

FRANCHTHI CAVE AND THE BEGINNING OF SETTLED VILLAGE LIFE IN GREECE

GIVEN THE THEME of this symposium, it might be appropriate to focus attention, in summary fashion at least, upon the precursors (in evolutionary terms) of the ancient Greek towns and cities. This means, then, a consideration of the origins of the village in prehistoric Greece.¹

The fundamental role played by the village and village life throughout Greek history is well known. Even today, at the climax of an era of emigration from rural settlements to urban centers,² the village remains one of the most characteristic features of Greek life. Whereas more than one third of the country's population is concentrated in the two major cities of Athens and Salonika, the remainder of the populace is dispersed over the countryside in thousands of smaller communities whose social and economic life is still largely rooted in the soil (Wagstaff, 1969).

Although we at the American School, along with some of our Greek and foreign colleagues, have perhaps devoted a disproportionate amount of our archaeological resources and energies to the investigation of urban affairs in antiquity, there are indications that that research orientation has begun to change. There now seems to be an increasing interest in the rural dimension of Greek life, from Byzantine times back to the classical and prehistoric periods. In order to provide what I perceive to be necessary background for these important investigations, I wish to concentrate upon some of the earliest examples of human settlement in Greece, well before the first towns and cities, and to emphasize the formative stages of the Neolithic village.

In view of the inconsistencies frequently observed in the terminology used to describe human settlements in the archaeological literature (e.g., Tringham, 1972a), it will be necessary at the outset to define one's terms. In this context, I shall use the term "settlement" to describe the archaeological manifestation of human domestic activity

¹This paper is in part the result of a seminar which I gave during the past winter while Visiting Professor at the American School of Classical Studies. I should like to take this opportunity to thank the members of the seminar for their helpful contributions to our discussions. I should also like to acknowledge with thanks the following for their support of the Franchthi project: the Indiana University Foundation, the National Endowment for the Humanities and the National Science Foundation.

An initial stage of this manuscript was read by Dr. Steven Diamant, Professor M. H. Jameson, Mr. Sebastian Payne, Professor Jeremy Rutter and Professor Tj. van Andel. Their reactions to it have been most helpful, but the author obviously takes full responsibility for the statements that follow.

²The recently announced results of the 1981 census, however, have revealed a reversal of this trend and have shown that "for the first time since World War II the rate of city population growth was dropping and that of the countryside was increasing" ("Census finds Greeks spurning city to return to land," *International Herald Tribune* (Paris), Wednesday, May 13, 1981, p. 8).

(habitation) at a single location (site). Although the precise function of an archaeological site is sometimes unknown, it is important to recognize that all "sites" need not have been "settlements"; there are, for example, mortuary sites (cemeteries) and ritual sites (e.g., religious sanctuaries) as well as habitation sites (settlements). For me, then, "site" is a more general term than "settlement", much as "occupation" is a less specific form of human activity than "habitation".

At the same time, we must understand that there are different kinds of human settlement, often expressed in terms of the hierarchy hamlet-village-town-city. Here we shall be concerned only with the lower end of the hierarchy and, given the nature of our evidence, I would follow Flannery (1972a) in drawing no substantial distinctions between a hamlet and a village. Settlements of this kind are normally thought of as permanent (i.e., year-round) locations, inhabited by people practicing basically sedentary life styles. Yet it is clear from ethnography (if not also from archaeology) that not all human settlements were, in fact, permanent and sedentary. One need only think of the settlements of nomadic pastoralists or mobile hunting-gathering groups; groups such as these may routinely inhabit more than one habitation site during the course of a year. Therefore geographers working on this problem have often expressed their results in terms of two basic classes of settlements, "permanent" and "temporary" or "impermanent", although distinctions between them can often be blurred (Wagstaff, 1969; Eidt, 1976).

This, then, raises the issue of seasonality and the archaeological recognition of seasonally occupied sites. In fact, the problem of permanence and sedentism is very complex and one which can not be resolved (at least for prehistoric societies) until we are better able to identify appropriate indications of seasonality or seasonal occupation in the archaeological record (cf. Bökönyi, 1972; Monks, 1981). Relatively little attention has been paid to this issue in Greek archaeology up to now. For the present, I shall use the term "camp" to describe a temporary human settlement which is known or suspected to have been inhabited only seasonally. The term also implies a size and a population smaller than those of the normal village and, theoretically at least, location either in natural shelters such as caves or in settlements of domestic structures made of perishable building materials (Trigger, 1968).

