

Surveying Ancient Cities

A ground-level search of abandoned settlements yields enough artifacts to reconstruct urban history. It even turns up evidence that sharply focused excavation would miss

by Anthony M. Snodgrass and John L. Bintliff

In August 1981, near the end of our season in Greece, we discovered Askra, the home village of the early Greek poet Hesiod. Archaeologists had sought its location intermittently for a century. The 15-hectare site in the Boeotian highlands of central Greece was important for its literary associations and for the window it offered on rural Greek life. It was also far beyond our resources for full excavation.

The approach we took to investigating Askra—a surface survey—is not merely a low-budget alternative to traditional archaeological methods based on excavation. Surveys embody a fundamentally different approach to the study of how communities are born, grow and eventually die. They offer a broad sample of life throughout a given site rather than a statistically dubious (albeit exhaustive) slice of a few small plots. In some cases, surveys can give evidence that contradicts historical accounts. We found, for example, that rural Greece, commonly thought to have been deserted during the later stages of the Roman Empire, was in fact a thriving mix of diminished towns and intensively cultivated farmsteads.

Survey archaeology was first con-

ceived as a technique for rural areas, and so we had to modify it for application to an urban site containing potentially unmanageable numbers of artifacts. Since investigating Askra, we have applied the methods we derived there to two larger Boeotian cities, Haliartos and Thespiiai. In the meantime the technique has also been adapted to a small coastal township on the Cycladic island of Keos, a major Minoan city in Crete, a town in Etruria and an inland city in the Peloponnese.

The modern ground surface, as long as it is accessible and has not been altered, yields material representative of every period during which the site has been occupied. Potsherds and roof tiles are most common, followed by stone implements and building fragments, bronze coins and terra-cotta objects. By systematically covering the entire accessible area of a former city, picking up all distinctive material, recording its location and determining its identity, it is possible to construct a plot of the city's periods of occupation, growth, shrinkage and shifts in location.

To be sure, urban surveys are effective only under certain prescribed conditions. The site must be largely free of modern construction, and it must have been subjected to cultivation (the more intensive the better) at least intermittently since the abandonment of the city. The processes that bring pottery and other artifacts to the surface from the buried layers underneath are as yet understood only in a general way, but it is clear that they work. Cultivation plays a vital role in bringing material to the surface, as does the gradual erosion of topsoil. Material from the most recent periods is generally overrepresented in the surface layer, whereas ancient items are underrepresented.

Although they may be highly effective, surveys will never supplant excavation entirely. After all, the dating of artifacts found on the surface is possible in large part only thanks to decades of painstaking research by excavators,

who have noted the sequences and associations of each class of material in their stratified deposits.

Moreover, there are many questions about the history of a city that surface surveys cannot answer. Unless the surface archaeologist is lucky enough to find the foundations of recognizable buildings—fortification walls, monumental public structures and the like—there is little the method can contribute to tracing changes in political power and independence, for example. (The relative abundance of imported pottery and similar items can furnish only indeterminate clues.)

Even when it was clear we had to survey Askra rather than trying to excavate it, the site still posed problems. Surface survey is a well-established archaeological practice, but surveys of areas that include urban centers had seldom been attempted because of the huge range in the concentration of artifacts. In Mediterranean lands the barren mountain slopes yield a handful of pieces per hectare, whereas the densest urban areas display 20 or even 200 artifacts per square meter.

Anyone but a Mediterranean archaeologist may find such figures hard to believe, but they are real enough. Furthermore, artifacts are not distributed in neat, discrete packets corresponding to ancient sites. Instead the nearly millionfold variation in artifact density takes the form of a gradual distribution extending hundreds or even thousands of meters from "primary" sites. The surveyor faces an extraordinarily rich body of data.

This embarrassment of riches poses problems, however, in devising collection strategies and determining what constitutes surface evidence for a site. Only after the highs and lows of the local distribution are known is it possible to place all the evidence in context. A concentration of artifacts that might pass for a rural farmstead at one site could represent only part of the gen-

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eral surface scatter at another. At the same time, there are limits to the amount of material from a single site that archaeologists can fruitfully catalogue and study. Early traverses of Askra yielded 10 or more artifacts per square meter, implying that a complete survey might yield 1.5 million artifacts.

