

THE KERKENES PROJECT

PRELIMINARY REPORT FOR THE 2001 SEASON



Figure 1: Harald von der Osten-Woldenburg experiments with electromagnetic induction in the city that was first mapped by his great uncle Hans Henning von der Osten and H. F. Blackburn.

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<http://www.metu.edu.tr/home/wwwkerk/>

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Figure 2: The team with the city behind.

ABSTRACT

The 2001 field season at the Iron Age city on the Kerkenes Dağ concentrated on geophysical survey within the lower part of the burnt city. Geomagnetic survey was conducted over a very considerable portion of the lower city area. At the same time, experimentation with resistivity and electromagnetic induction techniques produced new insights in carefully selected areas. Highlights include the discovery of what appear to be megarons, the first such buildings to have been recognised at Kerkenes. Particularly striking imagery of other buried buildings in the centre of the city were also obtained, while a good candidate for the location of an open “market” area has also been identified beside the largest of the man-made reservoirs. Electronic imagery was used to create a preliminary architectural reconstruction of the ‘Cappadocia Gate’. At the expedition base the backlog of recording, conservation and restoration of finds from the clearance and excavation that was carried out in 2000 was completed. Ten pottery vessels from the 2000 ‘Palace Complex’ excavations were found to bear signs which had been incised after firing. These signs very probably represent the existence of an Anatolian alphabetic script. The recognition of “Anatolian” elements in the architecture, material culture and a system of notation is a significant addition to our evolving understanding of the urban dynamics over the two or three generations of this immense, elevated, short lived capital. Several papers have appeared over the last year and substantial progress has been made on a monograph and other publications.

THE TEAM

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Drought in Central Turkey created difficulties throughout the region. An attempt by our host village of Şahmuratlı to alleviate their water shortages, by tapping into underground sources, led to an accident that caused the untimely death of two young men, one of whom had worked for the expedition over several seasons. This tragic incident in the village marred an otherwise happy and productive summer.

ACKNOWLEDGEMENTS

We are grateful to Dr Alpay Pasinli and his staff at the General Directorate of Monuments and Museums for the warmth of their support, to Mr Ertan Yılmaz of the Aydın Museum who undertook his role as Representative with enthusiasm and friendship, and to Mr Hüseyin Önal, Governor of Yozgat; Ms Selime Doğan, Yozgat Director of Culture; Mr Mustafa Dündar, Sorgun District Governor and Mr Yılmaz Kılıçarslan, Mayor of Sorgun for their continuing support. Yozgat Rural Services (Köy Hizmetleri) upgraded the village road thus facilitating access to the site.

Excavations in earlier seasons at Kerkenes were carried out in collaboration with Mr Musa Özcan, Director of the Yozgat Museum, to whom the excavation permit was issued. In 2001 Mr Özcan made a move northwards to become Director of the Sinop Museum. His departure brings to an end eight years of extremely fruitful and productive collaboration, and we wish him every success and happiness in his new post. Mr Erol Özen has taken up his appointment as Director of the Yozgat Museum and has already manifested his enthusiasm for the project.

The Kerkenes Project is officially sponsored by the British Institute of Archaeology at Ankara and operates from a Project Room provided by the Faculty of Architecture at METU. Yibitaş Lafarge continues to be a major sponsor of the project year-round through the METU Development Foundation. The METU Computer Centre hosts the Kerkenes web page and provides technical support. In addition to grants from the BIAA and the National Geographic Society, generous support was received from the University of California at Berkeley and the Stahl Fund, Raymond and Beverly Sackler, The Joukowsky Family Foundation and The Charlotte Bonham-Carter Trust. The Faculty of Architecture at METU provided a research grant for GIS studies that was co-ordinated by Prof. Ömür Bakırer and Mr Refik Toksöz contributed expertise in 3D modelling.

Awards and contributions in kind towards construction of the new storage and laboratory building were gratefully received from Yibitaş Yozgat Çimento, Lafarge Aslan Çimento, Sorgun Belediyesi, Onduline, Çimentaş, ODE, MNG Holding, Doğan Kum, MESA, Sunay Mühendislik, Yağan Ticaret and anonymous donors. Thanks to the Ankara Hilton, British Embassy, Nuro Holding, Sheraton Ankara and Yozgat Galata Hotel, the expedition house and research facilities have been comfortably furnished. GEOSCAN, ESRI, ERDAS and Islem GIS assist with software. Sponsors contributing to our current publication program and other aspects of the project include Bell Helicopter-Textron, Kavmar, METU Press, Sokkia-Seza, Soylu Aviation and Yenigün. Assistance is also provided by the Geological Engineering Department and GGIT (Geodetic and Geographic Information Technologies) at METU, the Hydrogeology Department at Hacettepe University, Royal Color and ARTI.

The team of Project staff and students retained its international flavour in 2001. The results demonstrate the dedication and enthusiasm with which the team, including that essential element of men employed from the village, have participated throughout the year.

The complete list of Project sponsors and participants from the first, 1993, season can be found on our web page:

<http://www.metu.edu.tr/home/wwwkerk/>



Figure 3: The last finishing touches are added to the new storage and laboratory building.

THE URBAN SURVEY

Introduction

The 2001 field season took place in three parts: a short spring season devoted to resistivity survey at a time when the ground retained sufficient moisture, a six week summer season that combined geophysical survey with the study of materials from previous excavations and a period of additional geomagnetic survey and pottery restoration in September. New initiatives in 2001 included the geophysical experiments carried out by Harald von der Osten-Woldenburg (Fig. 1), the great nephew of Hans Henning von der Osten who was responsible, together with F. H. Blackburn, for the creation of the first map of the city's walled limits in 1927. The progress map (Fig. 4) shows the areas already covered by the geophysical survey.

