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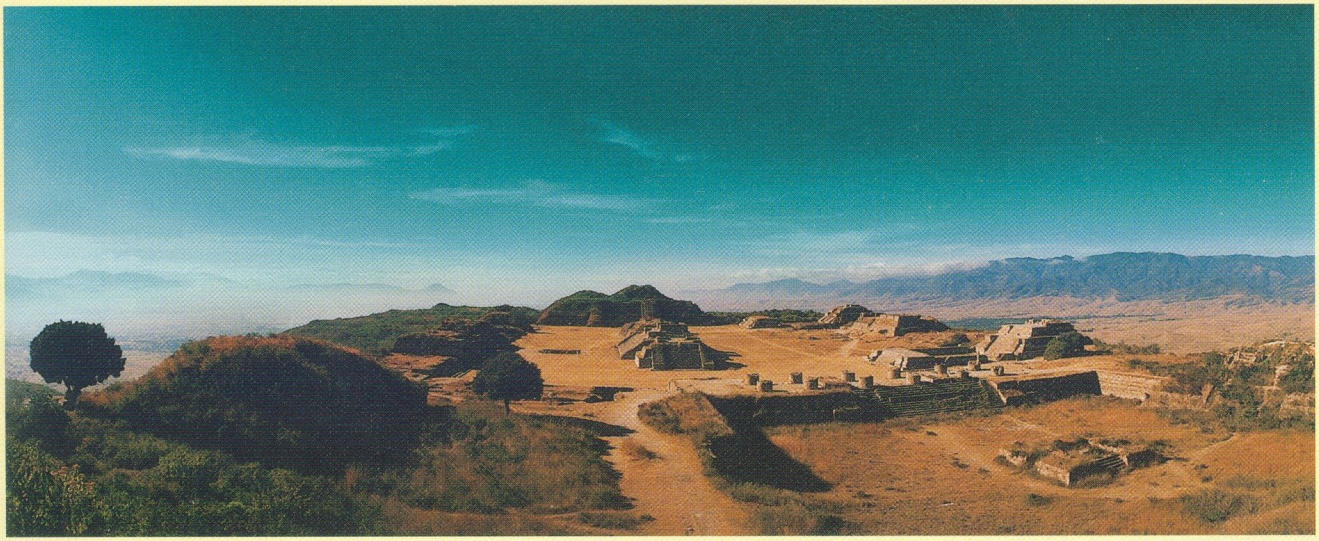

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Archaeology

Theories Methods and Practice

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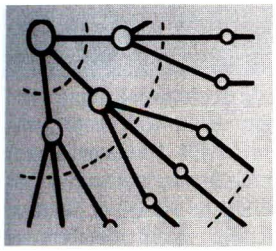

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How Were Societies Organized?
Social Archaeology

Some of the most interesting questions we can ask about early societies are social. They are about people and about relations between people, about the exercise of power and about the nature and scale of organization.

As is generally the case in archaeology, the data do not speak for themselves: we have to ask the right questions, and devise the means of answering them. There is a contrast here with cultural or social anthropology, where the observer can visit the living society and rapidly form conclusions about its social and power structures before moving on to other matters, such as the details of the kinship system or the minutiae of ritual behavior. The social archaeologist has to work systematically to gain even basic details, but the prize is a rich one: an understanding of the social organization not just of societies in the present or very recent past (like cultural anthropology) but of societies at many different points in time, with all the scope that that offers for studying change. Only the archaeologist can obtain that perspective, and hence seek some understanding of the processes of long-term change.

The first question to address is the size or *scale* of the society. The archaeologist will often be excavating a single site. But was that an independent political unit, like a Maya or Greek city-state, or a simpler unit, like the base camp of a hunter-gatherer group? Or was it, on the other hand, a small cog in a very big wheel, a subordinate settlement in some far-flung empire, like that of the Incas of Peru? Any site we consider will have its own hinterland, its own catchment area for the feeding of its population. But one of our interests is to go beyond that local area, and to understand how that site articulates with others. From the standpoint of the individual site – which is often a convenient perspective to adopt – that raises questions of *dominance*. Was the site politically independent, autonomous? Or, if it was part of a larger social system, did it take a dominant part (like the capital city of a kingdom) or a subordinate one?

If the scale of the society is a natural first question, the next is certainly its internal organization. What kind of society was it? Were the people forming it on a more-or-less equal social footing? Or were there instead prominent differences in status, rank, and prestige within the society – perhaps different social classes? And what of the professions: were there craft specialists? And if so, were they controlled within a centralized system, as in some of the palace economies of the Near East and Egypt? Or was this a freer economy, with a flourishing free exchange, where merchants could operate at will in their own interest?

These are just some of the questions we may ask. Provided we ask the right questions, the issues touched on above, and many more besides, can find some sort of answer from the archaeological record.

Different kinds of society need different kinds of question. For example, if we are dealing with a mobile group of hunter-gatherers, there is unlikely to be a complex centralized organization. And the techniques of investigation will need to vary radically with the nature of the evidence. One cannot tackle an early hunter-gatherer camp in Australia in the same way as the capital city of a province in China during the Shang Dynasty. Thus, the questions we put, and the methods for answering them, must be tailored to the sort of community we are dealing with. So it is all the more necessary to be clear at the outset about the general nature of that community, which is why the basic social questions are the first ones to ask.

Precisely because the scale of a society is crucial in determining the way many aspects of its social organization work in practice, this chapter deals first with smaller, simpler societies, building toward larger, more complex ones. Certain questions, such as settlement archaeology or the study of burials, are therefore discussed in the context of each type of society. This involves some repetition between sections but it allows us to deal more coherently with the different social aspects of societies organized on approximately the same scale.

ESTABLISHING THE NATURE AND SCALE OF THE SOCIETY

The first step in social archaeology is so obvious that it is often overlooked. It is to ask, what was the scale of the largest social unit, and what kind of society, in a very broad sense, was it?

The obvious is not always easy, and it is necessary to ask rather carefully what we mean by the "largest social unit," which we shall term the *polity*. This term does not in itself imply any particular scale or complexity of organization. It can apply as well to a city-state, a hunter-gatherer band, a farming village, or a great empire. A polity is a politically independent or autonomous social unit, which may in the case of a complex society, such as a state society, comprise many lesser components. Thus, in the modern world, the autonomous nation state may be subdivided into districts or counties, each one of which may contain many towns and villages. The state as a whole is thus the polity. At the other end of the scale, a small group of hunter-gatherers may make its own decisions and recognize no higher authority: that group also constitutes a polity.

Sometimes communities may join together to form some kind of federation, and we have to ask whether those communities are still autonomous polities, or whether the federation as a whole is now the effective decision-making organization. These points are not yet archaeological ones: however, they illustrate how important it is to be clear about what we wish to know about the past.

In terms of research in the field, the question is often best answered from a study of settlement: both in terms of the scale and nature of *individual sites* and in relationships between them, through the analysis of *settlement pattern*. But we should not forget that *written records*, where a society is literate and uses writing, *oral tradition*, and *ethnoarchaeology* – the study from an archaeological point of view of present-day societies – can be equally valuable in assessing the nature and scale of the society under review.

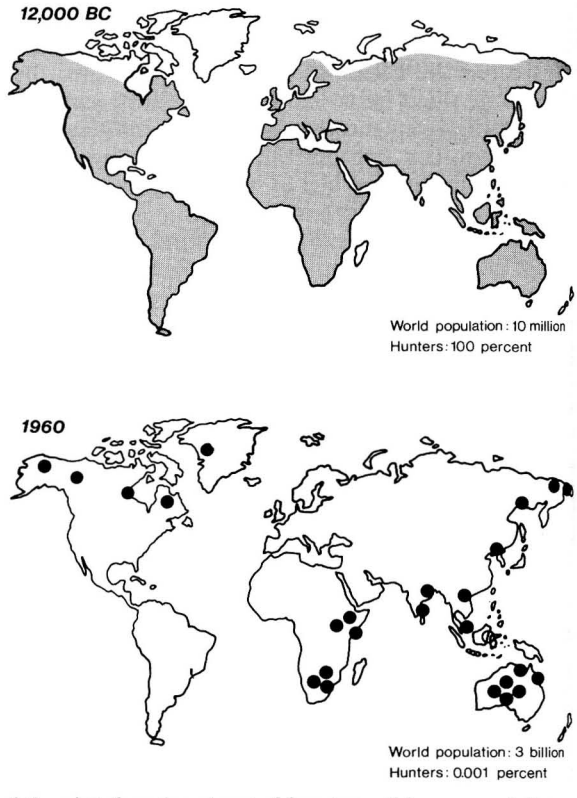
First, however, we need a frame of reference, a hypothetical classification of societies against which to test our ideas.

Classification of Societies

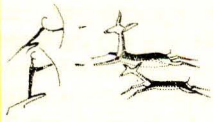
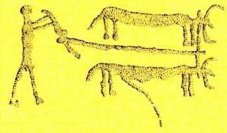
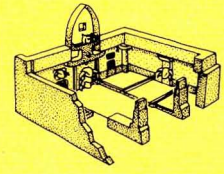
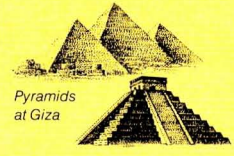
The American anthropologist Elman Service developed a four-fold classification of societies that many archaeologists have found useful. Associated with these societies are particular kinds of site and settlement pattern.

Bands. These are small-scale societies of hunters and gatherers, generally of fewer than 100 people, who move seasonally to exploit wild (undomesticated) food resources. Most surviving hunter-gatherer groups today are of this kind, such as the Hadza of Tanzania or the San of southern Africa. Band members are generally kinsfolk, related by descent or marriage. Bands lack formal leaders, so that there are no marked economic differences or disparities in status among their members.

Because bands are composed of mobile groups of hunter-gatherers, their sites consist mainly of seasonally occupied camps, and other smaller and more specialized sites. Among the latter are kill or butchery sites – locations where large mammals are killed and sometimes butchered – and work sites, where tools are made or other specific activities carried out. The base camp of such a group may give evidence of rather



(Above) Before the advent of farming, all human societies were hunter-gatherer bands. Today bands scarcely exist. (Right) Classification of societies.

	BAND	SEGMENTARY SOCIETY	CHIEFDOM	STATE
	 *San hunters, South Africa*	 *Man plowing, Valcamonica, N. Italy*	 *Horseman, Gundestrup caldron*	 *Terracotta army, tomb of first emperor of China*
TOTAL NUMBERS	Less than 100	Up to few 1,000	5,000–20,000+	Generally 20,000+
SOCIAL ORGANIZATION	Egalitarian Informal leadership	Segmentary society Pan-tribal associations Raids by small groups	Kinship-based ranking under hereditary leader High-ranking warriors	Class-based hierarchy under king or emperor Armies
ECONOMIC ORGANIZATION	Mobile hunter-gatherers	Settled farmers Pastoralist herders	Central accumulation and redistribution Some craft specialization	Centralized bureaucracy Tribute-based Taxation Laws
SETTLEMENT PATTERN	Temporary camps	Permanent villages	Fortified centers Ritual centers	Urban: cities, towns Frontier defences Roads
RELIGIOUS ORGANIZATION	Shamans	Religious elders Calendrical rituals	Hereditary chief with religious duties	Priestly class Pantheistic or monotheistic religion
ARCHITECTURE	Temporary shelters  *Paleolithic skin tents, Siberia*	Permanent huts Burial mounds Shrines  *Neolithic shrine, Çatal Hüyük, Turkey*	Large-scale monuments  *Stonehenge, England – final form*	Palaces, temples, and other public buildings  *Pyramids at Giza* *Castillo, Chichén Itzá, Mexico*
ARCHAEOLOGICAL EXAMPLES	All Paleolithic societies, including Paleo-Indians	All early farmers (Neolithic/ Archaic)	Many early metalworking and Formative societies Mississippian, USA Smaller African kingdoms	All ancient civilizations e.g. in Mesoamerica, Peru Near East, India and China; Greece and Rome
MODERN EXAMPLES	Eskimo Kalahari Bushmen Australian Aborigines	Pueblos, Southwest USA New Guinea Highlanders Nuer & Dinka in E. Africa	Northwest Coast Indians, USA 18th-century Polynesian chiefdoms in Tonga, Tahiti, Hawaii	All modern states

insubstantial dwellings or temporary shelters, along with the debris of residential occupation.

During the Paleolithic period (before 12,000 years ago) most archaeological sites seem to conform to one or other of these categories – camp sites, kill sites, work sites – and archaeologists usually operate on the assumption that most Paleolithic societies were organized into bands. Ethnoarchaeology (see below) has devoted much attention to the study of living bands of hunter-gatherers, yielding many insights relevant to the more remote past.

Tribes. These are generally larger than bands, but rarely number more than a few thousand, and their diet or subsistence is based largely on cultivated plants and domesticated animals. Typically, they are settled farmers, but they may be nomad pastoralists with a very different, mobile economy based on the intensive exploitation of livestock. These are generally multi-community societies, with the individual communities integrated into the larger society through kinship ties. Although some tribes have officials and even a "capital" or seat of government, such officials lack the economic base necessary for effective use of power.

The typical settlement pattern for tribes is one of settled agricultural homesteads or villages. Characteristically, no one settlement dominates any of the others in the region. Instead, the archaeologist finds evidence for isolated, permanently occupied houses (a *dispersed* settlement pattern) or for permanent villages (a *nucleated* pattern). Such villages may be made up of a collection of free-standing houses, like those of the first farmers of the Danube valley in Europe, *c.* 4500 BC. Or they may be clusters of buildings grouped together – so-called *agglomerate* structures, for example, the pueblos of the American Southwest, and the early farming village or small town of Çatalhöyük, *c.* 7000 BC, in what is now Turkey.

Chiefdoms. These operate on the principle of ranking – differences in social status between people. Different lineages (a lineage is a group claiming descent from a common ancestor) are graded on a scale of prestige, and the senior lineage, and hence the society as a whole, is governed by a chief. Prestige and rank are determined by how closely related one is to the chief, and there is no true stratification into classes. The role of the chief is crucial.

Often, there is local specialization in craft products, and surpluses of these and of foodstuffs are periodically paid as obligations to the chief. He uses these to maintain his retainers, and may use them for redistribution to his subjects. The chiefdom generally has a center of power, often with temples, residences of the chief and his retainers, and craft specialists. Chiefdoms vary greatly in size, but the range is generally between about 5000 and 20,000 persons.