A comprehensive yet simple definition of a village is somewhat more difficult to formulate (Wagstaff, 1969; Eidt, 1976). It is clear that size and population are not in themselves adequate criteria (Flannery, 1972a; Renfrew, 1972a, b) and that other factors must be taken into account. "Permanence" (year-round habitation) is one such factor, but the possibility that part of the village population is not resident throughout the year due to economic pursuits such as pastoralism, fishing, or trade must be recognized (cf. Higgs, 1976). Architectural planning and methods of construction should reflect this permanence, but limitations imposed by the availability of suitable building materials must also be borne in mind. A fundamental criterion in the definition of a village should be its economic base, and, in this paper, mixed agriculture will be taken as a *sine qua non* of the early village in Greece. Given the greater size of the village, we

might expect that its social organization would be more complex than that of the camp. Finally, I shall make no assumptions about an evolutionary (temporal) relationship between camps and villages. The former are merely small, seasonally occupied human settlements while the latter are larger and more sedentary; both may have been in existence at the same time. With these points in mind, we might now turn to the archaeological evidence.

FRANCHTHI CAVE

In view of what has just been said, it would not be unfair to ask what a cave site has to do with the development of sedentism in the Greek peninsula. Caves, when occupied by man, are usually thought to have been seasonal settlements at most. Franchthi is unusual, however, in that (a) it is a cave to which a settlement of built structures was eventually added and (b) its long and reasonably well dated stratigraphic sequence covers the critical periods of human activity when, I believe, the evolution of the first villages took place on Greek soil. Let us therefore begin with a survey of the results of the Indiana University excavations as they are now understood (Jacobsen, all refs.; Payne, 1975).

Today Franchthi Cave lies near the shore and overlooks the Bay of Koilada and the Argolic Gulf beyond, but there is good reason to believe that it has not always been thus (Van Andel *et al.*, 1980). In times of lower sea level, indeed throughout much of the site's history, the coastline was some distance away, and the inhabitants of the settlement looked out over a coastal plain through which at least one major stream wended its way to the sea. This combination of natural shelter and abundant water (from the stream as well as several springs near by) surely had a significant effect upon the establishment of human activity here. When that first took place, we do not know; we do know that it was something over 20,000 years ago. This date is based upon an excellent series of radiocarbon measurements and is further confirmed by volcanic tephra found near the base of our Palaeolithic deposit. This tephra has been correlated with volcanic ash from elsewhere dated between 25,000 and 40,000 years ago (Farrand, 1977; Vitaliano *et al.*, in press).

For the purposes of this paper, I would like to summarize the results of the Franchthi excavations in terms of a series of adaptive stages, i.e., successive human adaptations to changing environmental conditions. These stages coincide generally with the major chronological horizons as published (Jacobsen, 1976), but it must be emphasized that the latter are still provisional and are likely to be subdivided or modified with continued study of the remains.

Stage 1. The earliest stratified material from the site belongs to the Upper Palaeolithic and was probably contemporaneous at least in part with the last major glacial advance (Würm) in Europe. The climate seems to have been markedly cooler and drier at that time and vegetation sparse in the neighborhood of the site. Sea level would have been depressed by as much as 100 m. from that of today, and the nearest shore would therefore have been several kilometers distant. Although not abundant, the remains

suggest that the cave was occupied on a seasonal basis by a small hunting band of perhaps 25–30 people at most (Service, 1971). Their tool kit consisted of bladelets and scrapers of local flint, and their primary quarry was wild ass and (to a lesser extent) red deer. There is no evidence of the gathering of wild plants. Stage 1 seems to have come to an end with a temporary abandonment of the site, represented by a depositional hiatus in the stratigraphy, for a few thousand years around 15,000 B.C. (in uncorrected radiocarbon years).

Stage 2. This is essentially the Final Palaeolithic, ca. 10,000–12/13,000 years ago, a time when postglacial climatic and environmental conditions had already begun to be felt. Sea level was rising, and there is reason to believe (Van Andel, pers. comm.) that the availability of coastal lowland in the neighborhood of the site had been reduced by 10% or more from that of the glacial maximum.

