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Front and back cover: A view over the Neolithic site of Capo Aliferi, (about 4000 B.C.)
towards the point known as Capo Colonna, site of the famous Greek sanctuary of Hera
Lacinia. Capo Aliferi is eight kilometers distant from the major colonial city of Croton (eighth
to third century B.C.). Visible in the foreground are the walls of what is probably the earliest
large stone building erected on the Italian peninsula, excavated in 1987 by The University of
Texas team.

Plans by Ann Patterson and Eve Beckwith.
Maps by Ann Patterson, Cesare D'Annibale, Jon Morter, Eve Beckwith and Miranda Grieter.
Drawings by Eve Beckwith.
Photographs by Chris Williams and Ted Town.
Design by Pam Fuller.
THE CHORA OF CROTON 1983–1989
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Forward

With the first intensive field survey of the territory, or *chora*, of Croton in 1983, a new phase in the discovery of the rural population of the Classical World began. Croton was a logical choice as a second research area. It was founded at the end of the eighth century B.C. by settlers from the northwest Peloponnese, the origin also of the Metapontines. For over a century it was the preeminent Greek colony in Southern Italy, known historically as an athletic power, and the home of the philosopher Pythagoras, as well as of famous doctors. Its territory was extensive and, unlike that of Metaponto, almost completely unexplored archaeologically before we arrived. There was no scientific and logistical basis of the sort that Dinu Adameteau had created for the Metapontine *chora*, but in compensation the welcome from the Italian authorities was enthusiastic—and we were ready for a new challenge! If there was to be a counterpart to the densely settled *chora* of Metaponto for us to explore, this was where it ought to have been—and in a short time where it proved to be.

The Croton project built on the solid results and wide experience of the previous ten years in the *chora* of Metaponto. The work at Metaponto (which is ongoing) had established beyond question that the countryside was densely settled and that the Greek rural population was at a cultural level comparable to that of the city. First the Croton survey, then the initial excavations there proved that Metaponto was not a unique situation, that the intense vitality of the *chora* was a phenomenon of wide significance. Our highest priority at Metaponto, now, is the publication of the discoveries of the last fifteen years, and Croton is the focus of the fieldwork.

There is continuity between the research at Metaponto and Croton in the emphasis that is being placed on obtaining a broad picture of historical change through the study of shifting settlement patterns. At Croton in contrast to Metaponto, widespread settlement begins very much earlier. The survey (1983 to present) has revealed numerous sites of the Neolithic period. Though the period of Greek colonization with its dispersed pattern of farm settlement remains the single most important period, the record of the occupation of the *chora* in Late Roman and Early Medieval times is very full, and of great interest since the transition from villa to village life in Italy is far from being well understood.

The Metaponto project in addition to providing the first and the fullest concrete evidence for the size and density of the rural population, also revealed through excavation of selected sites the architectural form, and the social and economic level of the rural settlements. This work is continuing at Croton. A program of excavating representative sites of each of the major periods of occupation of the *chora*, as revealed by the survey, was undertaken, beginning in 1987. Proceeding in chronological order, the first site chosen was a Neolithic settlement, and it proved to be very fortunate one. After overcoming some very formidable obstacles of the bureaucratic administrative sort, our enthusiastic, all-volunteer field crew under the able guidance of Field Director John Morter, proceeded to excavate what is almost certainly the earliest stone building of substantial size in peninsular Italy. Carbon-14 dates place it about 4000 B.C. Hardly less interesting were the ceramic finds which culturally link this area of Italy firmly with the advanced Neolithic culture of Sicily. The following year a Greek farmhouse was explored. And it is hoped that future years will expand our knowledge of the Medieval as well as the Greek and Roman periods, which are naturally the focus of a classically oriented project such as ours.

The first significant evidence for the crops and animals which were actually raised in the Classical period was one of the great discoveries of the Metaponto project. One site, Pantanello, produced an incredibly rich harvest of ancient seeds, woods, pollen, and animal bones in archaeologically controlled contexts. The study of the ancient flora and fauna at Metaponto was *chora*-wide embrac-
ing a number of sites which range in date from the Neolithic to the Late Roman periods (sixth century B.C. to fourth century A.D.). This initiative has its counterpart at Croton. The botanical and faunal evidence from the Neolithic site is particularly important as it is the very first to be reported from the southern coast of Calabria for a period that witnessed fundamental changes in the basic pattern of human existence. The development through time of agriculture is a major focus of our research in the *chora* of Croton.

Looking ahead, we hope to enhance qualitatively in the coming years the results from both Metaponto and Croton by including new lines of investigation which were beyond the resources of earlier campaigns. These include (1) a geomorphological study of the *chora* of Croton, to evaluate more fully the interrelationship of man and the landscape, which will be extended subsequently to Metaponto, (2) a remote sensing survey of farm sites using a proton magnetometer to detect the traces of ancient structures and hopefully reveal the plans of farmhouses without recourse to expensive, time-consuming (and destructive) excavation, except where it would be truly productive, and (3) a reevaluation of the evidence for “division lines” at Metaponto, making use of recently developed techniques of remote sensing using satellite imagery and mainframe computers. This is a problem of enormous historical importance which modern technology may be able to resolve (which could be extended to Croton, if it proves feasible). These latest challenges focus on man’s interaction with the land and his organization of it, both of which, though little explored in the Classical Mediterranean region, are basic for our understanding of ancient society.

*Joseph Coleman Carter*
**Professor and Director**
**The University of Texas**
**Excavations in Southern Italy**
Acknowledgements

The links between Croton and Metaponto go beyond the historical and the scientific. We have been able to do what we have thanks to the generous support of the private donors and foundations who are listed separately on the inside of the front cover. Many if not all of them have also contributed generously over the years to the work at Metaponto. An archaeological project that aims to open up a new field and to alter widely held opinions about an important aspect of the past needs to be able to go into the field regularly and needs to be able to plan from one year to the next. If, for fifteen consecutive summers from 1974 to 1988 our team has been active in Southern Italy, it is thanks to them.

The University of Texas made a substantial commitment to our research effort in creating in 1978 the Institute of Classical Archaeology, an organized research project in the College of Liberal Arts. It provides basic support for our study and research center in Austin. This is supplemented by endowed funding from the Centennial Professorship in Classical Archaeology (created by private donors, many of whom have also given generously to the dig) and by special funding from the Office of the Dean of Liberal Arts, for which we are deeply grateful.

The warm hospitality of our Italian hosts is a major attraction of the chora of Croton. It is backed with help of many sorts and encouragement at every stage, which gives real meaning to the phrase "international collaboration". For the invitation to participate in the discovery and constant encouragement our heartfelt thanks to Dottorella Elena Lattanzi, the Superintendent of Calabria and her staff; to Roberto Spadea, the Inspector for Croton; and to Giuseppe Nicoletti and Domenico Marino, assistants of the Superintendency and experts on the topography of their native land. We are grateful to local landowners, the Brugnani and Viola families, for permission to dig on their lands, and to the guardian of Capo Colonna, Francesco Crugiano, for his diplomatic skills in obtaining that permission.

We look forward to many more years of fruitful collaboration with our Italian colleagues as we work shoulder to shoulder to discover the rural past.
Map of the project area, the *chora* or territory of Croton. Croton (the ancient city is under the modern Crotone) is at the top (north). The important temple of Hera Lacinia stood on the tip of the promontory of Capo Colonna. Field survey coverage of the *chora* was begun by walking scattered square kilometer samples of the countryside. These are arranged to include most parts of the territory and most of the various terrain types. The small squares on the map are our target sample plots. The large rectangle shows the portion of the territory that would be directly affected by the proposed NATO-USAF airbase.
The problem of rural populations within the colonial Greek world of Magna Grecia was first approached at Croton through a multi-stage survey project. The initial phase consisted of a physiographically stratified random sampling program. Results of this phase have already generated additional systematic surveys of more promising areas such as the complete coverage of the promontory of Capo Colonna, with the renowned temple of Hera Lacinia. Likewise, the area around Isola di Capo Rizzuto has received special attention. These more narrowly directed surveys are the second phase of the project. Finally selective site sounding tests or excavations will serve to verify the chronological and typological information from surface survey.

The primary aim of this research is to discover the spatial distribution of sites for each major period of occupation. Ideally our long term objective is to define conclusively for the Greek and Roman periods the motives for farm site location within certain landscape zones typically found in an agricultural territory. This will ultimately reveal the microenvironmental relationships between farm sites, their operational zones, the associated industrial and religious activity, and give us comprehensive insight into the life and economy of the countryside as a whole.