We devised a sampling method that has since served well for larger sites in subsequent seasons. The work is done in two stages. The first stage covers the entire accessible surface area so that the site can reveal all its distinctive artifacts and so that its phases of occupation can be dated. (Askra, for example, proved to have been occupied intermittently for more than 4,000 years.) The second stage is a more precise examination that provides an accurate measure of the total density of artifacts and helps substantiate dates derived from the initial pass.

We divided Askra into a series of transects less than half a hectare in area and surveyed each in its entirety. Walkers 15 meters apart counted visible artifacts in a strip five meters wide and picked up any material they judged likely to provide a date. Then the team scoured a 300-square-meter subsection of each transect. Workers picked over every square centimeter of ground by hand and counted all the artifacts, again picking up items that appeared useful for dating.

On average, we retained about 20 distinctive pieces from the first walking of each transect, and we added a further 15 from each intensive sample. More than half of the approximately 2,000 artifacts collected from Askra turned out to have chronological value, vindicating the on-the-spot judgments of the walking teams. As a result, we could substantiate the mapping of times of

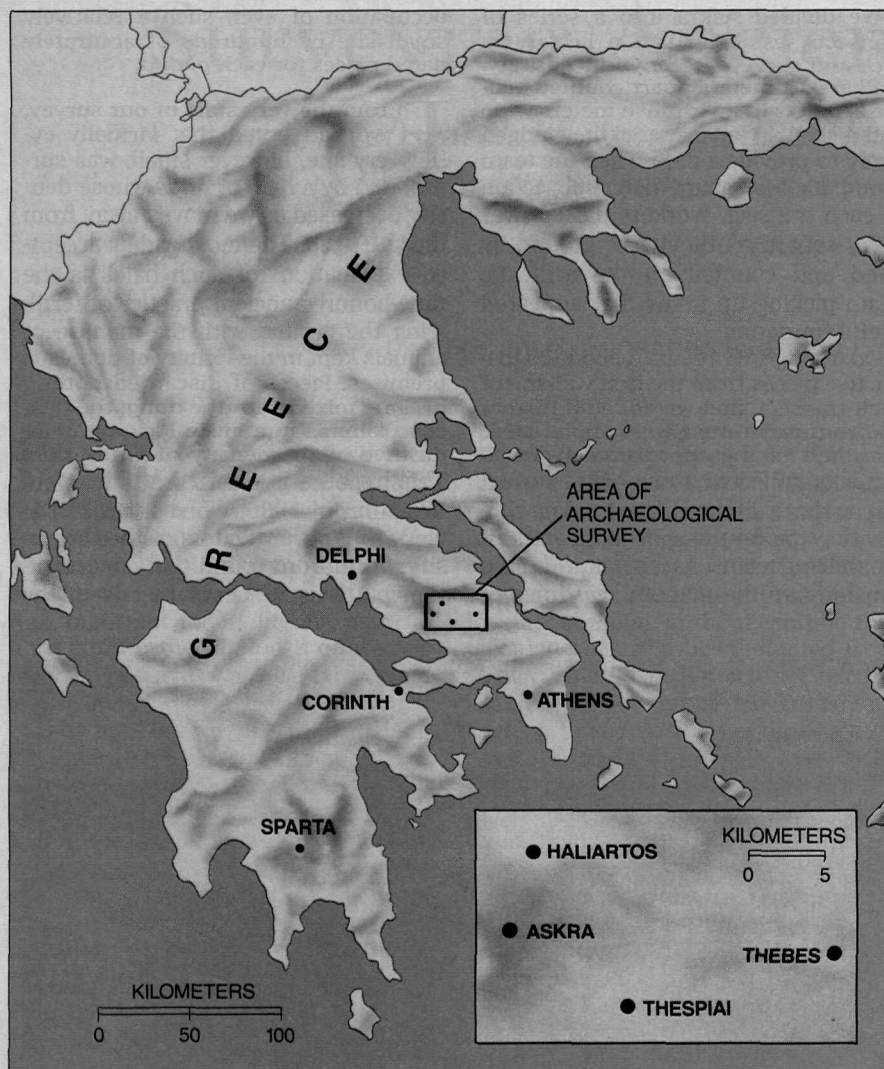
occupation of even such a relatively small site by hundreds of accurately dated pieces for each period.

