13

Farewell to the Garden of Eden: survey archaeology after the loss of innocence

Albert J. Ammerman

ABSTRACT

Visibility has become in recent years one of the central issues in the development of method and theory in survey archaeology. Prior to 1980, little attention was paid to the question of what was actually visible or not on the surface of the landscape when an archaeologist surveyed a given area of the Mediterranean. In short, the survey archaeologist once lived in a state of innocence. Now this has changed. The paper reviews the author's own experience in Italy which made it necessary to consider the question of visibility. The paper closes with a brief discussion of some of the implications that follow from this change in perspective.

INTRODUCTION

Until quite recently, it was widely held by the archaeologist doing a survey that there was an isomorphism between what is observed on the land surface today and the spatial patterns produced by those who once lived on the landscape in the past. The assumption was that the two sets of patterns — the spatial distributions of the things that we recover in the field and the spatial distributions generated by human behaviour in earlier times — were the same. In other words, there was thought to be a one-to-one correspondence between the two. Before 1980, few attempts were made to question or examine this working assumption. The survey archaeologist lived, as it were, in a state of bliss. The landscape that one chose to work on was taken to be some sort of timeless Garden of Eden. We now know that things are more complex. The question of visibility has become the key issue both for how we conduct fieldwork and how we interpret the results of a survey. In turn, the loss of innocence has brought with it the need to rethink recovery theory when it comes to the survey. The aim of this paper is to review briefly how this development came about, by looking back at some of my own experience in Italy over the years, and to consider some of its implications for survey archaeology today.

THE ACCONIA SURVEY

When we began our first field season at Acconia in 1974, there was no plan to do the intensive, repeated coverage of the land surface. The idea was simply to conduct the usual kind of survey in the Mediterranean — one in which the single coverage of a given area was thought to be enough. We had been invited to start the survey by the new University of Calabria which funded the investigation. Previously, almost no work of this kind had been undertaken in Calabria. At the time, I was interested in the problem of the Neolithic transition in Europe; the survey in Calabria now provided an opportunity to explore this question in the field. Comparatively little was known about the distribution of prehistoric sites in the toe of southern Italy prior to the survey. What was known about the prehistory of the region was based on the excavation of a few cave sites. For this reason, extensive reconnaissance work was conducted at the start of the survey. There was the good fortune that Calabria was one of the few regions of Italy where maps at a scale of 1:10,000 were available at the time. Rather than being done with the aim of locating a major river valley to be surveyed over a large area, the reconnaissance work was oriented toward identifying several areas of smaller size (with different ecologies) situated in different parts of the region that would be covered in a more intensive manner (Ammerman 1985*a*). The Acconia area on the Tyrrhenian coast was one of the four areas that we selected as being promising in terms of the recovery of Neolithic sites. Thus, our strategy represented a major departure from the usual approach to doing a survey in the Mediterranean area (the coverage of a single large area). In the design of the Calabria Survey, the intention was to try to develop the study of Neolithic settlement patterns on a broad, comparative basis. Such an approach would also facilitate the study of the exchange of obsidian (with its source on the island of Lipari) in Calabria during the Neolithic period.

In terms of methodology, our initial concern in Calabria had more to do with the nature of what is recovered from the land surface than with the question of visibility. We conducted a number of studies on the replicated collection of site surfaces and found this often varied considerably from one time to the next in the case of a given collection unit at a site (Ammerman and Feldman 1978). The stochastic character of the archaeo-

logical material observed on a site's surface, in the context of ploughed fields, was confirmed by a subsequent experimental study that we did at one of the sites at Acconia (Ammerman 1985*c*). Our first season at Acconia in the autumn of 1974 was productive and soon led to the discovery of a number of Neolithic sites. In presenting the results to colleagues in the Program in Human Biology at Stanford University, one of them observed that this was all fine and good but went on to ask what would happen if we repeated the coverage of the same area. Would we find more new sites or simply the same number of sites? Over the next three field seasons, we discovered that once was not enough. In fact, each time that we covered the landscape again, new sites kept coming to light. In short, the distribution of known Neolithic sites at Acconia became richer and richer each year. By 1976, we had identified a total of 75 prehistoric sites in an area of less than 10 km^2. The Neolithic settlement patterns observed were denser than those found anywhere else in Italy. The results of the first four field seasons were presented in a monograph on the Acconia Survey (Ammerman 1985*a*).

There was still more to come at Acconia, however. As we continued to carry out fieldwork at the area after 1976 (on the excavations at Piana di Curinga, on the study of modern land use, and on the recording of geomorphological windows on the landscape), more new prehistoric sites were found on the land surface. Thus, even the intensive, repeated coverage of the landscape that we had done on the survey was apparently not enough. In all, 19 more prehistoric sites have been identified since 1976. All of this, of course, raises fundamental questions about the assumption of isomorphism (mentioned in the introduction), about the role of visibility in survey work, and about the operation of time's arrow within the framework of survey archaeology. "The search for sites goes on within a time frame, and time itself introduces relativity into the relationship between the observer and that which is observed. On a given day in the field, time's arrow conditions in part what we will happen to see" (Ammerman 1981, 82).