The ground work for this project was laid in a similar, problem-oriented survey in the territory of Metaponto (1981-1984). Information obtained through that survey and the 560 identified sites have provided us with a sound reference point for comparison. The data includes the range of socio-economic activities of the rural population as revealed by site types and their associated artifact assemblages—a large empirical base, gathered by standardized surface collection. The data produced by the random sampling survey in Croton can be prop-

(Top) The site of San Giovanni as recorded during the survey. This site is unusual in that the ruin of an early Medieval chapel is still standing here. Pottery and other materials collected indicate that before the construction of the chapel, there were earlier Roman, Greek and possibly Neolithic occupations on this spot.

(Bottom) The survey team walking fields in the vicinity of Isola Capo Rizzuto. The spacing between walkers varies depending on the terrain and the particular ground cover. Thick vegetation can increase the difficulty of seeing finds, requiring a tighter formation.
erly evaluated against the 100 percent surface coverage which was employed at Metaponto.

The survey methods are very simple, but strictly applied. Surface collection of sites is primarily carried out during the fall months just before and during ploughing time to maximize visibility. If, however, a survey takes place in the summer when fields are usually covered, we restrict ourselves to ploughed fields in order to obtain similar surface conditions.

On the average, field walking is done by three to four crew members spaced roughly 10 meters apart, thus eliminating the chance of missing small or unobtrusive sites. Once a site is located, intensive surface collection follows.

Every diagnostic item is collected. Our definition of diagnostic is not restricted to chronologically datable items but includes typological criteria as well. These items include all black-glazed pottery, all rims, bases, handles, and decorated body sherds of broadly defined ceramic ware types—table, cooking and storage wares—and any item that implies some sort of specialized activity. This field process lasts until the site surface has been exhausted of its visible diagnostics (on the average, about a half an hour).

At Croton, this system has thus far revealed a total of 457 sites dating from the prehistoric period (ca. 5000 B.C. - 700 B.C.) to the late Medieval period (1400 A.D.). Within this range general periods of occupation have been defined. Analysis of the Greek occupation in the territory is much enhanced by a knowledge of the previous and successive phases of settlement. This diachronic approach reveals the broad trends of economic revival or decline by pinpointing corresponding levels of utilization of the territory, variability in locational preferences for sites and typological changes in the constituents of the ceramic assemblages.

A general overview of the 457 sites and their individual occupation components shows a rise during the Greek period, a drop in the late Republican (about 150–30 B.C.) and early Imperial times (30 B.C.–A.D. 100) and then another unprecedented rise in the later Roman period (100–400 A.D.).

From the prehistoric phase a total of 240 sites have produced impasto pottery and chipped stone artifacts belonging either to the Neolithic or Bronze Age phases. Sites, however, firmly dated to the Neolithic or Bronze Age are few—42 and 38 respectively. The spread of prehistoric material throughout the area emanating from these few major centers indicates an intensive exploitation all along 1) the
coastal zone, 2) the prominent scarps, characterized by sandstone outcrops in the interior and facing south, and 3) overlooking the major stream valleys or gullies receding inland. At a glance, these major settlements appear to be roughly equidistant, from one to two kilometers apart. There is good evidence for an operational zone of similar radius with a series of interconnecting railways. This is most apparent in the Semaforo locality of Capo Colonna, especially around the prehistoric settlements of Vrica and Capo Alfiere.

The pattern for the Greek period is much the same as that for the prehistoric period. The 306 site components have produced an accumulated total of well over 20,000 sherds. They are equally indicative of a pervasive and intensive use of the territory immediately to the south of Croton, known as the Marchesato. 133 sites have been identified as farms. Typologically the rest are isolated tombs or tomb groups associated with farms, and scatters. (The possibility exists that some of the scatters may have been associated with farmsteads, as outbuildings).

For the purpose of this investigation we have divided the 133 farms into three chronological groups. Group One consists of the early farms dating to the Archaic period only (sixth century to early fifth century B.C.) without any obvious intrusion of later pottery; there are 41 such sites. Group Two consists of those farms that comprise the full range of Greek occupation; they number 58. Group Three consists of the late Classical farm sites with a late fifth and fourth century phase only; these amount to 34. Already we notice a very slight drop in the number of farm sites in the fourth century B.C.

Another facet of the research is the complete documentation of the ceramic assemblage. Profiles have been drawn and counts by type made for every site as was done with the 560 sites at Metaponto. Already a large number of farmsites have been recorded in this fashion. Any sherd with enough of a profile remaining is drawn regardless of ware type. When a site has been completely drawn the individual pieces are grouped along with pieces from other contemporaneous sites under the basic ware types (black-glazed, table, cooking, storage). These are further subdivided according to specific shape. Not only will chronological sequences be discerned more clearly, but also the relative frequency and distribution of each particular shape within the territory which will be apparent.

The percentage bar graphs on the following page illustrate what ceramic ware types are most common and their

These are typical archaeological materials collected from the surface of sites found during a survey. The finds have been sorted by material or ceramic wares. The figure on the left shows material from Site 20, consisting entirely of pottery, mostly "black-glazed" ware of the fifth century B.C. The Site 34 collection in the figure on the right is more varied, a preponderence of Neolithic sherds and chipped stone, but with some additional Classical fragments and a loom-weight.
This graph presents one aspect of the data contained in the breakdown of Greek ceramic types from the survey. It shows five major ware categories, and their shifting percentages within the collection between the sixth and fourth centuries B.C. The relative decline in fine ware may indicate a shift in the economy of the *chora* towards larger farms, perhaps employing slaves.

![Pottery Relative Percentages (Croton)](image)

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<th>8th century</th>
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<tr>
<td>Unglazed Table</td>
<td>60%</td>
<td>40%</td>
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<tr>
<td>Black-Glazed</td>
<td>40%</td>
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<td>Cooking</td>
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<td>Storage</td>
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The distribution of continuously occupied farmsites is indicative not only of primary sites in an hierarchical sense but also of stable locational criteria. That these sites are found in locations that afford access to water resources indicates unchanged environmental conditions in those areas. Common factors that determine farm site location are: availability of a perennial water source, of clay deposits for tile and perhaps pottery production, to sandstone outcrops for quarrying, proxim-

The map presents the distribution across the *chora* of Greek farmsites from the Archaic period, that is early in the colonial sequence. An attempt has been made to show how the territory might have been divided-up into farming plots, similar to those demonstrated for Metaponto. The east-west lines have been tentatively placed running along the natural ridge lines that dominate the landscape and dictate the location of convenient water sources.
ity to open flat stretches of terrain for cereal cultivation, and, where possible, to valley slopes for pastoral activities.

The distribution of farmsites throughout the territory during the Archaic period is fairly regular. All settlements occur along prominent ridges and coastal zones, with the exception of the Capo Colonna promontory. There is a tendency in this period for clusters to form. Smaller farmsteads—the size judged on the basis of the relative abundance of surface finds—are established close to primary sites. The distance separating them is usually no more than 150 meters. This can often include a cluster of more than five farms as seen near Torre Cannone and Torre Bugiafre.

In the late Classical period the distribution of sites in the territory is still broad, and similar locational criteria are used. Sites are found on prominent landscape features such as the sandstone ridges on either side of Isola Capo Rizzuto, the plateau’s edge, and small rises on the coastal zone and in the interior. The more dissected interior to the west is marked by settlement along narrow spurs overlooking stream valleys or gullies. Along with the primary criteria mentioned above, exposure and intersite visibility seem to play key roles in determining site location.

The settlement pattern of the late Classical period also diverges from earlier ones with regard to the spacing between farmsites. Distances between them increase to over 200 meters. Close clustering of more than two farms is virtually absent. Thus, a gradual thinning out is discernable. Another apparent characteristic is interval settlement along major contours. These intervals appear as bands or rings gradually receding inland from the coast at intervals of roughly one kilometer. These are plainly visible in the Capo Colonna area and around Isola Capo Rizzuto. This general overview of the pattern of human occupation in the late fifth and fourth centuries B.C. reveals an operational zone of one kilometer per farm.

In the Classical period there is a noticeable switch in emphasis in preferred farmsite location from the coastal zone to the more prominent higher elevations found inland. Noteworthy is the lack of late Classical farmsites near Fosso dell’Acqua. Could it be that this particular low lying area was rendered uneconomical by marshy conditions, that would exist today were it not for drainage canals? Continuity of sites from the sixth to late fourth centuries B.C. in the coastal zone is still evident but restricted to sites located on small, well-drained, coastal ridges.

A further indication of the shift can be seen in the areas preferred for new foundations. Emphasis for new settlement was placed on the upland areas of the Marchesato. In fact, most of the new sites founded in the fourth century are found in the interior, north of Isola Capo Rizzuto and extending north and west to the Sant’Anna area. Another area that invites new settlement is the Semaforo locality of Capo Colonna. Here is a nicely illustrated railway type of farm settlement following the higher contours. The arrangement of these sites suggests a major land route originating from the ancient city by way of the Santa Lucia gate along the narrow ridges and finally leading down to the sanctuary of Hera Lacinia.