From the very start of our survey, we had noted that virtually every site, however small, was surrounded by a halo of finds whose density decreased as we moved away from the site itself. The most widely accepted explanation for such halos is the time-honored ancient practice of fertilizing the ground with the manure of animals kept in the vicinity of domestic premises. Pieces of discarded pottery became mixed with the dung; the density of items in a given location is indicative of the density of cultivation. This hypothesis received striking confirmation in 1986, when Brian E. Davies and Andrew Waters of the University of Bradford found that concentration patterns of heavy metals in the



SURFACE-SURVEY ARCHAEOLOGISTS comb a modern vineyard in central Greece for artifacts left behind by millennia of human activity. Sites of abandoned cities may yield more than

100 objects per square meter. By dating the objects they find, archaeologists can determine the periods during which an area was occupied and estimate its changing boundaries.



soil across our sites matched the density patterns of ancient pottery.

It has long been known that heavy metals are deposited where people live and work. Davies and Waters's findings suggest that the refuse-deposition activities of 2,500 years ago have left clearly graded and quantifiable traces in both the form of visible potsherds and invisible pollutants. This reinforces our hypothesis that the rural sites were nuclei of intensive agricultural activity. On a vastly larger scale, the cities that we investigated have their own much broader and denser pottery halos. As economic historians have long maintained, Boeotian towns were occupied by cultivators.

Our technique had taken time to evolve, but it was ready by the time our survey carried us up to the walls of Thespiiai and Haliartos, the two main cities in whose territory we were working. In particular, we were prepared to test the results of our sur-

veys against written history. Whereas an obscure village like Askra, for all its literary associations, had no connected documentary history, these two towns had both been members of the Boeotian League and virtually independent political entities.

Thespiiai earned a certain fame for its long opposition to Thebes, the most powerful city of the league. In 480 B.C., when Thebes prudently sided with the Persians invading Greece, Thespiiai enjoyed its greatest moment of glory as it sent 700 soldiers (from a total population of perhaps 10,000) to die with Leonidas of Sparta in the attempt to hold the pass of Thermopylae.

In 424 B.C. Thespiiai for once fought side by side with Thebes, winning a victory over the Athenians at Delion. The city again suffered heavy losses, however, and the following year the Thebans were able to exploit this weakness and compel Thespiiai to dismantle its fortification walls. Not surprisingly, when Thebes achieved its military and

political zenith by an unprecedented victory over Sparta in 371 B.C.—a battle actually fought on Thespiian territory—Thespiiai supported Sparta. The loss put an end to the city's heyday.

In the meantime Thespiiai had produced its most famous daughter, the beautiful courtesan Phryne, who became the mistress of the sculptor Praxiteles and posed for his most famous statue, a nude Aphrodite. She dedicated in her native city another of his works, a statue of Love that made Thespiiai a tourist attraction for the rest of antiquity.

Haliartos was by comparison a smaller and less famous town. Its population numbered no more than 5,000 at its peak. It came to notice in 395 B.C. as the scene of a minor skirmish in which a force of Thebans and Athenians ambushed a group of Spartans. The Spartan General Lysander, then the most powerful individual in Greece, was among the few killed. The most memorable event in the city's official history was also the last: in 171 B.C. Haliartos backed the Macedonians and other enemies of Rome in a war fought on Greek soil. The town was razed, its inhabitants killed or sold into slavery and its land apportioned among the citizens of Athens, which had taken care to join the Roman side. The territory of both Thespiiai and Haliartos is now entirely free of permanent human habitation. The land is cultivated from villages some distances away.

This official history furnished some crude guidelines for our work, even though some episodes were of the kind that a surface survey cannot expect to trace or illuminate. The story also left open many questions we hoped to illuminate. We hoped to establish, for example, how changes in total urban population affected the distribution of occupied farmsteads in the surrounding countryside—and how the extreme case of city destruction influenced the exploitation of the surrounding land. One important issue, of course, was whether the rural and urban sectors grew simultaneously or at each other's expense. We also wondered how the boundary between two states might be reflected in the surface evidence.

The picture that we were eventually able to construct was, in this and other ways, much more detailed than any available from documentary sources. For Askra, of course, there was hardly any documentary information, so any new knowledge was pure gain.