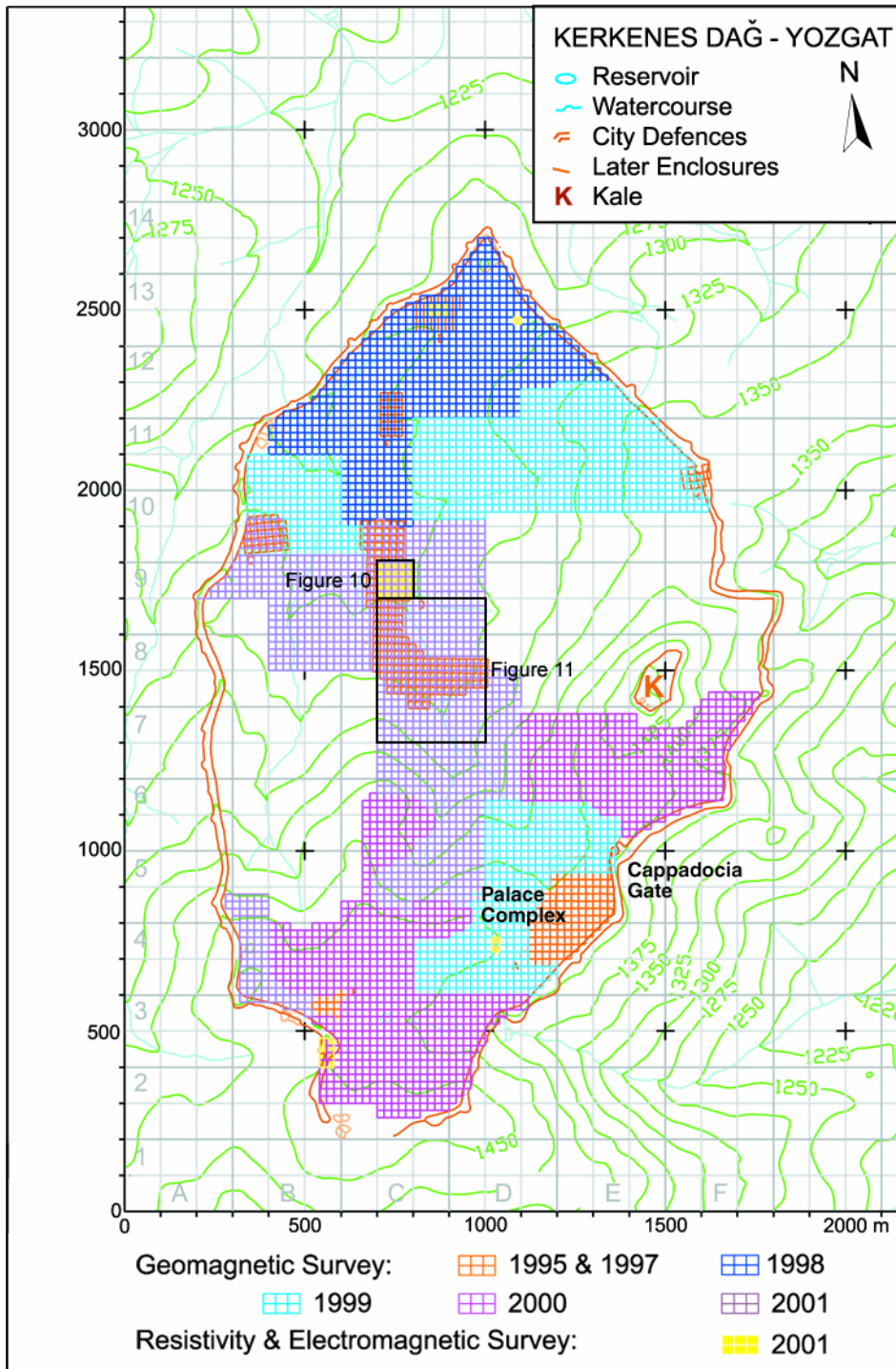


Figure 4: Geomagnetic coverage achieved by the end of 2001 season.



Figure 5: A Total Station is used to set out the 20 m. grid for the geophysical survey. The view looks south-east with the north-eastern stretch of city wall at left and the Kale at right.

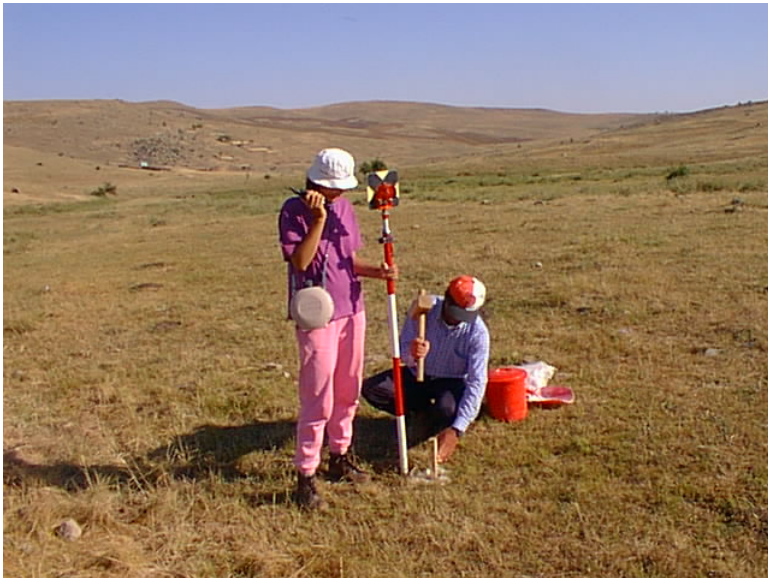


Figure 6: Wooden pegs are hammered into the ground every 20m. Each peg is marked with white lime so that its position is not lost between seasons if shepherds burn the pegs to make tea. Communication between the station and the roving prism is by means of a walkie-talkie.



Figure 7: Teams of men from the village are sufficiently practised to conduct gradiometer survey on the steepest of slopes without loss in the quality of data collection.

Remote Sensing

Harald von der Osten-Woldenburg kept the Kerkenes Project at the leading edge of experimentation and application of geophysical methods in archaeology through extensive trials with electromagnetic induction techniques using a Geonics EM 38 instrument (Fig. 1). The existing Kerkenes geomagnetic images are of such quality that they can be readily used as a control for this new method. Initial results are most encouraging, but the instrument can only be used where the terrain allows rapid movement at a constant speed, sometimes running backwards, without tripping or banging the instrument. Although the initial results (Figs. 9b and 10a) do not provide the same degree of clarity that is to be seen in the geomagnetic and resistivity imagery, (Figs 9a, 10b and 10c) they are impressive for a first try. Design of an instrument geared more towards the needs of rapid survey with high density sampling strategies, as required by archaeology, combined with ongoing refinements to the software are likely to make this a method that will have wide applications in the future.

Geomagnetic survey of the entire city at Kerkenes, using Geoscan fluxgate gradiometers, is now only one single season away from completion (Fig. 4). When finished the magnetometers will have been carried over more than two square kilometres of the site for something in the region of 36,000,000 paces. Combination of two-dimensional magnetic imagery with the three-dimensional Global Positioning System (GPS) survey that was successfully concluded in 2000, now allows the application of sophisticated computer programs to create simulations and perform analysis of the urban environment (Fig. 12). Virtual reality is just around the corner. ArcView is becoming the central platform for the Project and the July issue *ArcNews* contains a piece that brings aspects of the Kerkenes research design to a GIS audience.

A short spring season and experiments in the early days of the summer program, before the Kerkenes soils became baked so hard that probes made of the hardest available steel became bent within minutes, proved that electrical resistivity survey (Fig. 8) in carefully selected areas that are more or less free of stone rubble can produce excellent results (Fig. 10c). In some instances the resistance images reveal some structures with greater clarity than the magnetics. This seems to be particularly true of areas where there is greater overburden.



Figure 8: Harry and Nahide conducting resistivity survey.