Evidence of human activity on the headland of Franchthi is confined to the cave itself and seems to have become more intense than it had been earlier. A wider range of subsistence practices is also reflected by the excavated remains. Hunting of large game continued to be important, and red deer gradually came to be the dominant prey. At the same time, there are, for the first time, clear indications of small-scale fishing, shell-collecting (both marine [Shackleton and Van Andel, 1980] and terrestrial molluscs) and the exploitation of wild plants (Hansen and Renfrew, 1978; Hansen, 1978, 1980). These plants included the pulses (lentils and vetch), nuts (pistachios and almonds) and wild cereals (oats and barley), the earliest such yet recorded from Greece.

Microlithic tools begin to appear among the chipped-stone artifacts, and there are the first certified indications of the use of obsidian (Perlès, 1979). If analysis proves the latter to be of Melian origin (as we should expect), we would have evidence of seafaring far earlier than even we had expected from prior discoveries at the site. Thus it seems that we have here a group of hunter-gatherers who had already begun to exploit (perhaps tenuously at first) the rich resources of the sea.

Although evidence of seasonality is still very incomplete, there are some indications of spring, summer and autumn occupation (Hansen, 1980). Winter activity is rather more difficult to demonstrate (Payne, pers. comm.), but, if dietary resources not likely to be preserved in the archaeological record (e.g., leafy greens; cf. Clarke, 1976; Forbes, 1976) are taken into account, year-round occupation at the site must already be considered a *possibility*.

Since we have no evidence of more extensive occupation at this time, it seems safest to assume that Final Palaeolithic Franchthi continued to serve at least as a “base camp” for a small band of foragers, perhaps now on a more regular basis. Its size and natural advantages, however, may have permitted the accommodation of more than one such group on special occasions or at certain times of the year (Flannery, 1972a).

Stage 3. The over-all climatic and environmental trends first observed in Stage 2 seem to have continued under the ameliorating conditions of the “Neothermal” in the eighth millennium B.C. (in uncorrected radiocarbon years). Higher temperatures can be assumed, and the macro- and micro-faunal evidence suggests (Payne, pers. comm.)

significantly increased moisture, perhaps greater than in the area today. We can also assume a continuously rising sea level and, therefore, a further reduction of available coastal lowland and those biotic resources associated with it.

We can not as yet speak with certainty about the manner in which the occupants of the cave adapted to these changing conditions. That a modification of previous subsistence practices was necessary and did take place is implied by the apparent local extinction of certain faunal species (Payne, 1975) and a notable change in the composition of the tool kit (Perlès, pers. comm.). Whether this happened during a brief abandonment of the site, as perhaps suggested by the radiocarbon dates, is not certain. On the other hand, it is clear that there was some measure of continuity with the past. The inhabitants of the cave continued to rely heavily upon the hunting of red deer and the gathering of many of the same fruits, cereals, and legumes. Since the occupied area of the cave is no larger than before and the likelihood of year-round habitation certainly no greater than in Stage 2, it seems that the site continued to serve as a base camp for a small group of hunter-gatherers. It should be noted, however, that we now have the first clear-cut indications of the use of the cave as a place of burial as well as human habitation (Jacobsen, 1969). The rather simple interment of an adult male (a primary burial without grave goods) contrasts somewhat with the impression of the generally more elaborate mortuary practices of Neolithic Franchthi (Jacobsen and Cullen, in press).

Stage 4. For the present, it seems that the climatic and environmental situation which prevailed in Stage 3 continued without significant change into Stage 4 (seventh millennium B.C.). Sea level continued to rise, and it has been estimated (Van Andel, pers. comm.) that at least 25% of the (Pleistocene) lowland to the west of the site had now been submerged. Likewise, the distance to the nearest shore may well have been reduced by at least one half, thus bringing it within a few minutes' walk of the site.

It is still too early to know the full impact of these conditions on the Upper Mesolithic settlement at Franchthi. It seems clear that certain hunting and gathering practices were retained from previous stages, but there are noteworthy innovations as well. Particularly striking are the quantities of large fish bones which suddenly begin to appear at this time. These have now been identified (A. Wheeler, pers. comm.) as largely of the common (Blue Fin) variety of tuna and are of sizes which reach nearly 2.5 m. in length and 200 kg. in weight. Tuna vertebrae are extremely common in these contexts, comprising at least 95% of all the fishbones and nearly half of all the large animal bones. It is clear, therefore, that fishing came to be an important activity at this time, at least on a seasonal basis (Bintliff, 1977), and tuna a significant part of the diet of the cave's inhabitants.

