LIBYAN STUDIES
VOLUME 30
1999

The Society for Libyan Studies

THE SOCIETY FOR LIBYAN STUDIES

c/o The Institute of Archaeology
31–34 Gordon Square
LONDON WC1H 0PY
(Telephone: 0171-387 7050 ext. 7495)

The Society

The Society for Libyan Studies, founded in 1969, is established as a British Institute Abroad. Its aims are to encourage and co-ordinate the activities of British scholars in Libya covering as wide a range of interests as possible including the natural sciences, linguistics and history as well as archaeology, and to foster and develop relations between British and Libyan scholars.

Since its foundation the Society has sponsored many differing projects in Libya within the subject areas of archaeology, education, geography, geology, history and Islamic law. Its resources to date have been concentrated on supporting long term archaeological projects and their subsequent publication, including excavations in Benghazi, Tolmeita, Ajdabiyah and Germa in the Fezzan; and more recently the multi-disciplinary survey in the pre-desert valleys of Tripolitania, the Islamic excavation at Medinet Sultan and the preparation for publication of the postwar excavations at Sabratha.

Membership and Subscriptions

Those who wish to join the Society are invited to communicate with the General Secretary of the Society. The subscription rate is £20.00 p.a. for both those based in Britain and overseas. This may be paid by banker's order and forms are available from the Secretary.

Members receive the current issue of *Libyan Studies,* are given notice of forthcoming activities, and are entitled to use the Society Library.

Meetings

The Society holds several Lecture Meetings in London each year, the December Meeting being preceded by the Annual General Meeting. Details are circulated to all UK members.

The Library

The Society's Library has a considerable collection of books on Libyan and related North African studies built on the nucleus of the collection of the late Professor R. G. Goodchild. The Library is housed in the Library of the School of Oriental and African Studies, Malet Street, London WC1E 7HP (first floor, African section, Bay 125). It is open for consultation and books may be borrowed by members of the Society.

Libyan Studies

The Journal and Annual Report of the Society appears in November each year and publishes articles and reviews relating to current research on Libyan topics. *A Guidelines for Contributors* is published in this volume and intending contributors should consult the Editor, *Libyan Studies,* Society for Libyan Studies. Back copies of *Libyan Studies* and the earlier *Annual Report* are available from the Secretary.

Books for Review should be sent to the General Secretary of the Society in the first instance.

Grants in Aid of Research

The Society wishes to advise intending applicants that it has changed its procedure for considering requests for financial aid in support of research on Libyan topics. Applications must now be submitted on a standard form which is available from the General Secretary. The completed form should be returned to the General Secretary by 1 November, 1 January, 1 April or 1 September and will be discussed at the following Council Meeting.

© The Society for Libyan Studies ISSN 0263-7189

Libyan Studies 30 (1999)

Urbanism and Economy at Euesperides (Benghazi): preliminary report on the 1999 season

By Andrew Wilson,[1] Paul Bennett,[2] Ahmed Buzaian,[3] Susanne Ebbinghaus,[4] Kenneth Hamilton,[5] Alette Kattenberg[5] and Eleni Zimi.[6]

Abstract

This paper reports on the first season of a new project at Euesperides (Benghazi) aimed at studying the urban development and economy of the city. Two area excavations were started, the first on the site of early Hellenistic pebble and tessellated mosaics discovered in 1998, and the second in what appears to be an area of houses and workshops built against the city wall on the east side of the mound of Sidi Abeid. Geophysical survey and surface prospection was also undertaken; it appears that the lower-lying extension to the city was much larger than previously thought, and several modifications are necessary to previously published plans of the site. Much of the lower city is covered with large spreads of deliberately crushed shells of *Murex trunculus*, indicating the production of purple dye on a significant scale. Other evidence of urban production was also recovered, notably metal-working, while study of the ceramic assemblage shows widespread trading connections, with significant imports of coarsewares besides the expected fineware and amphora imports.

Introduction (Andrew Wilson, Paul Bennett and Ahmed Buzaian)

At the invitation of the Department of Antiquities of Libya a new archaeological project commenced fieldwork at Euesperides for a period of nearly four weeks in April/May 1999. This was the first of a projected five seasons of work investigating the urban development and economic life of the city. The most westerly of the Cyrenaican cities, Euesperides was founded in the Archaic period (before 570 BC) and abandoned around the mid third century BC, when the population relocated to the new foundation of Berenice, 3 km to the west, under the centre and harbour area of modern Benghazi.

Euesperides first appears in the historical sources as the furthest point reached by the Persian expedition into Cyrenaica in 515 BC (Herodotos IV.204). In 462 BC it received a fresh group of settlers from Greece drafted by Arkesilaos IV of Cyrene, who seems to have been preparing Euesperides as a place of refuge from hostile factions in Cyrene; the scholiast on Pindar says that Arkesilaos was murdered at Cyrene and Herakleides Pontikos says that his son Battos died at Euesperides, though some have preferred to conflate the two sources and have Arkesilaos murdered at Euesperides (Chamoux 1953, 205). Following this Euesperides seems to have come under Cyrene's control: silver coinage was minted at Cyrene in the name of Euesperides in the middle years of the fifth century BC (Buttrey 1994, 137). The late fifth century was a difficult time for the city; Euesperides makes a chance appearance in Thucydides (VII.50) when a Spartan fleet under Gylippus, blown off course to Libya en route to Sicily in 414 BC, enabled the inhabitants of the city to defeat the Libyan forces besieging them. But this was only a temporary respite; Pausanias, writing of events in 405 BC, says (IV.26.2): 'After the Athenian disaster at Aigospotamoi, the victorious Lakonian fleet threw the Messenians out of Naupaktos: some went to their brothers in Sicily or to Rhegion, but most of them went to Libya, to Euesperides, where the people had been worsted fighting their barbarous neighbours, and were inviting any Greek whatsoever to come and join them. Most of the Messenians went there, under the command of Komon who was also their general at Sphakteria.' The Messenian population left in 369 BC when Messene was refounded by Epaminondas (Pausanias IV.26.3–5). An inscription of 350 BC honouring two Syracusans as *proxenoi*

1 Magdalen College, Oxford.
2 Canterbury Archaeological Trust.
3 Garyunis University, Benghazi.
4 Freiburg.
5 Department of Archaeological Sciences, Bradford University.
6 Foundation of the Hellenic World, Athens.

