

to follow without further reading. Their cause is not helped by the small scale and poor reproduction of the diagrams that illustrate the flow and map the interactions in their Neolithic social investment model.

Hodder points to what he considers to be the most important matter to emerge from the simulation: Shults and Wiseman report that, as the proportion of high intensity increases (to be understood as reliance on delayed-return strategies), at a certain point the social intensity variable (a quantitative proxy for the social aspects of the degree of entanglement present, including religious and ritual practices and behaviours), which has remained low, suddenly becomes unstable before stabilising at a high value. Hodder links this key change in social intensity to the rapid changes in the Çatalhöyük stratigraphy, which he and Harvey Whitehouse have argued marks the transition from an imagistic to a dogmatic mode of religiosity. This reviewer would need to hear a good deal more dialogue between Hodder and the modelling experts to be convinced. Indeed, some might suggest that there was a notable increase in the intensity of social interaction at the very beginning of the Neolithic.

It is regrettable that the quality of reproduction throughout of both line-drawings and half-tones is poor. The page size is not generous and the layout frequently reduces half-tone images to the size of postage stamps; this does no favours for dramatic monuments such as the T-shaped monoliths from Göbekli Tepe, or the superbly crafted chlorite vessels from Körük Tepe, and it renders invisible details in the excavation photographs on which authors' texts depend. These faults should not detract from the value of the chapters that document how increasing reliance on delayed-return strategies was attended by increasing density and permanence of settlement, and by increasing focus on 'history-making'.

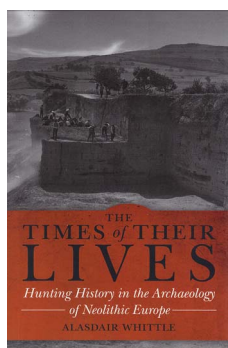
References

- HODDER, I. 2010. *Religion in the emergence of civilization: Çatalhöyük as a case study*. Cambridge & New York: Cambridge University Press.
<https://doi.org/10.1017/CBO9780511761416>
- 2014. *Religion at work in a Neolithic society: vital matters*. Cambridge & New York: Cambridge University Press.
- ROWAN, Y. 2016. Gods and scholars: archaeologies of religion in the Near East. *Antiquity* 90: 1387–89.
<https://doi.org/10.15184/aqy.2016.163>.

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ALASDAIR WHITTLE. *The times of their lives: hunting history in the archaeology of Neolithic Europe*. 2018. Oxford: Oxbow; 978-1-78570-668-4 £40.



In archaeology, there are books that, beyond the usual half-life of scientific publications, present excellent research and are therefore of lasting value. These include the reviewed volume, which places the results of Whittle's recent Neolithic dating project in a general context.

In the first chapter, the claim is formulated that archaeology can and must write 'history' in the sense of 'narratives', offering biographies of individuals, groups and sites. Whittle's goal is clearly formulated: instead of determining descriptive chronologies as the decisive objective, the reconstruction of real actions should be placed at the centre of the observation. In his view, the outcome of using Bayesian calibration is to make 'event history' a possible subject for investigation even for distant periods of time. In the second chapter, the author tries to integrate the 'life stories' gained in archaeology into a general historicity of non-written societies. Whittle recognises different temporal scales of history and the possibility, due to progress in dating, to consider them 'from within'. 'Deep history', as an interpretative linkage of archaeology, anthropology and history, is regarded as groundbreaking for prehistoric archaeology.

Chapter 3 considers historical and methodological aspects of the reconstruction of chronologies. Within the continental research tradition, 'event histories' in Whittle's sense have long been reconstructed for circum-alpine wetland settlements, ranging from the annual dating of events, houses and year-specific settlement growth to landscape histories. It is not surprising that dating within Neolithic research was already quite secure in regions where the quantity of recovered material allowed both typological studies and scientific dating approaches. Methods were

already developed in the 1980s for the application of seriations, especially correspondence analyses, to order ‘things’ and combine the results with absolute chronologies, e.g. by combining stratigraphical and radiometric data. Weninger established a form of Bayesian calibration in connection with his chronological studies on Troy (Weninger 1995). Whittle and his team now use Bayesian calibrations with a modelled date accuracy that has hardly existed before, but are building on a long research tradition.