Geometric microliths reappear in some quantity during Stage 4, but they are technically different from those of Stage 2 (Perlès, pers. comm.). Some of these tools were fashioned from obsidian, which was more abundant than ever before and has been confidently associated with a source on the island of Melos. It is still tempting to consider meaningful the correlation between tuna bones and Melian obsidian (e.g., Jacob-

sen, 1976, p. 81), but the relationship in terms of the technology of Mesolithic tuna fishing clearly needs to be better understood (cf. Bintliff, 1977). Likewise, until we know more about early habitation on Melos itself, the issue of pre-Neolithic "trade" (i.e., implying some form of bilateral exchange) must remain unsettled.

If the above suggests a certain intensification of fishing activities at Upper Mesolithic Franchthi, the results of Hansen's (1980) preliminary study of the carbonized plant remains can arguably reflect an intensified exploitation of botanical resources as well. Although the data are still inconclusive (especially for the potential domesticates, oats and barley), an argument can be made on the basis of size change for the cultivation of lentils. When combined with the first appearance of plants (e.g., coriander) often associated with cultivars and stone tools normally found in agricultural contexts (a flint "sickle" identified by microwear analysis as having been used to cut grasses [P. Vaughan, pers. comm.] and a fragmentary andesite "millstone" [C. Runnels, pers. comm.]), the argument is slightly strengthened. Tantalizing as it is, however, this evidence is still not abundant, and we can only hope that additional study of the relevant remains will help to settle the issue of agricultural origins at Franchthi. In the meantime, it may be said that the situation is rather less clear than it once appeared to us (cf. Jacobsen, 1976), and the *possibility* of experimental manipulation of certain species by man prior to the Neolithic must now be seriously entertained.

Thus the seventh millennium witnessed a diversification and perhaps a certain intensification of food-procurement strategies at Franchthi. That this was in response at least partially to pressures created by a reduced landmass seems very likely, but the extent to which it might also be a reflection of an increase in local population or a tendency towards sedentism (as some might suggest) is rather less obvious. We have nothing yet to indicate that the size of our settlement was any greater in Stage 4 than it had been earlier, and the evidence for seasonal scheduling does not significantly alter the picture gained from earlier stages. Nor has the archaeological record as yet revealed signs of increased social complexity, as might be expectable in more populous and sedentary communities. The material assemblage is still relatively simple and of limited extent, the occasional pebble pendant being among the few non-utilitarian objects unearthed. Yet the presence of such objects and the increasing use of exotic raw materials may point to expanding social and economic horizons. This in combination with the new evidence from the subsistence record should draw our attention to the potentially pivotal role of the Mesolithic—a "prelude", as one scholar has recently put it (Clark, 1980)—to the cultural achievements of the Neolithic. The time has clearly come to re-evaluate traditional ideas about the Mesolithic "hunter-gatherers" and their adaptive strategies (Bender, 1978; Lethwaite and Rowley-Conwy, 1980; Mellars, 1978).

Stage 5. This is essentially contemporaneous with the advent of the Neolithic period, which begins *ca.* 6000 B.C. Leaving aside the still unsettled issue of an "Aceramic Neolithic", the transition from Mesolithic to Neolithic at Franchthi seems to show evidence of both continuity and change. The latter is perhaps most striking, but the former should be kept in mind as we consider the following.

It is clear that agriculture (both plant and animal husbandry) was now practiced. This is demonstrated not only by the size and morphology of the plants and animals themselves but by the presence of various artifacts normally associated with an agricultural economy. It is also clear that at least some of the biological innovations which make their appearance in the Neolithic have non-local origins. The sheep and goats (mostly sheep), which appear suddenly and immediately dominate the faunal assemblage, and certain of the cereals (emmer wheat, einkorn wheat and perhaps two-row hulled barley) were not present in the Palaeolithic or Mesolithic at Franchthi. It is also of interest that some of the species common in earlier periods now disappear or decrease noticeably. Oats are not found at all in Neolithic contexts, and the hunting of red deer and tuna fishing dropped off markedly in the earliest phases of the Neolithic. When taken together, this evidence suggests that there was a rather dramatic shift in subsistence priorities at this time and that food production rapidly became the economic base of the community.

Excavation along the present shoreline (Paralia) outside and below the cave has revealed a complex of rather substantial stone walls, the earliest of which can be dated to the beginning of the (ceramic) Neolithic. These walls seem to have served a variety of purposes, but it is reasonably clear that some of them belonged to small domestic structures and therefore represent an expansion of the nuclear settlement in the cave. An area of only slightly more than 100 sq. m. of this settlement has been exposed by excavation, but we have enough to indicate that it was once probably somewhat larger and may now lie partially submerged in the Bay of Koilada (Jacobsen, 1979; Van Andel *et al.*, 1980).³ Although there is reason to expect functional differences in terms of human occupation between the cave and the open settlement, both areas seem to have been used for habitation as well as burial. There is as yet no evidence of an independent, formal cemetery at Franchthi.

