Late Neolithic and the Early Copper Age. A brief description of these culture complexes and their predecessors will help set the stage for an understanding within the framework of these groups.

The Neolithic was a time period that saw increasing differentiation between groups on the Great Hungarian Plain. Regional variation, first identified in ceramic styles and later supported by settlement pattern distinction, increased from the early to the later stages of the Neolithic.<sup>9</sup> The cultures spanning the Plain in the Early Neolithic are referred to as Körös, Körös-Cris, or Körös-Starčevo-Cris depending on exclusion or inclusion of Eastern Romanian and Northern Yugoslavian area variants (respectively). The groups continue to diversify and become more isolated aggregates into the Middle Neolithic. Cultures of this time period are termed Alföld Linear Pottery Culture in English. The height of uniquely defined culture groups as territorially distinct and characteristically variant occurs in the Late Neolithic era on the Plain. Three very distinct cultures prevailed, labeled the Tisza-Herpály-Csöszhalom complex, combinative of the individual names of all three culture designations.<sup>10</sup> Although the distinctness of the three cultures has been debated, generally speaking this

complex is accepted as describing the state of settlement and people on the Great Hungarian Plain at the end of the Neolithic. A transitory period occurs between the Late Neolithic and Early Copper Age (often discussed as inhabited by a Proto-Tiszapolgár culture, with hesitation), after which a significant shift occurs. The Early Copper Age is distinctly different than the period preceding it. Most notably, the ECA was characterized by one, unified culture. Tiszapolgár is accepted as the culture existing throughout the entire Plain at the commencement of the Copper Age, the distinct and isolated cultures from the past no longer evident in the archaeological record.

Because of this distinct shift, the transition from the Late Neolithic to the Early Copper age is the subject of much interest. The archaeological evidence that indicates the existence of one unified culture as opposed to three distinct entities includes settlement patterns, settlement characteristics, social organization, mortuary activity, pottery styles, and economic indicators. These same elements that were used to distinguish between the social groups of the Late Neolithic and Early Copper Age help to formulate probable paths of individuals from both periods.

#### Archaeological Evidence Facilitating the Creation of Paths

Intensive surveys conducted on the Hungarian Plain since the 1980s<sup>11</sup> have been used to look at the transition from the Late Neolithic to the Early Copper Age on a regional level. These surveys show a drastic change in the way people settled on the landscape. The archaeological data indicates that the Late Neolithic was characterized by large nucleated sites isolated from other sites throughout the Plain. In contrast, the Early Copper Age displays a record of much smaller sites spread out evenly across the landscape, filling in the spaces that

were previously uninhabited.<sup>12</sup> The large Late Neolithic sites were primarily located on tells, and were utilized for a long time. These communities were often fortified with trenches, ditches or fences encircling the tell.<sup>13</sup> Rigid boundaries kept people close to the tell, rarely moving out into the uninhabited land between supersites. Crops and even grazing was most likely done only in the near vicinity of each site, if not in empty areas directly inside of the tell.<sup>14</sup> The houses tended to be large, multi-roomed structures with internal sub-divisions. Hearths, ovens, and storage pits were found associated with individual housing units.<sup>15</sup> Ritual activity within domestic houses has been supported by evidence of clay alters and sacrificial pits in many Tisza and possibly Herpaly structures.<sup>16</sup> The three discrete cultures of this time period generally shared these Late Neolithic characteristics. In addition to settlement structure and character, mortuary practices that were distinctly Late Neolithic have been identified. Burials usually take place within the walls of the tell. Occasionally, graves have been uncovered outside of the settlement, but they are usually grouped nearby. The presence of grave goods is relatively scarce in burial contexts from all three cultures.<sup>17</sup> The overall picture of a Late Neolithic tell is one of isolation and protection. There is some evidence of trade but primarily with settlements of the same culture designation.<sup>18</sup> Despite some trade interaction, all other activities of the inhabitants, from economical to mortuary, seem to have occurred within the fortified structure or significantly close to its outer boundaries. Interaction would have been limited between the tells, even more so between different culture groups. Fortifications often display a need for protection from outside forces and the rest of the region, the evidence of fortification remnants at the tells helps define the way the Late Neolithic groups might have interacted with and perceived the greater region.