The fact that Whittle’s approach is nothing methodologically ‘revolutionary’ does not diminish the importance of the now standardised application of Bayesian dating techniques. What is new is the rigidity with which only context-related, non-displaced samples, which also show no food-related reservoir effects, are used to reconstruct chronologies. In Chapter 4, Whittle presents the results of his case studies, in which he and his team were able to produce precise chronologies in order to write ‘narratives’ with their respective cooperation partners throughout Europe. The results are amazing. The Bayesian dating model of the Early and Middle Neolithic sequences in Alsace, for example, confirms the Linearbandkeramik fine chronology developed for west-Central Europe on the basis of tyochronological studies (Stehli 1994). Using a sophisticated household model in combination with correspondence analysis in a roughly specified radiocarbon frame, Stehli’s studies achieved a dating accuracy that is comparable with the Bayesian results.

The contrast with Neolithic Orkney—another core region of the project—becomes obvious. The small quantity of typologically significant archaeological remains reduces the resolution from which to ‘build’ archaeological models for a Bayesian calibration. Consequently, for the Orcadian Neolithic, site biographies could be reconstructed with high chronological precision, but (due to the lack of systematic and statistic-based typo-chronologies) these could not be extrapolated into wider narratives.

Whittle’s evaluation of individual sites through the reconstruction of taphonomic processes and the remodelling of pre-existing models is extremely important. The statistical evaluation of anthropological data and pit and house numbers results in the identification of settlement peaks, insights into the relationship between graves and houses, or even the duration of house occupation. Surprisingly, the results of Bayesian modelling confirm detailed results

of other projects. Whittle’s results are particularly significant in cases for which archaeological models based on statistical typological analyses were previously available (e.g. for Vinča or Linearbandkeramik ceramics).

In Chapter 5, the claim to write narratives is finally put to the test. Whittle is one of the few archaeologists capable of such a task because of his knowledge of both Anglophone and continental European approaches. For the first time, the new chronologies enable, among other things, a detailed comparison of the intensifying social differentiation processes in Neolithic southern Great Britain and central Germany. A similar social development towards stratified societies can also be postulated for Orkney. In contrast, there are no recognisable institutions in the Paris Basin or on the Iberian Peninsula that led (in principle) to a decline in ‘egalitarian’ societies. The compilation of complex arguments on social developments is admirable, but the narrative does not significantly differ from discourses before the application of Bayesian calibration.

Chapter 6 critically integrates the current state of knowledge on aDNA and isotope analyses into the study. Whittle discusses the Mesolithic element in the construction of new Early Neolithic identities, as well as new aspects of cultural history such as the parallel development of the Linearbandkeramik and Vinča. From a processual point of view, Whittle’s observations are of great importance. By comparing individual settlements, he is able to demonstrate a slow population growth as well as independent rapid developments in short timespans in different areas at different times. Such structural insights concerning global history on a local level are supplemented by individual insights into house and household developments in tells. The final chapter provides an outlook on future methodological developments. In addition to the progress to be expected in the natural sciences, the idea of further sharpening chronologies in Bayesian correspondence analyses, for example, is particularly recognisable as a connection between continental European scientific traditions and more Anglophone ideas. This is precisely the strength of this book. Whittle has written a compact narrative of the European Neolithic in a very innovative way. Nevertheless, the original claim to extend the new results of Bayesian calibration far beyond present knowledge is only partially fulfilled. The message—at least for this reviewer—is a quite sensible demand addressed to archaeologists and their dating approaches: where methodological preliminary studies on typology and architecture provide an outstanding basis for the

creation of the necessary archaeological models for Bayesian calibration, we are able to achieve extraordinary results at a variety of scales. Where appropriate studies are lacking, the results are reduced to local architectural histories. Nonetheless, they also deliver a great deal of significant information.