Askra gave clear indications of a long but interrupted occupation and a pro-

gressive shift of several hundred meters in the nucleus of the settlement over time. A small area of the site was first inhabited for a period around 2500 B.C. After a very long break, the same locale was first reoccupied and then enlarged into a substantial village of 1,000 people or more between about 900 B.C. and A.D. 100. A second, much shorter break seems to have intervened before the final period of settlement between about A.D. 300 and 1600; since then the site has reverted to open farmland.

The two breaks are inferred only from negative evidence: we found no material whose date fell within those time spans. The first interruption, however, is so long that there can be no doubt of it; furthermore, for part of the time, a neighboring hilltop site was inhabited, suggesting an alternative focus of local settlement. And the second break is corroborated by the Greek travel writer Pausanias, who visited the area around A.D. 170 and described it as deserted.

There is little to say about the first period of occupation. The second, 1,000 years long, embraces the life of the poet Hesiod (circa 700 B.C.) in the village's earlier stages, when Askra was no more than a few scattered dwellings. Ensuing centuries saw first a steady growth and filling in of the settlement, then a marked shrinkage of population and inhabited area.

Throughout the period, the nucleus of the settlement shifted to the south. When the site was reoccupied in the fourth century A.D., the shift resumed until, by the final phases of Askra's occupation in Late Byzantine and Turkish times, the settlement had no overlap at all with the original nucleus of prehistoric and early historical times.

Like Askra, Haliartos had a prehistoric forerunner, sited on the highest ground in the area. And a phase of apparent abandonment, although much shorter than that of Askra, preceded the establishment of the core of the historical city. Classical Haliartos spread progressively down the slopes to the south and north until it attained a population of 5,000 or more and an area approaching 30 hectares. The easternmost extremity is lost under the houses of the modern town that shares the same name.

One interesting discovery was that although by about 400 B.C. the territory of the more populous Thespiiai was more densely covered with permanent structures than that of Haliartos, the reverse had been true three centuries earlier at the beginning of the histori-

cal period. Apparently the smaller town was faster to colonize its rural territory with independent farmsteads.

During the classical period, the ancient city was surrounded by walls whose foundations are still partially visible. The original nucleus on high ground became the city's acropolis and had an inner fortification of its own. (All these walls were most probably torn down in 171 B.C.)

As predicted from the official history, there is an abrupt break in the sequence of dated pottery in the second century B.C., and for the rest of antiquity the greater part of the site was entirely deserted. A short distance to the east, however, on the outer fringes of the classical city, a new settlement grew up in Byzantine and early Turkish times. From that point onward, in an unbroken cycle, the decline and desertion of one location has been accompanied by the simultaneous growth of an alternative center of population not far away. Two such shifts are traceable between the 17th and 19th centuries A.D., before the foundation of the modern town and the revival of the name "Haliartos" around 1900.

The unique feature of the story of Haliartos is the ruthlessness and thoroughness of the Roman sack of 171 B.C. More gradual shifts, in contrast, are typical of all the major settlements in the area we study. These shifts explain why the modern villages with the official names of Askraia, Thespiiai and Haliartos all lie at a certain remove from their ancient forerunners.

Thespiiai proved the most daunting of the urban surveys we undertook. We had expected it would be larger than Haliartos, but we were hardly prepared for a city that had exceeded 120 hectares—more than a square kilometer—in area during the period of its greatest extent in the fifth and fourth centuries B.C.

The two-stage procedure of observa-

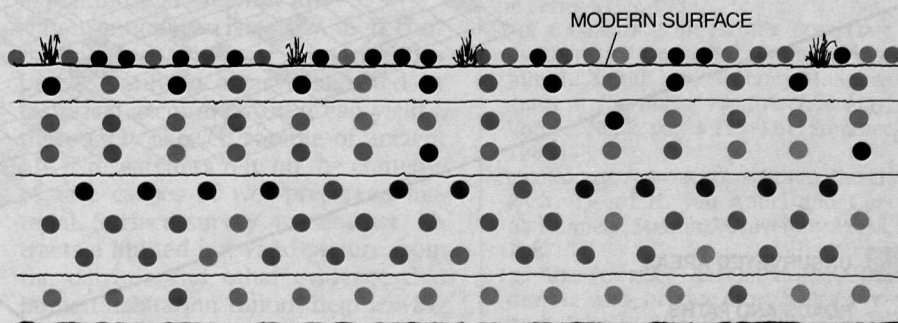
tion and counting had to be repeated 598 times in all. It turned up well over 10,000 datable artifacts. We were able to draw up seven successive plans of the town's occupation and desertion over a span of some 7,000 years.