With the arrival of the Early Copper Age, the discrete cultures of the Tisza-Herpály-Csöszhalom complex transform into the homogeneous Tiszapolgár culture. The settlements contemporaneous with the ECA are located roughly within the same area that the Tisza, Herpály, and Csöszhalom communities were found in the Late Neolithic. Because of this, it is concluded that they are the descendants of the Late Neolithic groups, rather than a group of outsiders moving into the region.<sup>19</sup> These smaller settlements were not based around any kind of tell or supersite, and were much closer to each other, drastically increasing in numbers, and evenly dispersed on the landscape. Previously uninhabited parts of the region filled in with these smaller spread-out settlements. The large Late Neolithic tells had transformed into small hamlets. Within the hamlets, there is an absence of signs of fortification; the only trenches in the archaeological record are most likely too small for protection purposes.<sup>20</sup> Extensive trade is apparent from lithic raw materials and the existence of uniformed pottery styles and construction throughout the region.<sup>21</sup> Houses are small, one-roomed buildings with single family units seemingly the basic unit of the social structure. Unlike their Neolithic predecessors, ovens, hearths, and storage pits are not associated with specific housing structures,<sup>22</sup> indicating a shift in where cooking and subsistence activities were taking place. Evidence of economic activity within the small domestic structures may support a conclusion of differential craft production within the domestic sphere, and increased inter-dependency as a result of it.<sup>23</sup>

Strontium Isotope research, used to detect changes in diet and geographical location throughout an individual's lifetime, has been used to support the theories that the ECA was defined by mobility and fluidity. A marked difference in the range of strontium values from the Late Neolithic to the Early

Copper Age might also be evident of grazing activities extending farther out into the region during the ECA, increasing the range of geographic strontium signatures in hamlet populations.<sup>24</sup> The same might be true of crop areas, strontium entering human bones from both plant and animal food sources.

Mortuary practices have significantly changed in the Early Copper Age. Rather than burying the dead directly within the settlement or the near vicinity of it, cemeteries in this time period become larger designated areas placed in isolated locations on the landscape.<sup>25</sup> They are not found close to specific individual sites, indicating that they could have been utilized by more than one group in the area. The amount of grave goods increases significantly, all graves contain some burial items in direct contrast to burials in the Late Neolithic.<sup>26</sup> The overall picture that has developed from decades of archaeological research is one of increased mobility and fluidity across the region. The settlements were occupied for a much shorter duration, which also indicates eventual relocation and residential mobility.<sup>27</sup> Much additional work, including environmental studies (paleohydrology, soil studies, climate change), ceramic investigations, and ongoing archaeological excavation and survey are continuing to add to the picture of this incredible transition.<sup>28</sup>

#### Constructing Time-Space Prisms for the Late Neolithic and Early Copper Age

In order to create a time-space prism, hypothetical paths of humans in prehistory must be inferred from the archaeological evidence of the Late Neolithic and Early Copper Age. Since human movement in time and in space is required for the activities that are evident in the record to occur, these paths are not hard to support as probable. The paths that have been selected are those most supported by archaeological