The very presence of the Paralia settlement, its layout by means of terracing on the slopes in front of the cave (i.e., in terms of the energy expended to transform the natural environment to suit the needs of man) and the method of construction of the walls themselves are among the best indications we have at present for the existence of a sedentary community of increased size (population) at Franchthi. Additional evidence bearing upon the issues of population and sedentism should become available when our studies of the remains have been completed. In the meantime, it seems unlikely that the number of individuals inhabiting the entire site at any one time in the Neolithic exceeded 100 (see below, p. 313).

The relative abundance and variety of remains attributable to Stage 5 provide a more complete picture of the social and economic life of the settlement than in preceding stages. Contacts with other areas (principally the Aegean islands), already ini-

³This hypothesis has been tested by a program of coring in the bay in August, 1981, sponsored by the National Geographic Society. Preliminary results of this work will be presented in a paper, "Core Sampling of a Holocene Marine Sedimentary Sequence and Underlying Neolithic Cultural Material off Franchthi Cave, Greece," by Dr. John A. Gifford at the Scripps Institute of Oceanography in October, 1981.

tiated in earlier periods, seem to have been expanded and intensified at this time. Melian obsidian is increasingly abundant, as are the andesites from the Saronic Gulf (C. Runnels, pers. comm.). In addition, marble and other exotic raw materials whose proveniences remain unknown make their first appearance in the archaeological record. This trend continues unabated into the later Neolithic when, given the first clear-cut indications of human settlement in the islands, we are entitled to speak with some justification about exchange as a reciprocal or bilateral phenomenon. Yet the extent to which trade had become formalized by the end of the Neolithic is still unclear. On present evidence Neolithic trade would seem to have been conducted on a reasonably local scale, and the exchange of goods or information, or both, over greater distances would largely have been accomplished by what Renfrew (1975) has called "down-the-line trade". On the other hand, if rudimentary "middlemen" were involved in this exchange network, we might expect that seasonally mobile groups such as fishermen or transhumant pastoralists served in that capacity (Bintliff, 1977; Jacobsen, 1978).

Whereas the artifactual record of the Palaeolithic and Mesolithic periods shows relatively little diversity or evidence of personal individuality, there is rather more variety and sophistication of form and manufacture in that of the Neolithic at Franchthi. Objects of personal adornment (beads, pendants, and so forth) are more common and give the impression of an incipient awareness of man as an individual human being. These objects as well as grave goods (the latter still not common) also suggest the emergence of a sense of personal property, a phenomenon not totally unexpected in a society practicing an essentially agricultural economy. Although the rather meager mortuary data could be taken to reflect a form of ranking based on age, sex, and perhaps occupational roles, there is nothing to indicate the existence of social stratification based on wealth or status distinctions. Craft specialization can not yet be firmly documented, though there may have been a sexual division of labor. Artifacts such as anthropomorphic and zoomorphic figurines in combination with certain aspects of the mortuary record (e.g., energy expended on the disposal of the dead) may point to increased attention to ritual and ceremony. In spite of these observations, the archaeological record of Neolithic Franchthi is a relatively poor indicator of social behavior. In standard evolutionary terms, the remains are in general accord with the expectations of an "egalitarian" ("tribal") model of socio-political organization (Flannery, 1972b; Jacobsen and Cullen, in press).

In summary, we have now traced the history of human settlement on Franchthi headland from the end of the Pleistocene well into the early postglacial period, a span of some 20,000 years or more. These critical millennia witnessed a series of human responses, described here in five stages, to an environment and climatic conditions which seem to have been undergoing relatively rapid change. Whereas the earliest (Stage 1) indications of human activity at Franchthi point to a heavy reliance upon the hunting of large mammals, we observe in Stages 2-4 more diversified subsistence practices, with fishing and the exploitation of plant resources playing important roles. By Stage 5, mixed agriculture was established and seems to have become the dominant

economic activity at the site. By that time, too, the original (seasonal?) habitation in the cave had grown to include an open settlement with many of the characteristics of a small village.