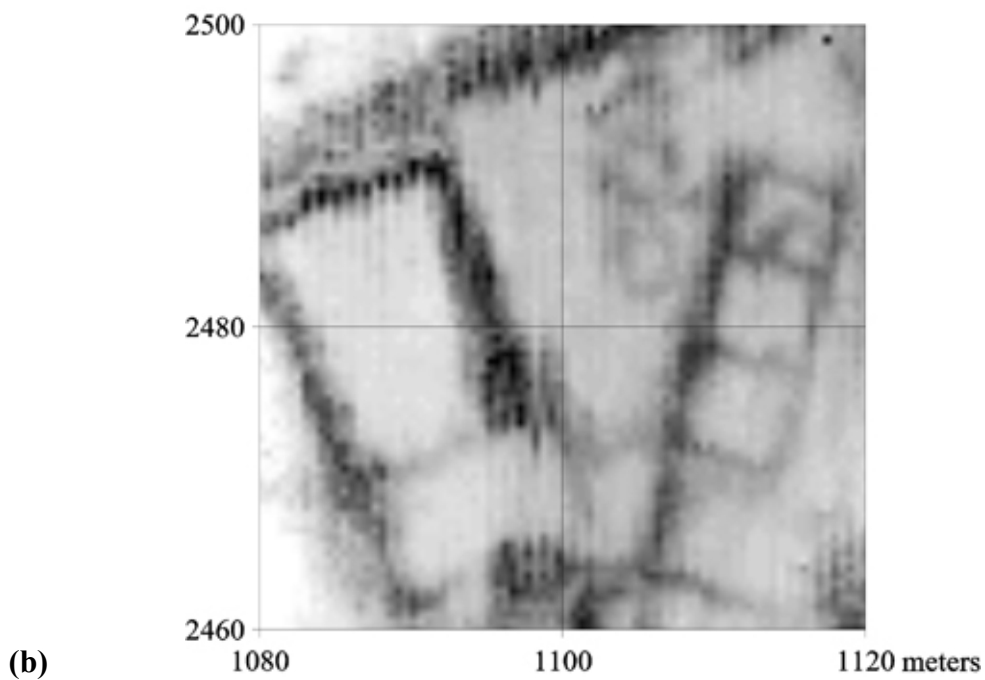
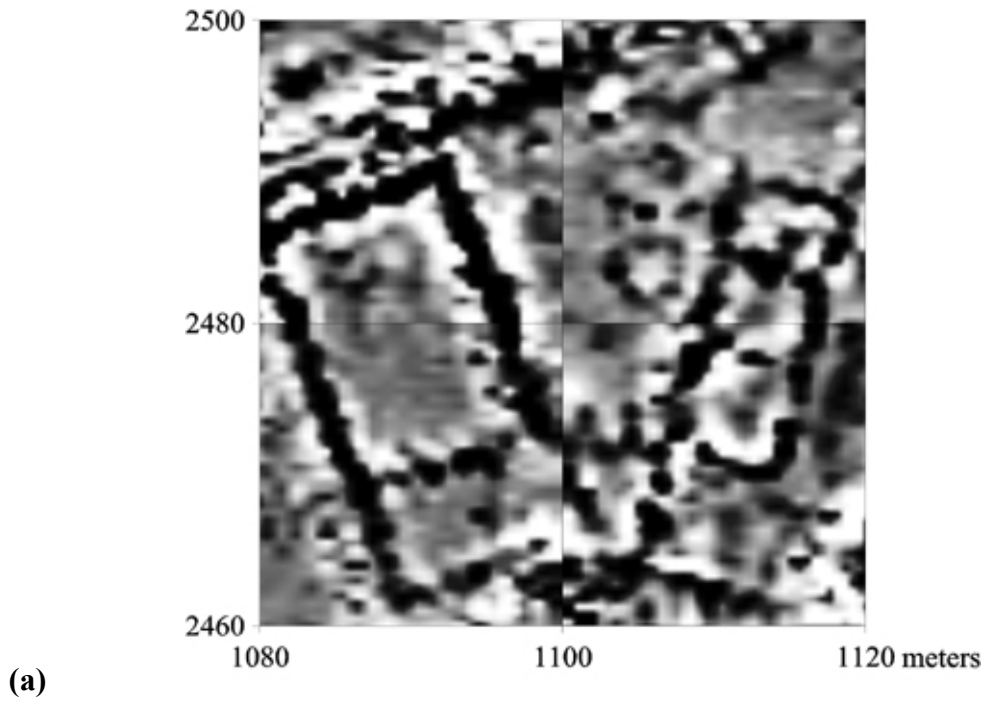


Figure 9: A 40 x 40m block at the northern end of the city was selected for experimentation with different geophysical methods. By July, however, the ground had become too hard for the insertion of steel probes for electrical resistivity survey. Both the gradiometer (a) and the electromagnetic induction (b) survey show a large hall and anteroom at left and a row of four cells at right. The gradiometer shows a pair of posts on either side of the central door between the hall and the anteroom, but neither method was able to detect the bases for wooden columns that would have been required to support a roof.

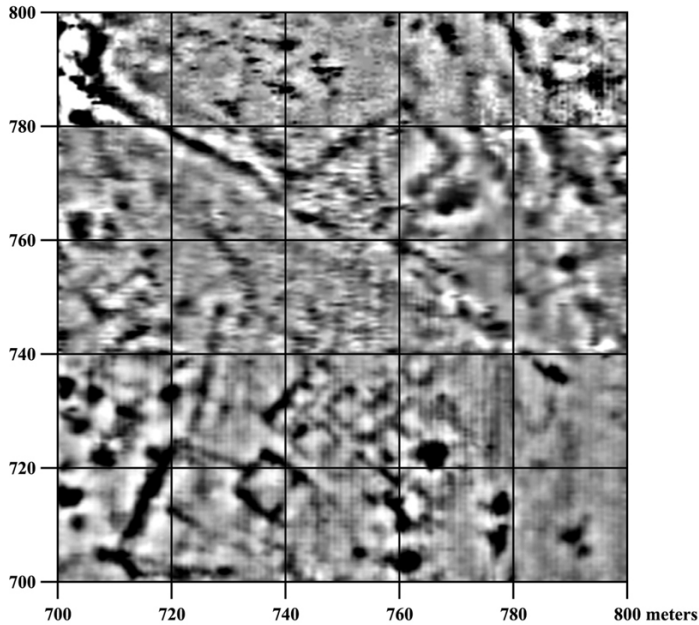
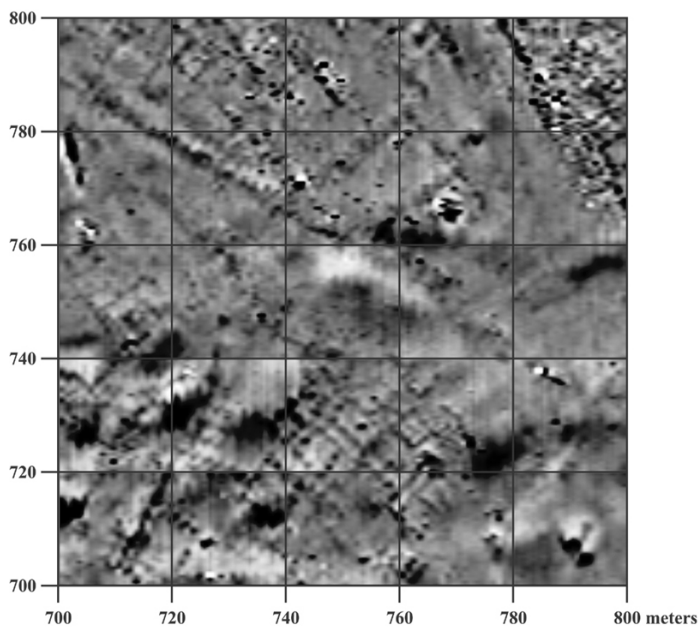
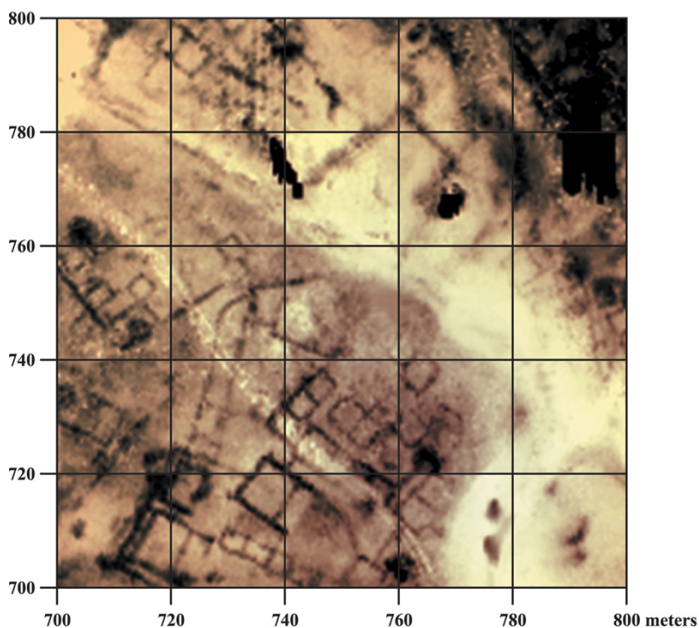


Figure 10: Three geophysical survey methods each produce imagery that brings out different features. The location of this one hectare (100 x 100m) survey area is given on Figure 4.