Unlike Haliartos, Thespiiai did not grow from a single compact nucleus sited on top of a prehistoric settlement. The material of the eighth, seventh and sixth centuries B.C. is grouped in half a dozen separate clusters, suggesting a scatter of hamlets only welded into a single urban complex by the growth of the high classical era in the fifth and fourth centuries.

The inevitable sequel was a decline in size and, once again, a shift in the nucleus of occupation. One later phase stands out with special clarity: in the middle of the Roman Imperial period (between A.D. 30 and 300), Thespiiai's inhabitants found it expedient to build a new fortification, enclosing a drastically reduced area of 12 hectares.

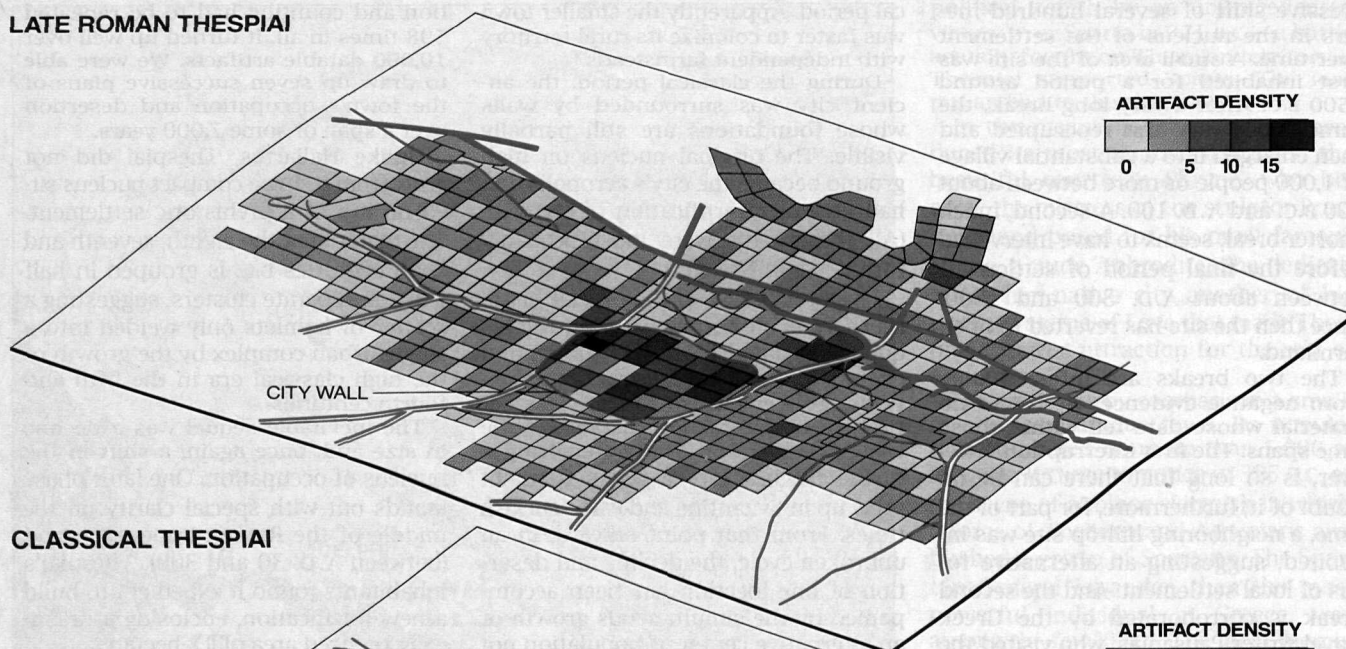
This polygonal circuit incorporated many blocks of classical stone; it stood until the late 19th century, when, ironically, it was destroyed by a classical epigraphist eager to get at its inscribed stones. Its outline is still faintly visible today. Not surprisingly, we found that material of the later Roman period (from about A.D. 300 to 600) was very heavily concentrated within and around this enclosure. Of the 32 transects that produced more than six later Roman pieces, 25 lay inside the fortified polygon and the rest immediately to the east and northeast.

