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## Review Articles

### Tiwanaku, Urbanization, and the 'Practice' of Statecraft in the Andes

*Tiwanaku and its Hinterland: Archaeology and Paleoeecology of an Andean Civilization*, edited by Alan Kolata, 2003. (Smithsonian Series in Archaeological Inquiry.) Washington (DC): Smithsonian Institution Press; ISBN 1-58834-054-6 hardback, £84 & US\$95, xxxii + 507 pp.

Elizabeth DeMarrais

The ancient city of Tiwanaku encompasses monumental platform mounds and sunken courtyards, as well as elaborate carved stone monoliths. These monuments, together with the city's location at 3800 m near Lake Titicaca in the Bolivian altiplano, have long fascinated explorers and archaeologists. First interpreted as an empty pilgrimage site or cult centre (Squier 1877; Bennett 1934), Tiwanaku was eventually recognized as a dense metropolis (Parsons 1968; Ponce Sanginés 1969). Yet debates about this Middle Horizon (AD 500–1150) city continue; some believe that Tiwanaku is best understood as a node in extensive networks of long-distance exchange (Browman 1984; Nuñez & Dillehay 1979), while others posit a 'symbiosis' between the city and its agricultural hinterland (Albarracín-Jordan, Ch. 4), and still others envisage a powerful, centralized state engaged in the extraction of labour from a multiethnic populace (Kolata, Ch. 19).

Marshalling an impressive array of new information, this monograph presents evidence for a highly-structured, hierarchical polity organized around elite ceremony in the urban core, intensive exploitation of an agricultural heartland, and exchange with local elites in more distant territories. Kolata and many (although not all) of his associates conclude that Tiwanaku was the capital of a 'multiethnic, plurilinguistic' state (Kolata, Ch. 19), and given the data presented in this valuable monograph, their interpretation merits serious consideration, even

if they have not yet fully resolved the debates.

The second of two volumes generated by the Proyecto Wila Jawira, a regional study of agriculture, palaeoecology and archaeology, this monograph synthesizes the results of archaeological investigations in rural and urban settlements. The 19 chapters are organized into five sections, which address: 1) introduction and chronology; 2) regional settlement; 3) excavations; 4) specialized materials analyses; and 5) conclusions. A number of chapters report new data or synthesize results published elsewhere, providing an up-to-date, comprehensive overview of settlement patterns, architecture and settlement organization, and evidence for domestic and ceremonial activities. A set of 20 detailed topographic maps of the urban centre completes the volume.

Many individual contributors grapple, often very effectively, with competing models, and a real strength of the volume lies in the fact that not all contributors agree. Others explore particular theoretical approaches, as exemplified by Janusek (Ch. 10), who compares residential sectors within the city, arguing that conformity with state ideology (visible in the distribution of pottery styles and adherence to architectural canons) co-existed alongside material evidence for differences in social identity and economic specialization. Janusek, like many contributors, emphasizes a dynamic conception of the state. The Late Tiwanaku IV phase city (AD 600–800) consisted of bounded residential sectors inhabited by distinct social groups. After AD 800 (during the Tiwanaku V phase), élites remodelled the inner core of the city, building the Putuni complex (a palace) and consolidating control through the intensification of feasts and other commensal activities.

Overall, Janusek's data lead him to highlight 'heterarchical dimensions' of life in Tiwanaku. Using the concept of the *ayllu* (a kin-based Andean corporate group) he characterizes the city in terms of a horizontal, segmentary social order, with constituent groups differentiated along the lines of kinship, social identity, status, and specialization. While the documentation of variability in urban residential sectors provides valuable insights into the multiethnic character of the state (a point later picked up by

Kolata (Ch. 19)), I nevertheless feel that the notion of 'heterarchy' here promises more than it delivers. As elsewhere in the recent literature, the term is used to describe, rather than to explain, the structuring of social relations.