10a: Electromagnetic induction, used with a high density sampling strategy for the first time at Kerkenes, reveals most of the features seen in the other two images. As a result of this experiment improvements are now being made to the machinery at the same time as the processing software is being developed.



10b: Geomagnetic survey with a fluxgate gradiometer reveals many of the buildings in very considerable detail. In some instances the position of burnt door posts can be seen (e.g. grid 740/1720 not seen in Fig. 7c). The imagery is influenced by different degrees of burning and by the magnetic properties of various building materials in ways that are not yet fully understood. The underlying geology and geomorphology also has effects, particularly where bedrock is close to the ground surface. Processing the same data with different parameters does, however, bring out considerably more detail than it is possible to show on a single image.



10c: Electrical resistivity survey highlights details with remarkable clarity where there is a favourable combination of conditions. Unlike with gradiometer imagery, heat induced alterations to magnetic properties have no effect, although fire alteration to mud-brick and other materials is significant. The background is strongly influenced by hydrology, a stream bed accounting for the broad sweep of white. The two parallel white lines that run diagonally across the picture indicate the path of a tractor track.

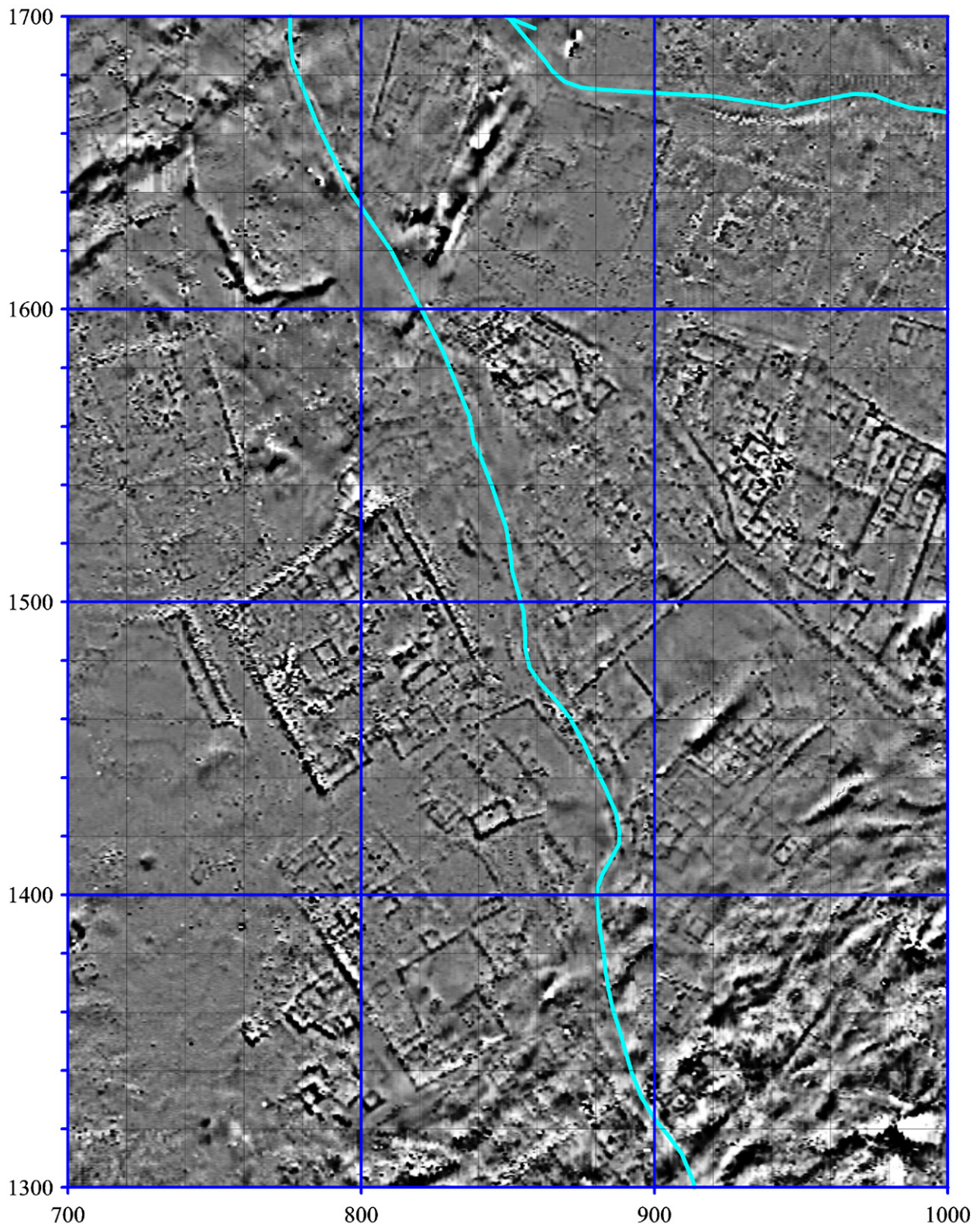


Figure 11: Gradiometer survey over a twelve hectare (300 x 400m) area at the centre of the city (Figure 4 gives the location), provides an overview and details of subsurface remains at the same time. This particular image combines data from 2001 with results from earlier seasons at a single level of data processing.

Aspects of the Urban Infrastructure

Space only permits brief mention and selective illustration of some of the more significant developments. A single twelve hectare (300 x 400m) image (Fig. 11) of sub-surface remains within the central portion of the city may serve as an example of the results that can be replicated over the greater part of the very large area that has been surveyed (Fig. 4). Urban blocks and streets were laid out according to a conceptual scheme that was sufficiently flexible to allow for distortion to rectilinear planning where topography made such deviation expedient. Areas that were not enclosed within urban blocks in the initial scheme of things were, if our interpretation of the horizontal stratigraphy is correct, gradually filled by more random building construction. In Figure 11 the large block to the left of centre, revealed in 1995, can now be seen in its wider urban environment. At centre right a less regular block can be seen, the south-west corner of which is defined by the meandering street that clings to the contour. This same block contains a variety of buildings which at first sight appear to be recorded with exceptional clarity, but which pose particular problems of interpretation. The block would appear to be dominated by a large rectangular space, the south-eastern third of which is divided from the larger section by a pair of strong signals. It is very possible that this feature is yet another of the large columned halls that are a particular architectural characteristic of the city, and that the two high spots were created when the wooden posts of double doors were burnt (a phenomena seen elsewhere at Kerkenes). Resistivity survey might reveal stone column bases which would verify this interpretation. Above the north-west corner of this putative hall are two parallel rows of rectangular rooms, each some 6 x 4m, with a corridor between. The less distinct structure to the left may be of similar form. It is somewhat exceptional to find such a large number of cells, which were presumably for storage, within a single complex. Single rows of similar cells are not, however uncommon; one row being visible at the centre of the image and another in the block left of centre. Also clearly identifiable are a number of the more usual two-roomed buildings one of which, in the block on the left, was partially excavated in 1996.