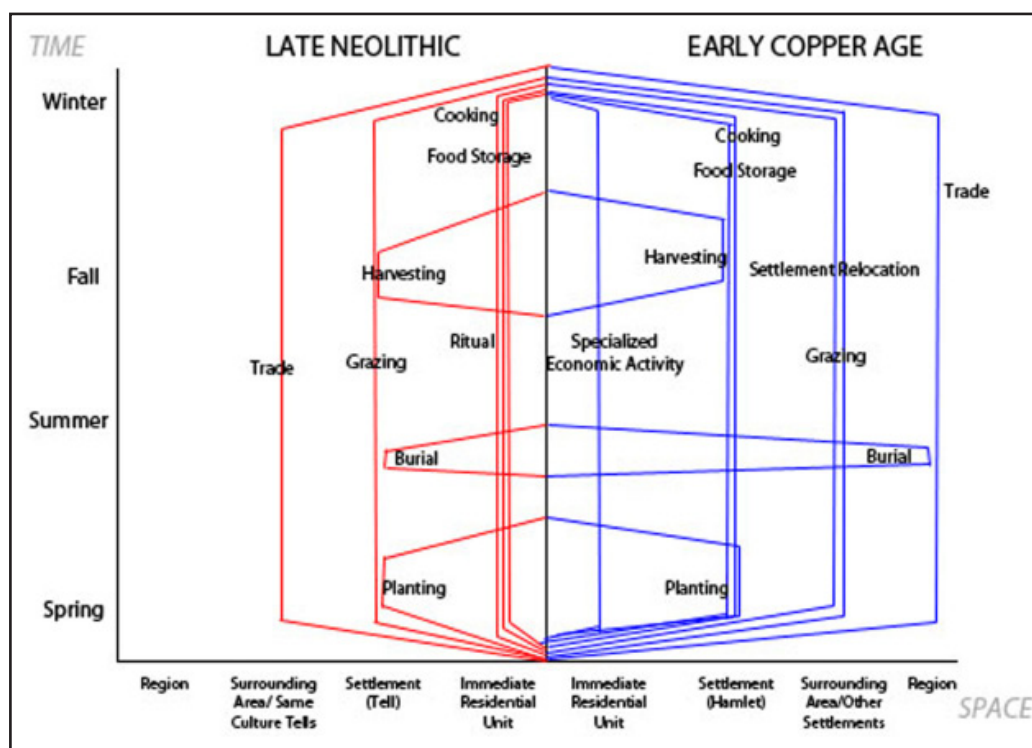


Figure 1: Time-space prisms of Great Hungarian Plain groups from the Late Neolithic and the Early Copper Age

evidence, reducing speculation and increasing the probability that these were in fact common movements in prehistory. The time scale being represented is yearly as opposed to daily or weekly aggregates of activity, charting movements and activities that required the formation of these paths based on seasons that they were most likely conducted during. The space scale extends from the immediate vicinity of individual residential units to the region as a whole. In the Late Neolithic, the immediate residential unit, the multi-roomed structures within the tell, are the extent to which individuals would travel for cooking, food storage, and ritual activity. Paths that extend further out into the settlement in general would be created for the purposes of planting, harvesting, grazing, and burial of community members. The only

hypothetical path that traverses a distance outside the settlement is for the purposes of trade, in which case a path might extend into contact with tells of the same culture group. Paths of the Late Neolithic groups would not for the most part extend into the greater region, where members of the other two cultures were living.

In contrast with those in the time-space prism of the Late Neolithic, Early Copper Age paths are distinctly different. Specialized economic activity is a path that is limited to the immediate residential unit, the small, one-roomed housing structures that made up the ECA hamlets. Paths that would have been taken for food storage and cooking activities, as well as general subsistence needs, would be extended into the settlement area rather than confined

to individual housing units. Grazing and crop related activities would extend paths of ECA inhabitants into the surrounding areas of the settlements, and most likely in contact with the paths of members of other nearby Tiszapolgár hamlets. In this prism, paths of individuals might extend even further into the wider region, where both trade and burial in isolated cemeteries utilized this wider range of the landscape. In addition, the short duration of occupation at the Tiszapolgár hamlets, in comparison to the long extended use of Late Neolithic tells, indicates that settlement relocation would have created paths into the area outside the settlements and possibly even further into the greater region.

Examining time-space prisms for both periods on the Great Hungarian Plain shows a significant change. The extent of paths that individuals would have traversed through space and time in the Late Neolithic drastically shifts in the Early Copper Age. People are moving around their landscape in entirely new ways, and the paths that are crossed most likely mark an entirely new level of interaction and connection. Using Hägerstrand's concept of Time Geography and time-space prisms to map hypothetical paths in prehistory, we can conceptualize this shift on the Great Hungarian Plain in a whole new light, taking into account peoples movements, experience and interaction with different levels of their landscape.