In retrospect, we now know that the Acconia area was in many ways the ideal place both for Neolithic habitation (with its light arable soils, its good local sources of water and its position near the coast) and for the preservation of Neolithic sites (because of its inflating dune soils). As part of the survey, Remmelzwaal and other Dutch soil scientists had carried out studies on the geomorphology and the soils of the area (see the monograph on the Acconia Survey). In 1977, we also had the opportunity to acquire a series of aerial photographs in colour at a scale of 1:5,000. These photographs made it possible to undertake the detailed analysis of the relationship between visibility and the discovery of sites on the land surface at Acconia. This was the study that led to the introduction of the concept of geomorphological windows on the landscape (Ammerman and Bonardi 1981). Without going into the details of the analysis here, what we found at Acconia is that three-quarters of the scatters of prehistoric material recovered on the land surface are associated with geomorphological exposures or windows. In short, the discovery of a site by the survey is regularly linked with visibility. Changes in visibility from one year to the next made it possible to recover new sites with each new field season. The question that we now had to ask was what was producing the geomorphological windows at Acconia. The main agency turned out to be modern land use itself (Ammerman 1985*b*).

THE LONGITUDINAL STUDY OF MODERN LAND USE

Acconia is an area that has witnessed major changes in land use since the 1960s. Prior to the second world war, it was a remote part of Calabria where malaria was endemic and the approach to agricultural production was a traditional one based on cereals, olive trees and vines. By the 1960s, things were starting to change and there has been a progressive shift toward more intensive and market-oriented approaches to agriculture at Acconia since then. This was due to a combination of factors, including the construction of an *autostrada* through the area and the new availability of irrigation water from the nearby artificial lake at Angitola. By chance, we had begun to do the survey at a time when land use at Acconia was being transformed. Olive groves were being replaced by citrus groves. With its dune soils, its warm climate and the new irrigation water, the area was the perfect place to produce strawberries. When new fruit trees were planted or a new strawberry field was put in, the first step was commonly to level the land surface and to install an irrigation system, which meant digging into the sub-soil. In short, activities of this kind created the geomorphological windows mentioned above and brought the buried Neolithic sites to the modern land surface. Since the second season of the Acconia Survey, we had been conscious of the transformation that was taking place in qualitative terms. In 1980, we finally decided to do a quantitative study of the dynamics of modern land use at Acconia.

The idea was to conduct a longitudinal study of modern land use. This is something that had not been done before in archaeology. The plan was to do the complete mapping of what was grown in individual fields every nine years. As shown in FIG. 13.1, the first field-by-field mapping in 1980 involved more than 300 fields. The availability of the aerial photographs at a scale of 1:5,000 facilitated this work. We also made use of cadastral maps and records in the study (Ammerman 1985*b*). The second mapping was carried out, as planned, in 1989. It revealed that there had been significant changes in land use at Acconia over the last nine years (Ammerman 1995). FIG. 13.2 shows those fields where the land use had changed between 1980 and 1989. The main shift observed, without going into

Fig. 13.1. Map of the land use in the Acconia area of Calabria in 1980.