Although late Roman Thespiiai was much reduced in size, the large number of farmsteads we found in the surrounding countryside indicate that it lay at the center of a thriving rural economy. After the classical period, the late Roman is the most intensive period of rural settlement in the entire history of the central Grecian landscape—it was also the time of the reoccupation of Askra. This late Roman recovery is now

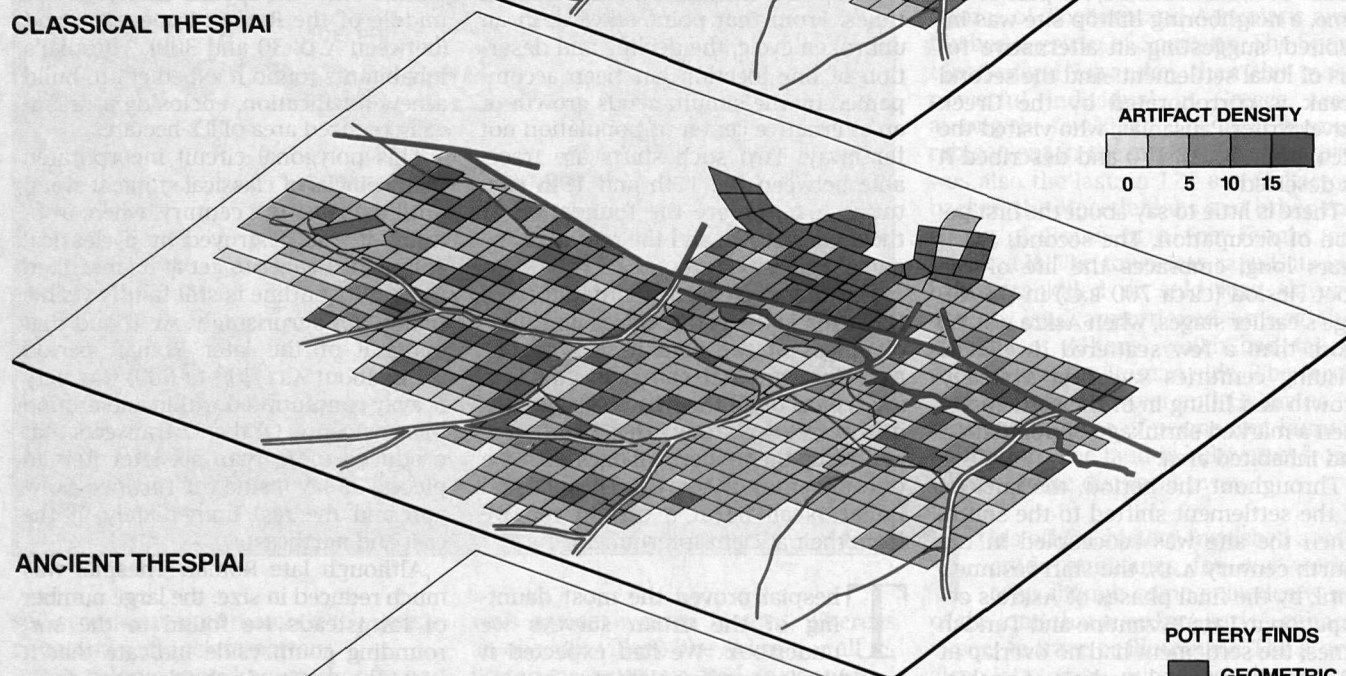


ANCIENT ARTIFACTS are brought to the surface by a continuous process of cultivation, erosion of topsoil and other geologic effects that are not yet fully understood. Older objects, from lower strata, are typically underrepresented at the surface.