#### Concluding Observations

Looking at the time-space prism constructed, it is clear that there was a shift in the extension of paths and movements in space. Using this conceptual tool, we can consider a number of conclusions regarding landscape perception and interaction by Late Neolithic individuals and how these might have changed in the Early Copper Age. The Late Neolithic seems to have been characterized by a

bound landscape. There is little evidence that people moved beyond the boundaries of the settlement and across the more distant landscape. The Early Copper Age in comparison seems to have experienced a dissolving of these restrained boundaries, the landscape a free region in which to roam and move about. In the ECA, people were coming in contact with each other, interacting at the very least in trade and at cemeteries where they felt comfortable burying their deceased alongside members of other hamlet communities. Whole settlements had shorter occupation periods, occasionally moving to new locations increasing the contact they had with other groups. It seems that while in the Late Neolithic identity might have been associated more with the individual tell, in the Early Copper Age, all groups living on the Plain could have shared a similar identity. This would create an ease at which they would interact with each other willingly. Economic changes that lead to specialization and differentiation between the hamlets might have produced a system of stability, alliances, and exchange, which is often the result of, and maintained by, interdependent social units with different production activities.<sup>29</sup> Because of the potential of a shared identity, economic interdependence, and consistent contact with other settlement groups in the Early Copper Age, the landscape might have been viewed as open, unbounded, and limitless. People would have felt free to move around, unconstrained by the region as a whole. In stark comparison, in the Late Neolithic people might have viewed the greater landscape with apprehension and trepidation. Others on the Great Hungarian Plain would have been viewed as outsiders; no shared identity would have encouraged constant interaction and intermixing. While the lack of interaction might be claimed to come from the farther distance to travel between Late Neolithic tells than between ECA hamlets, this larger distance was traversed in the Early Copper Age for

cemetery use and trade. Consequently, it seems that isolation in the Late Neolithic was due to factors other than the logistics of long distance travel. Overall, people's relationship with the landscape and views of their place in the region would have changed drastically from the Late Neolithic to the Early Copper Age, evident in the change of paths that we can recreate from archaeological evidence.

By constructing time-space prisms and hypothetical paths for Late Neolithic and Early Copper Age occupants on the Great Hungarian Plain, the utility of Hägerstrand's Time Geography is exemplified for questions of archaeological interest. In the 21st century, the archaeological discipline is becoming increasing multi-disciplinary, often using methods first created in other fields. In the spirit of interdisciplinary cooperation, theoretical ideas that were established outside of archaeology can also contribute. The work of a Swedish Geographer in the 1970's has proven to be a useful tool in conceptualizing an archaeological phenomenon, and reminds us of the value of academic work that steps outside of our discipline and allows for a wider intellectual tradition.

\*Acknowledgements:

The author would like to thank Arthur Gottschalk, for answering many questions about computer programs that allowed for the construction of the time-space prism, and Dr. Tina Thurston for teaching and answering questions regarding Time Geography.

---

Endnotes:

- 1 Flowerdew 2004.
- 2 Pred 1984, 279.
- 3 Pred 1977, 208.
- 4 Pred 1984, 279.
- 5 For examples see David and Thomas, 2008.
- 6 Pred 1977, 208.
- 7 Thurston 1999, 667.
- 8 Szeghalom Survey data used by Sherratt (1982; 1983) and Parkinson (1999) and the Körös Regional Archaeological Project.
- 9 Sherratt 1982; Parkinson 1999.
- 10 Sherratt 1982; Parkinson 1999.
- 11 Szeghalom Survey data used by Sherratt (1982; 1983) and Parkinson (1999) and the Körös Regional Archaeological Project.
- 12 Sherratt 1982; 1983; Parkinson 1999.
- 13 Parkinson 2006, 40.
- 14 Sherratt 1983, 35.
- 15 Parkinson et.al. 2002-2004, 103.
- 16 Parkinson 2006, 40; Kalicz & Raczky 1987, 22.
- 17 Parkinson 1999, 109.
- 18 Parkinson 2006, 42.
- 19 Parkinson 1999, 126; Parkinson 2006, 42.
- 20 Parkinson 1999, 132.
- 21 Parkinson 2006, 42.
- 22 Parkinson et.al. 2002-2004, 103.
- 23 Parkinson et.al. 2002-2004, 104.
- 24 Giblin 2009, 496.
- 25 Sherratt 1983, 36; Parkinson et.al. 2002-2004, 101; Bognár-Kutzián 1963.
- 26 Parkinson 1999, 129.
- 27 Parkinson 2006, 53.
- 28 See Salisbury 2010; Parkinson 2006; Parkinson et. al. 2010
- 29 Johansen et.al. 2003, 52.