One of the characteristic features of the chiefdom is the existence of a permanent ritual and ceremonial center that acts as a central focus for the entire polity. This is not a permanent urban center (such as a city) with an established bureaucracy, as one finds in state societies. But chiefdoms do give indications that some sites were more important than others (site hierarchy), as discussed later in this chapter. Examples are Moundville in Alabama, USA, which flourished *c.* AD 1000–1500, and the late Neolithic monuments of Wessex in southern Britain, including the famous ceremonial center of Stonehenge (see boxes, below).

The personal ranking characteristic of chiefdom societies is visible in other ways than in settlement patterning: for instance, in the very rich grave-goods that often accompany the burials of deceased chiefs.

Early States. These preserve many of the features of chiefdoms, but the ruler (perhaps a king or sometimes a queen) has explicit authority to establish laws and to enforce them by the use of a standing army. The society no longer depends totally on kin relationships: it is now stratified into different classes. Agricultural workers or serfs and the poorer urban dwellers form the lowest classes, with the craft specialists above, and the priests and kinsfolk of the ruler higher still. The functions of the ruler are often separated from those of the priest: palace is distinguished from temple. The society is viewed as a territory owned by the ruling lineage and populated by tenants who have the obligation of paying taxes. The central capital houses a bureaucratic administration of officials; one of their principal purposes is to collect revenue (often in the form of taxes and tolls) and distribute it to government, army, and craft specialists. Many early states developed complex redistributive systems to support these essential services.

Early state societies generally show a characteristic urban settlement pattern in which *cities* play a prominent part. The city is typically a large population center (often of more than 5000 inhabitants) with major public buildings, including temples and work places for the administrative bureaucracy. Often, there is a pronounced settlement hierarchy, with the capital city as the major center, and with subsidiary or regional centers as well as local villages.

This rather simple social typology, set out by Elman Service and elaborated by William Sanders and Joseph

Marino, can be criticized, and it should not be used unthinkingly. Some scholars find the concept of the tribe a rather vague one, and prefer to speak of "segmentary societies." The term "tribe," implying a larger grouping of smaller units, carries with it the assumption that these communities share a common ethnic identity and self-awareness, which is now known not generally to be the case. The term "segmentary society" refers to a relatively small and autonomous group, usually of agriculturalists, who regulate their own affairs: in some cases, they may join together with other comparable segmentary societies to form a larger ethnic unit or "tribe"; in other cases, they do not. For the remainder of this chapter, we shall therefore refer to *segmentary societies* in preference to the term "tribe."

Certainly, it would be wrong to overemphasize the importance of the four types of society given above, or to spend too long agonizing as to whether a specific group should be classed in one category rather than another. It would also be wrong to assume that somehow societies inevitably evolve from bands to segmentary societies, or from chiefdoms to states. One of the challenges of archaeology is to attempt to explain why some societies become more complex and others do not, and we shall return to the fundamental issue of explanation in Chapter 12.

Nevertheless, if we are seeking to talk about early societies, we must use words and hence concepts to do so. Service's categories provide a good framework to help organize our thoughts. They should not, however, deflect us from focusing on what we are really looking for: changes over time in the different institutions of a society – whether in the social sphere, the organization of the food quest, technology, contact and exchange, or spiritual life. For archaeology has the unique advantage of being able to study processes of change over thousands of years, and it is these processes we are seeking to isolate. Happily there are sufficiently marked differences between simple and more complex societies for us to find ways of doing this. As we saw above in the description of Service's four types of society, complex societies show in particular an increased specialization in, or separation between, different aspects of their culture. In complex societies people no longer combine, say, the tasks of obtaining food, making tools, or performing religious rites but become specialists at one or other of these tasks, either as full-time farmers, craftspeople, or priests. As technology develops, for example, groups of individuals may acquire particular expertise in pottery-making or metallurgy, and will become full-time *craft specialists*, occupying distinct areas of a town or city and thus leaving distinct traces for the archaeologist to discover. Likewise, as farming develops and population grows, more food will be obtained from a given piece of land (food production will *intensify*) through the introduction of the plow or irrigation. As this specialization and intensification take place, so too does the tendency for some people to become wealthier and wield more authority than others – differences in social status and *ranking* develop.

It is methods for looking at these processes of increasing specialization, intensification, and social ranking that help us identify the presence of more complex societies in the archaeological record – societies here termed for convenience chiefdoms or states. For simpler band or segmentary societies, other methods are needed if we are to identify them archaeologically, as will become apparent in a later section.

Scale of the Society

With this general background in mind one can develop a strategy for answering the first, basic question: what is the scale of the society? One answer may come from an understanding of the settlement pattern, and this can only come from survey (see below).

For a first approximation, however, an elaborate field project may be unnecessary. If, for instance, we are dealing with archaeological remains dating to before about 12,000 years ago, then we are dealing with a society from the Paleolithic period. On present evidence, nearly all the societies known from that enormously long period of time – spanning hundreds of thousands of years – consisted of mobile hunter-gatherers, occupying camps on a seasonal and temporary basis. On the other hand, where we find indications of permanent settlement this will suggest a segmentary society of agricultural villages or something more complex.

At the other end of the scale, if there are major urban centers the society should probably rank as a state. More modest centers, or ceremonial centers without urban settlement, may be indicative of a chiefdom. To use these classificatory terms is a worthwhile first step in social analysis, provided we bear in mind again that these are only very broad categories designed to help us formulate appropriate methods for studying the societies in question.

If it is clear that we are dealing with communities with a mobile economy (i.e. hunter-gatherers, or possibly nomads), highly intensive techniques of survey will have to be used, because the traces left by mobile communities are generally very scanty. If, on the other hand, these were sedentary communities, a straight-

forward field survey is now called for. It will have as its first objective the establishment of *settlement hierarchy*.

The Survey

The techniques of field survey were discussed in Chapter 3. Surveys can have different purposes: in this case, our aim is to discover the hierarchy of settlement. We are particularly interested in locating the major centers (because our concern is with organization) and in establishing the nature of the more modest sites. This implies a dual sampling strategy. At the intensive level of survey, systematic surface survey of carefully selected transects should be sufficient, although the ideal would be a total survey of the entire area. A random stratified sampling strategy – as outlined in Chapter 3 – taking into account the different environmental areas within the region, should offer adequate data about the smaller sites. However, random sampling of this kind could, in isolation, be misleading and subject to what Kent Flannery has called "the Teotihuacán effect." Teotihuacán is the huge urban site in the Valley of Mexico that flourished in the 1st millennium AD (see box, pp. 86–87). Random stratified sampling alone could easily miss such a center, and would thus ruin any effective social analysis.

The other aim of the strategy must be, therefore, to go for the center. Means must be devised of finding the remains of the largest center in the region, and as many lesser centers as can be located. Fortunately, if it was an urban site, or had monumental public buildings, such a center should become obvious during even a non-intensive survey, so long as a good overview of the area as a whole is obtained. In most cases the existence of such a prominent site will already be well known to the local population, or indeed recorded in the available archaeological or antiquarian literature. All such sources, including the writings of early travelers in the region, should be scrutinized in order to maximize the chances of finding major centers.

The main centers usually have the most impressive monuments, and contain the finest artifacts. So it is imperative to visit all the major monuments of the period, and to follow up the circumstances of any particularly rich finds in the region. Where appropriate, there is plenty of scope too for remote sensing methods such as were described in Chapter 3.

Settlement Patterning

Any survey will result in a map of the areas intensively surveyed and a catalog of the sites discovered, together with details of each site including size, chronological range (as may be determined from surface remains such as pottery), and architectural features. The aim is then to reach some classification of the sites on the basis of this information. Possible site categories include Regional Center, Local Center, Nucleated Village, Dispersed Village, and Hamlet.

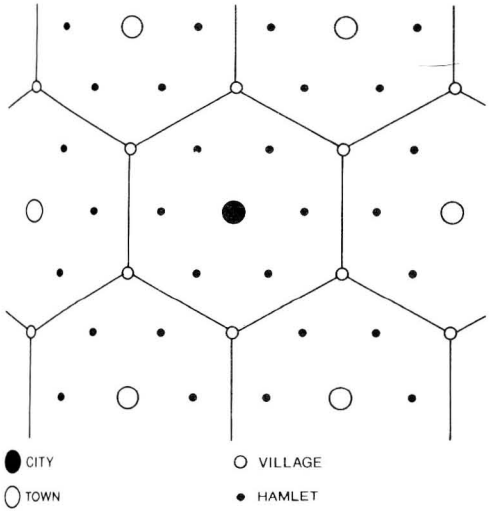
The first use we will make of settlement pattern information is to identify the social and political territories around centers, in order to establish the political organization of the landscape. Many archaeological approaches here give prominence to Central Place Theory (see below), which we feel has some limitations. It assumes that the sites in a given region will fall neatly into a series of categories according to variations in site size. All the primary centers should be in one size category, all the secondary centers in the next, etc. This technique cannot cope with the true situation which is that secondary centers in one area are sometimes larger than primary centers in another. More recent work has found a way of overcoming this difficulty (the XTENT technique), but we will deal here with the earlier methods first.

Central Place Theory. This theory was developed by the German geographer Walter Christaller in the 1930s to explain the spacing and functions of cities and towns in modern-day southern Germany. He argued that in a uniform landscape – without mountains or rivers or variations in the distribution of soils and resources – the spatial patterning of settlements would be perfectly regular. Central places or settlements (towns or cities) of the same size and nature would be situated equidistant from each other, surrounded by a constellation of secondary centers with their own, smaller satellites. Under these perfect

Site Number Ch-LT-41

Natural Setting: 2450 meters, in the Smooth Lower Piedmont. Situated on gently sloping ground. Shallow to medium soil cover. Moderate erosion.
Modern Utilization: Rainfall cultivation.
Archaeological Remains: Light surface pottery over an area of 0.8 hectare. No structural remains. Mixed with heavier Aztec material (Ch-Az-102). Traces of Terminal Formative pottery also occur.
Classification: Small hamlet, 5–10 people.

An example of a formal site description from the catalog of sites produced for the Basin of Mexico survey by Jeffrey Parsons and his colleagues.



Central Place Theory: in a flat landscape, with no rivers or variations in resources, a central place (town or city) will dominate a hexagonal territory, with secondary centers (villages or hamlets) spaced at regular intervals around it.

conditions, the territories "controlled" by each center would be hexagonal in shape, and the different levels of center would together give rise to an intricate settlement lattice.

Such perfect conditions do not occur in nature, of course, but it is still quite possible to detect the workings of Central Place Theory in the distributions of modern or ancient cities and towns. The basic feature is that each major center will be some distance from its neighbors and will be surrounded by a ring of smaller settlements in a hierarchically nested pattern. In political and economic terms the major center will supply certain goods and services to its surrounding area and will exact certain goods and services in return. Even in an area so far from uniform as Mesopotamia (modern Iraq), Central Place Theory has its uses (see box overleaf).

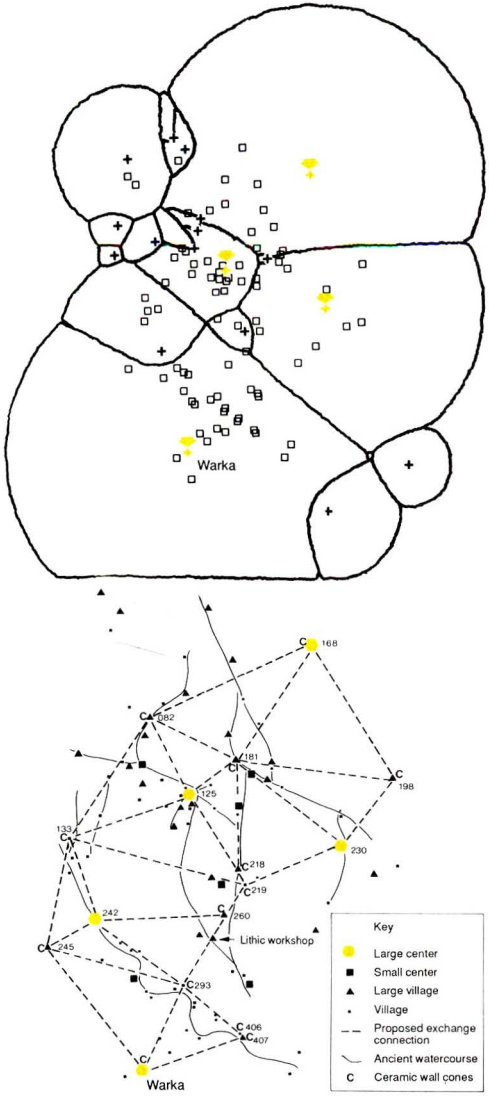
Site Hierarchy. Despite the reservations we have expressed about Central Place Theory, the analysis of site sizes is a useful basic approach. In archaeological studies, the sites are usually listed in rank order by size (i.e. in a site hierarchy), and then displayed as a histogram. There are normally many more small villages and hamlets in a settlement system than large towns or cities. Histograms allow comparisons to be made between the site hierarchies of different regions, different periods, and different types of society. In band societies, for example, there will usually be only a narrow range of variation in site size and all the sites will be relatively small. State societies, on the other hand, will have both hamlets and farmsteads and large towns and cities. The degree to which a single site is dominant within a settlement system will also be evident from this type of analysis, and the organization of the settlement system will often be a direct reflection of the organization of the society which created it. In a general way, the more hierarchical the settlement pattern, the more hierarchical the society.

Thiessen Polygons. Another relatively simple method that can be used in the study of settlement patterns is the construction of Thiessen polygons. These are simple geometrical shapes that divide an area into a number of separate territories, each focused on a single site. The polygons are created by drawing straight lines between each pair of neighboring sites, then at the mid-point along each of these lines a second series of lines, at right angles to the first. Linking up the second series of lines creates the Thiessen polygons, and in this way the whole of an area can be apportioned among the sites it contains. It should be noted, however, that this procedure takes no account of differences in size or importance of sites; a small site will have as big a polygon as a large site. Thus it is important to use only sites of the same rank in the settlement hierarchy when this technique is being applied. A further question, more difficult to resolve, is contemporaneity, since clearly it would be meaningless to draw Thiessen polygons between sites which were not in occupation at the same time.