All these trends suggest restriction of available agricultural land and a slight retreat towards an area closer to the urban center, prompted perhaps by environmental changes in some of the low lying areas of the coastal zone. These locational trends taken together with the evidence of the ceramic assemblages are the most obvious signs of a gradual reorganization of life in the territory: settlements gravitating more towards the city and higher elevations coupled with decreases in finer wares—seasonal as opposed to permanent dwellings.

The late Republican and early Imperial periods, as indicated by the presence of locally produced grayware and imported terra sigillata, continue this restriction and thinning out of sites. Preferred locations continued to be occupied, however, and we see a pronounced increase in the number of imposing new settlements in the Capo Colonna area. During the late Roman phase, identified primarily by African Red-Slipped (terra sigillata chiara) and red splashed pottery, there is a definite reversal to clusters of habitation, and a quite evident increase in the occupation of the territory. Good examples of this clustering are found in the localities of Carbonara, Renace, Pedocchiella, Semaforo, and Capo Colonna—all on prominent high places or tucked away on the plateau terraces, which seems to indicate defensive criteria. Could this settlement pattern reflect the rise of a new socio-cultural group and a reorganization of the economic base? The settlement of the territory in the late Roman period is one of many challenges, but given the general ignorance of this period elsewhere, it is potentially one of the most rewarding.

Cesare D’Annibale
Survey Director

This map shows the farmsite distribution in the period following that shown in the previous figure, the Classical fifth century and early fourth centuries B.C. The plots suggested are twice as wide. Notice in both this and the previous figure, the road from Crotone, to the sanctuary at Capo Colonna running along the top of the ridges south of Crotone, and thereby avoiding the very rough "badlands" terrain beside the sea.
Panoramic view of Capo Alfiere looking south-west. The Neolithic site sits on the top of the point. It has been eroded by the sea and, more recently, by embellishments to the trailer park and campsite below.
Capo Alfiere is a small coastal promontory about eight kilometers south of the modern city of Crotone. This headland protrudes southeast into the Ionian Sea, and is itself part of the southern coastline of a major point of land, Capo Colonna. A single Doric column stands at the tip of this peninsula, from which it derives its name. This column is the last conspicuous vestige of a major Classical temple to Hera Lacinia, in its time an internationally famous sanctuary. The temple was built by the inhabitants of Croton, the Greek colony, founded in the eighth century B.C. which lies under modern Crotone. The nearby Neolithic site at Capo Alfiere is one of many, from all periods down to the present, that the survey (above) has shown to be thickly distributed across the cape.

The site here was first noticed when exposed by erosion and agricultural work on the east side of the headland. It occupies a cliff-top position overlooking two beaches, but just as segments of the limestone bedrock that caps the geological deposits here have collapsed down the slope, so have parts of the Neolithic site. This process, along with the excavation of a property boundary ditch, exposed the site's materials for the perusal of archaeologists, both Italian and American.

In the early 1970s, the Italian scholar, Sandro Salvadori, collected and published material washed onto the surface. That material included a high proportion of sherds decorated in a style, Sentinelliano, first defined by the excavations of Paolo Orsi in western Sicily at the end of the last century. In addition, the chipped stone debris contained a very high proportion of obsidian, the most likely and immediate source for which is the island of Lipari, off the north coast of Sicily.

These finds indicated contacts and/or cultural associations with the West during...
ing the middle Neolithic period. Additionally, Capo Alfiere showed good potential as a prospective site for investigating early agriculture. The deposit was deeply buried and quite dark in color, which suggested intact deposits likely to yield reliable seed remains. Finally, our own surface collection had shown the presence of bone fragments here and hence the likelihood of good results for faunal analysis. We decided to begin our Crotone excavations at Capo Alfiere.

The Middle Neolithic Period

The term “Neolithic” is generally applied when evidence reflecting the introduction of agriculture into an area formerly occupied by Mesolithic hunter-gathering groups begins to appear in the archaeological record. The evidence includes: pottery, cereal crop cultivation, domestic animals (particularly sheep/goats and cattle), sedentary settlement in villages, and the appearance of ground stone tools and grinding stones for processing cereal grains, such as wheat and barley.

Knowledge of the Neolithic sequence in Calabria is slight compared to that of the south eastern side of the Italian peninsula. The little that is known has been extrapolated from the Sicilian and Eonian sequences which have been more intensively investigated over the years. Work in Sicily has shown that there, in contrast to the situation in Apulia on the east coast, the pottery sequence includes a remarkable development of the impressed ware tradition in the Middle Neolithic Period. This is the Stentinello “culture” defined on the basis of material from the site of Stentinello, near Syracuse. The distinguishing element of this “culture” is the expertly and intricately decorated ceramics that it has left. Stentinello ceramics define a major and distinctive horizon in the Sicilian sequence. The material from Capo Alfiere and that found by Ammerman on the west Calabrian coast around Acconia has shown that the Stentinello horizon is also present on the mainland during the Middle Neolithic. This suggests that the Calabrian Neolithic sequence as a whole more closely resembles that of Sicily than that of Apulia and Basilicata.

The Capo Alfiere Excavations, 1987

The first excavation campaign at Capo Alfiere was carried out by a crew of fifteen during five weeks from the end of May to the middle of July, 1987. The personnel involved were all students or specialists from The University of Texas and a number of academic institutions around the world. The participants are listed separately on the back cover.

Our excavations at Capo Alfiere have shown that the best preserved parts of the site lie along the immediate cliff edge overlooking the sea. In the center of the promontory itself, the deposit has been badly damaged by recent ploughing. Where the site is preserved the results have been exceptional. They include:

1) The discovery of a substantial stone structure of Middle Neolithic date. We can find only one parallel for this building, from a Stentinello site on Sicily, Serra del Palco. That makes ours the second of its kind, and the first from peninsular Italy;
2) The recovery of a corpus of fine Stentinello style ceramics, the first large body of such material from eastern Calabria;
3) A chipped stone assemblage that shows a much higher percentage of imported obsidian use than anticipated;
4) A cache of rare polished stone celts (axeheds);
5) The first substantial body of floral data from excavated seeds for the Neolithic of this area; and,
6) The first body of excavated faunal material for the Neolithic of this area.

The complete results will make a substantial contribution to Italian prehistory. From the perspective of the Croton project as a whole, the last two results are especially welcome. They provide the first building blocks in our reconstruction of the technological sequence of agriculture here. The one disappointing aspect of this first excavation season was that we were unable to dig enough. The building that we uncovered was so large that it occupied most of our excavated area. We will need to return to the site to excavate further areas beyond the confines of the structure to make sure that we understand it and the finds from it. One problem with finding something unusual in a limited space is that it is impossible to know whether the associated artifacts are broadly typical of
The excavation area at Capo Alfiere looking southeast. The shape of the structure may be difficult to make out within the carpet of rocks forming both the wall lines and the cobble floors inside. Nonetheless, the line of the wall along the north side of the building can be clearly seen. This may prove to be the earliest structure of this kind yet known from peninsular Italy and dates to about 4000 B.C. (One similar building was found recently on Sicily, and a fragment of a wall from something similar has been recorded from an equivalent period on Malta.) Its function is still mysterious.

the area or affected by their unique context. This is something that we urgently wish to explore at Capo Alfiere.

Previous excavations sites of Stentinello structures on Sicily and in western Calabria suggested—in Calabria no intact buildings had previously been found—that they would consist of a wooden frame with uprights set in post-holes with walling of wicker covered with mud plaster, the so called “wattle and daub” construction.

Our excavation uncovered two sides of a structure with massive stone walls, a meter thick, and two internal cobble pavements. These walls delimited the western half of the building, which ran up to the cliff edge on the eastern side of the site. Some of the structure has been lost with the gradual collapse of the cliff. Nonetheless, from the amount of walling still traceable, we estimate that this building must have originally measured at least eight by nine meters. The two stretches of this side of the structure did not lie in a straight line but were set at a slight angle as if they were three sides of a polygon. In the angle created by the two sections of the west side was a doorway.

Large rocks and slabs had been used in the construction of these walls, which were up to a meter thick and impressively substantial. They were not well-preserved above the first course or two, but enough survives to reveal the careful workmanship. Above
that, it is difficult to judge how much has been lost.

The method of wall construction is unusual, in that, in addition to the dry-stone coursing, vertical slabs had been placed along the lower sides of the wall. These apparently were used to fill in the sides of an original foundation trench. Such slab lining of the foundation trench occurs along several stretches of walling—wherever the foundations were deep enough to allow it.