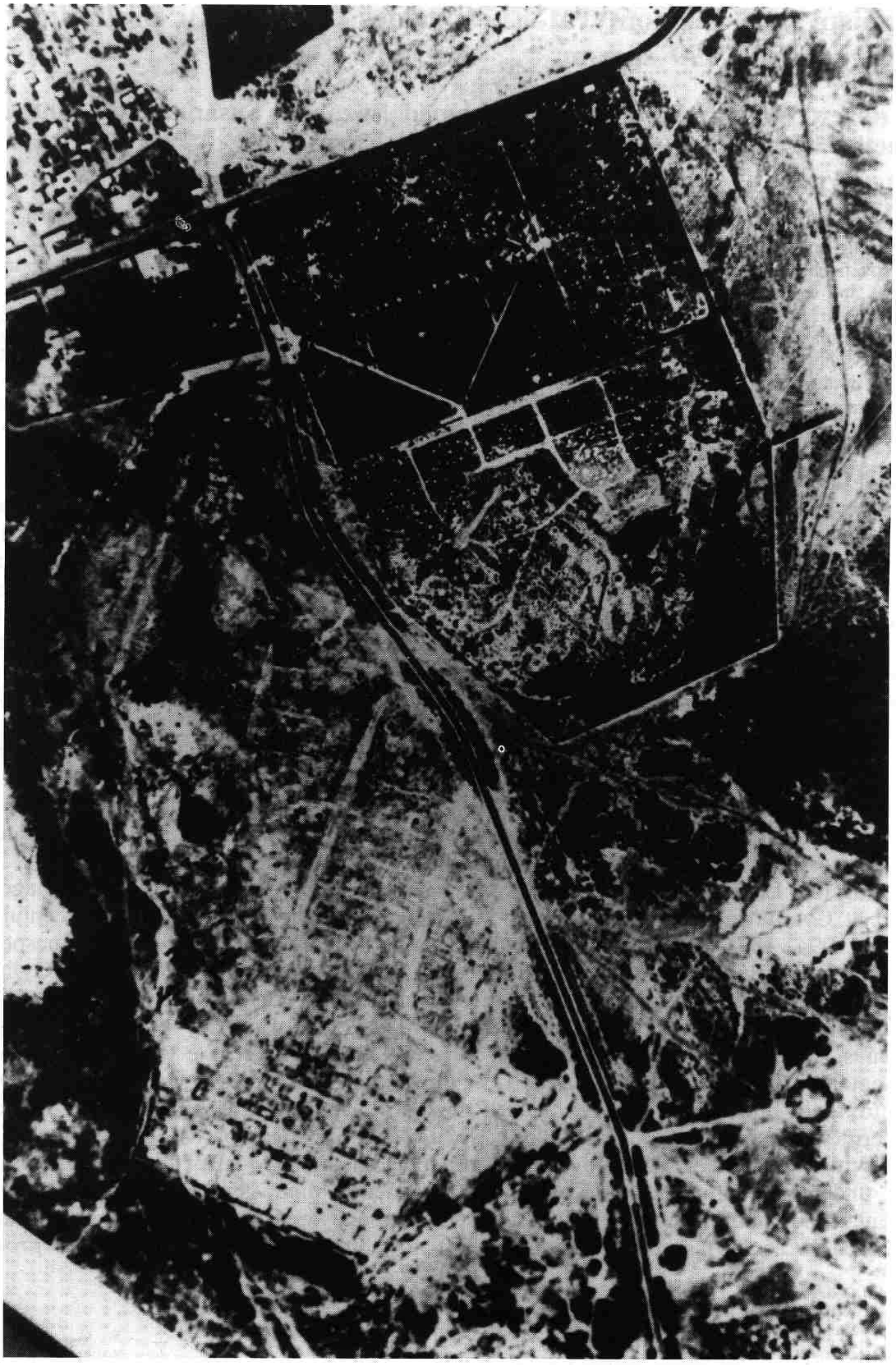

Figure 1. The site of Euesperides from the air, in a photograph of 1949 (cf. Goodchild 1952).