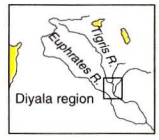
XTENT Modeling. One of the shortcomings of Central Place Theory and other approaches is that sites occupying the same level in a settlement hierarchy might not be of the same size. Thus the capital city of a state on the periphery of a distribution could be smaller than a secondary city in the center. We are now able to cope with this using the technique of XTENT modeling. This has the aim of assigning territories to centers according to their scale. To do this, it assumes that a large center will dominate a small one if they are close together. In such a case, of so-called *dominance*, the territory of the smaller site is simply absorbed in the study into that of the larger one: in political terms the smaller site has no independent or autonomous existence. This approach overcomes the limitation of the Thiessen polygon method, where territories are assigned irrespective of the size of the center, and where there are no dominant or subordinate centers.

In XTENT modeling, the size of each center is assumed to be directly proportional to its area of

influence. The influence of each center is thought of as analogous to a bell or bell-tent in shape: the greater the size of the center the higher the tent. Centers are considered to be subordinate if their associated bell tents fall entirely within that of a larger center. If they protrude beyond, they will have their own autonomous existence as centers of political units.

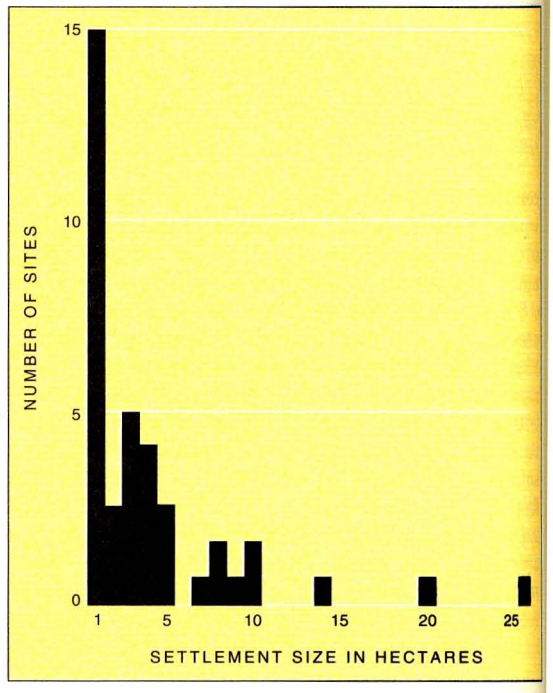


(Top) XTENT model territories, Late Uruk period, Warka area, Mesopotamia. Arrows indicate four centers that emerge as autonomous. Compare Greg Johnson's hierarchy (above) for the same region. Note how four of the five "large centers" correspond with the autonomous ones in the XTENT model.



SETTLEMENT PATTERNS IN MESOPOTAMIA

Gregory Johnson's work in the Diyala region of Mesopotamia, to the east of Baghdad in modern Iraq, provides a good illustration of the way in which Central Place Theory can be applied to archaeological survey results. Thirty-nine settlements of the Early Dynastic



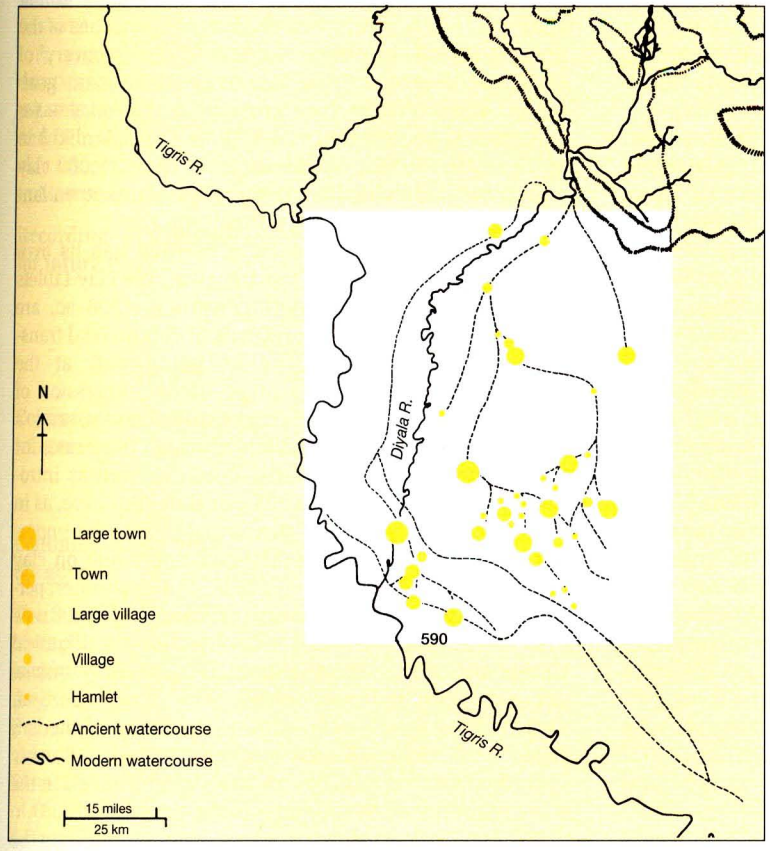
***Site hierarchy** for 39 settlements in the Diyala region, expressed as a histogram. As is usually the case with such hierarchies, there is a decline in the number of sites as site size increases. There are normally many more small villages and hamlets in a settlement system than large towns or cities. Any analysis of this kind has to make certain assumptions – for instance, that evidence for sites in each category has been uniformly preserved, which may not always be the case.*

period (c.2800 BC) are known from this area. They range in size from 25 ha (60 acres) to just over one-tenth of a hectare (0.25 acre), and on this basis Johnson divided them into five categories: large towns, towns, large villages, small villages, and hamlets.

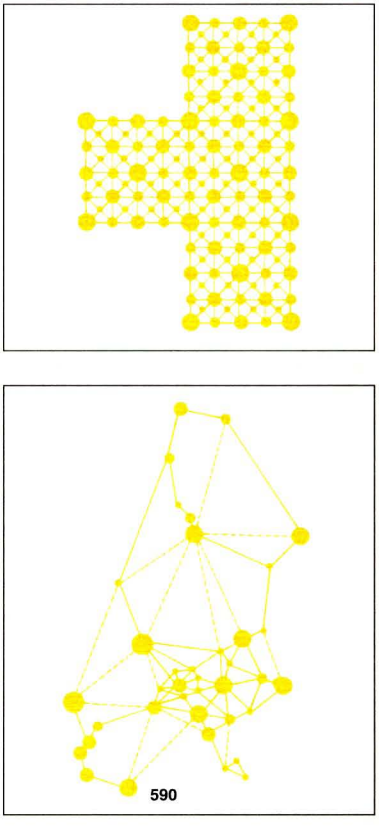
The distribution of sites suggested that there were four lattice cells, each lattice cell being the network of settlements grouped around a first order center or central place. In theory, each cell should have had a large town at the center, towns at each of the four corners, and large villages at the mid-points between the towns and at the mid-points between the towns and the large towns. Small villages and hamlets completed the pattern to create a model settlement lattice which could be compared with the real pattern as revealed by the Diyala survey. Discrepancies could then be identified and explained.

It is precisely the discrepancies from the expected pattern that are of interest. Johnson found that maximization of usable land (which would have been implied had there been even spacing of settlements) was less significant in determining settlement location than were water transport networks. Settlements of successively smaller size were located along watercourses – lines of communication – between the larger settlements.

Nevertheless, it was only after considerable modification that the lattice model could be made to fit the Diyala evidence. Several of the predicted primary and secondary centers were lacking, while others were smaller than they were expected to be. Thus, though the exercise was certainly valuable, it highlighted the difficulties of applying Central Place Theory to a real archaeological case.



Early Dynastic *settlement pattern in the Diyala region of Iraq, based on survey work originally carried out by Robert Adams.*



Derivation *of the proposed settlement lattice for the Diyala region, from the idealized, regular four lattice cells (top) to the final pattern (above) that seemed best to fit the actual settlement locations on the ground.*

Although the XTENT model can never offer more than a simple approximation of the political reality, it does allow a hypothetical political map to be constructed from appropriate survey data (see illustration on p. 172).

By methods such as these, information derived from settlement surveys can be used to produce what is in effect a political and administrative map, even though such maps will always rely on certain basic assumptions that cannot easily be proved. And while the examples given in the box above have been drawn from studies of state societies, it is possible to apply similar techniques to the settlement patterns of less complex societies, such as the Neolithic of southern Britain (see box, pp. 190–91). In the Iron Age of southern Britain, more hierarchically organized societies developed, with prominent hillforts dominating the tribal territories. A pioneering analysis by David Clarke interpreted the social position of the Iron Age site of Glastonbury (see box, pp. 38–39) in these terms, as belonging within a territory dominated by such a fortified center.

FURTHER SOURCES OF INFORMATION FOR SOCIAL ORGANIZATION

If the first approach by archaeologists to the study of social organization must be through the investigation of settlement and settlement pattern, this should not exclude other possible avenues of approach, including the use of written records, oral tradition, and ethnoarchaeology.

Here it is appropriate to mention the argument of Lewis Binford, that if we are to bridge the gap between the archaeological remains and the societies those remains represent we need to develop a systematic body of what he terms *Middle Range Theory*. For the moment, however, we believe it is difficult to justify the division of archaeological theory into high, middle, and low. We choose not to use the term Middle Range Theory.

Some scholars also lay great emphasis on the concept of *analogy*. Arguments by analogy are based on the belief that where certain processes or materials resemble each other in some respects, they may resemble each other in other ways also. Thus it may be possible to use details from one body of information to fill the gaps in another body of information from which those details are missing. Some have considered an analogy a fundamental aspect of archaeological reasoning. In our view this emphasis is misplaced. It is true that archaeologists use information from the study of one society (whether living or dead) to help understand other societies they may be interested in, but these are usually in the nature of general observations and comparisons, rather than specific detailed analogies.

Written Records

For literate societies – those that use writing, for instance all the great civilizations in Mesoamerica, China, Egypt, and the Near East – historical records can answer many of the social questions set out at the beginning of this chapter. A prime goal of the archaeologist dealing with these societies is therefore to find appropriate texts. Many of the early excavations of the great sites of the Near East had the recovery of archives of clay writing tablets as their main goal. Major finds of this kind are still made today – for example, at the ancient city of Ebla (Tell Mardikh) in Syria in the 1970s, where an archive of 15,000 clay tablets yielded evidence of a previously unknown language and state of the 3rd millennium BC.

In each early literate society, writing had its own functions and purposes. For instance, the clay tablets of Mycenaean Greece, dating from *c.* 1200 BC, are almost without exception records of commercial transactions (goods coming in or going out) at the Mycenaean palaces. This gives us an impression of many aspects of the Mycenaean economy, and a glimpse into craft organization (through the names for the different kinds of craftspeople), as well as introducing the names of the offices of state. But here, as in other cases, accidents of preservation may be important. It could be that the Mycenaeans wrote on clay only for their commercial records, and used other, perishable materials for literary or historical texts now lost to us. It is certainly true that for the Classical Greek and Roman civilizations, it is mainly official decrees inscribed on marble that have survived. Fragile rolls of papyrus – the predecessor of modern paper – with literary texts on them, have usually only remained intact in the dry air of Egypt, or buried in the volcanic ash covering Pompeii (see box, pp. 22–23).

An important written source that should not be overlooked is coinage. The findspots of coins give interesting economic evidence about trade (Chapter 9). But the inscriptions themselves are informative about the issuing authority – whether city-state (as in ancient Greece) or sole ruler (as in Imperial Rome, or the kings of medieval Europe).

The decipherment of an ancient language transforms our knowledge of the society that used it. The brilliant work of Champollion in the 19th century in cracking the code of Egyptian hieroglyphs was mentioned in Chapter 1. In recent years, one of the most significant advances in Mesoamerican archaeology has come from the reading of many of the inscribed symbols (glyphs) on the stone stelae at the largest centers. It had been widely assumed that the Maya inscriptions were exclusively of a calendrical nature, or that they dealt with purely religious matters, notably the deeds of deities. But the inscriptions can now in many cases be interpreted as relating to real historical events, mainly the deeds of the Maya kings (see boxes, pp. 124–25 and 388–89). We can also now begin to deduce the likely territories belonging to individual Maya centers (see box, p. 197). Maya history has thus taken on a new dimension.

A more detailed example of the value of written sources for reconstructing social archaeology is Mesopotamia, where a huge number of records of Sumer and Babylon (*c.* 3000–1600 BC), mainly in the form of clay tablets, have been preserved. The uses of writing in Mesopotamia may be summarized as follows:

Recording information for future use	Administrative purposes Codification of law Formulation of a sacred tradition Annals Scholarly purposes
Communicating current information	Letters Royal edicts Public announcements Texts for training scribes
Communicating with the gods	Sacred texts, amulets, etc.

The Sumerian king list provides an excellent example of annals recording information for future use. It is extremely useful to the modern scholar for dating purposes, but it also offers social insights into the way the Sumerians conceived of the exercise of power – for example, the terminology of rank that they used. Similarly, inscriptions on royal statues (such as those of Gudea, ruler of Lagash) help us to perceive how the Sumerians viewed the relationship between their rulers and the immortals. This important kind of information concerning how societies thought about themselves and the world – *cognitive* information – is discussed in more detail in Chapter 10.

Of even greater significance for an understanding of the structure of Sumerian society are the tablets associated with the working or organizing centers, which in Sumerian society were often temples. For instance, the 1600 tablets from the temple of Bau at Tello give a close insight into the dealings of the shrine, listing fields and the crops harvested in them, craftspeople, and receipts or issues of goods such as grain and livestock.

Perhaps most evocative of all are the law codes, of which the most impressive example is the law code of Hammurabi of Babylon, written in the Akkadian language (and in cuneiform script) around 1750 BC. The ruler is seen (illus. p.177) at the top of the stone, standing before Shamash, the god of justice. The laws were promulgated, as Hammurabi states, "so that the strong may not oppress the weak, and to protect the rights of the orphan and widow." These laws cover many aspects of life – agriculture, business transactions, family law, inheritance, terms of employment for different craftspeople, and penalties for crimes such as adultery and homicide.

Impressive and informative as it is, Hammurabi's law code is not straightforward to interpret, and emphasizes the need for the archaeologist to reconstruct the full social context that led to the drafting of a text. As the British scholar Nicholas Postgate has pointed out, the code is by no means complete, and seems to cover only those areas of the law that had proved troublesome. Moreover, Hammurabi had recently conquered several rival city states, and the law code was therefore probably designed to help integrate the new territories within his empire.