Another new development of particular significance has been the recognition of two buildings that appear as though they might be *megarons* (Fig. 10, especially bottom left of 10c). A *megaron* is a type of building, characterised by a pitched roof, open porch and central hearth, that has clear cultural connections with Phrygia in western Anatolia. The two structures seen on Figure 10, both of which lie in areas that were apparently outside any of the original urban blocks, are substantial buildings each measuring approximately 10 by 12m. The existence of these *megarons* may perhaps represent further evidence for degrees of Anatolianisation during the development and growth of the city, but before its destruction around 547BC.

Within yet another area of the central portion of the city, not illustrated here for want of space, magnetic survey has led to the identification of a large open area that was clearly a public place. One possible function for this feature could very well have been as a market place for which no other good candidate exists within the city walls. Situated to the north-east of the Büyük Göl (Big Pond), the largest of the artificial reservoirs within the city, this large level area occupies a sheltered position in the central sector of the site. Several of the major streets run tangentially to this space which must have been devoid of buildings for some special purpose. New imagery of the Büyük Göl itself, obtained when it was completely dry in September, has revealed the presence of substantial stone walls within the artificial banks on all four sides. Unlike the Sülüklü Göl (Leech Pond) on the high southern ridge, also fully surveyed when completely dry, the Büyük Göl does not seem to have an elaborate and carefully constructed stone lining. Although part of an overall, planned, scheme of urban water management, the various pools and reservoirs within the city evidently varied in status and had differing functions.

Geomagnetic images of the steep central slopes between the high southern ridge and the lower area of the city, also obtained in 2001 but omitted here, have delineated the two connecting streets, that to the east turning sharply round the head of a small stream so as to maintain a vehicular gradient, together with crescents of small blocks following the contours above. The extreme north facing slopes above the head of the western stream are, not surprisingly, devoid of structures. This expanse, the only large empty area within the entire city, difficult to negotiate, exposed to icy winds and far distant from the nearest gate, would have afforded the least desirable urban real estate.

Away from the site, analysis of the urban dynamics of the site using Geographical Information Systems (GIS) continues in the capable hands of Nahide Aydın, who recently completed the Masters Program in Archaeometry at METU. Scott Branting is also proposing to write a doctoral thesis on transportation and GIS at Kerkenes at the University of Buffalo.

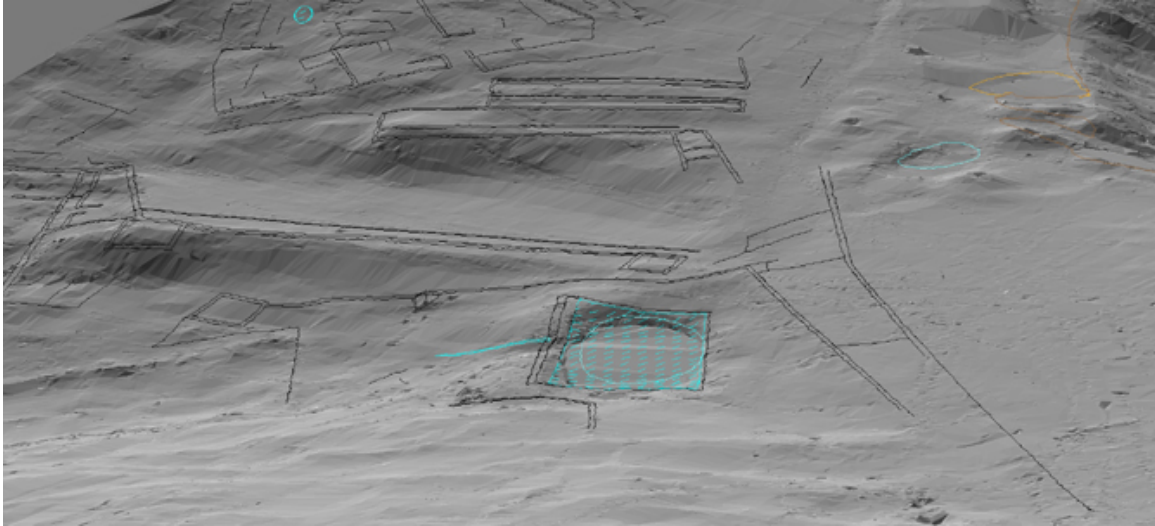


Figure 12: GPS simulations show the relationship between elements of the city plan.

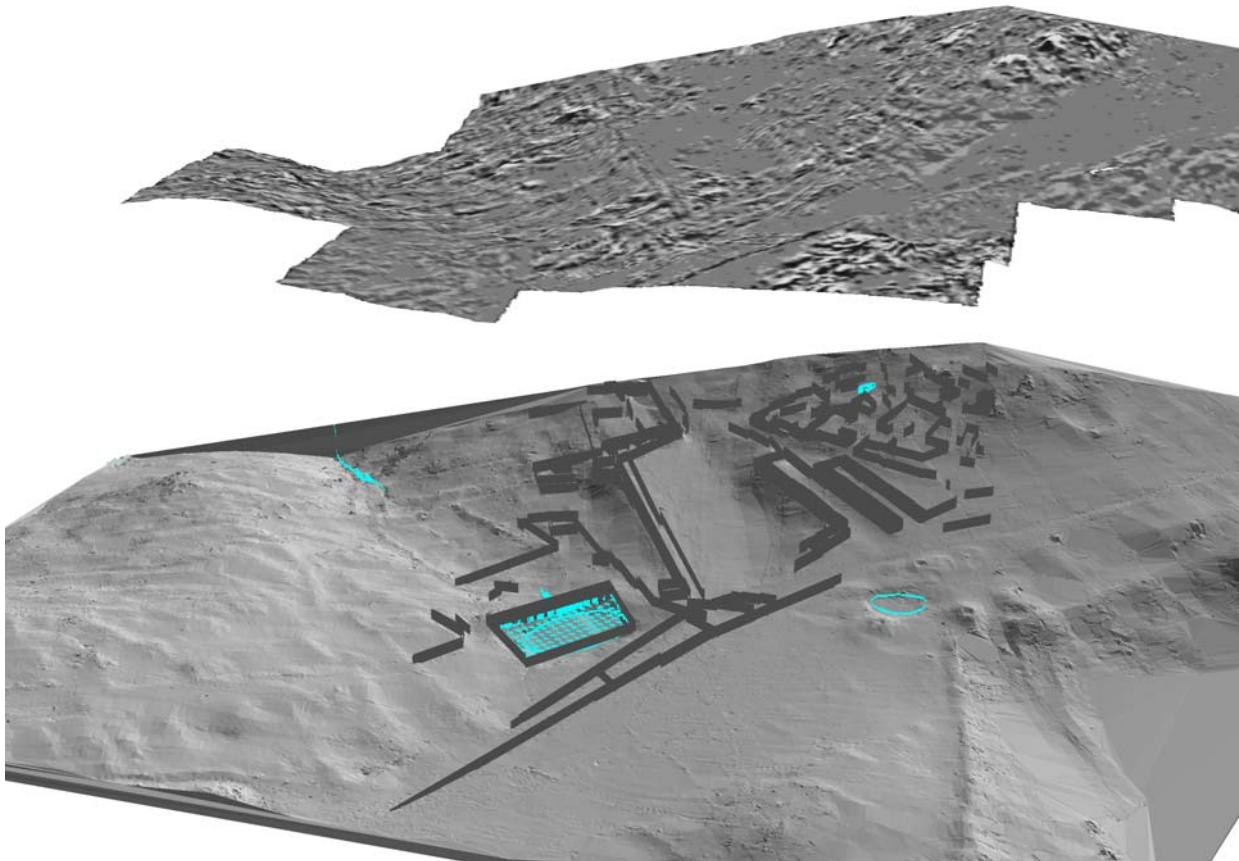


Figure 13: Placing geomagnetic imagery over GPS simulations shows the relationship between elements of the city plan, building plans and micro-topography.