Despite my regard for the volume as a whole, there remain substantial gaps in our knowledge. Difficulties in understanding Tiwanaku arise not only from the scale and complexity of the archaeological remains, but also from the logistical challenges of fieldwork. This volume reports on a great deal of work, and great rigour is shown by many contributors in formulating their research questions. Yet some authors simply do not have data sets (or excavation coverage) sufficient to allow them to choose among alternative interpretations. These limitations are, of course, hardly unique to Tiwanaku archaeology, but several contributors raise intriguing questions that they are not yet able satisfactorily to answer.

On the other hand, some chapters are outstanding. In Chapter 16, Wright, Hastorf, and Lennstrom present a comparative analysis of plant remains from the full range of archaeological contexts. These authors examined densities and distributions of plant remains within the city to demonstrate that access to preferred plants (such as maize, used in ritual) was graded by status. This pattern is mirrored in the distribution of fine pottery (Couture & Sampeck (Ch. 8), Janusek (Ch. 9)) and in the layout of the city itself, in what Kolata (Ch. 7, pp. 178–9) terms 'the concentric cline of urban social status'. Analysis of crop ubiquities allows the authors further to evaluate models of economic intensification; they conclude that local agricultural production, rather than exchange, was the primary source of surpluses that funded state activities.

Other chapters contain exciting evidence that will be of great interest to Andean scholars. Lechtman (Ch. 17) describes a remarkable ternary bronze alloy (copper, arsenic, and nickel) prevalent among the metal objects recovered from Tiwanaku and surrounding sites, distinct from the binary alloy (copper and arsenic) more commonly found in the central Andean region. This evidence of distinctive bronze technologies at Tiwanaku provokes intriguing questions (as yet unanswerable) about whether bronze technologies originated in the southern Andes, rather than in the northern Andes as existing evidence suggests.

Individual chapters reporting on survey (Chs. 4–6) and excavation (Chs. 7–13) add to the ever-expanding picture of the city and its regional context through time. The surveys provide evidence for

changing densities and distributions of hinterland populations, while a chapter by Bermann (Ch. 13) documents changing domestic organization at a secondary centre, Lukurmata. The majority of excavation work has focused on the city itself, however, and here the contributors emphasize the social and ethnic diversity of resident populations, as well as change in household composition and domestic ritual through time. The results also describe a monumental core that expanded dramatically through time, as new complexes were built to house a wider range of status-related activities and overall population densities increased (Couture & Sampeck, Ch. 9). The concentration of elite lineages in core areas of the city suggests attempts by the elite to consolidate and to materialize their control through ritual and display and by means of elaborate residences and rich burials. Kolata and Janusek (Chs. 7 & 10) further demonstrate that the city grew systematically, rather than haphazardly through time.

There is a great deal more in this weighty volume. In the end, the task of summation falls to the project director, Alan Kolata, whose final chapter is entitled 'The social production of Tiwanaku'. Promising engagement with questions of ideology, cosmology, and political economy, the chapter endeavours to set Tiwanaku kingship not only in a broader Andean context, but also in a comparative, world archaeology perspective. I applaud this effort to develop a comparative framework, although it may not be popular with some Andeanists. The attempt succeeds, in my view, leaving us with a set of ideas with which to think further not only about Tiwanaku, but also about the nature of leadership and ideology, the dynamics of political economy in a multiethnic polity.

Kolata seeks '... a full appreciation of the city as the material expression and sociospatial vehicle of a value system' (p. 450). Advocating a dynamic 'practice' approach to the study of urban polities, he further argues that Tiwanaku's rural and urban zones must be seen as mutually interdependent. The political economy of Tiwanaku, he continues, articulated local production-centred economic activities (intensification of raised field agriculture through extraction of tribute in labour) with exchange-oriented activities (trade with distant elites for non-local crops and other commodities).

For Kolata, the state's functioning depended upon the structuring of labour relationships; at their centre rested a typically Andean form of kingship, whose key elements included

the primacy of sociability and acts of social ex-

change ... liturgical aspects of royal legitimacy and practice; and ... the sense of immanence between quotidian and spiritual worlds inherent in the Andean political theology of kingship (p. 470).