Throughout much of this long period, Franchthi seems to have been the only significant site in the Southern Argolid (cf. Jacobsen, 1973a: fig. 1). Indeed, it is not until the later phases of the Neolithic (Stage 5) that we begin to get indications of other human settlements in the area (near Didyma, Iliokastro, and Hermione), but those too are restricted to caves. Apart from the Paralia settlement at Franchthi, there are as yet no known open sites of Stage 5 in this region. The extent to which this picture may be taken as an accurate reflection of prevailing social and economic conditions can only be determined once the results are available of intensive surface reconnaissance now underway by a group from Stanford University. Until then we can not know the effects that other factors (e.g., rising sea level, various geomorphological processes) might have had on this pattern of settlement.

Given the nature of the Franchthi data, we might keep the following questions in mind as we review the evidence from elsewhere in Greece. What is the relationship between the origins of sedentism and agriculture? Is one dependent upon the other, and, if so, which came first? Is settled village life in Greece the result of gradual local evolution or a diffusionary process generated elsewhere? These are not of course new questions (e.g., Binford, 1968), but they do represent issues which have received little attention up to now in this country. At the same time, we should also ask what other factors (e.g., demographic [Cohen, 1977], social [Bender, 1978]) may have contributed to the appearance of sedentary villages in Greece. Clearly, the answers to these questions will not come from the Franchthi data alone, and it will be necessary to look elsewhere as well.

EVIDENCE OF EARLY SEDENTISM IN PREHISTORIC GREECE

No other site in the Greek peninsula has yet produced a stratigraphic sequence comparable to that of Franchthi Cave, at least for the critical block of time under consideration here. It is therefore going to be difficult, right from the outset, to argue persuasively for the indigenous development of sedentary societies in this country.

Our present knowledge of pre-Neolithic Greece is unfortunately very poor, due principally to the lack of exploration and excavation. Of the few excavated sites about which we have some information, I would suggest that Seidi Cave in the Kopaic Basin (Schmid, 1965), and perhaps the upper levels at Asprochaliko Cave in the Louros Gorge (Higgs and Vita-Finzi, 1966) and Kastritsa Cave in the Ioannina Basin (Higgs *et al.*, 1967), at least partially coincide with Stages 1 or 2 of the Franchthi sequence. All are small shelters, easily accessible and located in proximity to fresh water, none of which could have accommodated more than a very small human group at any one time. Apart from the hunting of large game, we know virtually nothing about the economic base or human adaptation at these sites. It has been hypothesized, however, that Asprochaliko and Kastritsa were occupied by the same hunting band at different times of the

year (Higgs and Webley, 1971). The upland site (Kastritsa) would have served as a base camp during the summer, while the same group would have moved down to the milder conditions of Asprochaliko during the winter months. Although an interesting model of seasonal adaptation among mobile hunter-gatherers, it must be emphasized that this hypothesis has yet to be properly tested.

Even less, regrettably, can be said about human activity in Greece during the early postglacial period. The above-mentioned settlements seem to have been abandoned at the end of the Pleistocene, and we know of no other sites that can be securely compared with Franchthi, Stage 3. The best candidate for a settlement of Stage 4 is the small coastal station (maximum dimension in one direction, 70 m.) at Sidari on the island of Corfu (Sordinas, 1969, 1970). Sidari, level D, is considered to be "Mesolithic" by the excavator and has been dated by the radiocarbon method to the early sixth millennium (N.B. margin of error). The remains have yet to be fully published, but it seems to have been a camp site occupied seasonally by a small group of (cockle) shell collectors. Though apparently marine in orientation, no evidence of fishing has been reported. Apart from Sidari, little else is known about this stage in Greece. The coastal site of Maroula on the island of Kythnos may be of comparable date (Honea, 1975, 1979), but it is only known from brief reports (Cherry, 1979).

Sites of Stage 5 are considerably more numerous. Disregarding again the problem of an Aceramic Neolithic horizon (Nandris, 1970), we can observe the foundation of scores of *new* sites in the early sixth millennium (Theocharis, 1973; Weinberg, 1970). The vast majority are open settlements (cave occupation appears to become more common later in the Neolithic) and, with the exception of Franchthi and Sidari (C), few show evidence of earlier human activity. Although the distribution of these sites is heavily concentrated in the regions east of the Pindos range, the presence of what appear to be Early Neolithic remains at Sidari cautions against drawing conclusions from this pattern until further exploration and excavation have been undertaken in western Greece.