Written records thus undoubtedly contribute greatly to our knowledge of the society in question. But one should not accept them uncritically at face value. Nor should one forget the bias introduced by the accident of preservation and the particular uses of literacy in a society. The great risk with historical records is that they can impose their own perspective, so that they begin to supply not only the answers to our questions, but subtly to determine the nature of those questions, and even our concepts and terminology. A good example is the question of kingship in Anglo-Saxon England. Most anthropologists and historians tend to think of a "king" as the leader of a state society. So when the earliest records for Anglo-Saxon England, *The Anglo-Saxon Chronicle*, which took final shape in about AD 1155, refer to kings around AD 500, it is easy for the historian to think of kings and states at that period. But the archaeology strongly suggests that a full state society did not emerge until the time of King Offa of Mercia in around AD 780, or perhaps King Alfred of Wessex in AD 871. It is fairly clear that the earlier "kings" were generally less significant figures

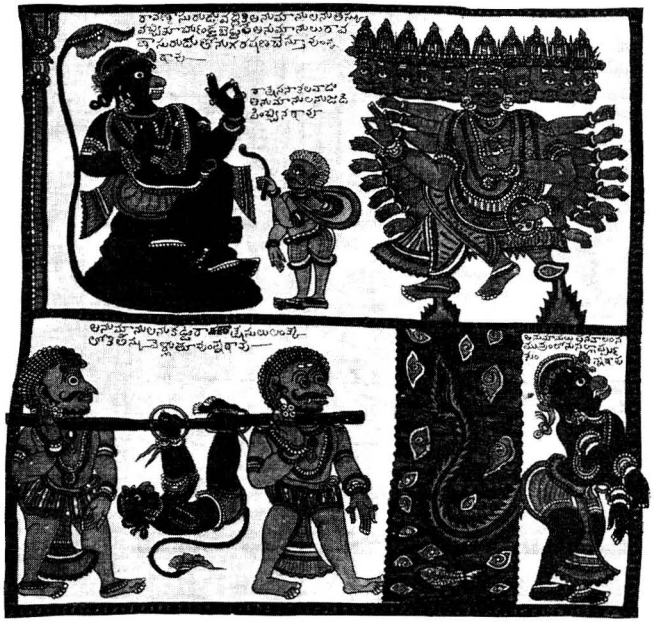
The variety of historical evidence. (Left and above) Scribes were accorded high status in ancient civilizations. Among the Maya, a rabbit god (left) is shown as a scribe on an 8th-century AD painted vase. A scribe from Classical Greek times (above left) is depicted on a 5th-century BC bowl. Egyptian military scribes (above center) record on papyrus rolls the submission of Egypt's New Kingdom foes – a relief carving from Saqqara. The Inca (above right) had no writing system as such, but kept records of accounts and other transactions using knotted ropes called quipu.

Clay tablets and coins. (Left) Some of the 15,000 clay tablets discovered in the royal palace at Ebla (Tell Mardikh in modern Syria), dating from the late 3rd millennium BC. The tablets formed part of the state archives, recording over 140 years of Ebla's history. Originally they were stored on wooden shelving, which collapsed when the palace was sacked. (Below) Hoard of Arabic coins found in Gotland, Sweden, from the Viking period (8th/9th centuries AD). Coin inscriptions can be informative about dating (Chapter 4) and trade (Chapter 9), and also about the issuing authority.

Inscriptions. (Above) The famous law code of the Babylonian king Hammurabi, c. 1750 BC. The laws are carved in 49 vertical columns on a black basalt stela, 2.25 m (7 ft 4 in) high. In this detail the king is seen confronting the seated figure of Shamash, god of justice. See also main text p.175.

Seals and seal impressions. (Above) Rollout impression from a cylinder seal of c. 500 BC which depicts the Persian king Darius in his chariot hunting lions. The inscription is written in the cuneiform script, like Hammurabi's law code (left). The scene is intended to convey the authority, strength, and dominant status of the king. Such seals were used to mark ownership or authenticity. Many thousands have been recovered from Mesopotamian sites.

Oral tradition. (Below) Scenes from the Hindu epic, the Ramayana, on a late 18th-century AD temple-hanging, Mathura, India. The story describes the exploits of a great ruler (Rama) in his attempt to rescue his consort, carried off to Sri Lanka by a demon king. The legend may have its origins in southward movements of Hindu peoples after 800 BC but – as always with oral tradition – the difficulty comes in disentangling history from myth.



Early medieval documents. (Below) An Anglo-Saxon king and his council depicted in an 11th-century AD manuscript. Historical documents require careful interpretation just as much as archaeological evidence.

than some of the rulers in Africa or Polynesia in recent times, whom anthropologists would term "chiefs."

Thus, if the archaeologist is to use historical records in conjunction with the material remains, it is essential at the outset that the questions are carefully formulated and the vocabulary is well defined.

Oral Tradition

In non-literate societies, valuable information about the past, even the remote past, is often enshrined in oral tradition – poems or hymns or sayings handed on from generation to generation by word of mouth. This can be of quite remarkable antiquity. A good example is offered by the hymns of the *Rigveda*, the earliest Indian religious texts, in an archaic form of the language, which were preserved orally for hundreds of years, before being set down by literate priests in the mid-1st millennium AD. Similarly, the epics about the Trojan War written down by Homer in about the 8th century BC may have been preserved orally for several centuries before that time, and are thought by many scholars to preserve a picture of the Mycenaean world of the 12th or 13th century BC.

Epics such as Homer's *Iliad* and *Odyssey* certainly offer remarkable insights into social organization. But, as with so much oral tradition, the problem is actually to demonstrate to which period they refer – to judge how much is ancient and how much reflects a much more recent world. Nevertheless, in Polynesia, in Africa, and in other areas that have only recently become literate, the natural first step in investigating the social organization of earlier centuries is to examine the oral traditions.

Ethnoarchaeology

Another fundamental method of approach for the social archaeologist is ethnoarchaeology. It involves the study of both the present-day use and significance of artifacts, buildings, and structures within the living societies in question, and the way these material things become incorporated into the archaeological record – what happens to them when they are thrown away or (in the case of buildings and structures) torn down or abandoned. It is therefore an *indirect* approach to the understanding of any past society.

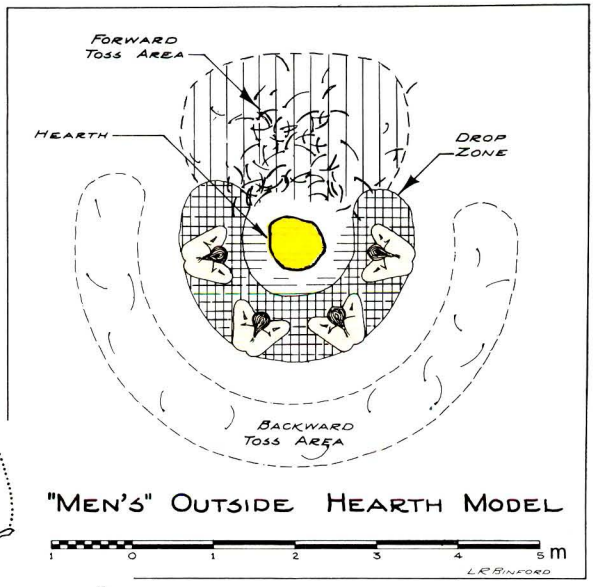
There is nothing new in the idea of looking at living societies to help interpret the past. In the 19th and early 20th centuries European archaeologists often turned for inspiration to researches done by ethnographers among societies in Africa or Australia. But the so-called "ethnographic parallels" that resulted – where archaeologists often simply and crudely likened past societies to present ones – tended to stifle new thought rather than promote it. In the United States archaeologists were confronted from the beginning with the living reality of complex Native American societies, which taught them to think rather more deeply about how ethnography might be used to aid archaeological interpretation. Nevertheless, fully-fledged ethnoarchaeology is a development really of only the last 20 or 25 years. The key difference is that now it is archaeologists themselves, rather than ethnographers or anthropologists, who carry out the research among living societies.

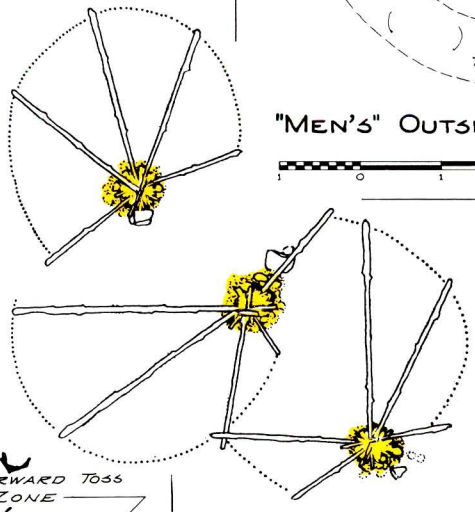
A good example is the work of Lewis Binford among the Nunamiut Eskimo, a hunter-gatherer group of Alaska. In the 1960s Binford was attempting to interpret archaeological sites of the Middle Paleolithic of France (the Mousterian period, 180,000–40,000 years ago). He came to realize that only by studying how *modern* hunter-gatherers used and discarded bones and tools, or moved from site to site, could he begin to understand the mechanisms that had created the Mousterian archaeological record – itself almost certainly the product of a mobile hunter-gatherer economy. Between 1969 and 1973 he lived intermittently among the Nunamiut and observed their behavior. For instance, he studied the way bone debris was produced and discarded by men at a seasonal hunting camp (the Mask site, Anaktuvuk Pass, Alaska). He saw that, when sitting round a hearth and processing bone for marrow, there was a "drop zone" where small fragments of bone fell as they were broken. The larger pieces, which were thrown away by the men, formed a "toss zone," both in front and behind them.

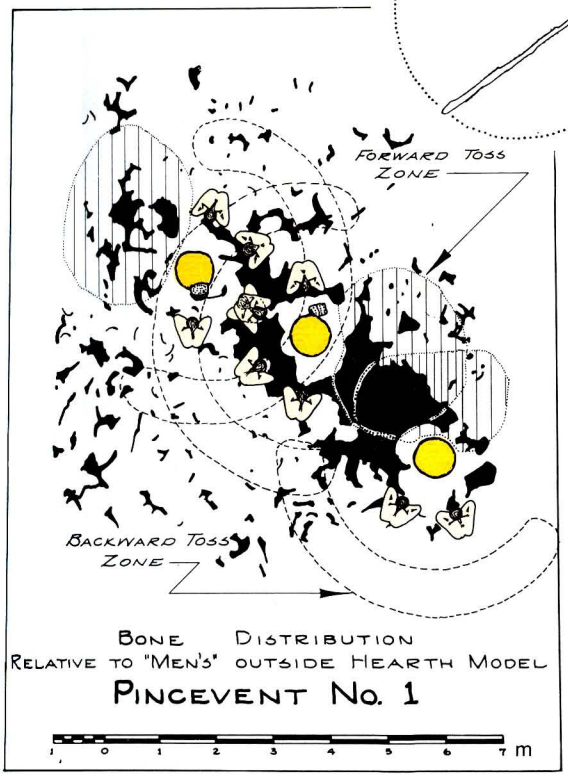
Such seemingly trivial observations are the very stuff of ethnoarchaeology. The Nunamiut might not provide an exact "ethnographic parallel" for Mousterian societies, but Binford recognized that there are certain actions or *functions* likely to be common to all hunter-gatherers because – as in the case of the processing of bone – the actions are dictated by the most convenient procedure when seated round a camp fire. The discarded fragments of bone then leave a characteristic pattern round the hearth for the archaeologist to find and interpret. From such analysis, it has proved possible to go on to infer roughly how many people were in the group, and over what period of time the camp site was used. These are questions very relevant to our understanding of the social organization (including the size) of hunter-gatherer groups.

With the benefit of his observations at the Mask site, Binford was able to reinterpret the plan of one habitation at the French Paleolithic site of Pincevent,

Ethnoarchaeology: the work of Lewis Binford. (Right) From observations among living Nunamiut Eskimo in Alaska, Binford derived this model of bone processing around an outside hearth. Small bone fragments fall in a "drop zone" around the men, while larger pieces are thrown both in front and behind them in two "toss zones." (Below center) At the Paleolithic site of Pincevent, France, dating from about 15,000 years ago, the excavator Leroi-Gourhan interpreted three hearths as being evidence for a complex skin tent (reconstruction, center right). (Below) Binford applied his "outside hearth model" to the three Pincevent hearths, and deduced from the distribution of bones that his model fitted the evidence better than that of Leroi-Gourhan: i.e. that the hearths lay outside, and not within a tent. (Below right) Classic semicircular arrangement around an outside hearth as demonstrated by Nharo Bushmen at Ganzi, Botswana, c. 1969.



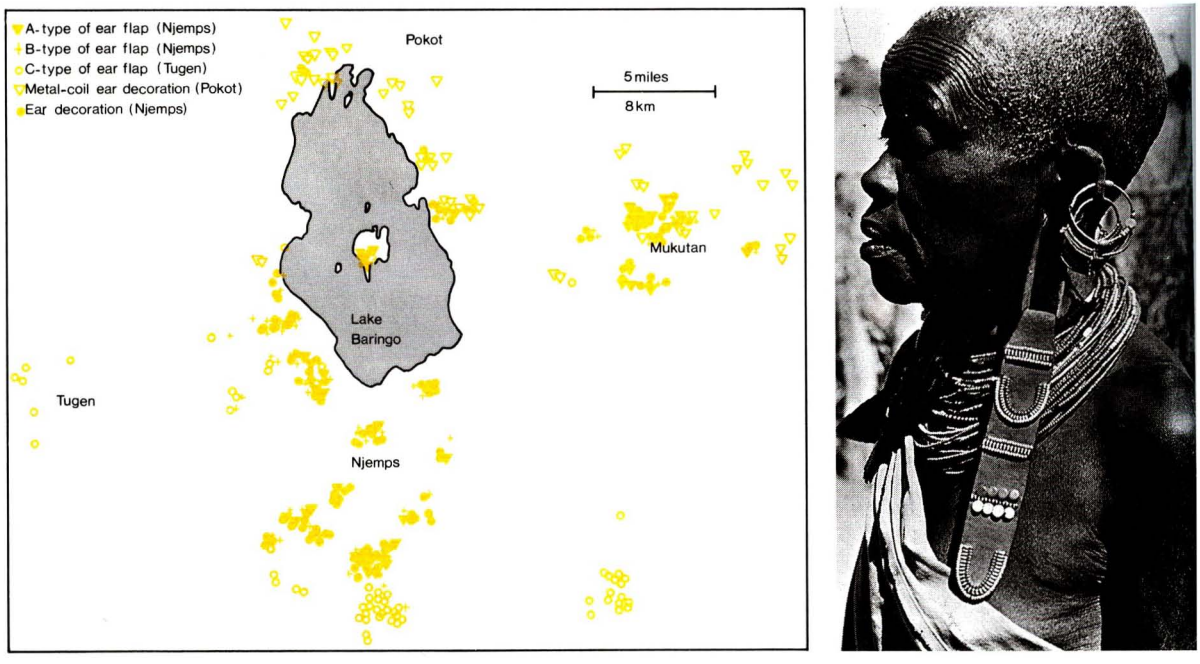




occupied during the last Ice Age about 15,000 years ago. The excavator, André Leroi-Gourhan, interpreted the remains as indicating a complex skin tent covering three hearths. Binford at the Mask site had noted how when wind direction had changed, people seated outside next to a hearth would swivel round and make up a new hearth downwind so as to remain out of the smoke. The distribution of debris around the Pincevent hearths suggested to Binford that two of them were the result of just such an event, one succeeding the other as wind direction changed and a seated worker rotated his position. He further argued that this kind of behavior is found only with outside hearths, and that therefore the excavator's reconstruction of a covering tent is unlikely. Recent analysis, however, suggests that these hearths had slightly different functions. Work at Pincevent, and other similar sites in the Paris Basin, is finding useful insights, as well as errors, both in Leroi-Gourhan's very focused interpretations and in Binford's generalized observations from ethnoarchaeology.