From this perspective, the urban core, with its impressive plazas, sunken courtyards, and platform mounds, was a social arena, a series of structured settings for rituals and festivals (public and private) that materialized social relations, reinforced status differences and legitimated the privileged position of the noble lineages and the king.

The ideology reinforced hierarchy as well as social inclusiveness in a multi-ethnic state incorporating three principal ethnic groups: the Pukina (agriculturalists), the Uru (fishers and foragers), and the Aymara (agro-pastoralists). Kolata suggests that the state extracted labour from a wide region, incorporating subject groups into a hegemonic system based primarily upon tribute in labour, analogous to the *mit'a* system of the Inkas. Analogies with the Inka must be made cautiously, and we still need, I think, to learn more about Tiwanaku through the direct study of its archaeology.

Upon reaching the end of this volume, however, I found Kolata's synthesis theoretically engaging, interesting, and convincing. There remains much to be learned about this extraordinary city, its relations with its hinterland, and its place among Andean states, but this book makes a substantial contribution to the ongoing debate and should find a place on the shelf of every serious scholar interested in early state dynamics.

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## Ancient Water Management

*The Flow of Power: Ancient Water Systems and Landscapes*, by Vernon Scarborough, 2003. Santa Fe (NM): SAR Press; ISBN 1-930618-32-8 paperback, £27.95 & US\$27.95, xvii + 204 pp., 92 ills.

Brian Fagan

Whenever a group of futurologists assembles, they almost invariably predict major water wars in the twenty-first and twenty-second centuries AD. Judging from Iraq and Syria's reactions to Turkey's Euphrates Dam, their prediction in a broad sense is a no-brainer. The environmental damage from modern-day water control is incalculable. An enormous scale of water-management projects in the American West has devastated natural watersheds and reduced rivers like the Colorado to a mere trickle of their former selves. All this management, and that epitomized by China's Three Gorges Dam on the Yangtze River, reflects highly-centralized control of water supplies by the state. Large hydroelectric dam schemes do indeed provide power and tame wild rivers, but they have serious social and economic consequences as well, whatever their political prestige. Egypt's Aswan Dam is a case in point. This enormous artificial barrier traps precious Ethiopian silt brought down each year by the Nile. Fields downstream are unfertilized; the Nile Delta is eroding in the face of now-unchecked assault from Mediterranean currents. The fertile silt that accumulates above the dam cannot be dredged and reduces the level of Lake Nasser every year.

Anthropologists and archaeologists have long been aware of the central role that water management played in the development of early civilization. Karl Wittfogel's theories of irrigation and 'Oriental Despotism' enjoyed wide popularity in the

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1950s. Even today, they haunt the literature on ancient water control, despite a generation or more of new fieldwork. *The Flow of Power* surveys much of this work and takes a dispassionate look at water management in ancient times in as much a political and social context as an economic one. The author, Vernon Scarborough, has made important contributions to the study of Maya hydrology. He learned from this research that the key to understanding water management lies in the interplay between cultural and physical environments, in equitable sharing of water sanctioned by formality and the law. As he points out, the more flexible and encompassing the rules of access and usage, the more resilient a water-management system becomes. The best systems survive because they are capable of adapting to changing circumstances, whether social, political, or environmental.

Scarborough approaches ancient water management through ethnographic and historical records, as well as from archaeological perspectives. He uses six case studies to show how the realities of water management affected social structure and organization. By the same token, feedback from a highly organized environment transformed by farmers and water managers affected decisions made by societies as they became more complex. In selecting his six examples, Scarborough looked for fundamental, underlying economic relationships that react in predictable ways when stimulated by similar environmental and cultural conditions. At the same time, he searched for divergent cultural paths, attributable to the complexity of environmental and other variables and to the complex histories that formed part of the tapestry of society. The result is a valuable comparative study of a subject that is only now moving out from under Wittfogel's long shadow.