A notable feature of these early settlements is their preference for coastal, riverine, and perhaps lacustrine environments. Until excavation has shown that fishing or shell collecting, or both, were significant activities, we must conclude that, apart from the availability of fresh water, locational choice was dependent to a large extent upon the proximity of suitably workable agricultural soils (Bintliff, 1977). It seems clear from evidence at hand that agriculture and stock-raising combined to form the economic base of many of these settlements (Bökönyi, 1973; J. Renfrew, 1973). The relationship of these to other subsistence activities is not well known.

Although the magnitude of these settlements is often difficult to estimate from published reports, our data⁴ suggest that Renfrew (1972a, b) underestimated the size

⁴Footnote 1 above. I would like to thank Murray McClellan and Kostas Zachos for their thoughtful help in this respect.

range of Greek Neolithic villages. In fact, Flannery's (1972a) conclusion that the early villages of the Near East generally varied in area from one to four hectares (10,000–40,000 sq. m.) seems equally applicable to the Greek situation. One of the earliest Greek villages, Nea Nikomedeia in western Macedonia, for example, has an area of *ca.* 2.4 hectares according to published measurements (Rodden, 1962) and thus falls in the middle range of these sites.

Estimating absolute population from archaeological data is an even more difficult task, as is well known. Such estimates as have been proposed for Neolithic Greek villages reveal considerable variation in their methodology as well as their results. Estimates of the population of Nea Nikomedeia range from less than 100 (Milisauskas, 1978) to about 360 (Renfrew, 1972b) or perhaps even more (Angel, 1972). Given the lack of horizontal exposure at most Neolithic sites in Greece, it is virtually impossible to produce accurate estimates on the basis of numbers of people per area of roofed, living, or floor space (e.g., Naroll, 1962; Le Blanc, 1971). Therefore approximations based upon the relationship of population to site size, though undoubtedly less accurate, have usually been favored (Renfrew, 1972b). Renfrew's estimate of 200 people per hectare, however, seems rather high, as do the figures proposed for later periods in Greek history, e.g., *ca.* 150/ha. (Pounds, 1969) or *ca.* 130/ha. (McDonald and Rapp, 1972). I would suggest that the estimate of 100/ha. used by some scholars working with the early farming villages of the Zagros region (e.g., Sumner, 1979; Watson, 1979) is probably closer to the truth (cf. Carothers and McDonald, 1979), but even it may be too high. Using that figure, one would arrive at a *maximum* population for Nea Nikomedeia of something in the neighborhood of 200 to 250 people. Considering the general range of site sizes suggested above, we may then expect the populations of most Neolithic settlements in Greece to fall somewhere between 100 and 400.

Although it may be tempting to consider some of the above data as a reflection of a population "explosion" at the beginning of the Neolithic, we must admit that the evidence at present is too incomplete to warrant such a proposition. Other explanations are clearly possible: I suspect that many early sites have been lost or obscured by changing sea level or later alluviation, and it is a regrettable fact of archaeological surveying that ceramic sites are often more easily recognized than those without pottery. As for the over-all rate of growth during the three millennia of the Greek Neolithic, we should probably expect that it was very slow and gradual (Carneiro, 1966; Cowgill, 1975). We should perhaps not be deceived by a marked increase in the number of sites through time (Weinberg, 1970) and remain alert to the possibilities of shifting settlement patterns and population decline as well as growth. All in all, it ought to be clear that much attention remains to be given to the problem of population studies in Neolithic Greece.

Given the absence of extensive excavation, little can be said about the physical appearance of these settlements. The individual houses are generally small, rectangular structures (Sinos, 1971) whose specific forms and methods of construction seem to have varied from one part of the country to another in accordance with the availability

of local raw materials and cultural preference. Walls of "permanent" materials such as stone and pisè or mud brick are known at some of the earliest sites (e.g., Franchthi), and the general impression given by the architectural remains is one of relative stability. This is perhaps reinforced by the discovery of storage pits, features which have not been recognized in earlier sites. The lack of horizontal exposure again prevents us from drawing any general conclusions about the layout of these settlements, but there is some evidence from northern Greece and the Balkans to indicate that "open" plans were preferred (Renfrew, 1972b). Defense does not seem to have been an important consideration until the later Neolithic, but we must remember that walls and ditches could have served a variety of purposes (Tringham, 1972b). (It seems to me that ditches, especially when found at riverine sites, could well have served a hydraulic function as well as for defense, corrals, or boundary markers.) Finally, although present evidence suggests that "intramural" burial was practiced during much of the Neolithic and formal cemeteries did not appear until rather late in the period, much clearly remains to be learned about the disposal of the dead and their relationship to the area of the living (Jacobsen and Cullen, in press).