POST-EXCAVATION STUDY

Simulation of the ‘Cappadocia Gate’

New architectural reconstructions and graphic simulations of the ‘Cappadocia Gate’ (Fig. 14) provide realistic visualisations of the original appearance of this impressive monument. These visualisations also highlight a number of outstanding architectural problems that will perhaps be resolved through the complete clearance of the gateway passage and the adjacent internal chamber over the next three seasons. Outstanding issues include the nature of the original road surface, which was presumably paved with stone, and the way in which the gate passage was drained. It may be presumed that the outer section of the gate passage was roofed in such a way as to provide access between the flanking towers, particularly if the passage was narrower than shown in Figure 14. Such an arrangement would have greatly enhanced the defensive properties of the gate. It is not yet clear, however, whether such a walkway over the passage would have been vaulted or carried on long, horizontal beams. It seems possible that the sandstone battlements along the front of the towers might also have been carried across the passage. Depictions of Iron Age city gates from Assyria and Urartu suggest that the passage battlements would have been at the same height as the city wall rather than at the greater elevation of the towers.

A detailed proposal for conservation and limited reconstruction, which addresses the twin concerns of preservation and the safety of visitors, has been drawn up in advance of plans for further clearance and excavation in and near the gate.

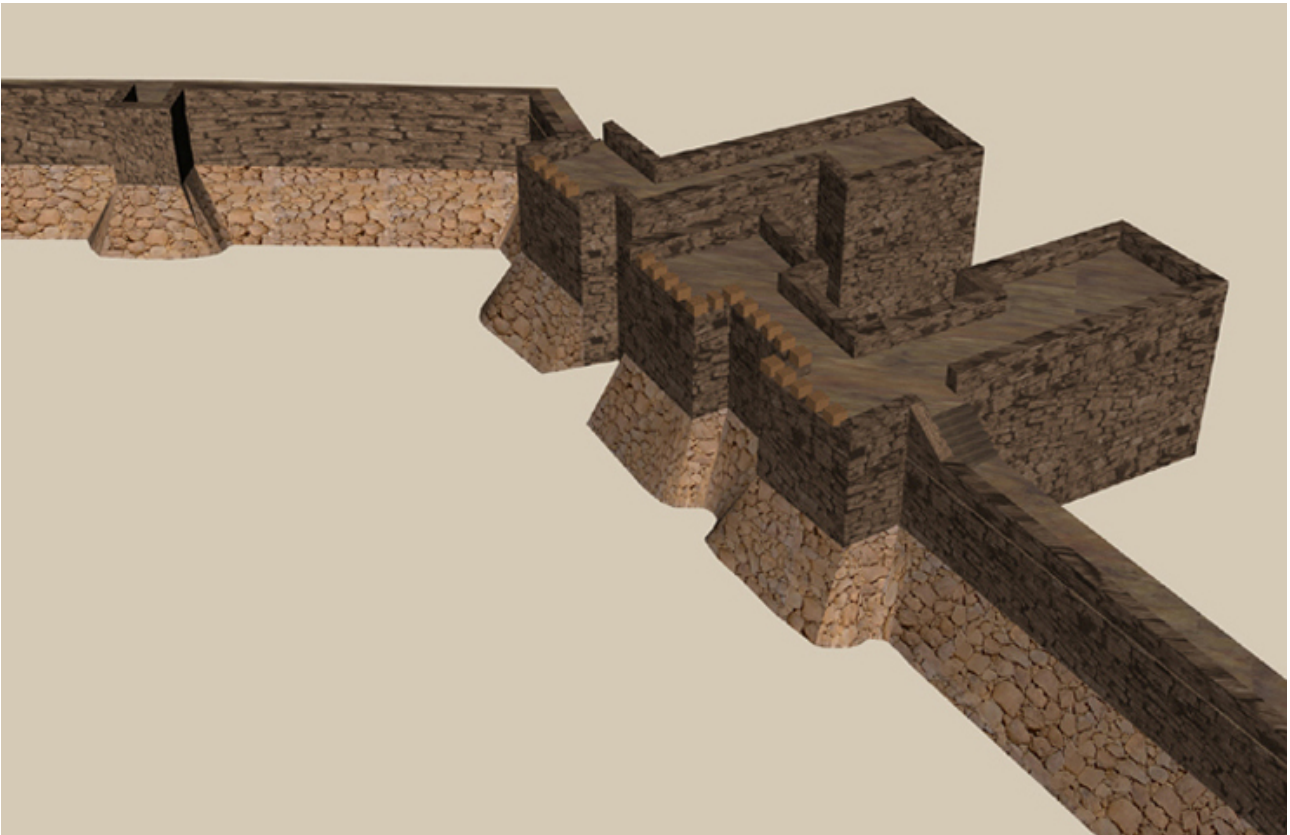


Figure 14: A tentative working reconstruction of the ‘Cappadocia Gate’, which omits any roofing of the passage.

Understanding the ‘Palace Complex’

Last year’s excavation at the eastern end of what has very tentatively been called the ‘Palace Complex’ included the recovery of a group of complete pottery vessels and lids from the floor of the smaller of the two rooms in Structure C. This year Noël Siver was able to reconstruct these unusual vessels (Fig. 15). They comprise a small two-handled pithos, a large conical bowl which turned out to have two bands of thick white paint on the outside and further paint on the base and handles, and two large flat lids with single handles (Figs 16 and 17).

These coarse vessels were hand-made, all but the pithos being fired at a fairly low temperature. The large bowl was smoothed to a burnish on the inside, the pithos and lids on the outside. The same room contained one fine juglet and fragments of several others, the remainder of which may perhaps await excavation in the other half of the room. The purpose of these large vessels and lids, and therefore the function of the room in which they were found, is enigmatic. Samples have been taken from this pottery in the hope of finding traces of organic residue that might provide further clues.

The same room also yielded a small number of Cornelian cherry stones. Of an altogether different order are the small bone inlays which were perhaps set into small wooden containers (Fig. 20). Both plain petal-shaped and square inlays bearing delicate incised decoration, all discoloured by fire, were found. Whatever precise interpretation might be placed on of the contents of the room, a domestic context would appear to be most unlikely.

Charred timbers found last year in Structure D turned out to be Oriental Beech, which is not suitable for dendrochronological dating.



Figure 15: Noël Siver reconstructing the pottery found on the floor of Structure C of the ‘Palace Complex’ in 2000.