The first six chapters build an anthropological framework for water management. After a general introduction, Scarborough discusses what he calls the 'organizing concepts of water work', for he assumes that water defines the process by which land and history are transformed. He espouses a temporal approach that involves two potential paths. An accretional approach of slow, stable development of an agrarian resource involves steady improvement of water sources and productivity. Such lower risk systems involve complex interdependencies between people and their environments, and heterarchical organization. An expansionist approach is more risky, involving innovative technology, new crops, and more efficient distribution of harvests. Such rapid

agrarian growth usually accompanies major population increases, which can place society at risk of overwhelming the resource base, and going into decline, even collapsing. Such exploitative groups depend on hierarchical organization. These two approaches are the poles on a continuum of water management. Scarborough distinguishes between three cultural distinct economic orientations that affect water-management strategy.

'Labourtasking' societies, usually associated with accretional management, and many of them in East Asia, assign specific tasks to kin-group members, creating a very differentiated, skilled work force. Such societies develop when land is abundant, and no labour-saving devices are used. 'Technotasking' is characteristic of European and other expansionist societies that use innovative technologies to produce economies of scale in environments where land is abundant, but labour in short supply. Such societies experience considerable social unrest and are less sustainable. In 'multitasking' societies, people diversify tasks for survival, but in a less routine way, in circumstances where flexibility is essential and the outcome of different tasks is unpredictable. Groups living on the margins of dominant, technotasking societies often adopt this approach as they struggle to maintain a predictable food supply.

Scarborough points out that we now know that such systems are much more complex and textured than once assumed. He focuses on the classic case of Bali, whose water systems demonstrate a complex interdependency of social units across the landscape, with water management based on an intricate network of water temples. He shows how judicious deployment of a structurally flexible, somewhat limited labour pool allows the most effective use of unpredictable water supplies. Three chapters assess the physical and social aspects of water management. Chapter 4 discusses 'engineering the landscape' — the material remains of water management such as dams and canals left on the landscape by ancient water engineers. Scarborough ranges over a broad canvas of examples of terraces, dams, canals, and other water devices from all over the ancient world. He points out that the features often interconnect, for water management is a set of systems. From engineering we move on in Chapter 5 to non-agricultural aspects of the subject, among them transportation, defence, drainage, and flood control. The author rightly emphasizes the interdependence of farmers and nomads in the context of water supplies. Water affects everyone's lives on a daily basis, so it is hardly surprising that ritual is of central

importance in water management. Symbolic statements by élites about water were of fundamental importance in many societies, epitomized by the Oracle at Delphi, ornamental pools such as those at Anuradhapura in Sri Lanka, and Mesoamerican cities. In Chapter 6, Scarborough describes some of the economic outlays and political risks of water management. He points out that many states had cities that were not so densely populated as those of southern Mesopotamia. Rather, their populations flourished over wider areas, for the dispersal of reservoirs and other storage facilities across the landscape prevented population aggregation at any one urban node. This was in dramatic contrast to Mesopotamian, or even early Greek cities, where the city was river dependent and highly concentrated, often within fortified walls, to guard it against a hostile hinterland.

Scarborough takes his New World case studies from Mesoamerica and the Southwest. He describes the importance of ritual and water supplies among the Maya, where segmental and heterarchical organization connected rural nobility with major centres. Highland Mexico, epitomized by Teotihuacán, saw extensive state control of water with the well-known *chinampa* system, characteristic of environments where resources were concentrated and dense urbanization possible. In contrast, the Hohokam of the Southwest developed elaborate irrigation systems with strict regulation, but water supplies were too precarious to allow development of a more elaborate society.

In the Old World, Sinhala flourished at about the same time as Classic Maya civilization (from about AD 400 to 1000), in a broadly comparable environment. Scarborough describes the Sinhalese landscape as one of reservoirs, an adjustment to a long dry season. Colonization, perhaps from ultimately Harappan roots, produced an organizational approach more akin to that of desert environments, with allocation of water supplies by the state or at the village level a vital concern. Harappan civilization itself was based on a fertile, seasonally inundated setting. Over more than six centuries, the Harappans administered a highly-regulated water-management system, which had a remarkable concern for public health and an almost monastic concern with water control, without the conspicuous consumption characteristic of the élites of other states. Mycenaean Greece was short-lived, highly competitive, and rent by constant war. The major centres were fortified citadels that depended on springs located on fault lines. Scarborough argues that the

earthquakes that afflicted the region around 1200 BC may have disrupted these water supplies and caused the collapse of a society based on fortified settlements.