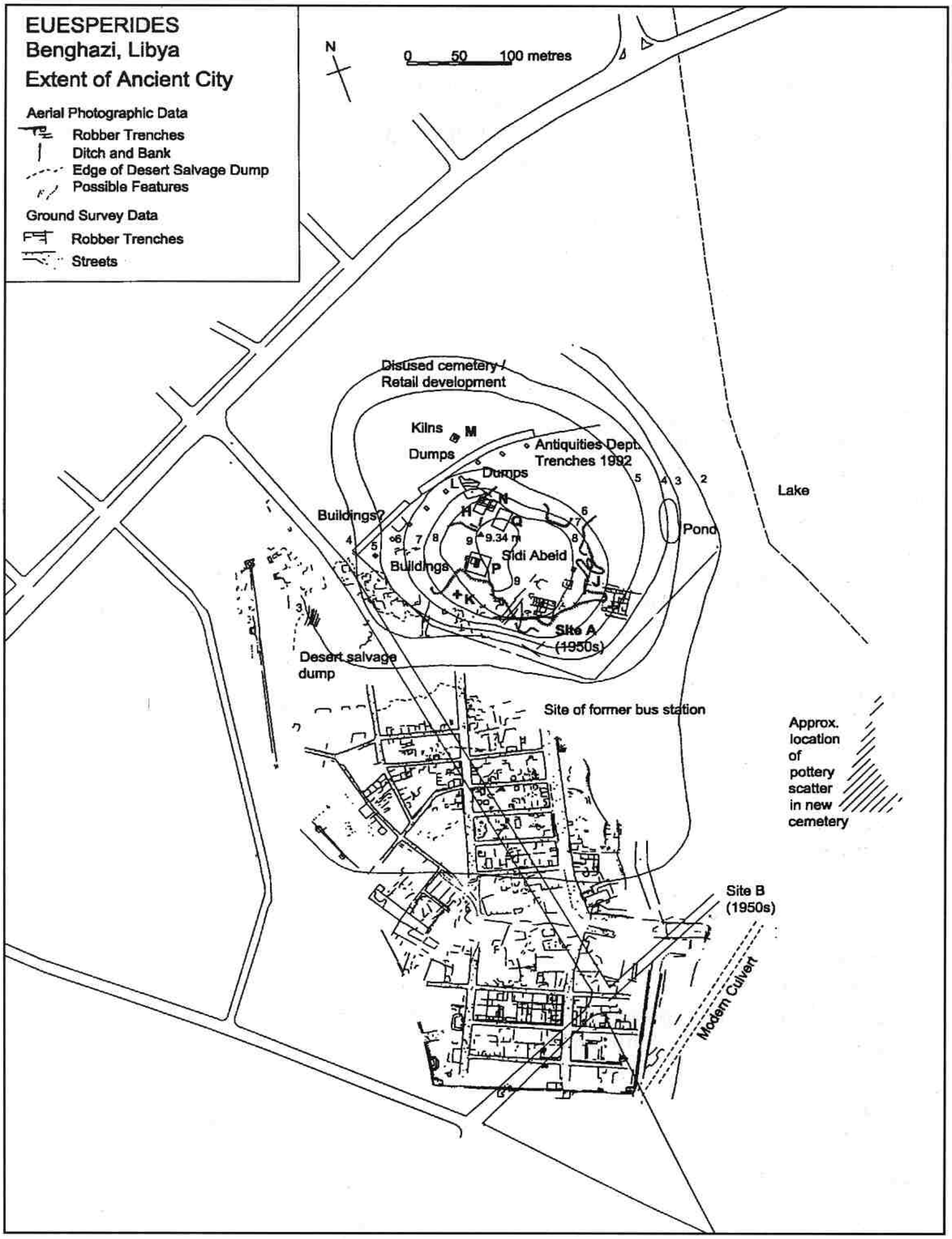

Figure 2. Plan of the city of Euesperides, incorporating air photo data, G.R.H. Wright's ground survey, and trench locations of the 1995-8 seasons. (Base air photo interpretation © Air Photo Surveys 1994; with additions from Buzaian and Lloyd 1996, 131; Lloyd et al. 1998, 148 and recent fieldwork).

shows that the city had a *boule* or council, with a board of magistrates (*ephors*) and a council of elders (*gerontes*) (*SEG* 20.772; cf. Fraser 1951); by 325–313 BC it also had a mint that was producing bronze coins (Buttrey 1994, 137). In the late fourth century Euesperides backed the Spartan adventurer Thibron (*c.* 324–321 BC), who was defeated by Cyrene and a Libyan alliance (Diodorus 18.19-21; cf. Laronde 1987, 41–84). Some time between 258 and 250 BC the site seems to have been abandoned in favour of Berenice, probably because the old harbour had silted up (Bond and Swales 1965, 93; Buttrey 1994). Scylax, writing in the early fourth century BC, perhaps implies that by then city and harbour were already separate entities (*Periplus* 108: Ἑσπερίδες πόλις καί λιμήν), and excavations by Jones (1985, 28) found that the early Hellenistic levels covered marine-deposited clay containing sherds, showing that silting was occurring during the city's life.

The site of Euesperides now lies mainly under waste ground within a developing area of the eastern suburbs of modern Benghazi. The oldest nucleus, the hill of Sidi Abeid, is covered by a 20th-century cemetery, now deconsecrated and incompletely cleared. The site is of particular importance because — apart from the modern cemetery — it was never built over after its abandonment in the third century BC. The cemetery has interfered with the uppermost deposits on the mound of Sidi Abeid, but below the zone disturbed by modern burials there exist in places over 3 m of stratified deposits (occupation material, buildings and streets) ranging from the Archaic to early Hellenistic periods. A post-war aerial photograph reveals clearly the street plan of parts of the city (Fig. 1), but shows that much of the stonework of buildings and city walls has been robbed. Surface finds are abundant across the site, and include ceramics, shell debris and coins.

The site was first identified as Euesperides by Richard Goodchild (1952), and the first archaeological work there was the Ashmolean Expedition of 1952–4, which excavated houses and parts of the town wall. The excavations have never been fully published, although publication of the archive is currently in preparation by Michael Vickers and David Gill (*cf.* Vickers and Gill 1986; Vickers *et al.* 1994; Gill 1998). In 1968–1969 Barri Jones conducted further excavations at the site, uncovering parts of a residential insula including an early Hellenistic house with mosaic floor. Again, apart from brief preliminary reports (Jones 1983; 1985) the bulk of this work remains unpublished.

In 1994 the site was threatened by the construction of a shopping centre begun illegally on the northern part of the city area. At the invitation of the Department of Antiquities a British team undertook a surface survey of the threatened zone (Hayes and Mattingly 1995), followed up by a programme of excavation directed by John Lloyd and Ahmed Buzaian from 1995–1998, designed to demonstrate the archaeological significance of Euesperides and to answer certain questions about the nature and development of the city (Lloyd *et al.* 1995; 1998a; 1998b; Buzaian and Lloyd 1996; Lloyd 1997). These excavations revealed two phases of the archaic city wall, with three phases of housing (Archaic–early Hellenistic) built against it on the inside; an early Hellenistic mosaic in the centre of the Sidi Abeid mound, a sequence of street surfaces and deposits; and outside the walls, rock-cut tombs in a quarry ditch, and a kiln. Pottery evidence from the earliest occupation levels has shown that the city was in existence by *c.* 580–570 BC.

Euesperides represents a very rare instance of a Greek city not overbuilt by later development, and offers an unparalleled opportunity to investigate the domestic architecture, defences and urban form of an Archaic-early Hellenistic city. The mid third-century BC *terminus ante quem* provided for stratified deposits by the site's abandonment lends the archaeological material a particular significance. The preservation of mud brick elements of buildings, both fallen and *in situ*, enables understanding of the domestic architecture of the Archaic, Classical and early Hellenistic periods in a way rarely preserved (or observed) at other Greek sites. The quantity of imported ceramic material offers scope for analysis of trading contacts, while indications of evidence for urban production provide the opportunity for an analysis of the city's economy which goes well beyond the ceramic evidence. Certain areas of the lower city show previously unremarked concentrations of production debris, including large spreads of crushed shells indicative of the exploitation of marine resources, and metallurgical slag, and it was clear that the abundance of surface artefacts here would repay systematic surface collection.