Ethnoarchaeology is not restricted to observations at the local scale. The British archaeologist Ian Hodder, in his study of the female ear decorations used by different tribes in the Lake Baringo area of Kenya, undertook a regional study to investigate the extent to which material culture (in this case personal decoration) was being used to express differences between the tribes. Partly as a result of such work, archaeologists no longer assume that it is an easy task to take archaeological assemblages and group them into regional "cultures," and then to assume that each "culture" so formed represents a social unit (see Chapter 12). Such a procedure might, in fact, work quite well for the ear decorations Hodder studied, because the people in question chose to use this feature to assert their tribal distinctiveness. But, as Hodder showed, if we were to take other features of the material culture, such as pots or tools, the same pattern would not necessarily be followed. His example documents the important lesson that material culture cannot be used by the archaeologist in a simple or unthinking manner in the reconstruction of supposed ethnic groups.

At this point it is appropriate to move on to consider how one actually sets about systematically searching for evidence of social organization in archaeological remains, using the techniques and sources of information just outlined. Here we will find it useful to look first at bands, then segmentary societies, and finally at chiefdoms and states.



Ethnoarchaeology: the work of Ian Hodder. In the Lake Baringo area of Kenya, East Africa, Hodder studied the female ear decorations worn by the Tugen (right), Njemps, and Pokot tribes, and showed on a map (left) how these ornaments were used to assert tribal distinctiveness. Other features of the material culture (e.g. pots or tools) would reveal a different spatial pattern.

ANCIENT ETHNICITY AND LANGUAGE

Ethnicity (i.e. the existence of ethnic groups, including tribal groups) is difficult to recognize from the archaeological record. For example, the view that Mousterian tool assemblages represented different social groups, as suggested by François Bordes, has been criticized (see discussion in Chapter 10); and the notion that such features as pottery decoration are automatically a sign of ethnic affiliation has been questioned. This is a field where ethnoarchaeology is only now beginning to make some headway.

One field of information, however, once overused by archaeologists, has in recent years been much neglected: the study of languages. For there is no doubt that ethnic groups often correlate with language areas, and that ethnic and linguistic boundaries are often the same. But it should also be remembered that human societies can exist quite well without tribal or ethnic affiliations: there is no real need to divide the social world up into named and discrete groups of people.

Ethnicity should not be confused with race, which insofar as it exists (Chapter 11) is a physical attribute, not a social one. The *ethnos*, the ethnic group, may be defined as "a firm aggregate of people, historically established on a given territory, possessing in common relatively stable peculiarities of language and culture, and also recognizing their unity and difference from other similar formations (self-awareness) and expressing this in a self-appointed name (ethnonym)" (Dragadze 1980, 162).

This definition allows us to note the following factors, all of them relevant to the notion of ethnicity:

1. shared territory or land
2. common descent or "blood"
3. a common language
4. community of customs or culture
5. community of beliefs or religion
6. self-awareness, self-identity
7. a name (ethnonym) to express the identity of the group
8. shared origin story (or myth) describing the origin and history of the group

Ethnicity, however, is a much-abused term, and one that is sometimes used to mask directly political motives. Since 1992, for instance, within the former republic of Yugoslavia, there has been serious fighting between Serbs, Croats, and others (mainly Muslims) over territories. The irony is that there are relatively few underlying differences among the communities involved, the principal distinctions being religious (Orthodox Christian, Roman Catholic, and Muslim respectively). It is sad that blind prejudice along ethnic and religious lines which underlay the horrors of the Holocaust during World War II should once again lead to the mindless slaughter in Yugoslavia termed "ethnic cleansing." The perversion of ethnicity is the curse of our century.

It seems likely that in some cases the scale of the area in which a language came to be spoken was influential in determining the scale of the ethnic group that later came to be formed. For instance, in Greece in the 7th and 6th centuries BC the political reality was one of small, independent city states (and some larger tribal areas). But in the wider area where Greek was spoken there was already an awareness that the inhabitants were together Hellenes (i.e. Greeks). Only Greeks were allowed to compete in the great Panhellenic Games held every 4 years in honor of Zeus at Olympia. It was not until later, with the expansion of Athens in the 5th century BC and then the conquests of Philip of Macedon and his son Alexander the Great in the next century, that the whole territory occupied by the Greeks became united into a single nation. Language is an important component of ethnicity.

In Mesoamerica, Joyce Marcus has drawn on linguistic evidence in analyzing the development of the Zapotec and Mixtec cultures. She notes that their languages belong to the Otomanguean family, and follows the assumption that this relationship implies a common origin. Marcus and Kent Flannery, in their remarkable book *The Cloud People* (1983), seek to trace through time "the divergent evolution of the Zapotec and Mixtec from a common ancestral culture and their general evolution through successive levels of sociopolitical evolution" (Flannery and Marcus 1983, 9). They see in certain shared elements of the two cultures the common ancestry suggested by the linguistic arguments.

Using glottochronology (Chapter 4) Marcus suggests a date of 3700 BC for the beginning of the divergence between the Zapotec and Mixtec; she then seeks to correlate this with archaeological findings.

It is questionable whether glottochronology can be used in this over-precise way. But this criticism in no way undermines the relevance of her introduction of the Zapotec and Mixtec languages into the discussion of the social evolution of the two cultures.

drawn here between segmentary societies and centralized ones. In segmentary societies, craft production is mainly organized at the household level – what the American anthropologist Marshall Sahlins in his book *Stone Age Economics* (1972) has termed the Domestic Mode of Production. In more centralized societies such as chiefdoms and states, on the other hand, though the household unit may still play an important role, much of the production will often be organized at a higher, more centralized level.

This distinction is useful at the practical level of survey and excavation. Even small villages in segmentary societies will show signs of household craft production in the form of pottery kilns or perhaps slag from metalworking. But only in centralized societies does one find towns and cities with certain quarters given over almost entirely to specialized craft production. At the great 1st millennium AD metropolis of Teotihuacán, near modern Mexico City, for instance, the specialized production of tools from the volcanic glass obsidian took place in designated areas of the city.

Quarries and mines to extract the raw materials for craft production developed with the crafts themselves, and provide another indicator of economic intensification and the transition to centralized social organization. For example, the flint quarries of the first farmers of Britain, around 4000 BC, required less specialized organization than the later flint mine at Grimes Graves in eastern Britain (*c.* 2500 BC), with its 350 shafts up to 9 m (30 ft) deep and complicated network of underground galleries.

TECHNIQUES OF STUDY FOR CHIEFDOMS AND STATES

Most of the techniques of analysis appropriate to segmentary societies remain valid for the study of centralized chiefdoms and states, which incorporate within themselves most of the social forms and patterns of interaction seen in the simpler societies. The investigation of the household and degree of differentiation on the rural village site are just as relevant; so too is the assessment of the degree of intensification of farming. The additional techniques needed arise because of the centralization of society, the hierarchy of sites, and the organizational and communicational devices that characterize chiefdom and state societies. Once again, it is the nature of these devices that interests us, not simply the classification of society into one form or another.

Identifying Primary Centers

Techniques for the study of settlement patterning were discussed earlier in the chapter. As indicated there, the first step, given the results of the field survey, is to consider the size of the site, either in absolute terms, or in terms of the distances between major centers so as to determine which are dominant and which subordinate. This leads to the creation of a map identifying the principal independent centers and the approximate extent of the territories surrounding them.

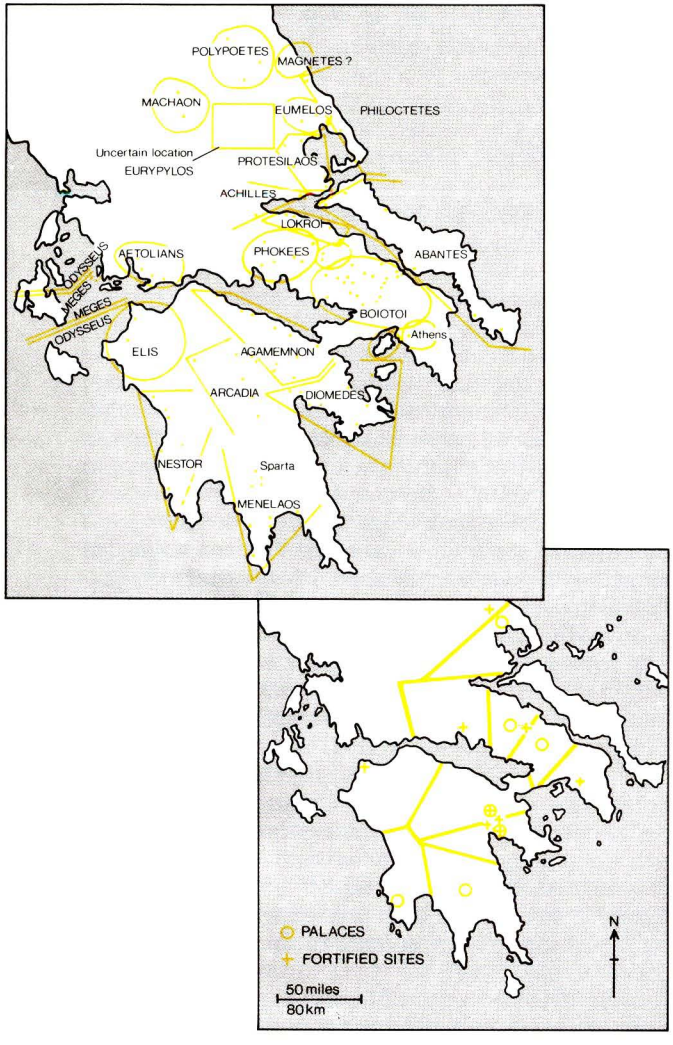
The reliance on size alone, however, can be misleading, and it is necessary to seek other indications of which are the primary centers. The best way is to try to find out how the society in question viewed itself and its territories. This might seem an impossible task until one remembers that, for most state societies at any rate, written records exist. Their immense value to the archaeologist has already been outlined. Here we need to stress their usefulness not so much in understanding what people thought and believed – that is the subject of Chapter 10 – but in giving us clues as to which were the major centers. Written sources may name various sites, identifying their place within the hierarchy. The archaeological task is then to find those named sites, usually by the discovery of an actual inscription including the name of the relevant site – one might for example hope to find such an inscription in any substantial town of the Roman empire. In recent years, the decipherment of Maya hieroglyphs has opened up a whole new source of evidence of this sort (see box, overleaf).

In some cases, however, the texts do not give direct and explicit indications of site hierarchy. But placenames within the archive can sometimes be used to construct a hypothetical map by means of multidimensional scaling – a computer technique for developing spatial structure from numerical data. The assumption is made that the names occurring together most frequently in the written record are those of sites closest to each other. The British archaeologist John Cherry has developed such a map for the lands of the early Mycenaean state of Pylos in Greece (*c.* 1200 BC) (see box, pp.198–99).

Even myth and legend can sometimes be used in a systematic way to build up a coherent geographical picture. For instance, the so-called "Catalogue of Ships" in Homer's *Iliad*, which indicates how many ships each of the centers of Greece sent to the Trojan

War, was used by Denys Page to draw an approximate political map of the time. It is interesting to compare it with a map drawn using only the hard archaeological data for fortified sites and palace centers in Mycenaean Greece (see illus. below): the archaeological and the historical pictures correlate very well.

Usually, however, site hierarchy must be deduced by more directly archaeological means, without placing reliance on the written word. The presence of a "highest-order" center, such as the capital city of an independent state, can best be inferred from direct indications of central organization, on a scale not exceeded elsewhere, and comparable with that of other highest-order centers of equivalent states.



Late Bronze Age Greece: a map of territories derived from Homer's Iliad *(top) compares well with a territorial map (above) based solely on archaeological evidence.*

One indication is the existence of an archive (even without understanding anything of what it says) or of other symbolic indications of centralized organization. For instance, many controlled economies used seals to make impressions in clay as indications of ownership, source, or destination. The finding of a quantity of such materials can indicate organizational activity. Indeed, the whole practice of literacy and of symbolic expression is so central to organization that such indications are of great relevance.

A further indication of central status is the presence of buildings of standardized form known to be associated with central functions of high order. In Minoan Crete, for instance, the "palace" plan around a central court is recognized in this way. Therefore, a relatively small palace site (e.g. Zakros) is accorded a status which a larger settlement lacking such buildings (e.g. Palaikastro) is not.

The same observation holds true for buildings of ritual function, because in most early societies the control of administration and control of religious practice were closely linked. Thus, a large ziggurat in Mesopotamia in Sumerian times, or a large plaza with temple-pyramids in the Maya lowlands, indicates a site of high status.

Failing these conspicuous indicators, the archaeologist must turn to artifacts suggestive of the function of a major center. This is particularly necessary for surface surveys, where building plans may not be clear. Thus, on site surveys in Iraq, workers studying the Early Dynastic period, such as Robert Adams and Gregory Johnson, have used terracotta wall cones as indicators of higher-than-expected status for the smaller sites where they are found. The cones, known to form part of the decoration of temples and other public buildings on larger sites in the region, suggest that such smaller sites may have been specialized administrative centers.