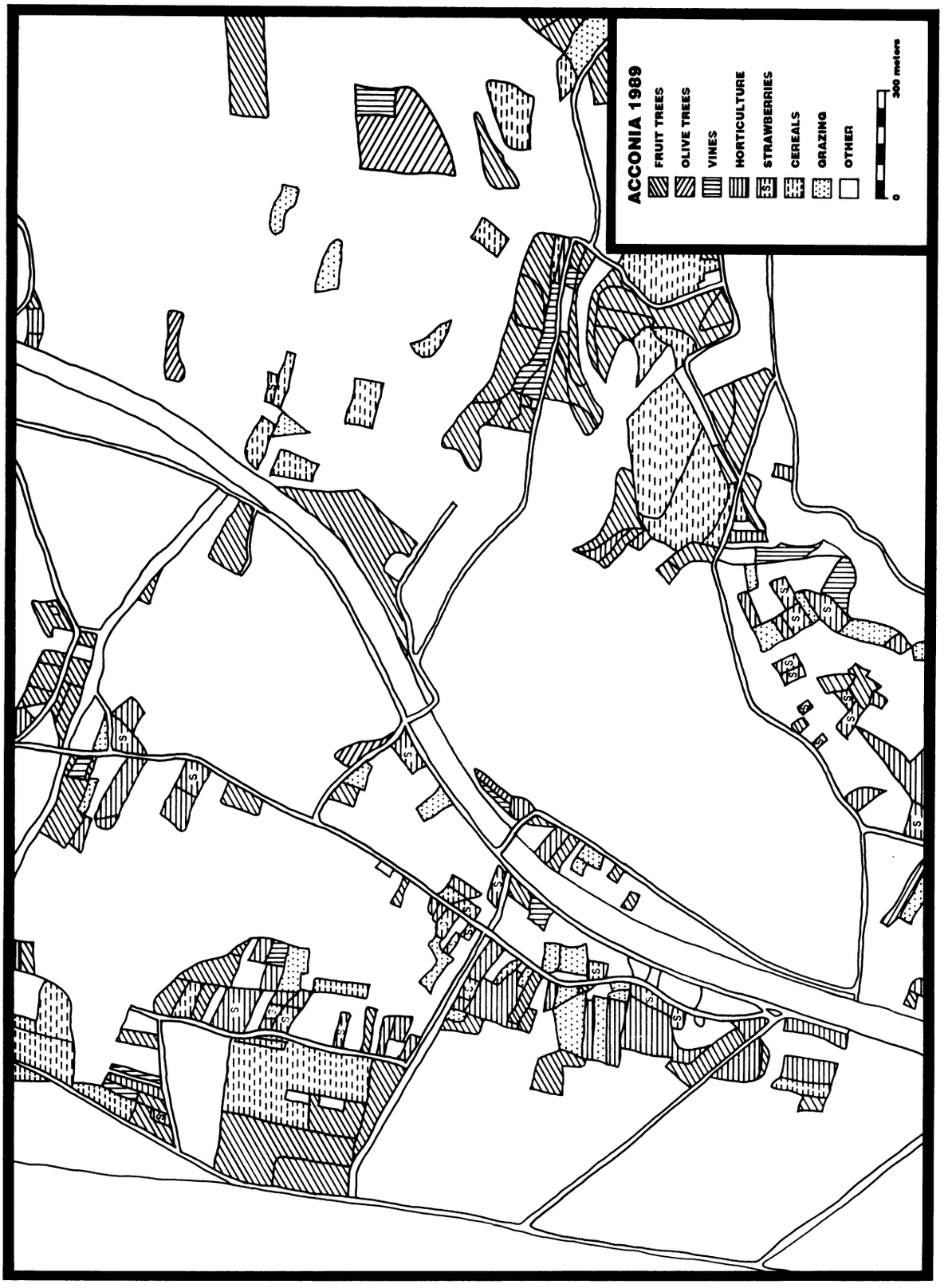

Fig. 13.2. Map showing those fields at Acconia where a change has taken place in land use between 1980 and 1989.

the details here, was toward more fruit trees and more strawberry fields. In addition, it is worth noting the spatial pattern on the map: change does not occur widely or uniformly over the landscape as a whole but it is concentrated in certain places. The third mapping was done in 1998 and the results of this work will be published after the fourth mapping in 2007. The third mapping documented a further move toward citrus groves and the production of strawberries. For example, there were 20 strawberry fields at Acconia in 1980. The number had grown to 31 in 1989, and it now rose to 48 in 1998.

Thus, there is good evidence at Acconia for landscape dynamics operating within the modern time frame itself. The recovery of sites on a survey does not occur within a context that is static and ahistorical. For the survey archaeologist, the landscape is not some sort of timeless laboratory (a metaphor used in the American literature on surveys in the 1960s and 1970s). Historical processes that are taking place at the time of the survey affect visibility and, in turn, what is recovered during the course of the fieldwork. It is perhaps worth commenting that, in other parts of Calabria, time's arrow often acts in the opposite direction than it does at Acconia. In those areas with more marginal land in the rugged interior of the region, the abandonment of fields contributes to the decline of visibility today. In other words, when it comes to modern land use, each survey has to be viewed as having its own local dynamics. Accordingly, at the level of recovery theory, there is a need to monitor such trends before one can interpret in a correct and meaningful way the spatial patterns that a given survey has recovered in the field. This is a long way from the Garden of Eden.

THE CECINA VALLEY SURVEY

The survey directed by Nicola Terrenato in the Cecina Valley made it possible to document again the effects of visibility on recovery. The Cecina Valley is located in Tuscany; the main focus of the survey is on the time from the Etruscan period through late antiquity. My own role here was to help in the design of the survey and in the analysis of the results that were obtained in the field. Because of the excellent resources available in this part of Tuscany (maps and aerial photographs at a scale of 1:5,000 and the detailed mapping of the geomorphology of the area by others previously), there was the opportunity to develop the treatment of visibility both in terms of geomorphology and ground cover. This treatment was applied to a sample of 25 units each measuring 1 km on a side. The results of this work show that there is a close relationship between good visibility and the recovery of sites (Terrenato and Ammerman 1996). For example, the rate of site recovery (per km^2) for the best visibility class (the one with favourable geomorphology and without ground cover) is approximately seven times that of any of the other three classes of visibility. Thus, visibility is the name of the game in the Cecina Valley.