The new project will investigate the development of early urbanism at the site, including aspects of:

- The nature of Archaic, Classical and early Hellenistic domestic architecture;
- Urban planning and defence;
- Economic activity and trade;
- Diet and everyday living conditions;
- Environmental conditions, including the possible relationship between the silting of the harbour and the abandonment of the site.

In addition, the project has as wider aims to:

- Protect, preserve and interpret the site of Euesperides;
- Raise public awareness of the importance of the site, both within Libya and abroad;
- Disseminate the results of work through publication in Arabic and English of a booklet for the general public, and with academic publications.

The fieldwork programme in 1999 concentrated on four main elements: area excavations on two sites with deep stratigraphy — one around the site of the early Hellenistic mosaic discovered in 1998 (Area P), and the other against the city wall on the north-east edge of the Sidi Abeid mound (Area Q) —, surface prospection in the later extension of the city (the 'lower city') to the south of the Sidi Abeid mound, and geophysical survey on the mound and in the lower city.

Surface survey and the plan of the city (Andrew Wilson and Kenneth Hamilton)
The 1949 vertical air photograph (Fig. 1), which first enabled identification of the site of Euesperides, shows a wealth of detail on the lower city; much of the street plan is traceable, and long sections of the circuit walls, as well as elements of individual houses within city blocks, are revealed as robber trenches. Aerial photographic interpretation of this picture, supplemented by other low-level air photographs which show robber trenches on the Sidi Abeid mound, was carried out by Air Photo Services of Cambridge at the request of Michael Vickers of the Ashmolean Museum, and was combined with ground survey data from plans drawn by G. R. H. Wright during the Ashmolean Museum's excavations of 1952–1954. This material has kindly been made available to us by Michael Vickers, and forms the basis of Fig. 2; onto this base plan has been overlaid topographical data and trench locations from surveys of the more recent projects and the current fieldwork.

Although part of the area whose plan is so clear on the air photograph has been disturbed by modern development, the zone to the south-west of the modern Selmani road still contains archaeological remains visible on the surface, and this area was subjected to intensive surface collection and geophysical survey. The principal results of the programme of surface prospection were to show that the area of the later extension to the south of the Sidi Abeid mound was nearly twice as large as previously thought, and that large areas of this lower city seem to have been given over to manufacturing activities.

The surface collection programme followed the sampling strategy of Hayes and Mattingly (1995, 93–94; walkers spaced at 5 m intervals collecting diagnostic sherds and other distinctive artefacts — worked stone, slag and tile — along their lines, followed by a separately bagged grab sample from the rest of the grid square), with the exception of grid size (20 m) and survey direction (west–east), which were altered to follow the same grid system as the geophysical survey.

The creation and subsequent demolition of a bus station in the lower city to the south-east of the mound of Sidi Abeid has removed all surface traces of archaeology here, and the ground is too compacted and littered with metal to make geophysical survey possible. Systematic surface prospection was therefore limited to the area of the lower city lying to the south-west of the Selmani road. The most notable feature here was no less than 29 individual areas of crushed *Murex trunculus* shells, occuring both as components of general broken shell material and as spreads exclusively of *Murex trunculus* ranging from 1 × 4 m to 18 × 18 m. (Figs 3 and 4). Another spread was identified to the east of the Sidi Abeid mound, on a street alignment near Area J and the Ashmolean Expedition's Site A. Although *Murex trunculus* can be eaten and also had other uses in antiquity (e.g. as a component in lime mortars — see Reese 1979–80), its main use was in the production of purple dye, extracted from its hypobronchial gland. The occurrence of *Murex* shells in such quantity clearly points to purple dye production; edible marine shellfish were found in large quantities in occupation deposits in Area H and in street refuse deposits in Area J (Buzaian and Lloyd 1996, 148; Lloyd *et al.* 1998, 149) but *Murex* was largely absent in these contexts, whereas in the spreads in the lower city it comprises the sole content of most of the spreads. Many of the *Murex* shells have been deliberately broken or crushed; Aristotle (*Hisoria Animalium* V.15, 547a) describes how the shellfish was removed from the larger shells so that the dye-producing gland could be severed, while the smaller shells were crushed to extract the organism.

Linear features are distinguishable on the ground which represent the street alignments on the aerial photograph; in some areas street surfaces are visible, and in other cases the streets are traceable as compacted rubbish spreads (including some *Murex* spreads) at a

Figure 3. Spread of Murex *shells in the lower city. Scale: 15 cm in 5 cm units. (Photo: A. I. Wilson.)*

somewhat higher level than the surrounding ground where walls have been robbed out. Occasional stretches of walling and patches of *opus signinum* working floors may be seen. Some areas show distinct concentrations of iron smelting and smithing slag, attesting to metal-working activities.

After the cemetery of Sidi Abeid was deconsecrated and cleared a new cemetery was created to the south-east, which remained in use until the early 1990s. The north-west corner of this second cemetery contains a dense spread of Greek pottery thrown up by the digging of graves. Systematic investigation here was not possible and reconnaissance was necessarily limited to observations from along the paths between the modern graves, but it seems that the spread drops off abruptly along the line plotted approximately on the accompanying site plan (Fig. 2). Pottery collected from this area included many amphora and pithos fragments, coarsewares, and some finewares characteristic much more of domestic than funerary assemblages. Although the possibility that this represents extra-mural activity or rubbish dumping is not to be entirely excluded, the sharp edge to the scatter may indicate the edge of the city.