*The Flow of Power* offers a comparative perspective on ancient water management that makes an important distinction between technotasking societies with their cities and distinct hinterlands, and labourtasking economies, where there was less apparent division between the urban and the rural. In this important book, Scarborough moves us away from traditional views of water management that revolve around highly centralized water-control systems into a far more nuanced ancient world, where water, resource use, and power fit together seamlessly in many different social and political contexts. Not only archaeologists, but futurists and everyone in the water-management world, should heed this thoughtful analysis.

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### New Research on the Mesolithic Period in Greece

*The Greek Mesolithic: Problems and Perspectives*, edited by Nena Galanidou & Catherine Perlès, 2003. (British School at Athens Studies 10.) London: British School at Athens; ISBN 0-904887-43-X hardback, £39 & US\$70, 224 pp., 67 figs., 68 tables.

#### Curtis Runnels

This is the first book devoted to the Greek Mesolithic and I recommend it highly for anyone interested in European prehistory. Previous reviews of Greek prehistory (e.g. Runnels 1995) have highlighted the lack of data for this period, and the new and important information presented here helps to fill the void. Although the papers are rich in data, theoretical issues are also given considerable play. One of these issues is the relationship between the Palaeolithic and the Mesolithic. Is the Mesolithic the continua-

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tion of Pleistocene foragers into the Holocene, or did Mesolithic people arrive in Greece along the sea lanes from Anatolia? Another important topic is the transition from the Mesolithic to the Neolithic. What were the contributions, if any, of indigenous Mesolithic peoples to the Neolithic way of life?

This volume presents the papers from a 1999 conference at the University of Cambridge and has been brought out in a timely manner and with high production values. It has no competition because the Greek Mesolithic has been something of an archaeological misfit. Although the Mesolithic (a.k.a. Epipalaeolithic) from northwestern Europe to the Levant has been the focus of archaeological research, the early Holocene hunters and gatherers in Greece have remained comparatively unknown. The first site from this period was described only in the 1930s, and scientific excavations at other sites did not take place until the 1960s. By 1999, when this conference took place, hardly a dozen sites were known in the entire country. This book represents a growing interest in this field. Indeed, fieldwork continues today and new sites have been found since this book went to press. A survey south of Nauplion in the Argolid directed by myself and Eleni Panagopoulou in 2003 used a new research model to predict site locations and identified more than a dozen new Mesolithic sites, and Adamantios Sampson and his colleagues have excavated an important Mesolithic settlement at Maroulas on the island of Kythnos which has circular buildings, burials, and a rich inventory of artefacts and ecofacts (Sampson *et al.* 2002).

After a short foreword by Colin Renfrew and an introduction by the editors, there are 16 chapters by 21 contributors. The contributors cover many topics that can only be summarized with difficulty. The first contribution, by Sytze Bottema, summarizes the evidence for vegetation history in the early Holocene, noting that the Mesolithic began only after the Holocene was already well underway. Forests had already replaced the open steppe vegetation, although open oak woodlands were found at lower elevations before the first Mesolithic peoples arrived on the scene. In the next chapter, Yorgos Facorellis provides an invaluable table of calibrated radiocarbon dates for the Mesolithic. The dates have a wide spread, but fall mostly within the range of 8500 to 10,500 cal BP, with the majority more closely bracketed between 9000 and 10,500 cal BP.