In sum, we should congratulate Whittle for this inspiring compilation of theoretical concepts, deep knowledge and a new dating approach through Neolithic time and space. Many more books of this calibre are necessary—not only for the study of prehistory, but also for archaeology in general.

References

- STEHLI, P. 1994. Chronologie der Bandkeramik im Merzbachtal, in J. Lüning & P. Stehli (ed.) *Die Bandkeramik im Merzbachtal auf der Aldenbovener Platte. Beiträge zur neolithischen Besiedlung der Aldenbovener Platte* 5: 79–191. Bonn: Habelt.
- WENINGER, B. 1995. Stratified ¹⁴C dates and ceramic chronologies: case studies for the Early Bronze Age at Troy (Turkey) and Ezero (Bulgaria). *Radiocarbon* 37: 443–55.
<https://doi.org/10.1017/S0033822200030927>

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JONATHAN KAPLAN & FEDERICO PAREDES UMAÑA. *Water, cacao, and the early Maya of Chocolá*. 2018. Gainesville: University Press of Florida; 978-0-8130-5674-6 \$125.



Jonathan Kaplan and Federico Paredes Umaña's *Water, cacao, and the early Maya of Chocolá* investigates water control and cacao production at Preclassic-period Chocolá in the upper Guatemala pied-

mont of the Southern Maya region. The area is known for fast-flowing rivers, rich soils and high rainfall, making it an ideal location for cacao production. This exceptional book combines archaeological, historic, iconographic and environmental data to present

the site as completely as possible. The authors suggest that water management and cacao were critical to the development of rulership in the Middle (900–400 BC) to Late (400 BC–AD 150) Preclassic.

Kaplan and Paredes Umaña begin with three chapters on the history of archaeology in the area, the modern and colonial history of the town, and the local environment. Cacao grows well in the area of Chocolá and consequently has historically been produced there. Chapter 4, 'Archaeological operations', summarises the survey and excavations at the site. The buildings appear oriented towards the cardinal directions, indicating coordination of construction. The site extends about 3000m north–south and slopes in the same direction, with the northern end at 900m asl and the southern end at about 700m asl. This characteristic is observed at other sites, where it facilitated drainage—for example, Nixtun-Ch'ich', a Lowland Maya site in Guatemala, is laid out west–east and consistently slopes in the same direction. While a north–south *axis urbis* is not evident in the site plan of Chocolá, some of the buildings certainly seem aligned. Such alignment parallels nearby Kaminaljuyu, Semetabaj and Takalik Abaj, as well as Preclassic sites in Chiapas (notably, Chiapa de Corzo, and Izapa) and Olmec sites such as La Venta. This layout is notably different from Lowland Maya sites. The plan of Chocolá does not exhibit bilateral symmetry.

Extensive excavations at Chocolá focused upon four buildings: structure 2, a possible administrative building; structure 15, a "spring house/temple" (p. 126); structure 5, which was possibly used to manage agriculture; structure 7, a possible palace; and structure 6, a shrine or temple. Of particular note are structures 7, 9 and 15, which included buried and open conduits to control the flow of spring water. These conduits appear to have extended across the site. Their composition is similar to that seen at the sites of Kaminaljuyu and Takalik Abaj, so the three sites may have shared information concerning construction techniques. Chocolá also has ceramics and iconography similar to these sites. Further water-management features may have been located near structure 5, which would have facilitated cacao farming near this building. As a Mayanist focusing on the Preclassic period, I appreciate the detail in the descriptions of the excavation, but this might be a little too much for non-Mesoamericanist archaeologists or researchers in other fields. I do not wish to nit-pick, but some of the figures could be improved—their lines are too fine, text is too small