Earlier published plans of the city (e.g. Vickers *et al.* 1994, 130 fig. 2; Hayes and Mattingly 1995, 87 fig. 2; Lloyd *et al.* 1995, 98 fig. 1) show the eastern edge of the lower city as defined by a double linear feature, interpreted as a double wall, running up towards a so-called 'Gate'. However, the linear feature is of a different width and nature from the robber trenches indicating the early Hellenistic city wall, and does not align with the 'Gate'. Further study of the air photograph in fact suggests that this double linear feature is a street bounded by the robbed walls of buildings, and there is no firm evidence to show that the 'Gate' is indeed a gate; this interpretation seems to be a product of the assumption that the double linear feature was the city wall, and the large structure here is perhaps better identified as a public building. The feature marked 'Canal?' on the recent

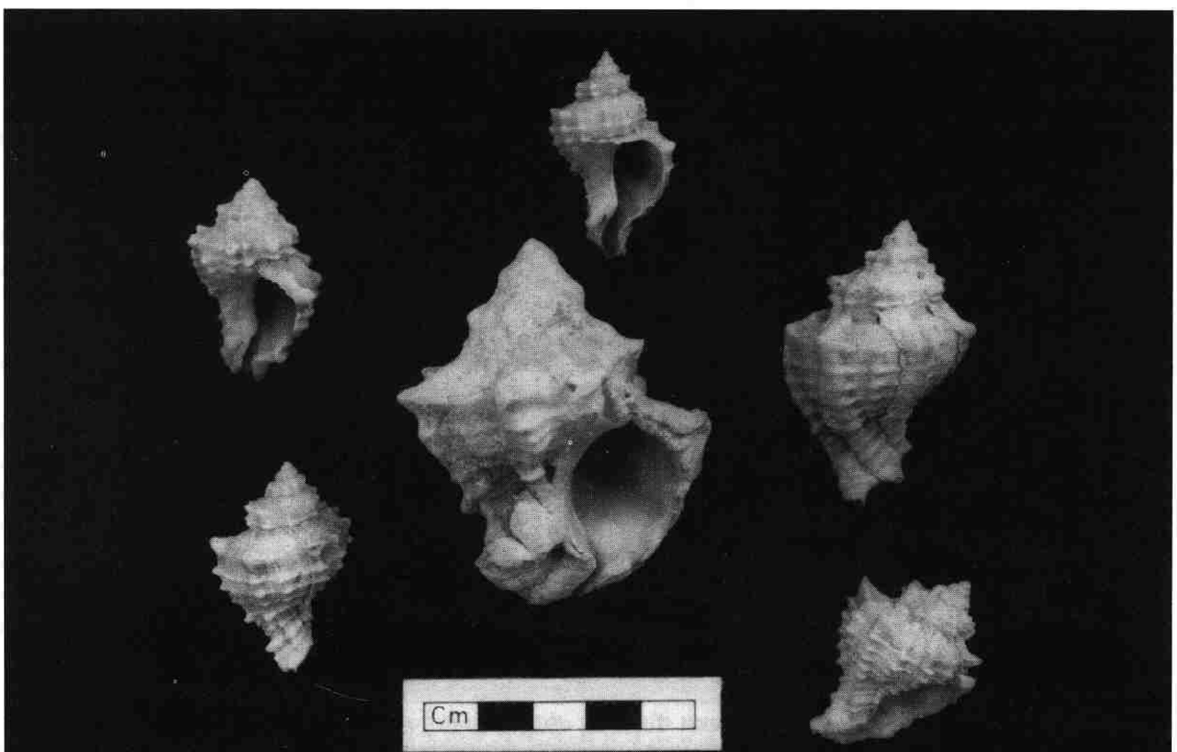

Figure 4. Murex trunculus shells from Euesperides. (Photo: A. I. Wilson.)

plans is marked on Goodchild's key to the 1949 air photograph as a modern culvert (Goodchild 1952, 210 fig.1; his 'ancient channel' linking the two lagoons is hypothetical). None of these features, therefore, can be taken to mark the eastern edge of the lower city. Between the edge of the scatter in the new cemetery and the double linear feature here interpreted as a street there is room for two more rows of city blocks. This would give a much less elongated grid plan for the later extension than the shape shown by earlier plans. The line of the city wall from the new cemetery north-westwards towards the Sidi Abeid mound is unclear; a bent linear feature on the air photograph may represent a robber trench along part of its length (Fig. 1); but it should be noted that the feature marked 'Gate' by Site A on earlier plans is not necessarily to be interpreted as a gate in the city wall (M. Vickers, *pers. comm.*); even if the linear feature is a city wall, there is no certainty that it belongs to the early Hellenistic rather than the Archaic wall circuit. It does not therefore provide a sure guide to the Hellenistic wall's position in this area, and the so-called 'Gate' has for that reason been omitted from our Fig. 2.

Topographical survey with a Leica TC600 Total Station highlighted a further inaccuracy on the earlier plans. The modern street base plan used for the 1994–1998 fieldwork (Hayes and Mattingly 1995 figs 1, 2 and 3; Lloyd *et al.* 1995 fig. 1) was taken from a projected city development plan, and the streets that have actually been built diverge in some respects from this. The actual line of the present streets is plotted here in fig. 2, showing that the zone already defined as a protected archaeological site has been truncated by a road running south-west to north-east across the southern part of the city. The area of archaeological remains extends into the second cemetery of Sidi Abeid, and therefore a large part of the lower city has already been encroached on by road construction and the building of two electricity substations; much of this area is now used for the dumping of rubbish, and is under renewed threat of modern development. Evaluation trenching here to establish the line of the early Hellenistic city wall and to determine the true limits of the archaeological site has become an urgent priority.

Geophysical Survey (Kenneth Hamilton and Alette Kattenberg)
Several small areas of the Sidi Abeid mound and a large area of the later extension to the city were surveyed by magnetometer and earth resistance meter. Earth resistance survey was conducted using a Geoscan Research RM15 resistance meter, with a sampling interval of 1 × 1 m in the lower city, while the areas of the Sidi Abeid mound were surveyed at a resolution of 0.5 × 0.5 m. Magnetometer survey was conducted using a Geoscan Research FM36 fluxgate gradiometer, with a sampling interval of 1 × 0.25 m in the lower city, while areas of the Sidi Abeid mound were surveyed at sampling intervals of 0.5 × 0.5 m and 0.25 × 0.25 m. Survey conditions were particularly harsh, due to the presence of modern ferrous material, modern burning and uncompromising vegetation.

While linear features interpreted as walls were detected by magnetometer survey on the mound, the results were complicated by the presence of modern graves and modern ferrous material. Survey over a previously excavated area (Area H from the 1998 excavations) showed that mudbrick causes a clear response in the instrument, and the technique may therefore have potential for areas cleared of modern debris. Earth resistance survey results were poor, due to the lack of ground moisture, but nevertheless show a possible extension to the quarry found in trench L further to the south-east, by Area Q. Ground conditions prevented further survey to confirm this interpretation. Survey at an earlier time of year (i.e. in damper soil conditions) may yield more conclusive results.