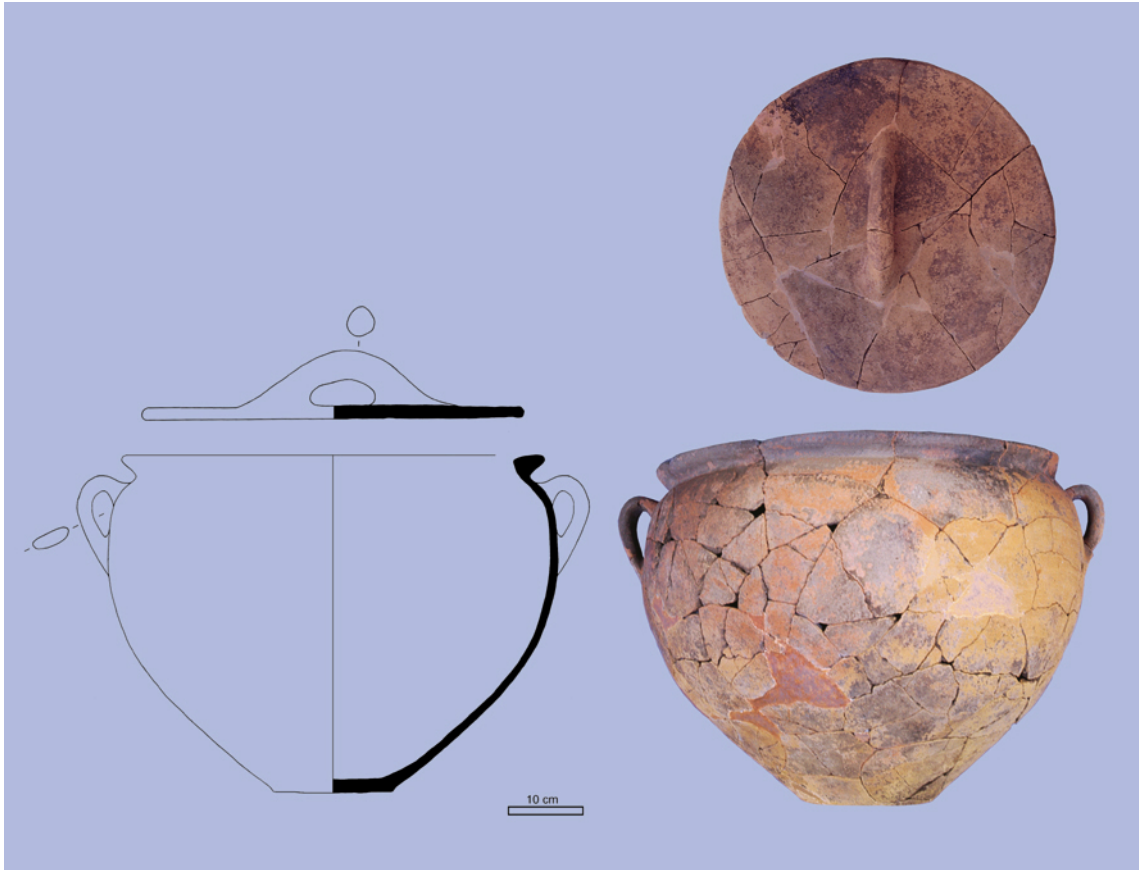


Figure 16: Small two-handed pithos and a lid.

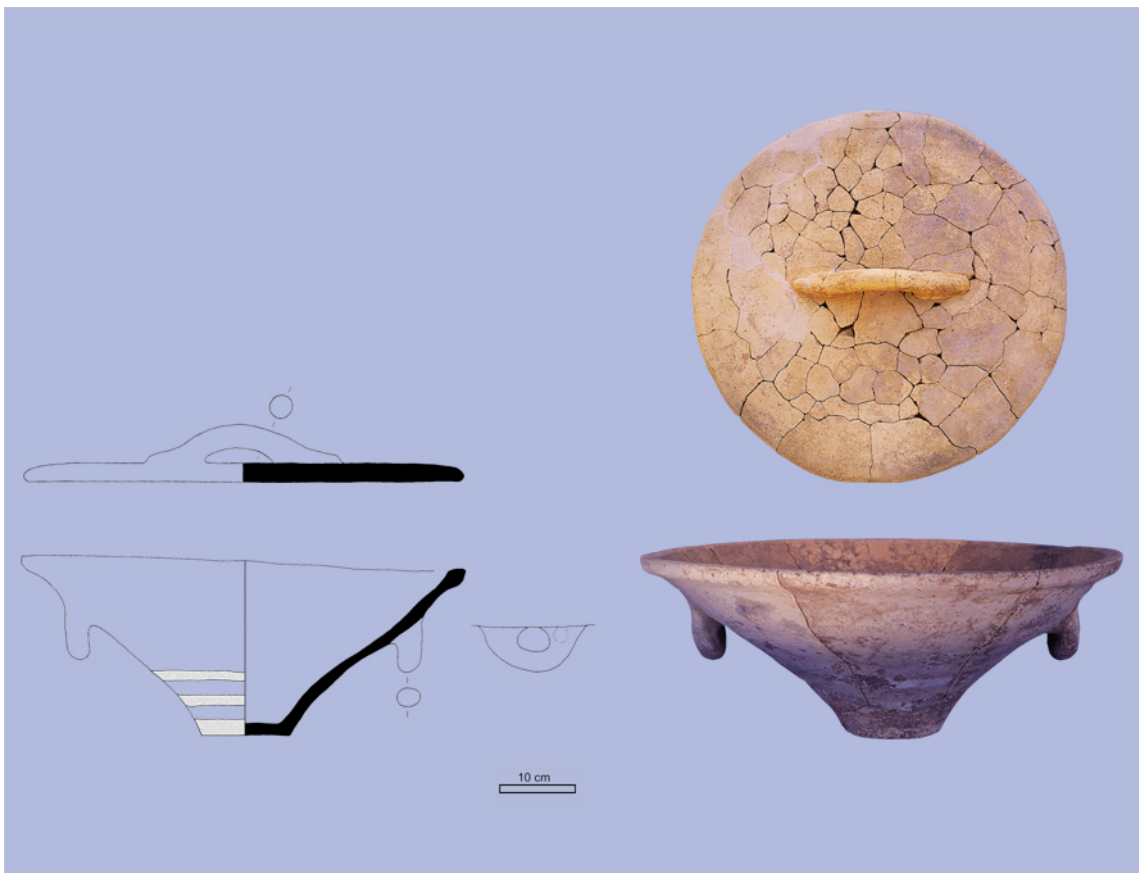


Figure 17: A large conical bowl with a lid.



Figure 18: Fine, burnished, hand-made juglets from the 'Palace Complex'.

The narrow space between Structure D and Structure A was crammed full of broken pottery that, in addition to the funnel and tripod bowl illustrated last year, included several hand-made, red ware jugs with cut-away beak spouts. In 2001 Noël Siver was able to restore one complete example (Fig. 24) and to reconstruct partially several others. Although these jugs are all of the same general shape they are not of a standard size and exhibit some variation in the precise form of the spout and handle.

Special Sherds and Particular Objects

In addition to the surprising range of hand-made pottery (Figs 16 – 18), portions of fine-ware vessels that have good parallels at other sites on the Central Anatolian Plateau, such as Boğazköy and Gordion, have been recognised (although none were recovered in situ, nor are any examples complete). Collaboration with scholars at Boğazköy revealed that the range of excavated pottery from levels that appear to be close in time to the occupation of Kerkenes contain wheel-made fine-ware vessels that are extremely similar (e.g. black-polished relief ware, Fig. 19), but there does not seem to be a significant hand-made component to the Boğazköy assemblage. The extent to which these observed differences in the ceramic repertoire of these two sites, only 50km apart as the crow flies, represent slight chronological variation, regional traditions, cultural preferences, and trade remain highly fruitful topics for further research and continued collaboration.