Among other archaeological criteria often used to indicate status are fortifications, and the existence of a mint in those lands where coinage was in use.

Clearly, when settlement hierarchy is under consideration, sites cannot be considered in isolation, but only in relation to each other. The exercise is one of early political geography.

Functions of the Center

In a hierarchically organized society, it always makes sense to study closely the functions of the center, considering such possible factors as kingship, bureau-

cratic organization, redistribution and storage of goods, organization of ritual, craft specialization, and external trade. All of these offer insights into how the society worked.

Here, as before, the appropriate approach is that of the intensive site survey over the terrain occupied by the center and its immediate vicinity, together with excavation on as large a scale as is practicable. Again, this is a sampling problem, where the objective of comprehensiveness must be balanced against limited resources of time and finance. In the case of smaller centers, just a few hectares in extent, an intensive area survey will be perfectly appropriate. But for very large sites, a different approach is needed.

Abandoned Sites. Many of the most ambitious urban projects have been carried out at abandoned sites, or at sites where the present occupation is not of an urban character, and does not seriously impede the investigation. (The problems of continuously urban sites, i.e. ones that remain major centers today, are considered below.) The first requirement, which may present practical difficulties if the site is forested, is a good topographic map at something like a scale of 1:1000, although this may not be convenient for sites several kilometers in extent. This map will indicate the location of major structures visible on the surface, and some of these will be selected for more careful mapping. On sites where extensive excavations have already been conducted, their results can also be included.

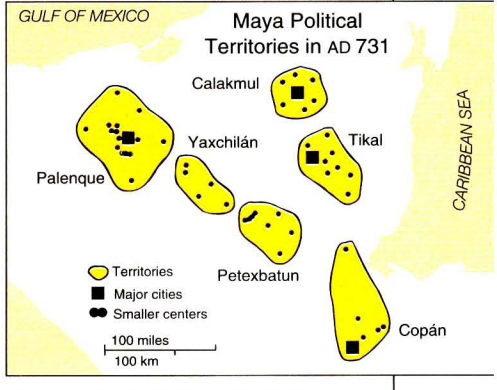
Such topographic maps are among the most cost-effective undertakings of modern archaeology. One of the most interesting examples is Salvatore Garfie's survey of the site of Tell el Amarna, the capital city of the Egyptian pharaoh Akhenaten, as part of the British project of survey and excavation there. The site was occupied for only 13 years in the 14th century BC, and was then abandoned. The buildings were of mud brick and are not well preserved as surface features, so the map draws heavily on excavations over the course of a century. In the New World, there have been several projects of comparable scale, one of the most notable being the University of Pennsylvania's great mapping project at the Maya city of Tikal, and similar work is now under way at several Maya sites. Perhaps the most ambitious project of all, however, has been the survey at the greatest Mexican urban center, Teotihuacán (see box, pp. 86–87).

The preparation of a topographic map is only the first stage. To interpret the evidence in social terms means that the function of any structures revealed has next to be established. This involves the study of the

MAYA TERRITORIES

The Classic Maya lowlands of AD 300–900 were a densely settled area with many large population centers. The first clues to their political organization came with the discovery of "emblem glyphs," hieroglyphic compounds that seemed to identify individual cities. It is now known that these combinations are the titles of Maya kings and describe each as the "divine lord" of a particular polity. The discoveries showed that the lowlands were at this time divided into a dense "mosaic" of numerous small states.

Today, a lively debate continues as to what degree this arrangement reflects the full political landscape. Some scholars think such states were autonomous and of roughly equivalent strength and influence. Others see evidence for a hierarchical ranking between kingdoms, arranged either in a "quadripartite" model of regional states, or a more loosely structured "hegemonic" system, in which dominant powers exercised some control over subject states, without interfering directly in their internal affairs. These reconstructions give greatest prominence to centers known from surveys such as: Copán, Tikal, Calakmul, and Palenque.



Emblem glyphs *(left) naming 7 of the most important Maya polities. The map shows one suggested arrangement of Maya political territories, c. AD 731.*

MULTI-DIMENSIONAL SCALING (MDSCAL)

Multi-dimensional scaling (MDSCAL) is a multivariate statistical technique, which, like factor analysis and cluster analysis, seeks to simplify complex information. The main aim is to develop spatial structure from numerical data. The starting point is a series of units, and some way of measuring or estimating the distances between them (often in terms of similarity and difference, where a larger difference is treated as much the same as a larger distance). The method allows one to reach the best arrangement (usually in two dimensions) of the various units in terms of similarities and differences.

One interesting feature of the method is that it does not need fully quantitative measures of similarity and difference: it is sufficient to know, for each unit, which the nearest unit is, and then the next and so on in rank order. For this reason, the method is sometimes called non-metric multi-dimensional scaling.

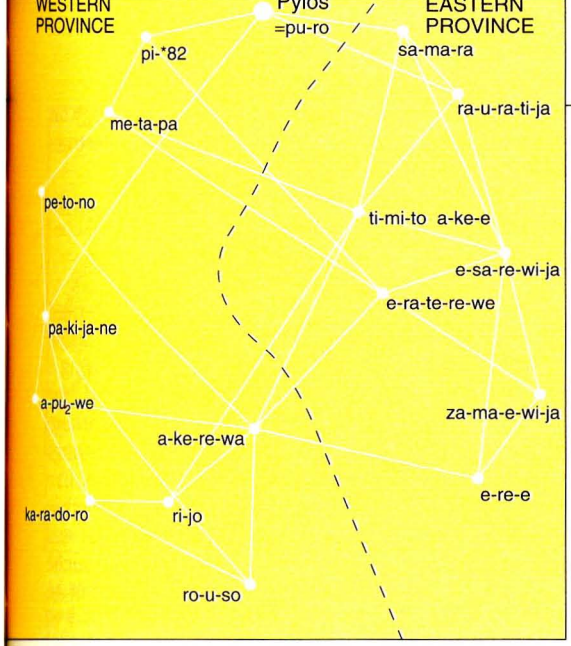
An ingenious use of the approach, which can serve as an example, was employed by the English archaeologist John Cherry. The problem was to try to reconstruct something of the geography of the Mycenaean kingdom of Pylos in Greece (*c.*1200 BC). The information for the computer program came entirely from the palace archives recorded on clay tablets found at Pylos. The tablets, which mention many place names, give no direct geographical information whatever, although they contain sufficient hints about the approximate location of some places to have allowed speculative maps to be drawn. Cherry's rather different approach involved just one interesting assumption: that if two or more place names occurred on the same tablet, they were likely to be fairly close to each other in reality. So he studied the frequency with which certain place names were recorded on the tablets, and then compiled a table (or "incidence matrix") showing their co-occurrence on individual tablets. The computer then went to work using the MDSCAL program, and produced as its output a spatial configuration based entirely on these data. Bearing in mind that the MDSCAL map shows relationships rather than distances, Cherry was then able to compare his configuration with the positions of the same sites, suggested by other scholars, on a real geographic map.

While the results remain hypothetical at this stage and have to be tested against further discoveries in the field, there are a number of intriguing similarities between the MDSCAL and geographic maps. For example, the computer was able to separate the towns of the kingdom's two provinces. It also confirmed much of the north-to-south order of the towns in the western province, if one ignores Pylos. Thus, on both MDSCAL and geographic maps, pi-*82 is the most northerly town, followed by me-ta-pa etc. Pylos appears unexpectedly at the top of the MDSCAL map probably because, as the "capital" of the kingdom, its interactions were different in kind from those amongst the satellite towns.

The essential point, however, is that Cherry used information about relationships between pairs of units (in this case places mentioned in the tablets) to produce an ordered spatial configuration of those units. That is the essence of non-metric multi-dimensional scaling.

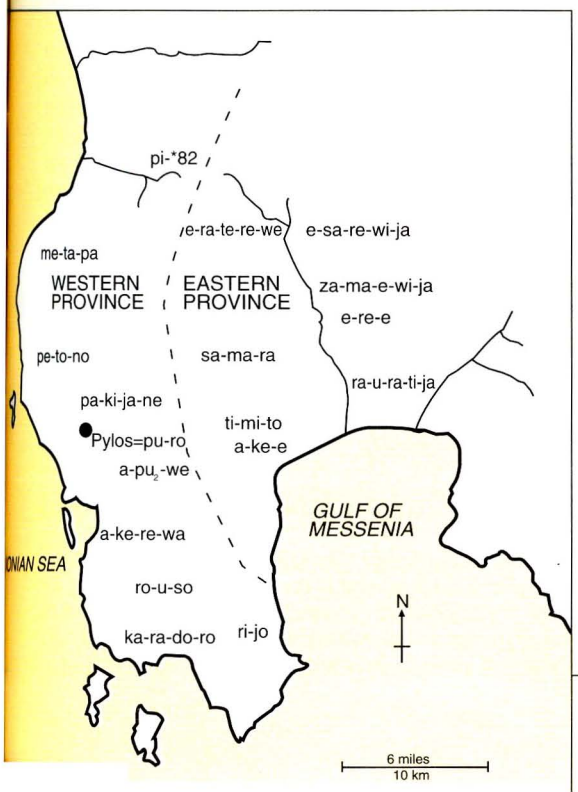
	a-ke-re-wa	a-pu_2-we	e-ra-te-re-we	e-re-e	e-sa-re-wi-ja	ka-ra-do-ro	me-ta-pa	pa-ki-ja-pi	pe-to-no	pi-*82	pu-ro	ra-u-ra-ti-ja	ri-jo	ro-u-so	sa-ma-ra	ti-mi-to a-ke-e	za-ma-e-wi-ja
a-ke-re-wa		1	1	1	0	0	0	0	1	0	0	0	1	1	0	1	0
a-pu_2-we			0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
e-ra-te-re-we				0	1	0	1	0	0	1	0	0	0	0	0	1	1
e-re-e					1	0	0	0	0	0	0	0	0	0	0	0	1
e-sa-re-wi-ja						0	0	0	0	0	0	1	0	0	1	1	1
ka-ra-do-ro							0	1	0	0	0	0	1	1	0	0	0
me-ta-pa								0	1	1	0	0	0	0	0	1	0
pa-ki-ja-pi									1	0	1	0	0	1	0	0	0
pe-to-no										0	0	0	0	0	0	0	0
pi-*82											1	0	0	0	0	0	0
pu-ro (=Pylos)												1	0	0	1	0	0
ra-u-ra-ti-ja													0	0	1	1	0
ri-jo														0	0	1	0
ro-u-so															0	0	0
sa-ma-ra																1	0
ti-mi-to a-ke-e																	0
za-ma-e-wi-ja																	

Table *("incidence matrix") showing 17 of the towns recorded on the tablets found at Pylos, and which of these names occur together on the same tablet (1 = link indicated; 0 = no link)*



The MDSCAL output *or map produced from the information in the incidence matrix, showing general relationships among the towns rather than distances. The computer has successfully reproduced the division of towns into two provinces, with a north-to-south ordering in the western province similar to that on the geographic map.*

Geographic map *of the Pylos area, with towns positioned approximately by John Chadwick using conventional archaeological and other evidence. The dashed line indicates the known division of the kingdom into two provinces.*



major ceremonial and public buildings – temples have a social as well as religious function – and other components of the city, such as areas for specialist craft manufacture, and residential structures. Differences in standards of housing will reveal inequalities between rich and poor and therefore an aspect of the social hierarchy.

Quite often, however, the function of large and presumably public buildings is difficult to establish, and there is a temptation to ascribe purposes to them based on guesswork. For instance, the excavator of Knossos on Crete, Sir Arthur Evans, gave names such as "the Queen's Megaron" to some of the rooms there, without any good evidence for the term.

One way to begin studying the city in detail is the intensive sampling of artifact materials from the surface. At Teotihuacán the topographic map (at a scale of 1:2000) was used as the basis for surface sampling on foot. Trained fieldworkers covered the whole site, walking a few meters apart, and collected all the rims, bases, handles, and other special sherds and objects visible to them. The data from Teotihuacán have been processed in an ambitious computer project by George Cowgill. In this way the spatial distribution of specific artifact types can be mapped, and inferences made about the patterns of occupation in different periods.

A stage beyond intensive surface sampling can be the kind of combined surface examination and selective excavation carried out at Tell Abu Salabikh, described in Chapter 3, which revealed the largest area of housing known from any 3rd-millennium BC site in southern Iraq.

Usually, however, excavation on a large scale will be needed for a major center such as a city. Some of the most famous and successful excavations earlier this century have been of this kind, from Mohenjodaro in the Indus Valley in what is now Pakistan to the biblical city of Ur in present-day Iraq.

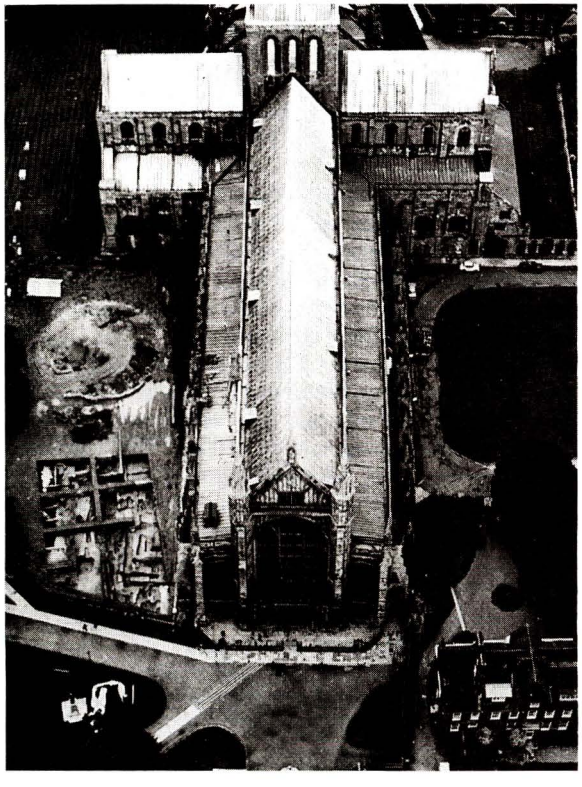
With luck, the preservation conditions for the last period of occupation will be good. If the site is located in the vicinity of a volcano, this last period may very well be superbly preserved by volcanic ash and lava. Pompeii in southern Italy and Akrotiri on the Greek volcanic island of Thera (Santorini) have been mentioned in earlier chapters as examples of cities buried and preserved for posterity, but there are others: for example, Cuicuilco was the great rival to Teotihuacán in the Valley of Mexico until volcanic eruptions destroyed the city some 2000 years ago. In such extreme circumstances, however, preliminary topographic mapping of the kind just described may not be possible, since structures will be buried too deeply to show up on the surface.