Despite large quantities of modern ferrous debris and very salty soil, results from the lower city were excellent. The street plan of the city is clearly visible on the results of both techniques (Figs 5 and 6). Internal features of insulae are clearly visible in the results

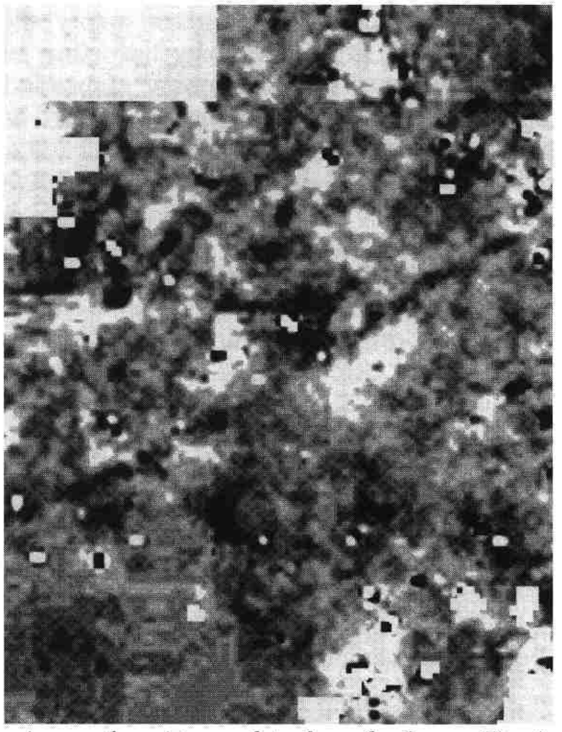

Figure 5. Greyscale plot showing earth resistance data from the Lower City Area. The data have been high pass filtered. Range is -0.2 to 0.2 arbitrary units (white to black). Street layout (running diagonally) and some building features can be seen. Area measures 100 × 140 m.

Figure 6. Greyscale plot showing magnetometer data from the Lower City Area. Range is -9 to 6nT (white to black). High levels of iron contamination are prevalent across the plot, but street layout is still visible. Area measures 100 × 140 m.

of the earth resistance survey, while the magnetometer survey shows street plans and an iron working area. This interpretation is supported by the many surface finds of iron slag in the area, and by an area of work surface containing embedded slag.

Magnetometer survey was conducted between the lower city and the second cemetery of Sidi Abeid, in the hope of determining the limits of the city. The extent of modern dumping made the results here uninterpretable, and it remains impossible to determine the nature of the deposits in the second cemetery.

By using the above combination of techniques, it is hoped that further information can be added to the street plan of the city derived from aerial photography. This will greatly aid not only the siting of future areas of excavation in the lower city, but also in visualising the area as a living, working city. Future survey on the mound will be minimal, but it is hoped to trace the line and extent of the quarry ditch/city wall of area L, using a line of vertical pseudosections.

Excavations in Area P (Andrew Wilson and Susanne Ebbinghaus)

An open area excavation (20 × 20 m) was begun around the site of the pebble and tessellated mosaics discovered during 1998 in Area P (Lloyd *et al.* 1998, 150–7). The area was much disturbed by the modern cemetery (Fig. 7); 68 graves were excavated, and in cases where they had not been previously cleared the bones were taken for reburial elsewhere. Excavation revealed that the destruction level of the final phase of the city's occupation is preserved below the cemetery topsoil, although much cut into by graves.

Figure 7. Area P facing south-west, showing cleared modern graves. The mosaic discovered in 1998 lies concealed under a protective layer of sand in the area to the right of the centre of the trench, where graves have not yet been cleared. Graves to the left of this area contained abundant mosaic and wall plaster fragments; pebble mosaic survives in situ *in some graves towards the upper left corner of the trench. Beyond the cemetery wall in the middle distance is the cleared site of the former bus station, and the lower city beyond the road at the far side of this, before the tower blocks. The trees in the left background mark the site of the second cemetery of Sidi Abeid, with a scatter of Greek pottery thrown up by grave digging. (Photo: A. I. Wilson.)*

Stratigraphy visible in the sides of the grave cuts includes a layer of mud brick collapse containing much painted wall plaster and overlying a soil accumulation (possibly indicative of abandonment?) over floor surfaces. Although it still remains to remove the destruction deposits and expose the floors of the building it is evident that the trench contains part of a large building complex, apparently bounded to the north and north-west by laminated deposits reminiscent of the street surfaces excavated in Area J in 1995 and 1996 (Buzaian and Lloyd 1996, 148), which probably represent streets or dumps. Analysis of the distribution of the numerous mosaic and wall plaster fragments recovered from the grave fills suggests that to the south of the probable *andron* discovered in 1998 lies a second room, with blue and white tessellated and pebble panels surrounded by a fine plain pebble border (surviving *in situ* in the floor of one grave, and cut through by another). Further south again, and at a level some 0.5 m lower, is another area (room or corridor), where a plain mosaic of large pebbles survives *in situ* as the floor of four graves (Fig. 8). At this stage it is not possible to decide whether the building represents a private house or a public building (as for example a *hestiatorion* connected with a sanctuary, or public dining complex, although the small size perhaps argues for a private context), but the richness of decoration in both mosaic and wall plaster is exceptional for Euesperides.

Several different types of mosaic were identified among the many fragments from the grave fills (Fig. 9), including pieces of a bichrome mosaic with white tesserae (averaging *c.* 10 × 14 mm) and dark blue/black pebbles (*c.* 20 × 12 mm) split in half and laid with the split face upward, set in cream/orange or grey mortar with occasional dark gritty inclusions; one piece incorporated a curved pattern perhaps similar to the wave-crest mosaic uncovered in 1998. Other mosaic types included elongated blue/grey pebbles (*c.* 20 × 15 mm) set on edge in a coarse orange/cream mortar matrix with many small dark gritty inclusions, and fine, medium and large plain pebble mosaics that in some cases probably constituted the borders around blue or blue and white panels. These border mosaics consisted of pebbles of different sizes: small rounded pebbles (*c.* 4–12 mm diameter) ranging in colour from cream white to mid grey, set in very coarse pale cream/orange mortar with frequent inclusions including many white, mid grey and dark grits; and medium-sized (*c.* 10 × 16 mm), slightly flattened subrectangular/oval mid grey pebbles set in a pink/brown mortar with occasional small dark gritty inclusions. Plain mosaics with larger pebbles still (*c.* 20 × 30 mm) remained *in situ* in the floors of graves in the southern part of the trench (Fig. 8).