After these preliminary chapters, other contributions discuss the sequences of the principal excavated Mesolithic sites: Franchthi Cave, Sidari (an open-air site), Zaimis and Ulbrich Caves, Klisoura

Cave 1, the Cave of Cyclope, and Theopetra Cave. William Farrand reviews the Mesolithic stratigraphy for Franchthi, the only site yet published with a sequence of cultural components from the Palaeolithic through the Mesolithic to the Neolithic. He concludes that the Mesolithic is marked by a depositional hiatus at both the beginning and end of the period. Catherine Perlès reviews the Franchthi data, which point to the existence of a permanent or nearly permanent group of foragers exploiting red deer, boar, and wild plants and a wide variety of marine resources including pelagic fish (although the extent of tunny fishing is questionable). These foragers were clearly seafarers, as proved by the fish remains, andesite from the Saronic Gulf, and obsidian imported from Melos. Perlès notes that there is little evidence of cultural continuity from the Palaeolithic to the Mesolithic, at least to judge from the lithic evidence, a finding that may suggest a period of abandonment of the cave at the end of the Pleistocene. Although she detects continuity in the lithics from the Mesolithic to the Initial Neolithic, a sharp cultural break accompanies the appearance of the Early Neolithic. Perlès interprets this as the arrival of immigrants at the site which resulted in the displacement or absorption of any indigenous population element.

August Sordinas summarizes his excavation of a shell midden at Sidari on the north coast of Corfu in the 1960s. The non-geometric microlithic assemblage is in his view an archaeological culture spread by seafarers up and down the coast and islands of the Adriatic. Adalbert Markovits excavated microlithic assemblages at two caves, Zaimis and Ulbrich (both now lost), in the 1920s. Nena Galanidou reexamines the unpublished collections from these two sites, which have been in storage for 70 years in an Athens museum. The Zaimis assemblage turns out to belong to a late phase of the Upper Palaeolithic (with the possibility of contamination from later levels at the sites). Galanidou concludes that there is not enough stratigraphic or contextual information to date the assemblage from Ulbrich layer III, although it has been assigned by some to the Mesolithic. It still looks Mesolithic to me, and some illustrations of these lithics would have been of help. It is imperative that these assemblages be published in detail.

Excavation reports form the bulk of the remaining chapters. Margarita Koumouzelis and her colleagues excavated a sequence of Middle and Upper Palaeolithic layers, and after a hiatus, a Mesolithic component in Klisoura Cave 1 in the Argolid. The

Mesolithic layers contain a microlithic assemblage and the remains of red deer, bustard, partridge, and land snails. It is perhaps not out of place to note that Klisoura is sometimes described in this volume as an 'inland' site. Klisoura Cave 1, however, is one of two Mesolithic sites in shallow rockshelters in a defile that connects the Berbati-Limnes drainages with the Argive plain. Both sites are within view of the sea, no more than 16 km away in the early Holocene. Lakes and extensive wetlands in the Argive plain were part of the catchment area for these sites, and it is probable that aquatic resources including marine resources were of economic importance for these sites. By contrast, the higher elevations of the interior in the Berbati-Limnes valleys were surveyed by a team from the Swedish Institute and no Mesolithic sites were found there (Runnels 1996).

An altogether typical example of a coastal Mesolithic site is the Cave of Cyclope on the island of Youra in the northern Sporades. Described here by Adamantios Sampson and his colleagues, Cyclope provides a picture of early Holocene foragers similar to that obtained from Franchthi Cave. The Cyclope people hunted red deer, boar, and wild goats (introduced to the island by the Mesolithic people?). Fish hooks (described by Antikleia Moundrea-Agrafioti), and the bones of grouper, bream, scorpion fish, tuna, and mackerel (discussed by Judith Powell and Dimitra Mylona) are evidence, along with the imported obsidian, of the economic importance of the sea for this site.