The one meter wide gap in the length of the western wall is tentatively being called a doorway. The gap is quite distinct and the two wall lengths are intact on both sides. A soil change defining a trodden surface was followed during excavation from the area outside the structure, to the west, through this entry and into the structure. In the gap and on this tentative surface were several sherds all lying flat as if trodden into the floor. All of this is evidence reinforcing the interpretation that there was an entrance in the west side of the structure between the two stretches of the wall.

We have a problem in the reconstruction of the height and composition of higher elements because of the effects of ploughing. Although the Neolithic structure was only deep-ploughed once within the last thirty years, as far as we can tell, evidence of that event is carved into the stones, and the damage to the level may have been quite severe. Prior to the deep plough, the field was certainly cultivated with less destructive equipment which has produced a uniform, mixed layer just above the Neolithic stratum.

Beneath the general plough zone, there was evidence for the collapsed material of the Neolithic structure in two areas: within the structure itself above intact floor surfaces, and beside and to the north of the north wall. The material against the north wall con-
sisted largely of daub. Unfortunately, it was badly scarred by the deep ploughing, surviving intact essentially only directly beside the wall where the plough had been forced to skip up over the large stones of the wall.

The most probable hypothesis therefore, is that the walls originally rose somewhat higher in stone, and the presence of wattle and daub above that is uncertain. There is some evidence to suggest that the walls may originally have been mud plastered. We suggest that the structure probably had substantial stone walls of at least one story. The stone from these walls would then have been subject to looting over the next 5000 years, so that only that originally in foundation trenches now remains. Indeed, this process may have started in the Neolithic period if the evidence for disturbance of the inside of the building has been interpreted correctly.

Inside the structure were at least one, and probably two, cobble-stone pavements. These were not continuous, but were represented by several intermittent patches. There were two substantial gaps, or holes, in the central part of the paving. A beaten surface of Neolithic date ran over these holes. Both of these two holes were partially excavated to bedrock. The southern one developed into a pit that cut through all the Neolithic deposits and into undisturbed substrata. It seems likely, based on the nature of the deposition within these features, that both may represent later Neolithic period damage to the cobble surfaces.

What purposes could a stone building of these dimensions have served? The problem of function raises fundamental and compelling new questions about Neolithic social organization. If the building and construction research from the Acconia Project are a guide for Stentinello sites in general, then the Capo Alfiere structure is quite out of the ordinary for Calabria. On Sicily, structures like those at Acconia were also considered typical until recently. However, at Serra del Palco, a very similar massive stone structure of the Stentinello Neolithic has been discovered. This building was twenty meters by twelve meters in size, with stone walls and an apsidal end. It seems very similar in conception to that at Capo Alfiere and equally strange in the light of what was previously known. One other possible parallel for this massive kind of structure has been found on Malta. There is a substantial rubble built wall from the earliest, Dhar Gallam, phase of the Neolithic at the site of Skorba. This is from a structure found below the later temples there. It is about twelve meters long and about one meter thick. Unfortunately, the shape and purpose of the rest of the structure is unknown. The Ghar Dalam phase on Malta is, however, considered to be equivalent to, and possibly directly derived from the Sicilian Stentinello. It, too, dates in the fifth millennium B.C.

Given the construction evidence from other sites, it seems likely that this
structure represents building activity of a communal nature. The potential then exists here for investigating aspects of the social community above the level of the single household. It indicates the presence of a form of hierarchical social organization with a leadership capable of mobilizing the labor of the community. This has significance as regards political organization if not function. It is likely that the building had a religious function, but in these societies this cannot be divorced from all other social, economic and political activities. One of the questions for future research is its function within the community. It is intriguing that this structure was found so close to the later, highly important, Classical sanctuary at Capo Colonna.

Later Phases in the Structure.

We have not yet removed any of the intact cobble surfaces within the structure to look for earlier levels. However, we have tentatively identified several elements within the sequence after the construction of the building with cobble floors. The uppermost Neolithic surface seemed to be a trodden surface within the building. We believe that it represents an abandonment phase of Neolithic date (that is, the structure was built during the Neolithic and fell into disuse during the Neolithic represented by this surface). Seed finds tend to corroborate this, showing very high relative quantities of weeds associated with abandonment and/or pasture. This surface sealed two substantial gaps in the cobbles below, and one of these proved to be a pit cut through the cobbling. These then appear to represent damage to the cobble floors during the Neolithic period.

The disturbance of the cobbles by subsequent Neolithic activity is interesting. We did not find any evidence of burning or a destruction level for the structure, suggesting its abandonment rather than any violent or sudden end. A badly damaged vestige of another pit was also found during the cleaning of the section cut through the structure by a modern boundary ditch. Most of this feature had been lost during the ditch cutting, including the top where it would have shown the surface from which it was cut. This pit was also within the area of the structure, and seemed to derive from a later Neolithic occupation—again, perhaps, representing later Neolithic disturbance of the interior of the structure. The interior of this bell-shaped feature showed evidence of burning, and subsequent back-filling with rocks. It was here that we obtained one of two reliable Carbon-14 dates for the site so far. They strongly indicate a late Middle Neolithic date (about 4000 B.C.) for some of the activity here. These dates give an approxi-
mate time frame for the occupation of the structure itself, but the date and structure cannot be linked directly.

To the north of the structure, badly disturbed daub tumble and a cache of axes reinforced our impression of the existence of an occupation surface. This was presumably associated with a late phase of the building, but had been badly knocked about by modern ploughing and only survived in vestigial patches. Another meter square test about five meters further north failed to pick up this occupation zone at the bottom of the plough zone.

Finds associated with the Structure

It is always the case in archaeology that even a short season of excavation produces a quantity of data that requires much subsequent time and energy to sort, catalogue and analyze. Processing of the artifacts and other finds from the excavation at Capo Alfiere began as the digging was in progress during the summer of 1987. Some finds were then sent to specialists for further analysis. Subsequent analysis was possible in 1988, particularly before the beginning of the Torre Bugiafro excavation. During the summer of 1989, both the pottery and obsidian was examined in the laboratory using several techniques of elemental and mineralogical analysis.

Typically, archaeological finds are divided into a number of categories, each of which corresponds to a particular class of find; finds which, by their very nature will answer different questions. By ultimately recombining all the various avenues of investigation a broader, and hopefully coherent, picture of many aspects of the subject society can be created. The analysis of the materials from the first season at Capo Alfiere is still in progress. The following review of the lines of inquiry and the questions addressed will mention: the ceramics, the chipped and ground stones, the seeds, and the animal bones.

![Fragments of Serrinello pottery. These are typical examples of the complex decorative techniques used on the finer pottery. Notice the careful finishing and use of prepared punches, particularly for the diamond patterns. The ochre sometimes pressed into the grooves is clearly visible on G; in this case it was white and the pot surface black.](image-url)
Ceramics

Pottery (the ceramics) is a traditional archaeological tool. It is ubiquitous on most Neolithic and post-Neolithic sites. As the shape, composition and decoration of pots alters over time, it is an important chronological control. Where the ceramic sequence has not been much described, as in the Neolithic of eastern Calabria, it is necessary to establish this first. Already extensive graphic and photographic documentation are the basis for detailed studies of vessel shapes and decoration trends. In 1988, we were able to piece together large chunks of several vessels, despite their fragmented condition. Our analysis aims to explore the range of pottery shapes and their relation to decorations and fabrics in this Stentinello assemblage. In addition to chronological control, this will also help to establish vessel function in the community. It may also show which pieces are imports, giving us insight into community relations and trade.

The pottery from Capo Alfedo seems to be fairly typical of a Stentinello type assemblage as it is known in Sicily. It is characterised by "impressed" decoration on much of the vessels. The impressed decoration is in two forms. There is a group with fairly simple patterns, lines, zig-zags, shell rocker-stamping and punches. Then there is a
Pottery reconstruction: Small open bowl without decoration. Not all pottery was decorated. This is an example of an undecorated form. The surface color is orange/red. Reconstructed height 7.5 centimeters.

Pottery reconstruction: Large jar with faint cord impressed decoration. Both the shape and the decoration of this vessel are unusual for this site. The surface color is orange. Reconstructed height ≥34 centimeters.

group with exceedingly complex designs, intricately done using selected shaped punctates (some examples of which have been found on Sicily). It is this second class of complex decorations that characterizes the Stentinello style and makes it unusual, as nothing similar occurs in the Neolithic elsewhere on the Italian mainland. Approximately 33 percent of the 5440 Neolithic sherds recovered so far from Capo Alfiere are decorated; of these, 35 percent, represent examples of the finer complex Stentinello style.