In addition, good visibility is found to be heterogeneous in terms of its spatial distribution with respect to the 25 sampling units. In other words, visibility is better in some parts of the survey area than it is in others; it does not operate uniformly over the Cecina Valley as a whole. This carries with it the implication that one cannot make the more realistic assumption that visibility is a fact of life in the archaeological survey and then go on to compare the site distributions for different time periods, in relative terms, as a means of tracing the long-term history of the region (see, for example, Cherry *et al.* 1991). Since the spatial patterns of sites differ from one period to the next, visibility (when it is heterogeneous in space) operates in different ways with respect to each time period. In short, the whole business of making relative comparisons over a series of periods is more complicated than it would appear to be at first glance. Even when good evidence on visibility is available to a survey, such comparisons between periods call for a much more complex approach to spatial analysis than has been used to date. In a sense, survey archaeology has to start all over again — with a clear focus on visibility — if it is to build on a solid foundation. "Unsettling as this may seem for all of us, it has to be seen as a positive step in the growth of survey archaeology — a step toward a more complex perception of the realities of recovery" (Terrenato and Ammerman 1996, 91).

DISCUSSION

In saying farewell to the Garden of Eden, there is an awareness that the survey is a more difficult and demanding enterprise than the archaeologist has commonly thought before. Gone are the good old days when a heady sense of optimism prevailed in the field. With the loss of innocence has come a greater sense of realism about the limitations of the surveys that are in the literature and about the challenges that we have to face in the design of new survey projects.

For the archaeologist who wants to start a survey at the present time, there are several implications that follow from what is said above. To begin with, the importance of having good maps and aerial photographs cannot be stressed enough. They are essential to the proper treatment of visibility. When such resources are not available, it will be difficult, for example, to record ground cover on a field-by-field basis. In addition, the survey team now has to include one or more specialists with a background in geomorphology and soil science. Their work will make it possible to develop the geomorphological side of visibility. Even in the favourable case where a map of the geomorphology of the survey area has already been produced by others, it will be necessary to check on whether or not that map actually meets the needs of the survey. Often such maps (pre-

pared for other purposes in the earth sciences) are not at a scale that is detailed enough for the archaeological survey, and new maps of the kind required may have to be prepared at the start of the project. In practical terms, one would like to reduce the coverage of areas with low visibility during the course of the survey. If the design of the survey includes the repeated coverage of selected areas (as a means of quality control), the survey will have to run over a number of years. The notion of a survey lasting for only one field season is essentially a thing of the past. Some comment is perhaps called for here on the idea that one can avoid the question of visibility by doing a non-site survey. In fact, visibility plays an even greater role in the recovery of light or thin scatters of archaeological material on the land surface. In the context of plough-zone archaeology, the great problem with light scatters of material on the landscape is their high degree of stochasticity (Ammerman and Feldman 1978; Ammerman 1985*c*; Yorston *et al.* 1990; Terrenato and Ammerman 1996, 93–5). Finally, in the presentation of the results of the survey, there is the challenge of developing new forms of spatial analysis and graphic display that will incorporate what has been learned about visibility on the project.

In the case of the survey that is currently in progress and yet does not include a full treatment of visibility, the project may find itself in an awkward position. While control over geomorphology can sometimes be implemented retrospectively, this is not really possible when it comes to ground cover (unless detailed records on vegetation were kept for all of the fields covered by the survey). On the other hand, to change the approach to fieldwork and visibility in mid survey will only complicate the presentation of the results of the survey as a whole. One solution is simply to carry on doing business as usual — with a disclosure in the eventual publication that the work was undertaken at the time of transition to visibility-based surveys. The survey in the most difficult position is the one where the fieldwork has already been completed and the results have not yet been published.

In terms of what is now in the literature, it is not a good time to attempt a broad, comparative study of surveys. The problem is, of course, that visibility was not taken into account in most of the surveys already published. In such cases, there is no way to know the extent to which the spatial distributions produced by a given survey are to be read as artefacts of visibility. In terms of recovery, different classes of sites, different time periods and different places within the survey area may be affected by visibility in ways that are now completely beyond our control. In light of what we have learned at Acconia and in the Cecina Valley, there is no rationale for taking the spatial distributions reported by such older surveys simply at face value. Moreover, there is no easy way at the present time to compare the results of the older surveys and the newer, visibility-based ones. It may take some time and effort to work out the correct approach to making comparisons between the two kinds of surveys. In the meantime, instead of thinking about the landscape from the perspective of long-term history, as the survey archaeologist has traditionally done, it may be time to pay more attention to the ways in which short-term history shapes what we actually recover in the field.

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