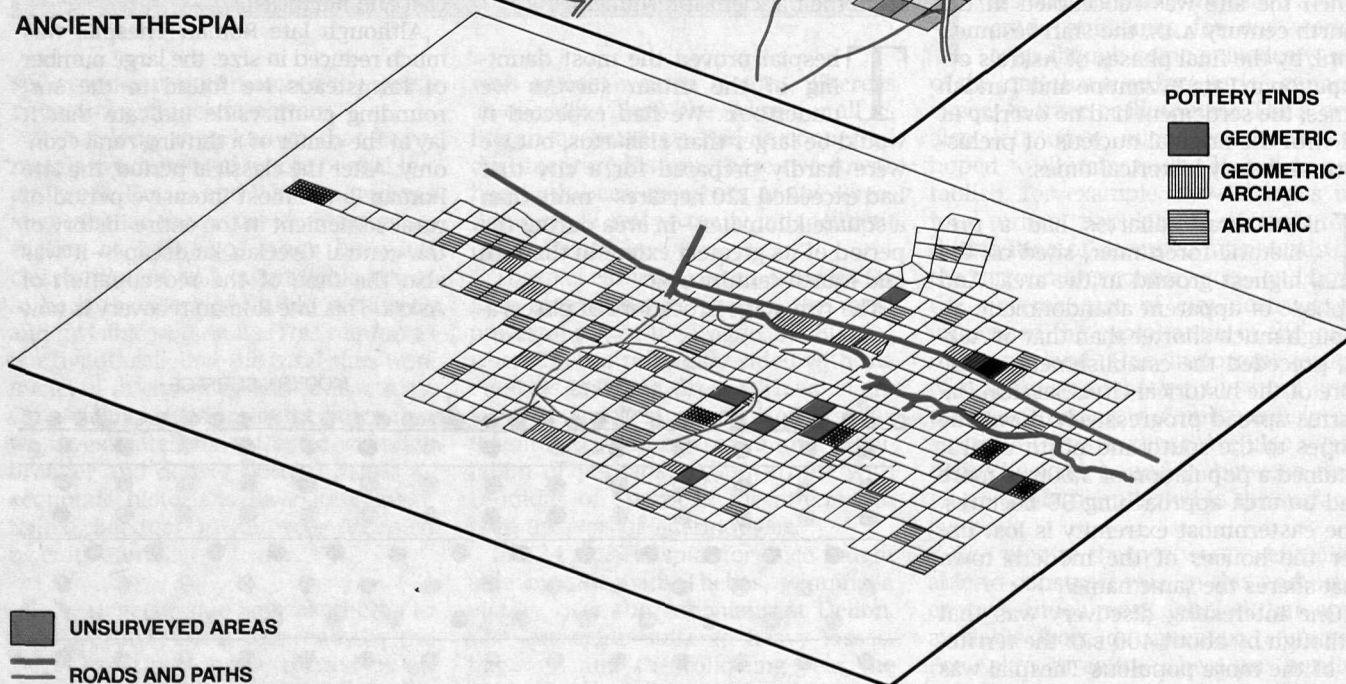
LATE ROMAN THESPIAI



CLASSICAL THESPIAI



ANCIENT THESPIAI



UNSURVEYED AREAS

ROADS AND PATHS

ANCIENT CITY of Thespiai was explored by surface survey. Dates of items found show that the settlement was occupied for more than 7,000 years. Archaeologists marked the site off

into transects (areas shown by black lines), which were then examined. A specified part of each transect was painstakingly searched to verify the conclusions of the broad survey.

being revealed by surveys elsewhere in Greece. It is a good example of a development for which the documentary sources, with their gloomy picture of the age, had done nothing to prepare us.

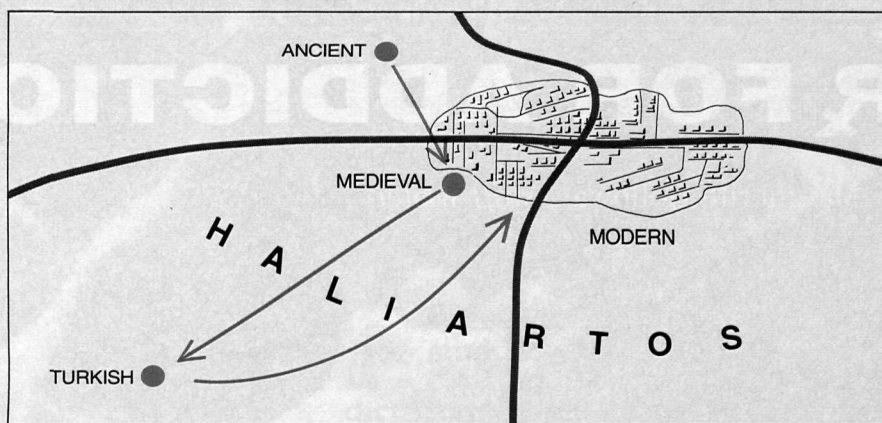
Thespias also provides a corrective to widely held views of postclassical decline for later periods. A settlement survived there in Byzantine times, entirely to the east of the polygonal enclosure; the ruins of several churches bear witness to continued vitality.