Preliminary work on the materials from Capo Alfiere has suggested that despite the differences in decoration, the fabric of most of the vessels was essentially the same. On the basis of the 1988 analysis we are tentatively suggesting that there may be some discrimination of surface color within the assemblage, corresponding to decoration type, or lack thereof, and vessel shape. It appears that within this collection, the finer ceramics with detailed and complex impressed decoration generally have a black/grey exterior surface. Simple punctate designs tend to occur on thicker, cruder pieces which are more likely to be brown in tone. Then there is also a group of shallow, undecorated bowls that have a red-orange color. If these impressions prove to be correct, they indicate that the potters were discriminating between
classes of vessels during firing. Whether this had a functional or aesthetic rational requires further exploration.

This was suggested on the basis of visual inspection alone. During the summer of 1989, we have had the opportunity to conduct chemical and microscopic analyses of selected sherds, which should give us much more accurate and controlled information. We are taking the opportunity to compare three techniques: petrographic microscopy, X-ray diffraction and elemental analysis with a scanning electron microscope. To date, all these techniques have confirmed our initial prognosis: the fabric of all the Neolithic pottery, regardless of thickness, coarseness or decoration seems remarkably homogenous.

The 1988 analysis has also confirmed the widespread use of colored ochres in the incised decorations on the pottery, mainly that with complex designs. Colors are varied, both white and all shades ranging from red to yellow. One piece may have originally had parts of its pattern distinguished by white and red coloring in combination. Most of the ochred decoration is on pieces with a black surface finish, a few on brown, and one of white ochre on red ceramic.

One other distinct, but very small, group of pottery was the fine cream slipped pieces, some with red or brown paint. We have, as yet, too few examples of this to say much about it except that it is present. It appears to be a small but consistently represented class of ceramics at "Stentinello" sites, which our findings confirm but do not elucidate.

The Chipped Stone Industry

Our interest in detecting possible imported ceramic pieces is understandable in the light of what we have discovered so far about the chipped stone industry. The celts. These five polished stone celts (or "axeheds") were found cached together. They were probably originally cutting tools or possibly hoes. The stones used probably derived from the Sila, mountainous inner Calabria. They add to the mystery of the function and history of the stone structure. They were found just outside the wall. They range from 10 centimeters to 15 centimeters in length.
at the site. The preliminary count of the chipped stone assemblage has produced the interesting fact that 62 percent of the chipped stone material, of 1599 items in all, is obsidian. Most of the lithic debitage recovered is from deposits that have been sieved and so the high proportion of obsidian present is not a recovery bias. The closest sources of this material for Capo Alpha are either the island of Pantelleria near Malta, or the island of Lipari, north of Sicily. In the western Mediterranean obsidian is also found on Sardinia and on the island of Palmarola in the Pontine group. Material from these two northern locations generally has a northern Italian distribution area. Of these possibilities the Lipari source is the most likely supplier for Calabria.

X-ray fluorescence analysis of several fragments of obsidian was done over the summer of 1989, to attempt to define the source of this raw material using the minor trace elements in the obsidian (these elements vary slightly between obsidian sources). This has confirmed that the source of the obsidian at Capo Alpha was almost certainly the island of Lipari, by eliminating the other three possible sources.

Coming from the Lipari sources, the material has travelled a long way to get to Capo Alpha. Its quantitative preponderance over more closely available cherts is therefore highly significant. The movement of obsidian around the Mediterranean, and the implications that this might have for the types and distances of early trading contacts, is a popular topic for study. On the western Calabrian coast, facing the island of Lipari, Stentinello sites used obsidian for more than 90 percent of their chipped stone work. The Capo Alpha site result shows that this material was still the major lithic resource here even though it had farther to travel across the rugged interior. (The most direct route requires a sea crossing of around 120 kilometers, or 70 miles, and about 80 kilometers, or 50 miles, overland), or all the way around the toe of the peninsula (approximately 320 kilometers, or 195 miles, by boat). This opens the possibility of far more communication over long distances in the fifth millennium B.C. than many commentators had suspected.

**Ground Stone Tools**

In addition to chipped stone, the other characteristic set of stone tools from a Neolithic site is that of ground stone or polished stone. The site produced a large number of ground or polished stone pieces. We were encouraged by the frequent occurrence of grinding stones made from a local sandstone, reflecting agricultural activities. Our most spectacular find, bearing in mind that this is a Neolithic site, was in this category. We unearthed a cache of five polished stone celts, or "axeheads". These are all fine pieces, quite rare to date in this area of Calabria, and all showing relatively little evidence of having been used. An initial examination by Prof. Robert Folk of The University of Texas Geology Department indicates that the stones used for these pieces are all volcanic in origin, probably derived from the Sila, the mountainous, indeed "Alpine" plateau of inner Calabria. The cache was found beneath a disturbed tumbled-like deposit, close to a major wall of our structure. (The axes had escaped being deep ploughed and destroyed only by inches.)

**Organic Remains: The Seeds**

While stone tools, and to a certain extent the pottery, show the technological level of the site's inhabitants in dealing with their environment, actual traces of that environment and the subsistence aspects of the economy can also be recovered. These take the form of seeds and animal bones, either or both of which can be preserved if circumstances are favorable. Bones and seeds are evidence for the actual plants and animals being herded, grown, collected, or hunted by the site's occupants, as well as of other species, floral and faunal, for which the Neolithic landscape might have been favorable.

As a primary focus of our project was the recovery of seed remains for the study of early agriculture, we undertook the processing of large quantities of soil by water separation (floation). This technique has been demonstrated as the most efficient way to retrieve ancient seeds. Dr. Lorenzo Costantini and his colleague Dr. Salvatore Scai of the Institute of Bioarchaeology in Rome organized the process and undertook the analysis of the finds.

The results of the seed analysis show that our assessment of the site's potential in this regard was correct. Our first season produced over 400 seeds or plant fragments. Given the restricted amount of undisturbed deposit available for us to sample we are most encouraged, especially as this compares very favorably with the quantities produced by other Neolithic sites in Italy.

The excavations in the cave at Grotta dell'Uzzo on Sicily produced 45 seeds in several seasons work. The latest levels at the Grotta dell'Uzzo are comparable to those at Capo Alpha in that a Stentinelliano horizon was discovered.

Recent excavations near the east coast at Scamuso have produced 261 seeds so far, from a site of the Middle to Late Neolithic period. Of these over 100 seeds are of weeds recovered from the uppermost levels. These figures demonstrate the valuable contribution that the Capo Alpha material is likely to make.
Water flotation. Soil samples are placed in the large sieve. Once in water, small pieces of carbon such as seeds float and can be skimmed off the water's surface (Right). Once the smallest soil particles in a sample have been washed away and any buoyant inclusions, such as carbon, floated off, the remainder must be sorted by hand to separate out cultural artifacts such as tiny bones or chipped stone flakes, from the gravel occurring naturally in the soil (Below).
The Botanical Finds bargraph on this page shows the varieties and species of seeds discovered at Capoalfiere. Cereal crops are represented by both emmer and einkorn wheat and barley. Beans and other legumes are present; and, of course, there are weeds. Slightly exotic finds are the single vine seed and an acorn fragment. We do not have any olive seeds, which were found in the Neolithic levels at Grotta dell’Uzzo.

The shallow nature of the deposit excavated so far precludes significant stratigraphic contrasts. However, it is possible to make some preliminary comparisons between the final Neolithic abandonment surface and earlier deposits immediately below that. This is shown in the graph, Contrasting Botanical Finds. Three items are most immediately noticeable. The most obvious and expected is that the abandonment surface produced a large proportion of the weed evidence (goosefoot, spurge). These plants may indicate increased use of nearby land for pasture as well as lack of occupation on the site itself. Also striking are the large numbers of bean and pea seeds in the level below the abandonment surface, relative to that surface itself. Finally, there seems to be an increase in the percentages of wheat to barley in the abandonment surface material. It will be interesting to see whether this apparent shift in importance of legumes (decreasing) and wheats (increasing) is confirmed in other areas of the site once further excavations have been undertaken.

Contrasting Botanical Finds of Two Levels, Capoalfiere 1987. This graph contrasts the finds from a Neolithic surface late in the site’s occupation (Context 24) with fill below it (Context 33). The species are grouped into cereals, legumes and weeds. This is among the earliest known evidence of plant varieties in the early age of agriculture in this part of Italy.
Organic Remains: Animal Bones

The analysis of the faunal remains from Capo Alfiere was done by Dr. Salvatore Scali of the Laboratorio di Bioarcheologia in Rome (see below). The species represented and their relative abundances is shown in the graph on this page. Dr. Scali notes that the recovery techniques employed at Capo Alfiere allow him to be far more confident that most of the bones actually present were in fact recovered. He also points to the use of water flotation to make sure that at least a sample of the very small pieces (from the very small animals) was also collected. Of the 3569 bone fragments recovered, only 525, or 15 percent, were identifiable. Although this seems low, Dr. Scali points out that this is typical of the state of preservation of bone from sites of this period.