Works Cited:

- Bognár-Kutzián, I. 1963. *The Copper Age Cemetery of Tiszapolgár-Bastanya*. Budapest: Akadémiai Kiadó.
- David, B. and J. Thomas. 2008. *Handbook of Landscape Archaeology*. Walnut Creek: Left Coast Press.
- Flowerdew, R. 2004. "Torsten Hägerstrand." In *Key Thinkers on Space and Place*, edited by Phil Hubbard, Rob Kitchin, Gill Valentine. London: Sage Publications.
- Giblin, J.I. 2009. "Strontium Isotope Analysis of Neolithic and Copper Age Populations on the Great Hungarian Plain." *Journal of Archaeological Science* 36: 491-7.
- Johansen, K.L., S.T. Laursen, M. K. Holst. 2003. "Spatial Patterns of Social Organization in the Early Bronze Age of South Scandinavia." *Journal of Anthropological Archaeology* 23:22-55.
- Kalicz, N. and P. Raczky. 1987. "The Late Neolithic of the Tisza Region: a survey of recent archaeological research." In *The Late Neolithic of the Tisza Region*, edited by P. Raczky, 11-30. Budapest: Kossuth Press.
- Parkinson, W.A. 1999. *The Social Organization of Early Copper Age Tribes on the Great Hungarian Plain*. Ph.D. dissertation, Ann Arbor : University of Michigan.
- 2006. "Tribal boundaries: Stylistic variability and social boundary maintenance during the transition to the Copper Age on the Great Hungarian Plain." *Journal of Anthropological Archaeology* 25:33-58.
- Parkinson, W. A., R. Yerkes, A. Gyucha. 2002-2004. "The Transition from the Neolithic to the Copper Age: Excavations at Vésztő-Bikeri, Hungary, 2000-2002." *Journal of Field Archaeology* 29:101-18.
- Parkinson, W.A., E. Peacock, R.A. Palmer, Y.Xia, B.Carlock, A. Gyucha, R.W. Yerkes, M.L. Galaty. 2010. "Elemental Analysis of Ceramic Incrustation Indicates Long-term Cultural Continuity in the Prehistoric Carpathian Basin." *Archaeology, Ethnology, & Anthropology of Eurasia* 38(2): 64-70.
- Pred, A. 1977. "The Choreography of Existence: Comments on Hägerstrand's Time Geography and its Usefulness." *Economic Geography*, 208-19.
- 1984. "Place as Historically Contingent Process: Structuration and the Time-Geography of Becoming Place." *Annals of the Association of American Geographers* 72(2): 279-97.
- Salisbury, R. 2010. *Settlements, Sediments and Space: A Practice Approach to Community Organization in the Late Neolithic of the Great Hungarian Plain*. Ph.D. dissertation, University of Buffalo.
- Sherratt, A. 1982. "The Development of Neolithic and Copper Age Settlement in the Great Hungarian Plain Part I: The Regional Setting." *Oxford Journal of Archaeology* 1: 287-316.
- 1983. "The Development of Neolithic and Copper Age Settlement in the Great Hungarian Plain Part II: Site Survey and Settlement Dynamics." *Oxford Journal of Archaeology* 2(1): 13-42.
- Thurston, T. 1999. "The Knowable, the Doable, and the Undiscussed: tradition, submission, and the 'becoming' of rural landscapes in Denmark's Iron Age." *Antiquity* 73: 661-71.