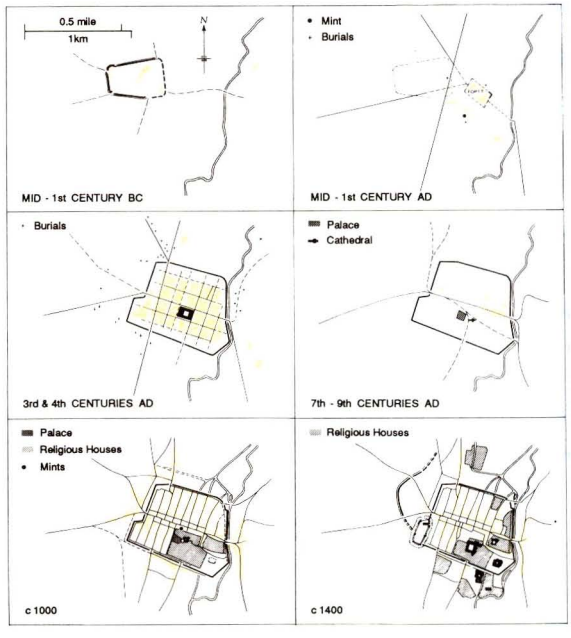
Occupied Sites. The problems are similar, but much more difficult in practice, with continuously urban sites: early centers that remain urban centers to this day and have, therefore, not only a complex stratigraphic succession, but modern buildings on or around the site. For such sites, the approach has to be a longer-term one, taking every opportunity provided by the clearing of a site for new construction, and building up a pattern of finds that eventually take on a coherent shape. This has been very much the story of urban archaeology in Britain and Europe, where the remains of Roman and medieval towns are generally buried beneath modern ones. In a way, this is a kind of sampling, but one where the location from which the sample is taken is not the choice of the research worker but is determined by availability. The work of the Winchester Research Unit in southern England between 1961 and 1971 is a good example. It was possible, by excavating beside the present cathedral, to trace the history of older structures. Evidence from previous archaeological work, together with the more recent excavations, have provided a good impression of the Roman, Saxon, and medieval towns underlying the present city of Winchester.

The whole issue of salvage or rescue archaeology on sites in cities and elsewhere threatened with destruction is discussed in Chapter 14.

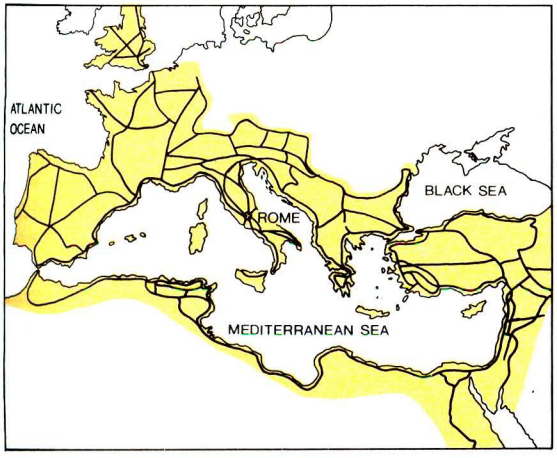
Administration beyond the Primary Center

Investigation of the mechanisms of organization need not be restricted to the primary, capital center. Outside the main center there may be many clues indicating a centrally organized administration. It is useful, for example, to search for *artifacts of administration*. Perhaps the most obvious of these are the clay sealings found at secondary centers where the redistributive system is administered. Equally useful are other imprints of central authority, such as the imperial seal in any empire, or royal emblems such as the cartouche (royal name in a distinctive cigar-shaped frame) of an Egyptian pharaoh, or the display of a royal coat of arms. Nor need the existence of a central jurisdiction be indicated by only the actual emblems of power: a Roman milestone on a road, for instance, carries with it the message that it is part of a centrally administered system of imperial highways.





Occupied site: Winchester, southern England. (Left) Excavations in progress beside the cathedral. (Above) The complex development of the city up to AD 1400, based on a decade of excavation and many years of post-excavation analysis. Inhabited areas are shown in color.



Administration beyond the primary center: the elaborate road network of the Roman empire (shown here in about AD 150) gives a clear indication of central administration.

A second approach is to look at *standardization of weights and measures* (see the section on Measuring the World, pp. 381–84). Such standardization is found within most centrally administered economic systems. In many cases, the standard units came to be utilized outside the boundaries of the particular state as well.

The existence of a good *road system* is important to the administration of any land-based empire, although less significant for the smaller nation states that could be crossed by an army on foot in the course of a couple of days. The road system within the Roman empire gives one of the clearest indications of central administration, and would do so even if written records were unavailable. The Inca road network indicates central organization of a society without such records.

Clear indications of the exercise of military power can give the most direct insight possible into the realities of administration: control of territory often depended heavily on military might. Defensive works on a major scale offer similar insights and mark decisive boundaries. The Great Wall of China, begun in the late 3rd century BC, is perhaps the best-known example.

Investigating Social Ranking

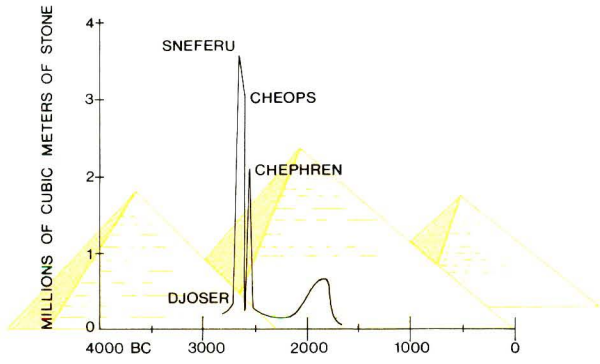
The essence of a centralized society and of centralized government is a disparity between rich and poor in ownership, access to resources, facilities, and status. The study of social organization in complex societies is thus in large measure the study of social ranking.

Elite Residences. Residential structures can indicate marked differences in status. Large and grandiose buildings, or "palaces," are a feature of many complex societies, and may have housed members of the social elite. The difficulty comes in demonstrating that they actually did so. Among the Maya, for example, recent research has shown that the term "palace" is too general, covering a variety of structures that had different functions. Perhaps the best solution is to combine detailed study of the structure itself (architecture, location of different artifacts) with ethnoarchaeological or ethnohistoric research. David Freidel and Jeremy Sabloff did this successfully in their analysis of the island of Cozumel, off the east coast of Mexico's Yucatán peninsula. Using 16th-century Spanish descriptions of elite residences, they were able to identify architecturally similar structures in the pre-Columbian archaeological record dating to a couple of centuries earlier. Test excavations helped clarify the functions of the buildings.

Great Wealth. The very existence of great wealth, if it can be inferred to have been associated with particular individuals, is a clear indication of high status. For instance, the treasures of the Second City at Troy, unearthed (or so he claimed) by Heinrich Schliemann in 1873, must indicate considerable disparity in the ownership of wealth. The treasure included gold and silver jewelry as well as drinking vessels, and there can be little doubt that it was intended for personal use, perhaps on public occasions.

Depictions of the Elite. Perhaps even more impressive than wealth, however, are actual depictions of persons of high status, whether in sculpture, in relief, in mural decoration, or whatever. The iconography of power is further discussed in Chapter 10, but in many ways this is our most immediate approach to social questions. Although such depictions are not often found, it is not uncommon to find symbolic emblems of authority such as Egyptian cartouches, to which may be added artifacts such as royal scepters or swords.

Burials. Undoubtedly, the most abundant evidence of social ranking in centralized societies, just as in non-centralized ones, comes from burial, and from the accompanying grave-goods. As discussed in the section on segmentary societies, a profitable approach is to consider the labor input involved in constructing the burial monuments, and the social implications. The largest and most famous such monuments in the world are the pyramids of Egypt, over 80 of which still exist. At the most straightforward level of analysis



The colossal building effort required to erect the pyramids reflects the centralization of power in the hands of pharaohs such as Djoser, Sneferu, Cheops, and Chephren.

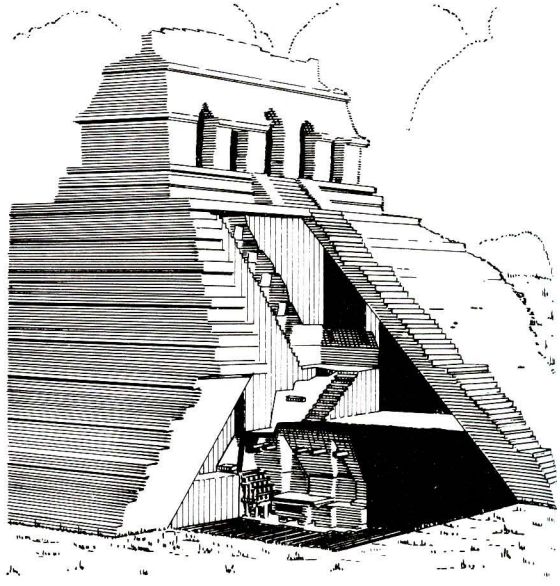
they represent the conspicuous display of wealth and power of the highest ranking members of Egyptian society: the pharaohs. But fascinating new research by, amongst others, the British archaeologist Barry Kemp and the American archaeologist Mark Lehner is beginning to shed further light on the social and political implications of this colossal expenditure of effort – which involved in the case of the Great Pyramid at Giza the shifting of some 2.3 million limestone blocks, each weighing 2.5–15 tons, during pharaoh Cheops' 23-year reign (2589–2566 BC). As the accompanying diagram shows, there was a brief period of the most immense pyramid building activity in Egypt, dwarfing what had gone before and what followed. The peak period of this activity indicates the harnessing of huge resources by a highly centralized state. But what happened afterwards? Kemp has argued that the reduction in pyramid building coincides interestingly with a transfer of social and economic resources to the provinces, away from the main area of the pyramids.

The pyramids and other burial monuments are not the only source of information about social organization and ranking in ancient Egypt. Magnificent grave-goods have often been recovered, most spectacularly those belonging to the boy pharaoh Tutankhamun (box, pp. 58–59). Nor of course were the ancient Egyptians alone in building monuments for their dead rulers and burying the richest artifacts with them. In the New World one thinks, for instance, of the Temple of the Inscriptions at Palenque, which held deep within it the tomb of the Maya city's ruler, Lord Pacal, who died in AD 683 and was buried with his superb jade mosaic mask. Major excavations at Copán, Honduras, likewise revealed a splendid Maya noble's tomb beneath the famous Hieroglyphic Stairway there.

In many early civilizations the ultimate power and rank of the dead ruler were emphasized by the ritual killing of royal retainers, who were interred with the monarch. Such funeral rites have been brought to light in the Sumerian Royal Graves at Ur, in modern Iraq, and among the burials of the Shang dynasty at Anyang in China. The huge army of terracotta warriors buried next to the tomb of the first Chinese emperor, Qin Shi Huangdi, represents a development of this practice, where the life-size terracotta figures take the place of members of the real imperial army.

There are many examples too of elite burials among smaller-scale state societies and chiefdoms. One of the most skillfully conducted excavations in western Germany in recent years has been that of a Celtic chieftain's grave at Hochdorf, dating to the 6th century BC, where Jorg Biel painstakingly recovered the collapsed remains of a wagon, drinking vessels, and many other grave-goods, including the wheeled bronze couch on which the dead chief lay, covered with gold jewelry from head to foot. The Shaft Graves at Mycenae in Greece and the Anglo-Saxon ship burial at Sutton Hoo in England (box, pp. 98–99) represent similar discoveries by earlier generations of archaeologists.

However, all these remarkable burials are of individuals uniquely powerful in their societies. To obtain



Cutaway view of the Temple of the Inscriptions, Palenque, Mexico, showing at the base the hidden burial chamber of Lord Pacal, ruler of this Maya city who died in AD 683, as we know from inscriptions at the site.

a more comprehensive picture of a ranked society it is necessary to consider the burial customs of the society as a whole. In many cases, it has proved possible to discover something about the elites that existed at a level below that of the ruler. Research carried out over many years at Moundville, Alabama, is a good example (see box overleaf).

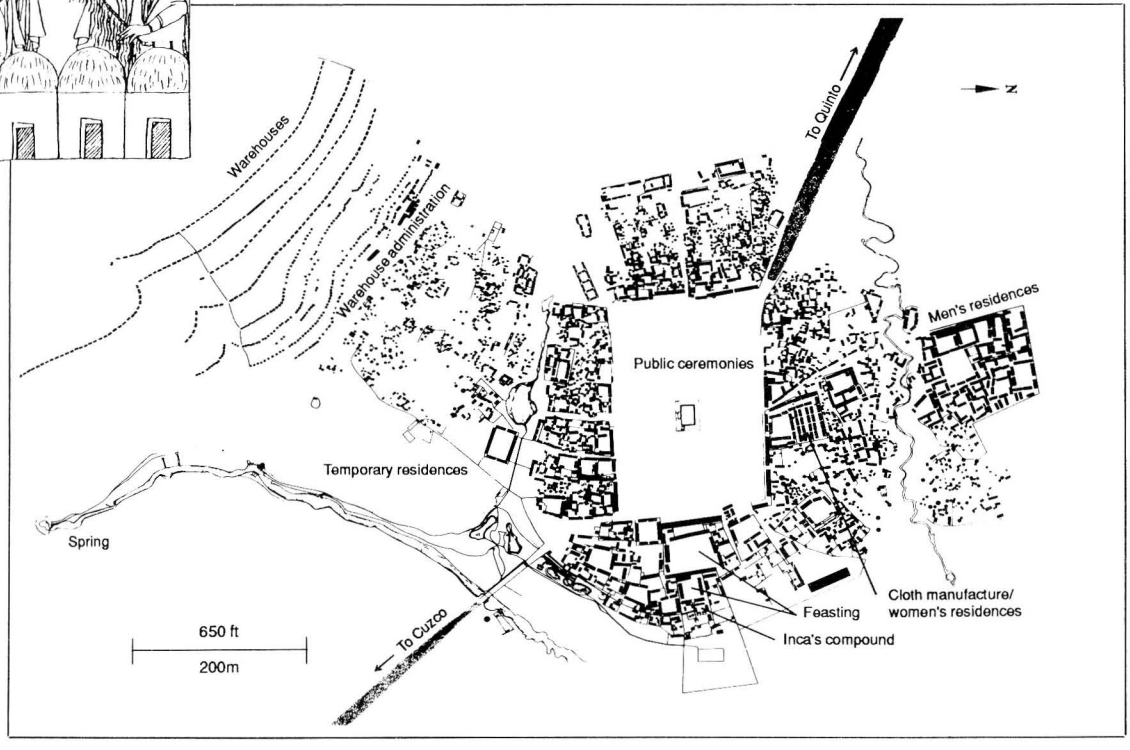
There is undoubtedly more scope for useful investigations of social structure through cemetery analysis in ranked societies. Up to now, most sophisticated cemetery studies have been devoted to less centralized societies, as reviewed in a previous section. Cemetery data of the early historic period in the Old World have conventionally been studied with a view to illustrating the existing historical texts, or refining typological schemes as an aid to chronology and the study of art history. Only now is the focus of attention shifting toward studies of disparities in social status.