Finds associated with the Structure

The most distinctive feature of the relative percentages of species represented is the complete preponderance of domesticated (sheep/goat, cattle, pigs) over wild (deer, fox) animals. This suggests that hunting was not a major meat source, relative to domesticated animals. Also surprising, given the location of the site, is that only five fish bones and minimal mollusca turned-up. This could prove to be a sample bias as these are small pieces, frequently only recovered in flotation. If this ultimately proves to be correct it will be an interesting light on the economic orientation of what was essentially a seashore community.

In concluding his report Dr. Scali notes how difficult it is at present to compare the results from Capo Alfiere with other sites. There are hardly any other sites of this period excavated in this part of Italy. The faunal results from Capo Alfiere are thus all the more important.

Future work at Capo Alfiere

Capo Alfiere has produced better than expected results in almost every category of find that it has produced so far. It will be desirable as well as necessary, therefore, to explore this interesting and important site further. Indeed, the Superintendency of Antiquities is encouraging us to do this at the earliest possible moment. Our work in the summer of 1987 indicated that there are surviving, intact deposits adjacent to the structure already discovered, so the potential for further discoveries is there. We need to know how typical the large stone structure and its massive construction, is for the whole site. This should give us more clues to the original role of the structure within the site itself.

More broadly, there are questions that can be asked of the whole site. The Stentinello Neolithic site at Capo Alfiere is situated topographically in a location very similar to that of the type site of Stentinello on Sicily. That is, on a cliff-top overlooking the sea. It is known that the site at Stentinello was a small village surrounded by a ditch. The Capo Alfiere situation could well prove similar. It would be interesting to attempt to look for the layout of the whole village. Remote sensing by proton magnetometry will probably be the best way of doing this. Hopefully, this will demonstrate the presence (or not) of a site boundary ditch, and may indicate other undisturbed areas.

Jon Morter
FIELD DIRECTOR
The faunal remains examined in this preliminary report come from the 1987 excavation campaign, carried out at the Middle Neolithic site of Capo Alfiere.

Analytical Method

The identification of the faunal remains is based on the comparative method (comparative collection of the Laboratorio di Bioarcheologia del MNAO-ISMEO, Instituto Italiano di Paleontologia Umana di Roma). Determination of the anatomical elements has included recovery of the most data possible (age, minimum number of individuals, butchering marks, specific attribution to position left, right, etc.).

Dry sieving and flotation have allowed recovery of even the most minute fragments of faunal, microfaunal, and other material of palaeoentological interest. The preservation of the material and the importance of the site assumes for knowledge of the economy of the Middle to Late Neolithic of Southern Italy, has lead to the development of a more exhaustive program of work, that goes further than the simple recognition of animals present, and that is also in a position to supply evidence for a reconstruction of the type of economy practiced and of the environment in which that occured.

Characterization of the Faunal Remains Recovered

The bone remains constituted for the most part food waste as they show traces of butchering, of burning and typical intentional spiral fractures for the extraction of bone marrow. The sample is composed of 3569 fragments of which 525, equal to 15 percent, are suitable for identification. The figure of 85 percent unidentifiable is particularly high, but it agrees reasonably well with other open-air sites, such as Scamuso where only 12 percent of the remains proved identifiable; whereas in the Grotta dell’Uzzo cave those identifiable proved to be 18 percent. In particular, the composition of the fauna of Capo Alfiere is, surprisingly, characterised by a greater fragmentation of the osteological finds that one normally encounters in cave sites, where the materials suffer a greater deterioration from the obvious limits to the occupation area. At Capo Alfiere, such increased fragmentation is due, very probably, to the clastic components of the soil which, with occupation and continuous trampling, reduces the remains to the most minute fragments and splinters. Conservation was therefore selective and depended essentially on the nature of the bone, favoring fragments of compact bone, the teeth and the bones from the extremities.

In the course of the present work it was also considered useful to calculate the relative weight of identifiable fragments to those of the nonidentifiable remains, to illustrate the above mentioned fragmentation of the sample:

<table>
<thead>
<tr>
<th>Weight all fragments</th>
<th>11243 grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight identifiable fragments</td>
<td>5643 grams</td>
</tr>
</tbody>
</table>

From the total weight one can calculate that the average weight of the fragments examined comes out at about 3-4 grams. This figure ultimately contributes to clarifying the composition of the sample under examination. Only a few fragments were in a state of conservation that allowed an easy identification, whereas the major part of the finds required lengthy restoration work.

The Faunal Assemblage

The species list for the fauna of Capo Alfiere is shown in Table 1. The identifiable species comprise domestic animals, these are: sheep/goat, cattle, pigs, dogs; and, wild animals such as deer, wolf, fox, and the smallest mammals. The general picture shows a net prevalence of domesticated species (around 91 percent of the identifiable pieces) and a low presence of wild species. Indeed, the presence of wild species can be considered occasional.
The quantitative analysis of the fragments makes clear, in fact, that the inhabitants of the site of Capo Alfieri practiced the raising of ovi-caprines as principal activity with cattle and pigs in smaller measure (Table 2).

Hunting is documented from the presence of remains of deer and fox, but the modest quantity of the finds attributed to each species leads to the conclusion that this form of food production was not included in the usual food supply of the population of Capo Alfieri. Similarly, fishing does not seem to have held a particular interest, even though the site is overlooking the sea (only five fish vertebrae), the collection of marine shellfish seems proportionally better documented, attested from shells of limpet, trochus and murex. Included among the finds were several tools—points and polishers—made from bone.

**Comparison with Other Southern Italian Neolithic Faunal Assemblages**

The site of Capo Alfieri can be compared, with regard to both the fauna and artifacts, to other Neolithic sites of Southern Italy and Sicily: namely, Scamuso (Bari), Grotta dell’Uzzo (Trapani). At Scamuso, stock-raising comprised animals typical of the Middle to Late Neolithic with a prevalence of ovi-caprines followed by cattle and pigs; here also the wild species figured as marginal or occasional and the remains that attest to a fishing activity are few. This site overlooks the sea as at Capo Alfieri, but the collection of marine shellfish appears better documented in number and greater in variety than that found at Capo Alfieri.

At Grotta dell’Uzzo we have a different situation. There is, for one, an almost total lack of cattle (whether in the Mesolithic deposits inside the cave or in the external talus where the Neolithic sequence was found). This may occur
not because of a selective choice in stock-raising but as a result of morphological factors—environmentally dictated by the bay (of the same name) on which the site is located.

The final phase of the Neolithic at Uzzo is comparable with the stratigraphic sequence of Capo Alfieri. At this site in western Sicily, the end of the Neolithic is represented by an increase in ovi-caprids followed by pigs. Fishing is well-represented, both in the quantity and variety fished; also including large Cetaceans. In the Grotta dell’Uzzo cave, moreover, collection of marine mollusca is notable; whereas the terrestrial species are very few in number.

Intra-Site Variation

This preliminary note aims to show the composition of the fauna and make initial comparisons with the few Neolithic sites excavated in Southern Italy and Sicily. Of course, the problems of the site are going to be addressed in a more thorough manner, by taking into account every single Context or grouping of equivalent Contexts (as determined in excavation) in order to show the areas of different usage within the structure, as well as all possible cultural phases within the range of the sequence from the Middle to the Late Neolithic. As a preliminary example of this, one can point to the significant difference in the composition of the fauna selection between Contexts 20/24, corresponding to the end of the Neolithic occupation here, and Context 33 attributable to an immediately preceding period (see Table 3).

In the later period (Context 20/24), the domestic fauna is well represented in numeric values and percentages as we might expect for this cultural phase of the later Neolithic; that is, a prevalence of Ovi-caprids. The presence of wild game is sporadic, the results of opportunistic chase. The numbers are minimal but significant.

The earlier period is notably different from that which succeeded. First, there is only a minimal presence of domestic animals, attributable almost totally to the ovi-caprids, in which there is a total lack of bovines and pig is represented by only one find. Second, the kinds of wild animals present (such as mole, birds, tortoise) suggest wild recolonization in the absence of humans. Probably, this particular earlier episode (Context 33) was not characterized by a permanent occupation at the site, and the structure either not inhabited or subsequently modified.

The completion of the archaeological study of Capo Alfieri ideally should include a complete breakdown by chronological phase with reference to minimum number of individuals, meat production and differences in the uses of areas of the site.