In the end, although the city outlasted all its contemporaries, large and small, it died. When the British traveler Colonel Leake visited Thespias in 1802, he found a few inhabited houses still standing on the eastern part of the site. A few years later the last inhabitants moved to the hilltop village just to the north, where their descendants still flourish. The ancient city on the plain was given over entirely to cultivation for the first time in nearly 3,000 years—a near-perfect condition for archaeological survey.

The results of our surveys in Boeotia cast light not only on the conditions there but also on the nature of the questions that archaeologists and historians attempt to answer. Official history presents events in a form that is memorable and, as far as the facts allow, gratifying to those who read it. Individuals and organizations appear to formulate consistent policies and carry them through either more or less successfully—as was once said of the *Times of London*, official history describes what ought to have happened rather than what did happen.

Additional constraints affect the case of ancient cities: the written sources that survived were chosen mostly for their literary quality rather than their faithfulness to events. Some ancient historians did share the modern desire for objective truth, and other kinds of documentary sources such as coins and inscriptions also survive. But all such records are vulnerable to distortions, and all too often the sum total of historical evidence yields a portrait of a city that begins with a foundation legend and ends with a visitation of the punishment of the gods. It is significant that some modern authorities have turned as often to poets and philosophers such as Homer, Plato or Aristotle as they have relied on the prose historians.

Conventional archaeology offers only limited help in augmenting the historical picture. Financial and political exigencies usually combine to prevent the excavation of more than a limited part



ODYSSEY OF HALIARTOS shows how towns migrate as well as growing or shrinking. The city encompassed nearly 30 hectares before it was razed by Roman troops. Subsequent settlements skirted the edges of the old city for two millennia; a new Haliartos was built to the east of the ancient site just under a century ago.

of an ancient urban complex (in contrast with the potentially complete unearthing of small prehistoric settlements). Digs must be sited on land free of existing buildings and available for purchase or expropriation. Only by the rarest good fortune does excavation result in a valid cross section of urban life. Indeed, many investigators would openly disavow such a mundane objective. Better by far to locate the civic center or the main sanctuaries, where they may be able to make some spectacular finds and have a virtual certainty of forging some kind of link with the official history.

Furthermore, even with the best of intentions, the small samples of material and the peculiar nature of preserved deposits makes "commonsense" inferences from excavation notoriously unreliable. The contents of graves, for example, may present a poor picture of the structure of a society and its attitudes toward the living. The goods interred with a corpse may or may not correlate with social or economic standing. Implements found in a grave or scenes depicted in it may or may not match those in everyday life.

Conventional archaeology, then, runs the risk of tautology if excavations proceed only in areas designated by historical accounts. And it can yield a thoroughly skewed sample of ancient life if researchers rely on the contents of rare caches of well-preserved material. Surface survey, in contrast, extracts a limited but valid picture from the detritus and other evidence that human habitation cannot help leaving on the ground.

Those inside and outside archaeology have often asked us whether the results of surface investigation should

not be put to the test by excavation. Ideally, perhaps they should. But even excavation yields findings that are often inconclusive, and they are only valid for the area actually dug. Furthermore, resources seldom extend to both survey and excavation, so the choice of one means excluding the other.

Our surface survey of Thespias covered 99 percent of the city's maximum area in the initial transects and about 13 percent in the regularly spaced intensive samples. For the same cost, we could have excavated perhaps two or three trenches five meters square down to virgin soil: a total of about 0.005 percent of the city's area. Even if the excavation uncovered an equivalent body of dated material, there is no question which method produces a better statistical sample of the physical traces of a city's past.

FURTHER READING

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