There were also some fragments of mosaic with terracotta tesserae (12 × 10 mm) set in a coarse pale pink/brown mortar with very frequent small (1–3 mm) red/brown ceramic chips and frequent small dark gritty inclusions. In addition, fragments of more utilitarian *opus signinum* flooring were found. These are of particular significance, adding Euesperides to the handful of sites to have yielded *opus signinum* from contexts before the mid third century BC — Morgantina (Tsakirgis 1990), Kerkouane (Fantar 1984, 368, 502–3) and Cosa (Brown *et al.* 1993, 22). *Opus signinum* is generally assumed to have been a Punic invention (Fantar 1984, 513, without substantiation), but the distribution of the earliest material, now known to have included Hellenistic Cyrenaica besides Italy, Sicily and the Carthaginian world, shows that it was already part of a widespread Hellenistic architectural and decorative *koine* in the first half of the third century BC.

The fragments of painted wall plaster recovered from the topsoil and grave fills may in part originate from the probable *andron* and antechamber excavated in 1998, where some plaster was found *in situ* at the edge of the pavements (Lloyd *et al.* 1998, 150–151). However, the clustering of numerous fragments with the pieces of mosaic found further to the south-east suggests that the proposed second room with mosaic floor (another *andron*?) also had walls decorated with coloured plaster.

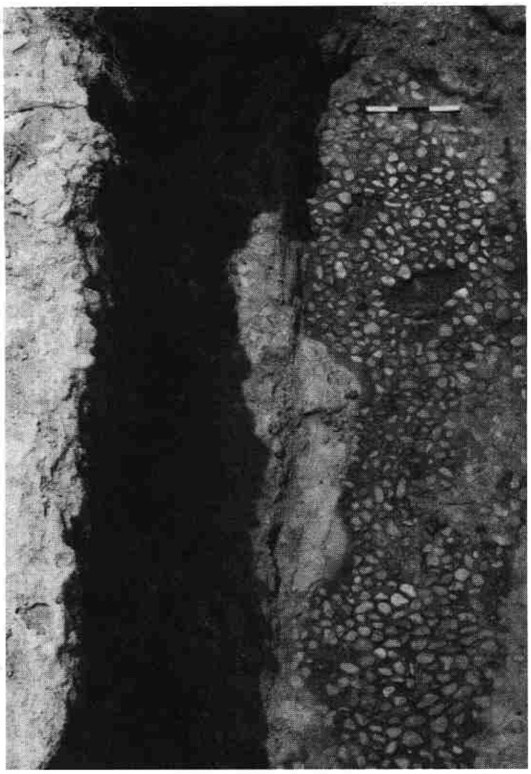

Figure 8. Plain pebble mosaic in situ in grave P1016. Scale: 15 cm in 5 cm units. (Photo: P. Bennett.)

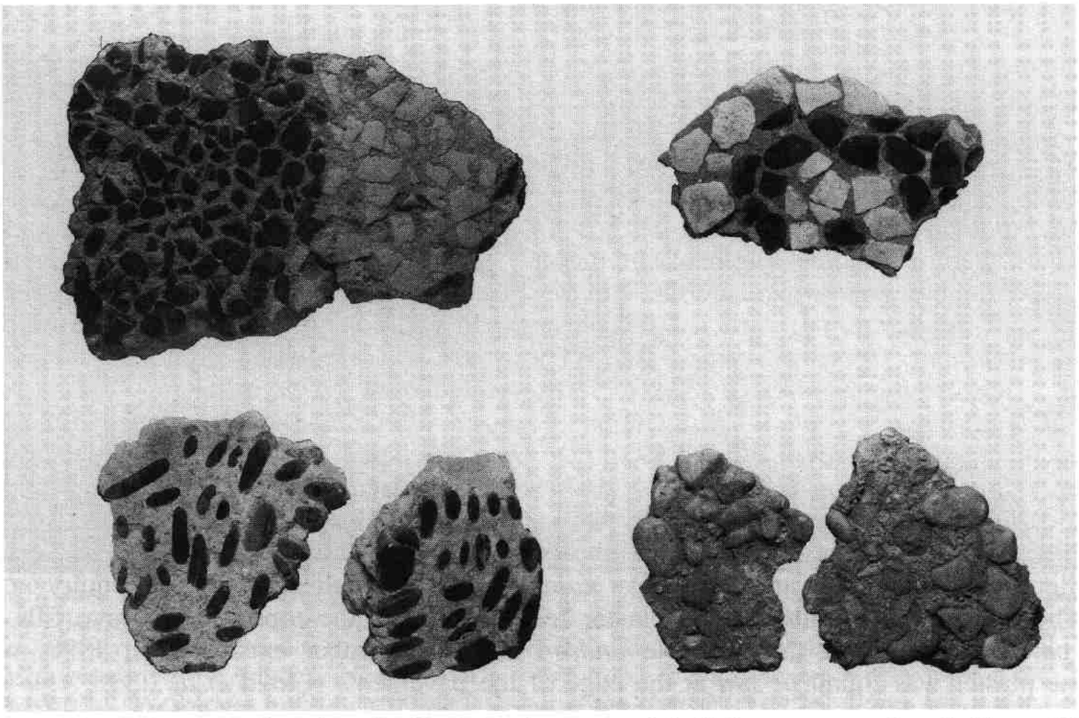

Figure 9. Mosaic fragments from Area P. Clockwise from upper left: bichrome pattern in split blue pebbles and white tesserae; blue and white tesserae with curl pattern; plain pebble mosaic; blue pebbles set on edge (the right-hand piece suggests a curling pattern). (Photo: M. Halliwell.)