Salvatore Stali
INSTITUTE OF BIOARCHAEOLOGY, ROME

<p>| Table 3: Faunal Composition Later (Context 20/24) and Earlier (Context 33) Periods |
|---------------------------------|---------|---------|--------|---------|</p>
<table>
<thead>
<tr>
<th>Context</th>
<th>20/24</th>
<th>33</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>#</strong></td>
<td><strong>%</strong></td>
<td><strong>#</strong></td>
</tr>
<tr>
<td><em>Bos taurus</em></td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td><em>Ovis/ Capra</em></td>
<td>31</td>
<td>66</td>
</tr>
<tr>
<td><em>Sus domes.</em></td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td><strong>Tot. domestic</strong></td>
<td>47</td>
<td>100</td>
</tr>
<tr>
<td><em>Cervus e.</em></td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td><em>Vulpes v.</em></td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td><em>Talpa e.</em></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><em>Aves sp.</em></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><em>Testudo cfr. h.</em></td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td><em>Pisces sp.</em></td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td><strong>Tot. wild</strong></td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td><strong>Marine shellfish</strong></td>
<td>5</td>
<td>-</td>
</tr>
</tbody>
</table>
EXCAVATIONS AT TORRE BUGIAFRO
1988

The object of our second season of digging in the *thora* of Croton was to begin to look at agriculture of the Classical period by excavating a farmstead of that period. Our previous survey work had shown the existence of several such sites in the vicinity of Torre Bugiafro, a Medieval ruin, near the town of Isola Capo Rizzuto. The one chosen for excavation had produced surface material dating to the Archaic Period (sixth century B.C.) and later.

The site is positioned on the edge of the third step, or ridge, of the broad terraces that rise up from the sea. It has a broad panorama to the south and east as the ground slopes away down to the sea some five kilometers away. A major and locally well-known spring existed within 50 meters of the site until quite recently. Today, a small country road runs along the top of the slope, past the Torre Bugiafro ruin and the spring, and through the Classical site.

It had been our intention to concentrate the excavations on the area of the site which had yielded Archaic material during surface survey. Upon our arrival we discovered that recent clandestine quarrying activity had destroyed the area of the site producing the Archaic material. Also we found that, some three months previously, a large new irrigation system had trenched through, parallel to the modern road, undoubtedly disturbing some other part of the site. Further investigation,

Excavation of the structure at Torre Bugiafro in progress. Trowellers are following a vestigial, internal surface. In the background, surviving wall stones are being drawn onto the site plan.
however, indicated other, immediately adjacent areas where Classical period material was being ploughed up. Testing started there.

Excavation rapidly revealed a surviving deposit of the late fourth century B.C. Work was then undertaken to ascertain the extent and condition of these remains (Trench 1). At the same time, testing was started further down slope from Trench 1 where more material was in evidence (Trench 9). In addition, a test was undertaken at a nearby site, approximately 150 meters to the east, believed to be of the Roman period. These excavations also provided an opportunity to intensively survey the ground surface of the immediately surrounding area. The total excavated area at and around Trench 1 was 175 square meters (1848 square feet). Trench 9 below the road was approximately 25 square meters (264 square feet). The test at the nearby site was 20 square meters (211 square feet) in area.

On Site Results

The results of this work proved to be both intriguing and disappointing. Trench 1, and nearby soundings upslope of the road, produced part of a large structure of the Classical period, including intact deposits. Parts of two walls survived, measuring five and eight meters, forming the corner of a building. The stone base of the walls remained, made of dry stone construction, surviving to two or three courses. It is likely that the higher superstructure was at least partially of mudbrick, of which several burned fragments were recovered. None of this, however, remained being in the plough zone. The walls were quite thick, respectively 0.60 meters and 1.20 meters. The unusual thickness of the walls, particularly the west wall, suggests the possibility of a
two story structure originally. The greater thickness of the west wall may, additionally indicate that the original roof was pitched with its axis running parallel to the west wall. There were no surviving traces of a doorway in the stretches of walls preserved.

Surviving surface deposits seem to have remained for very limited areas beside the walls both internally and externally. Internally, there was a single row of large flagstones running immediately alongside each wall. Within this an internal surface could be partially traced beneath the remains of some tile roof collapse, although churned up by ploughing. A later pit had also removed a large chunk of the inside of the structure.

Externally, immediately beside the walls, some small areas of a surface covered with fallen roof tiles was traced. The roof tiles found externally seemed to have fallen and remained in place. Several were recovered practically complete. Within the structure the fall was more jumbled, and ploughing had mixed, but not displaced, much of the tile fall. The tiles, fragments from the Corinthian pan tile roofing system, again themselves are interesting and support the conclusion that this was a later Greek period building, and quite a large structure.

Most of the structure (probably the southeastern two-thirds) has been completely removed by activity associated with the construction of the modern road. Additionally, as demonstrated by several trenches placed beyond Trench 1, the area around and upslope of the structure has been completely ploughed out as the deposit does not ever seem to have been thick there. That area thus yielded no intact deposits but much material. Thus we were unable to investigate any activity areas or adjacent structures.

Trench 9, downslope from Trench 1 and below the road, came upon an enigmatic carpet of large rocks within a matrix of black clay. It proved impossible to make any sense of the rocks which continued to resemble a pile of rocks, even as more and more were removed. The black clay matrix suggests waterlogging at some period and is localized to the rockpile. The deposit seems to have a late Classical date.

A 2x2 meter sounding in one corner of the trench revealed a Classical period level running under the rockpile and that the whole lot seems to have been filling what was once a hollow. This lower level produced large fragments of black-glazed pottery, which had been noticeably absent elsewhere on the site. It also yielded a curved "Laconian" roof tile; a type also completely absent elsewhere in the excavation.

Recent installation of an irrigation system has dissected the area downslope of the modern road. This has truncated the feature in Trench 9, with the disturbance of two large
TRENCH 1 WITH STRUCTURE

Trenches forming the north and west limits of the trench.

Other Testing

Our test at the nearby, probably Roman, site produced some ceramics, but demonstrated that, at the point of examination, the deposit had been too shallow to avoid being destroyed by ploughing. Unfortunately, we did not have time to look at other areas of this site to see how general the destruction was. Conversations with the landowner there suggested that other potentially productive areas do exist at the site. There may also be a small cemetery in the drainage that separates the two sites that we examined.

The Site Cluster

Surface examinations near the excavations proved to be most interesting,
once the stubble in the fields had been burned off and ground visibility improved. Scattered patches of material of the Archaic, Roman and Medieval periods were found in close proximity to the excavation areas. These, taken together with a coin hoard reported some years ago, suggest shifting occupation in the vicinity of the spring from Greek through Medieval, and, including the present standing ruins, modern times. It is a pity that the recent irrigation activity has damaged the area so badly, as we might have expected to find a sanctuary area similar to that of Pizzica Pantanello at Metaponto. This is further evidence of the impact of recent development on the fragile archaeological record.

Associated Finds

The finds from the season at Torre Bugiafro are still under study. Despite the disturbed nature of the site it has provided us with a corpus of ceramic material from a distinct activity area, a structure, with which to begin to refine our knowledge of the survey collections. Initial counts indicate 20,766 sherds processed so far. We are now proceeding with closer analysis of variations of this collection within and between proveniences. As noted above, the impression gained to date is that the main occupation of the structure at the point excavated was fairly late in the local Greek sequence, being in the late fourth or early third century B.C.

The range of flora and fauna produced was disappointing. Fewer animal bones than expected were recovered; these are now being studied in Rome by Dr. Scali. It will be interesting to see how the range of animals represented compares with that which we have come to expect from such a site, and whether this corresponds with our interpretation of such a substantial building as farm related. The study of the ceramics will tie into this.

Our flotation work produced no seed remains; indicating that the conditions at the site are probably not conducive to seed preservation. This contrasts with the situation at Capo Alfiere where preservation was good. The implications are thus that recovery of botanical
Map of excavation area and surrounding sites. After the stubble had been burned off, field walking in the areas next to the excavations revealed a cluster of sites from several periods grouped around the former spring.

Evidence for the *chora* is going to be somewhat hit and miss.

One interesting small find was a silver coin. Professor Kroll of the Classics Department at The University of Texas at Austin has identified this piece as a Roman Republican Victoriatus minted between 211 and 208 B.C. Its design features a head of Jupiter on the obverse, while the reverse shows Victory crowning a trophy with the inscription "ROMA". The Victoriatus was a coin minted by Rome for distribution in the Greek cities of Italy. Our finding one near Croton is perfectly consistent with this. Professor Kroll notes that reasons why Rome struck two series of coins, one for themselves and one for the Greek areas is unclear to modern scholars.

The coin was not found in association with the structure and seems to be of a slightly later date. Some scattered finds of pottery of the Republican period have come from around the cluster of sites around the former spring. This is further evidence of the lengthy and varied occupations in this locality. The landowner reported that a small coin hoard had been found roughly half way between our excavation and the old spring some years earlier. These coins have, of course, now disappeared, so it is impossible to judge whether they might have been related.