Investigating Economic Specialization

Centralized societies differ from non-centralized ones in a number of important respects. In general, the more centralized structure allows greater economic specialization, and this in turn brings increased efficiency of production. Centralization is often associated with an increased intensification of farming, for not only do centralized societies normally have higher population densities, but they must also produce enough surplus to support full-time (as opposed to part-time) craft specialists. The greater degree of craft specialization is made possible only by the organizing abilities of a more centralized society, which is able to manage and promote an increase in agricultural productivity.

Intensified Farming. The initial development of new farming methods for more intensive food production

Economic specialization: Huánuco Pampa, Peru, a provincial capital of the Inca empire. Warehouses at the site (left, the Inca emperor checks warehouse accounts with an official) were used to store state goods that were later redistributed among the populace at public ceremonies held in the central plaza. Analysis of the site by Craig Morris also identified areas set apart for craft specialists, such as a compound where women made clothing and beer.



SOCIAL ANALYSIS AT MOUNDVILLE

During its heyday in the 14th and 15th centuries AD, Moundville was one of the greatest ceremonial centers of the Mississippian culture in North America. The site takes its name from an impressive group of 20 mounds constructed within a palisaded area, 150 ha (370 acres) in extent, on the banks of the Black Warrior river in west-central Alabama. Moundville was first dug into as long ago as 1840, but major excavations did not take place until this century, in particular by C.B. Moore in 1905 and 1906, and D.L. DeJarnette in the 1930s. More recently Christopher Peebles and his colleagues have combined systematic survey with limited excavation and reanalysis of the earlier work to produce a convincing social study of the site.

Changing settlement patterns *in the Moundville region. In Phase I (AD 1050–1250) Moundville was simply a site with a single mound, like other similar sites in the area. By Phase II, however, it had grown larger, establishing itself as the major regional center. After its heyday in Phase III, Moundville disappeared as a significant site in Phase IV (after 1550), when the region no longer had a dominant center.*

Peebles and his team first needed a reliable chronology. This was achieved through an analysis of the pottery by Vincas Steponaitis, using in the first instance a seriation study (see Chapter 4) of whole vessels from a sample of burials at the site. The resultant relative chronology was then cross-checked with excavated ceramics from known stratigraphic contexts, whose radiocarbon dating helped convert the scheme into an absolute chronology.

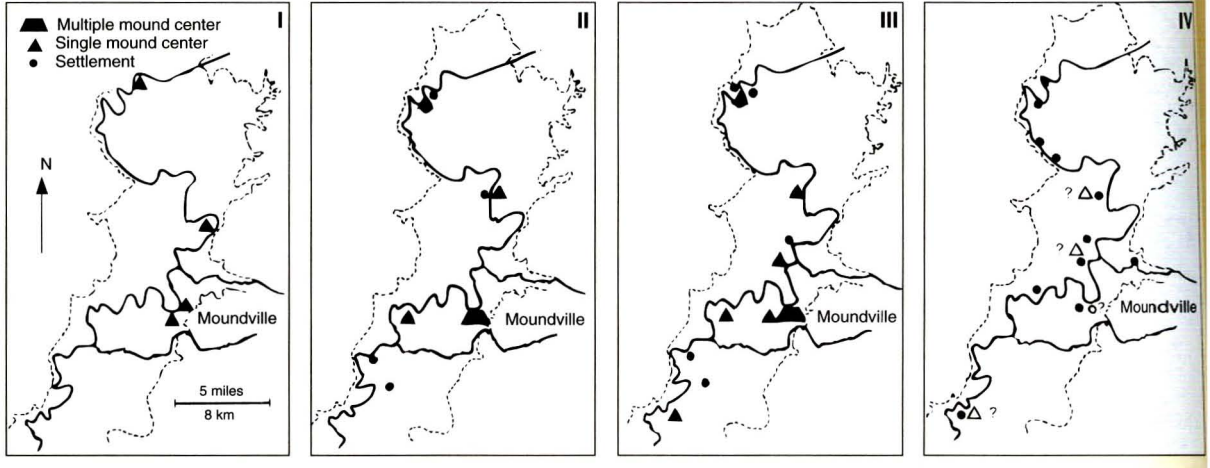
Slate palette *from Moundville incised with a hand-and-eye motif within two entwined horned rattlesnakes. Diameter 32 cm.*

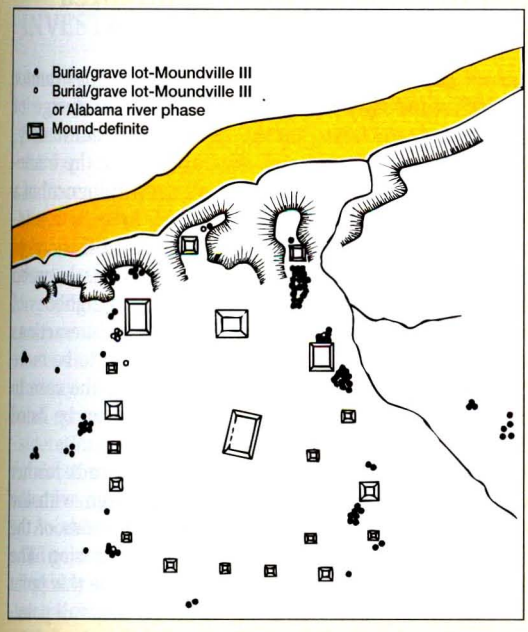
Using this framework, it was now possible to study the development of the site through several phases. Preliminary survey of neighboring sites also established the regional settlement pattern for each phase.

Over 3000 burials have been excavated at Moundville, and Peebles used the technique of cluster analysis (see box, p. 189) to group 2053 of them according to social rank. Peebles observed that the small number of people of highest rank (Segment A: classes IA, IB, and II in the pyramidal diagram) were buried in or near the mounds with artifacts exclusive to them, such as copper axes and earspools. Lower-ranking individuals of Segment B (Classes III, IV) had non-mound burials with some grave-goods but no copper artifacts, while those of Segment C, buried on the periphery, had few or no grave-goods.

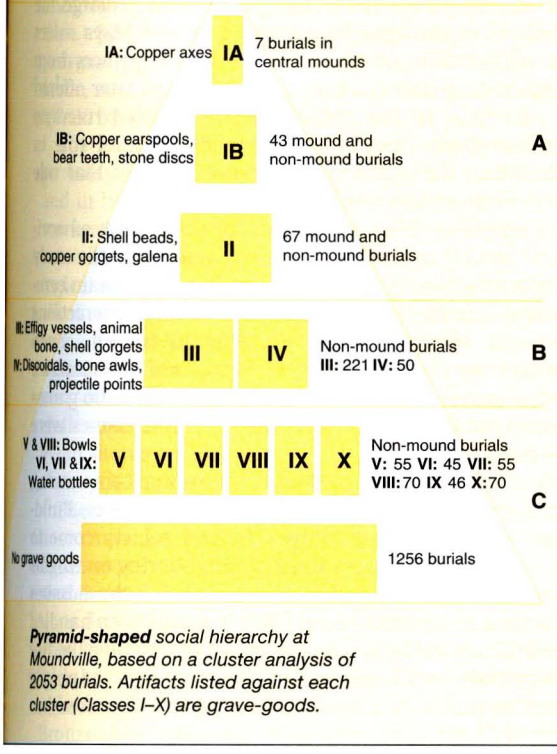
Peebles found interesting differences according to age and sex. The 7 individuals in Class IA, the top of the social pyramid, were all adults, probably males. Those of Class IB were adult males and children, while Class II comprised individuals of all ages and both sexes. It seems clear that adult males had the highest status. The presence of children in Class IB suggests that their high status was inherited at birth.

There is much more to say about the work at Moundville. But it should be clear from this summary how the various dimensions of information already examined come together to suggest a regional organization with a well-marked hierarchy of sites, controlled by a highly ranked community at Moundville itself – what Peebles terms a chiefdom society.





Phase III *at Moundville, AD 1400–1550, when the ceremonial center was at its height.*



Pyramid-shaped *social hierarchy at Moundville, based on a cluster analysis of 2053 burials. Artifacts listed against each cluster (Classes I–X) are grave-goods.*

was discussed above in the section concerned with segmentary societies.

In centralized societies the process is taken a stage further, with a still greater emphasis on labor-intensive techniques such as plowing. In addition, major public works such as irrigation canals are often undertaken for the first time, made possible by the coercive and organizing powers of a central authority. Another indicator of growing intensification may be the reorganization of the rural landscape into smaller units, as the population increases and the amount of land that is available for each farmstead thereby diminishes.

Taxation, Storage, and Redistribution. An important indicator of centralized control of a society is the existence of permanent storage facilities for food and goods, which the central authority will draw on periodically to feed, reward, and thus indirectly control its warriors and the local population. It follows that taxes, for instance in the form of produce to replenish state storehouses, will also be found among centralized societies: without them the controlling authority would have no wealth to redistribute. In chiefdom societies "taxation" may take the form of offerings to the chief, but in more complex societies the obligation is generally formalized. Much of a state's bureaucracy will be devoted to the administration of taxation, and direct indications of bureaucracy, such as recording and accounting systems, in general document it.

A good example of a research project that has helped clarify this interaction of taxation, storage, and redistribution in one part of the world is the work of the American archaeologist, Craig Morris, at the city of Huánuco Pampa (see illus. p. 203), a provincial capital of the Inca empire high up in the Andes. This city, at one time inhabited by some 10,000–15,000 people, had been built from scratch by the Incas as an administrative center on the royal road to Cuzco, the imperial capital. We know from written accounts by early Spanish chroniclers that Inca rulers exacted taxation in the form of labor on state lands and state construction projects, including the building of Huánuco Pampa itself.

Many of the goods thus produced were stored in state warehouses – but to what purpose? Close analysis by Morris of a sample of some 20 percent of the more than 500 warehouses at Huánuco, as well as other structures there, suggested that stored potatoes and maize were used primarily to supply the city at this high altitude, where food production was difficult. But the city itself functioned to accommodate highly

organized ceremonies in its huge central plaza, during which feasting and ritual maize-beer drinking took place, thus redistributing much of the stored wealth to the local populace.

As Morris states, this ceremonial aspect of administration seems to have been very important in early state societies. The sharing of food and drink reinforced the idea that participation in the empire was something more than working in state fields or fighting in a distant war.

Craft Specialists. The increased importance of craft specialists is another indicator of a centralized society that can be identified archaeologically. Full-time craft specialists leave well-defined traces, because each craft has its own particular technology and is generally practiced in a different location within the urban area.

Huánuco Pampa again provides a helpful example. Although craft production here was much less developed than in many early cities elsewhere in the world, Morris successfully identified a compound of 50 buildings given over to the making of beer and clothing. Thousands of special ceramic jars and dozens of spindle whorls and weaving implements provided the archaeological clues; the ethnohistoric record linked these with beer and cloth production, more particularly with a special social class of Inca women known as *aklla*, who were kept segregated from the rest of the population.

Morris was able to show from his study that the distinctive architecture of the compound – enclosed by a surrounding wall with a single entrance thus restricting access – and the density of occupational refuse suggested the presence of permanently segregated *aklla* craft specialists.

Detailed archaeological research of this kind is being carried out in many parts of the world, particularly into the specialized production of pottery, metal, glass, and lithic materials such as obsidian (all of which are discussed more fully in Chapter 8). The work of the Italian archaeologist, Maurizio Tosi, at the site of Shahr-i-Sokhta in modern Iran is a case in point, providing as it does an impression of the scale of craft specialization and its relationship to the central administration on the Iranian plateau during the 3rd millennium BC. By studying the evidence of craft production in different parts of the site, Tosi showed that some activities (notably textiles and leather-working) were restricted to residential areas, while others (such as stone tool, lapis lazuli and chalcedony working) were strongly represented in specialist workshop areas.

Relationships between Centralized Societies

External contacts between centralized societies cannot be understood simply in terms of the exchange of goods: they are also social relations. Traditionally, these have been examined, if at all, within the framework of dominance models, where the "influence" of a primary center on outlying secondary areas is considered, often in what has been called the "diffusion" of culture (see Chapter 12). Most interactions between societies, however, take place between neighbors of roughly equal scale and power. These interactions have been termed peer polities. They need to be more carefully considered than has so far been the case in archaeology. One or two broad headings can be listed here.

The role of *warfare* in early societies needs further investigation. War need not be undertaken with the objective of permanently occupying the lands of the vanquished in a process of territorial expansion. The American archaeologist David Freidel made this point in his study of Maya warfare, based on the wall paintings at the site of Bonampak and deductions from early written sources. According to his somewhat controversial analysis, the function of Maya warfare was not to conquer new territory, and thus enlarge the frontiers of the state, but instead to give Maya rulers the opportunity of capturing kings and princes from neighboring states, many of whom were later offered as sacrifices to the gods. Warfare allowed rulers to reaffirm their royal status: it had a central role in upholding the system of government, but that role was not one of territorial expansion.

Competition is a frequent undertaking between societies, sometimes within a ritual framework. The study of places where games were played, or of certain ceremonial areas, may reveal that many interactions between societies took a competitive form. Such seems to be the case for the ball courts of Mesoamerica and was certainly so for the great Panhellenic games of ancient Greece, of which the Olympic Games were the most famous.

One of the most frequent features accompanying competition is *emulation*, where the customs, buildings, and artifacts employed in one society come to adopt the form of those used in neighboring ones. This proves to be so in almost every area, but these issues of style and symbolic form have scarcely been handled yet by archaeologists. In so far as they involve the use of symbols, and hence a consideration of what people think as much as what they do, they are discussed further in Chapter 10.