By contrast, Theopetra Cave in western Thessaly is the only well-documented example of an inland site. Nina Kyparissi-Apostolika summarizes the evidence from the Mesolithic levels: a small number of lithics (as yet unpublished), a human burial, floral and faunal remains, and, rather surprisingly, potsherds. The latter are not illustrated, however, and no numbers are given, making it difficult to judge their significance. Despite the excavator's suggestion that these are precursors of the Neolithic ceramic tradition, experience with the problems involved in disentangling deposits in caves suggests that they could be intrusive from the overlying Neolithic strata. A chapter by Sally Newton on the Theopetra fauna documents 60 bones chiefly from red deer, boar, wild goat, and hare. Bird remains, including pigeon, support a picture of eclectic foraging. Sotiris Manolis and Helen Stravopodi provide a detailed analysis of the skeleton of a young adult female from Theopetra, which has similarities to the small sample of Mesolithic human remains from Franchthi and the Early Neolithic population at Nea

Nikomedea in western Macedonia.

The last chapter by Kostas Kotsakis reflects on the Mesolithic/Neolithic interface in Greece. Kotsakis challenges the use of demic diffusion to explain the origins of the Greek Neolithic. This model has gained support in recent years (Runnels 2003), but Kotsakis believes that an indigenous population made an active contribution to the process of 'neolithization'. Although he bases his arguments on the rather slender body of data from Theopetra Cave, he is probably right that the evidence for regional and temporal variation in the Mesolithic suggests a complicated process of 'neolithization' involving both contact with the outside world and the activities of a local population. The indigenous population in his view was probably not completely displaced by Neolithic immigrants, nor did they accept uncritically the new agricultural way of life brought by the Neolithic immigrants. As I understand it, this is also the approach taken by Catherine Perlès in her study of the Greek Early Neolithic (Perlès 2001, 38–51).

The contributions by the Theopetra team to this volume are used to support the hypothesis that 'Neolithic civilization evolved indigenously in Thessaly' (p. 196). In my opinion this conclusion is premature. The claim that Theopetra shows cultural continuity from the Upper Palaeolithic through the Mesolithic into the Neolithic is, for one thing, at odds with the evidence from Franchthi for stratigraphic breaks separating the Mesolithic from preceding and following cultural components. While regional differences are possible, and even to be expected, more study and full publication are necessary before conclusions can be reached.

The question of the transition from the Mesolithic to the Neolithic is an important one, with implications for the 'neolithization' of Southeast Europe. The hypothesis of demic diffusion to account for the beginnings of the Neolithic was first proposed in the nineteenth century. It assumes the immigration of farmers from Anatolia to Southeast Europe and was given new life and theoretical rigour by Albert Ammerman and L.L. Cavalli-Sforza in the 1970s and 1980s when they used a Wave of Advance model to describe the process in quantitative terms. This hypothesis was challenged, however, by Demetrios Theocharis, among others, who argued in the 1960s and 1970s that the crucial steps toward an agricultural economy in Greece were taken independently by an indigenous Mesolithic population. While Franchthi would appear to support the demic diffusion hypothesis, Theopetra supports the indigenist hypothesis. To add to the uncertainty, coastal Meso-

lithic sites such as Sidari and Franchthi have been used to suggest that the Mesolithic inhabitants of Greece themselves may not have been indigenous, but were immigrants from Anatolia or points farther east (van Andel & Runnels 1988; Runnels 1995). The evidence for this is sparse: the stratigraphic hiatus between the latest Upper Palaeolithic and Mesolithic components at Franchthi; the establishment of Mesolithic occupation on islands and mainland sites not inhabited in the Palaeolithic; and a dearth of sites in interior regions. Theopetra may be an exception to the last observation, but it should also be noted that surveys in Epirus, Macedonia, eastern Thessaly, Messenia, and the Argolid failed to identify sites more than a few kilometres from early Holocene shorelines. These same surveys found only a few very small sites, suggesting that Mesolithic populations were neither large nor widely spread. I myself have trouble believing that Mesolithic people were sufficiently numerous to have contributed in a major way to the Early Neolithic cultures that make their appearance soon after 9000 BP.

We are still at a very early stage in the study of the Greek Mesolithic, however, and it is understandable that this volume suggests more questions than answers. It will no doubt stimulate further research and debate. The authors have succeeded in summarizing what is known and indicating the directions new research should take. The questions raised are interesting and important, not only for Aegean prehistorians, but for all archaeologists. They are to be congratulated for a job well done.

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