Jon Morter  
FIELD DIRECTOR
IN SUMMARY

The Croton Project to date is producing promising results. The survey work has, as yet, only sampled the territory behind Crotone. We feel that we have demonstrated the efficacy of the technique, and are eager to expand our sample area and hence our detailed knowledge of the area. This would be in conjunction with the third of our proposed initial excavations, at a post-Greek period site; continuing our program objective of putting the rural Greek period life within a diachronic, as well as spacial, perspective. To this end we are investigating the possibility of excavations at a site called San Giovanni. The remains at this spot date to the late Roman and early Medieval (Norman) periods, and probably earlier including a Classical Greek component. The advantage of this site is that it is beneath an old olive grove. This means that the trees are widely spaced, allowing ample room for excavation, but, more importantly, it is highly unlikely that any deep ploughing or gouging associated with recent agriculture has occurred between the trees. Therefore, preservation of remains should be good, and the surface topography strongly suggests the existence of stratified deposits so that several occupations can be investigated at one site.

Excavation at Capo Alfiere is not over yet. The area dug there so far is producing idiosyncratic and very significant results both architecturally and for the smaller, ceramic and lithic, finds. To date our excavation has been focused on only one large and unusual structure. We have yet to show how typical that structure, and hence the finds associated with it, is of the rest of the site. We know that intact deposits still exist within the site, and, furthermore both we and the Superintendency feel that this is a potentially highly significant site that requires further exploration. Therefore, continuing excavation here remains a very high priority.

The Urgency of Our Work

The chora of Metaponto and now of Croton have been shown to be at the heart of the Greek colonial experience. These are the coastal areas where the earliest settlers in the world's first organized colonial movement came to start new lives and raise their crops. The importance of the discovery of these rural areas is just beginning to be realized now at a time when within a few years—if the present rate of destruction of rural sites continues unabated—there will be very little left to discover. The indigenous sites in the interior also face threats but not on this scale.

The immediacy of the threat was brought forcibly home during the 1988 campaign, with the announcement that NATO had decided to establish a major airbase, right in the middle of the chora of Croton. It is not certain at present whether this will be built, but the location has been chosen if the decision goes through. The proposed siting would be about one mile from our excavations at Torre Bugiafrus. Some 72 aircraft of the United States Air Force (formerly at
Torrejon in Spain) seemed destined to be stationed there, after considerable expansion of the size of the airfield and construction of new facilities including runways. Base housing for some five to eight thousand service personnel and families would have consumed further hundreds of acres nearby.

This is a dramatic development which may disappear as quickly as it materialized, but there are constant dangers which are very real and will not go away.

The most widespread damage to the rural archaeological record is from modern agriculture. This has dramatically increased in scale in the last decade. One effect of the European Economic Community farming policy has been to encourage agricultural development in this previously neglected area. New machinery is available and major irrigation projects are bringing in water from long distances, allowing new cash crops such as citrus. Ploughing of up to a meter in depth is now common. D'Annibale noted that his work in the Metapontine territory beginning in 1981 was coincidental with the start of widespread deep ploughing there. Site visibility was particularly clear because many sites had been hit by deep ploughing for the first time that year; long buried structures were and are being smashed and brought to the surface.

This destruction of the archaeological record is picking up pace in the former _thora_ of Croton. The sites around the spring at Torre Bugiafra, location of the 1988 excavation, were badly damaged by the pipelaying work of a new irrigation system in 1988. In that case, the water is not yet flowing. When it is, there will be a radical change in the crops that can be planted; many of the new introductions (such as fruit orchards) are far more intrusive than the cereals currently favored.

More generally, the prosperity of the Italian economy has led to ever increasing demands on the coastline for resort purposes. The beaches at Crotone are becoming more accessible as communications improve, so that infilling of holiday development along the coast is constant, threatening such sites as Capo Alfiere (which has been partially eroded by landscaping of a cliff-face for a campsite).

Finally, there is the effect of modern technology on the ability of looters to disturb sites. Looting of sites has always been a problem in the Mediterranean as in any area where quite spectacular finds are frequent. Devices such as metal detectors and bulldozers are now commonly used by the more well-equipped operators; the pace and extent of destruction has increased commensurately. To give two examples: the entirety of the former courtyard of the actual Medieval ruin of Torre Bugiafra is now a crater 20 meters across and 5 meters deep and portions of the standing ruin itself were recently demolished by someone using machinery; even more blatant, was the raiding, by persons using metal detectors, of the Superintendency's excavation in the sanctuary at Capo Colonna at night during the 1987 excavation season. Although the rural sites we study are less obvious, and far less likely to produce valuables than the major monuments, they are still vulnerable and represent a finite entity. We do not conceive of our project as a salvage operation, but are compelled to recognize that the archaeological evidence for rural life is threatened and shrinking continuously. Those seriously committed to the study of rural sites cannot help but be aware of their fragility in the face of a new period of rapid change now under way across the Southern Italian landscape.

_Jon Morter_  
FIELD DIRECTOR  
and  
_Joseph Coleman Carter_  
DIRECTOR
Croton Project Personnel

Prof. Joseph Carter, UT, Classics, Director
Jon Morter, UT, Anthropology, Field Director
Cesare D'Annibale, Brock University (B.A.), Survey Director

EXCAVATION TEAMS

1988 Summer

Jean Alvares, UT, Classics, Computer System Manager
Esther Baarens, Free University Amsterdam, Excavator
Eve Beckwith, UT, Architecture, Architect/Artist
Paul Booth, Warwick Museum, England, Site Supervisor/Roman Ceramics
B. Christensen, Stockholm, Excavator
Kathy Collins, UT, Classics, Excavator
Susan Decker, UT, Classics, Faunal Remains
Maria Elliott, U. of Stockholm, Classical Ceramics
Miranda Grieder, UT, Anthropology, Excavator
Tommy Hailey, UT, Anthropology, Excavator
Andrew Hill, Columbia University, Photography
Juana Ibanez, UT, Geography, Lab Supervisor/Palynology
James Kolbenson, UT, Philosophy (B.A.), Excavator
Susan Lisk, Warwick Museum, England, Assistant Site Supervisor
Paula Manini, UT, Anthropology, Camp Supervisor
Ann Patterson, UT, Architecture (M.A.), Architect
Dr. S. Scali, Institute of Bioarchaeology, Rome, Paleobotanist
A-M. Vermeulen, Free University Amsterdam, Excavator
Kathryn Weedman, UT, Anthropology (B.A.), Excavator

Consultants
Cesare D'Annibale, Brock University (B.A.), Site Survey

1987 Summer

Jean Alvares, UT, Classics, Computer System Manager
Eve Beckwith, UT, Architecture, Artist/Architect
David Brown, UT, Anthropology, Site Supervisor
B. Christensen, Stockholm, Excavator
Carol Classen, U. of Stellenbosch (RSA), Excavator
Michele Clement, UT, Classics, Excavator
Maria Elliott, U. of Stockholm, Classical Ceramics
Miranda Grieder, UT, Anthropology, Excavator
Bilen Ham, UT, Petroleum Engineering, Camp Supervisor
Susan Decker, UT, Classics, Excavator
Juana Ibanez, UT, Anthropology (M.A.), Lab Supervisor
James Kolbenson, UT, Philosophy, Excavator
Ann Patterson, UT, Architecture (M.A.), Architect
Dr. S. Scali, Institute of Bioarchaeology, Rome, Paleobotanist
Kathryn Weedman, UT, Anthropology, Excavator
Chris Williams, UT, History (B.A.), Photographer
Regan Wilson, UT, Anthropology, Excavator

Consultants
Prof. S. Bokonyi, Archaeological Institute, Budapest, Archaeozoologist
Dr. L. Costantini, Institute of Bioarchaeology, Rome, Paleobotanist
Prof. Robert Folk, UT, Geology, Geologist

SURVEY TEAMS

1986 Fall

Helen Dunlop, Brock University (B.A.), Lab Supervisor
Cheryl Gould, Woodstock, Ontario, Field Walker
Virginia Pratten, Woodstock, Ontario, Field Walker
Ted Town, Woodstock, Ontario, Photographer

1985 Fall

Helen Dunlop, Brock University (B.A.), Lab Supervisor
Cheryl Gould, Woodstock, Ontario, Field Walker
Ted Town, Woodstock, Ontario, Photographer

1984 Fall

Helen Dunlop, Brock University (B.A.), Lab Supervisor
Cheryl Gould, Woodstock, Ontario, Field Walker
Ted Town, Woodstock, Ontario, Photographer

1983 Summer and Fall

Maria Christensen, U. of Stockholm, Field Walker
Helen Dunlop, Brock University (B.A.), Lab Supervisor
Prof. Robert Folk, UT, Geology, Geological Reconnaissance
Dick Grove, U. of Sheffield, UK, Field Walker
Chris Renaud, UT Classics, Photographer
Timo Sirolen, Finnish Academy in Rome, Field Walker