Other diagnostic objects include an incomplete two-pronged bronze pin with a double looped head and an incomplete bronze fibula (Fig. 21), both of well known types and a polished and perforated stone harness trapping (Fig. 22).



Figure 19: Part of two incised black-polished jars with raised lozenge-shaped decoration.



Figure 20: Bone inlays.



Figure 21: A bronze pin of well known type from the east end of the 'Palace Complex' and a bronze fibula once decorated with multiple studs



Figure 22: A polished and perforated stone harness trapping.

Evidence for Writing

The foundation and administration of this great city, as well as that of the territory that fell under its rule, would have required written communication and record keeping. The first evidence for written language at Kerkenes has been found in the form of 10 marks, most or all of which appear to be letters, incised into the surface of pottery vessels recovered from the 'Palace Complex' (Figs 23, 24 and 25). The marks are usually single, although one appears to comprise two signs, and it can be seen that they were scratched in after the pots had been fired. Several have been found high on the shoulders of jugs, where they were incised behind or slightly to the right of the handle. This careful placement argues against idle doodling and suggests that they may be representative of some kind of deliberate record keeping. The presence of a mark on the funnel and another on a base shows that not all, if any, of these marks were used to indicate capacities or contents. Whether they represent potters marks, owner's marks or some form of administrative notation connected with the use of the vessels is uncertain.

The marks, whatever their function, demonstrate that there was some level of record keeping, whether or not it was truly literate. Further, it might well be expected that the language of this particular system was a local (Anatolian) one. If this can be substantiated, it raises the possibility that these few signs represent the first ever evidence that the Cappadocian language may perhaps have been written in an alphabetic script with close affinities to Phrygian.



Figure 23: Sherd with incised mark



Figure 24: Jug with incised mark.
(Maximum diameter: 26cm.)

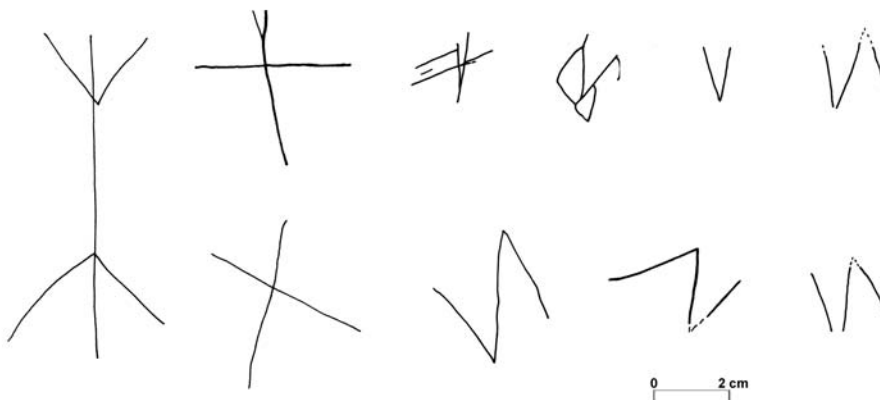


Figure 25: The ten marks that were incised on pottery found during the 2000 season.

PAST AND FUTURE PLANS

The completion of the GPS topographic survey in 2000 and the anticipated completion of the geophysical survey in 2002 will provide the Kerkenes Project with a full set of data which is already being used to study the ancient city and its urban dynamics. GIS is a powerful tool which enables the management and combination of this data.

Further information and understanding, which will assist in the interpretation of the remote sensing results, will be forthcoming through excavation of precisely targeted areas. In 2001 a new field laboratory, workroom and depot was built, thus placing the Kerkenes Project in a strong position from which to request a full excavation permit.



Figure 26: The expedition house and newly built laboratory and storage facilities at Şahmurathl.

RECENT PUBLICATIONS

Two papers by G. D. Summers have recently appeared in learned journals. One is an overview of the Iron Age city, “The Median Empire reconsidered: a view from Kerkenes Dağ” *Anatolian Studies* 50 (2000), pp 55-73. The other deals with later occupation, “Keykavus Kale and Associated Remains on the Kerkenes Dağ in Cappadocia, Central Turkey” *Anatolia Antiqua* IX (2001), 39-60. Annual reports, in Turkish, continue to appear in the proceedings of the *Kazi, Arastırma ve Arkeometri Sonuçları Toplantısı* together with briefer notices in *Anatolian Archaeology*.

The fourth annual issue of our dual language *Kerkenes News* is about to go to press and, like previous issues, will soon be added to the Project web site. The web site also contains a number of reports on special aspects of the project. Another electronic publication generated by the project can be found at:

<http://www.esri.com/news/arcnews/summers01/articles/simulation.html>

CONCLUSIONS

On the practical side, the completion of the remarkably detailed geomagnetic plan of the Iron Age city on the Kerkenes Dağ is clearly in sight. Experimentation with other geophysical methods has shown that additional clarity can be obtained in a few selected areas. Analysis and interpretation of the imagery continues between field seasons, each examination producing new insights and raising new questions.

Understanding of the dynamics of the city at a theoretical level is also evolving as more is revealed and further understanding of certain elements is reached. Perhaps, in this respect, the particular importance of the 2001 season has been a gathering awareness that this exceptional, new, imperial foundation, a city of the Medes that Herodotus called Pteria, displays certain cultural traits that appear to reflect an Anatolian background which can be put alongside particular elements that were most probably introduced by a great power from the east. Iranian characteristics include large columned halls, such as those that have been discovered in the "Palace Complex" as well as in many of what appear to have been elite urban blocks at Kerkenes. On the other hand, there are concepts of city planning and defensive architecture that have, at a general level, Anatolian parallels. Specific examples include mountain-top planning at Göllü Dağ, stone faced ramparts or glacis at Hattuša and, contemporaneous with Kerkenes, the building of massive city defences at Sardis. A considerable level of acculturation in both urban and architectural concepts, perhaps stretching back to the very foundation of this strong and imposing city, might now be perceived at Kerkenes. At a rather different level, evidence has very probably been found for the introduction of a small number of western Anatolian buildings, i.e. *megarons*, sometime before the violent destruction of the city at the hands of Croesus (around 547 BC). The presence of alphabetic or alphabet-like symbols scratched onto pottery vessels is an indication of an Anatolian language being used at some social level within the city.

Even though there is some perceptible shift in the conception of Kerkenes as city dominated by a foreign (Iranian), ruling elite, towards a view that might be more accommodating of Anatolian cultural components, such local components as might be identifiable appear in all probability to have remained subservient to the imposition of foreign rule. No physical subdivisions, such as internal defensive walls, were ever constructed within the city. Breaches were not made in the seven kilometre circuit of the defences, this in spite of the obvious restriction that was imposed by limiting the total number of gates to seven - with only one city gate in the long western wall. A foreign power would seem to have founded the city, and to have ruled from it. On the one hand, there is no sign of fear from within the walls; on the other, there is little evidence of security beyond the walls. If, as was suggested on the basis of results from 2000, there is discernible evidence for a shift from an original "fortress city" to a city with more of the characteristics of an administrative capital, and if it is correct to envisage, on the basis of written signs and architectural forms, a gradual process of "Anatolianisation", such changes were not to dilute the fundamental, underlying, observation that the city was one from which a foreign elite ruled over subject peoples.

Ongoing research at Kerkenes, therefore, offers an exceptional opportunity to study in detail, and at numerous levels, the processes of cultural contact, diffusion and assimilation that followed conquest and rule by a foreign, imperial, power. These developments took place in that crucial formative period in the progress of civilisation from which Classical Hellenism and Achaemenid Imperialism were to emerge.

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