The evidence from elsewhere in Greece adds little to and therefore hardly alters the picture of Neolithic social and economic conditions provided by the Franchthi data. The earliest settlements were small, normally no more than a few hundred inhabitants, and consisted of individual homes probably accommodating a nuclear family as the basic residential unit (cf. Watson, 1978). Although there may be variation in house sizes through time and by geographical region, the data from Nea Nikomedeia suggest that most dwellings would have housed three to five individuals.⁵ There is little evidence of "public" buildings, but a larger, perhaps centrally located, structure at Nea Nikomedeia may have served a ritual or ceremonial function (Rodden, 1964). In fundamentally agricultural societies such as these, the household also probably served as the basic economic unit (Sahlins, 1972). Each would have been essentially self-sufficient and, though there seems to have been a certain division of labor, there is no indication of full-time craft specialization. Raw materials were occasionally procured from some distance away, perhaps facilitated by an exchange network involving social alliances stimulated by economic activities such as fishing or pastoralism.

Data on the distribution and interrelationships of settlements are still woefully lacking for Neolithic Greece. Only now are we beginning to gather the kinds of information necessary to understand the spatial and socio-political relationships between these early villages (e.g., Renfrew, 1972b; Bintliff, 1977; Blouet, in press). For the present, we have the picture of a countryside dotted with nucleated settlements whose spacing may be governed by a number of factors, not the least of which is the availability of water and good farmland. It seems unlikely that significant functional differentiation between

⁵This is based upon the assumption that each individual required about 10 sq. m. of living space (Narroll, 1962; Le Blanc, 1971). I would like to thank Andrea Deagon for her help in the tabulation of the living space in published Neolithic houses.

or a hierarchical arrangement of these settlements existed before the later phases of the Neolithic.

Finally, the reader will have noted that emphasis has here been placed upon the earlier Neolithic (mainly the sixth millennium B.C.) and the formation of what has sometimes been called the "village farming settlement". This was intentional. I have consciously avoided tracing the development of the early village throughout the Neolithic because I believe, for a number of reasons, that life became rather more complex as one approached the end of the period. Indeed, it seems to me that the roots of the Greek Bronze Age village (and in fact most dimensions of Early Bronze Age social and economic behavior) go well back into what we have traditionally called the Neolithic. But the continuity of the early village in Greece is another story, and space does not permit a consideration of that matter on this occasion.

SUMMARY

This has been a brief review of the available evidence bearing upon the problem of the beginning of settled village life in the Greek peninsula. The approach has been descriptive rather than explanatory, and the data have been presented in accordance with a series of five adaptive stages based on the preliminary results of the Indiana University excavations at Franchthi Cave. My aim has been to draw attention to at least some of the factors which may have affected the formation of sedentary villages in Greece: climate and environment, subsistence and trade, population and social behavior.

This survey suggests that, in a broad sense, the earliest Greek villages compared favorably with the earliest farming villages elsewhere in the Mediterranean region (e.g., Flannery, 1972a; Phillips, 1972). They were preceded by smaller settlements often in natural shelters, perhaps seasonal camps occupied by human groups engaged in hunting, gathering, or fishing. There is, however, no clear-cut evidence as yet of a transitional stage analogous to that of the "circular hut compounds" of the Near East (Flannery, 1972a). Whether or not something of the sort existed may of course become clearer once the issue of the putative "Aceramic Neolithic" has been clarified. Nor are we as yet prepared to view the interesting developments in subsistence practices of Stage 4 at Franchthi as an inevitable precursor of the situation reflected in Stage 5. Indeed, the "inevitability" of agriculture itself in Neolithic Greece, as elsewhere, remains to be established (Gould, 1980). At this moment, the evidence from Greece as a whole implies a high correlation between the advent of an economy based on plant and animal husbandry and the establishment of sedentary villages. On the other hand, it should be clear that the results of continuing studies of the remains from Franchthi will be critical here, and of course additional data from elsewhere in Greece are highly desirable. A much clearer picture of the Mesolithic period will obviously be a key to our eventual understanding of the relationship between hunting-gathering and agricultural societies in Greece. In the meantime, it is perhaps safest to reserve judgment on these issues and refrain from advancing too quickly diffusionist or migrationist models to explain the data.

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