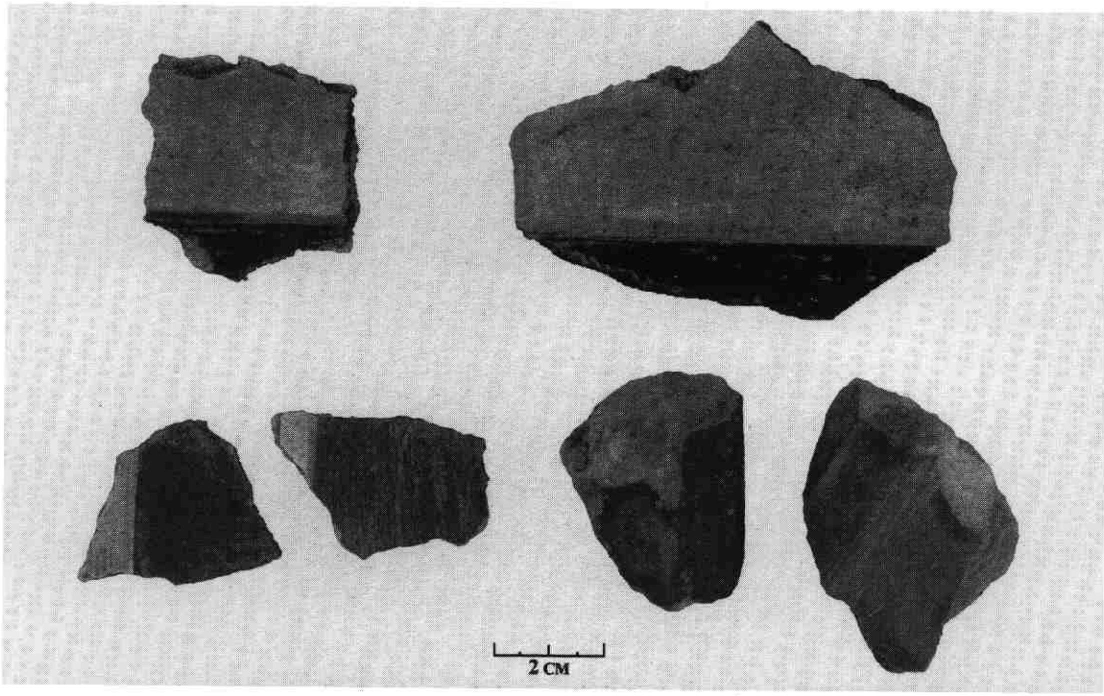

Figure 10. Fragments of wall plaster from Area P, showing patterned or featured pieces: chamfered edges, raised white panels. (Photo: M. Halliwell.)

The distribution of colours is similar to that reported for the 1998 season, with different shades of cream-coloured wall plaster being the most common and immediately followed by red (Lloyd *et al.* 1998, 151). In addition, there are fair quantities of greyish green or blue, black, and white. Further cleaning and finds from future excavation may enlarge the repertoire of colours and possibly reveal traces of marbling. Already now there is evidence for the imitation of architectural structures in relief (Fig. 10). A number of bichrome fragments appear to have formed part of raised, cream-coloured panels with drafted margins painted red or black. Red mouldings with chamfered edges might have been employed for frames or some kind of horizontal subdivision. Any attempt to reconstruct the decorative scheme of the plastered walls would be premature, but the overall impression is one of simplicity. One could perhaps compare fragments of wall decoration from the Agora at Athens, reconstructed as orthostats and a string course rendered in relief with a plain red main zone above (dated before the last quarter of the fourth century BC: Bruno 1969, 316, Pl. 69). Barri Jones' 1968/69 excavations in the lower city revealed walls 'decorated with maroon and white wallplaster capped with a miniature stucco frieze' (Jones 1985, 32). The finds of wall plaster from Euesperides once more disprove the old idea that raised stucco design came in only by the mid-third century BC (discussion in Andreou 1989 and Guldager Bilde 1993). In fact, evidence from Carthage seems to indicate the wide geographical spread of this technique already for the fourth century (Rakob 1991, 224–5).

Among the other small finds were several stone slingshots, and a headless terracotta figurine (Fig. 11).

Excavations in Area Q (Paul Bennett and Ahmed Buzaian)

A new area excavation (15 $\times$ 13 m) was begun adjacent to the expected line of the Archaic period city wall, to the south of Areas H and N. Again, the area was covered in

Figure 11. Terracotta figurines: left, headless figurine from Area P; right, two heads from Area Q. (Photo: A. I. Wilson.)

modern graves (over 170 were excavated, mainly infant burials) representing three separate phases of the cemetery's use, on different alignments. The modern burials have cut into the collapse layer of the final phase; although this is yet to be removed, stone and mud-brick walls and much collapsed mud brick are visible. Besides pottery, finds included two heads of terracotta figurines (Fig. 11), gaming counters, pyramidal terracotta loomweights, and a number of pieces of smithing slag and a smithing bun similar to that found in 1998 in the southern section of Area H. The finds may suggest an area of workshops against the city wall. although it is possible that the smithing activity represents recuperation of metal from deserted buildings after the abandonment of the city. As with Area P, excavation here next year should illuminate the circumstances of the end of Euesperides and the date of its abandonment.

The Pottery (Eleni Zimi)

The fine wares are dominated by Attic products, with some Corinthian pieces and a few local black-gloss. Local products form the majority of the coarsewares, but there is a considerable proportion of coarseware imports from the Aegean region, including Attic cooking pots and Corinthian mortars and jars.

Area P

Pottery from this area comprises numerous fragments of locally produced and imported coarseware, transport amphorae and fineware. All finds came from topsoil or from the fills of modern graves, and are therefore effectively unstratified. The earliest piece identified is an Early Corinthian plate, the floor of which is decorated with rays encircled in red-black concentric lines, dated to the last quarter of the seventh century BC. If not an heirloom piece, this may imply an earlier date than was previously suggested for the occupation of the site; the earliest pottery discovered in 1998 from the defences in Area H was an East Greek sherd with Wild Goat decoration datable around 580–570 BC (Lloyd *et al.* 1998, 158). Fragments of other Corinthian fineware datable from the mid-sixth to

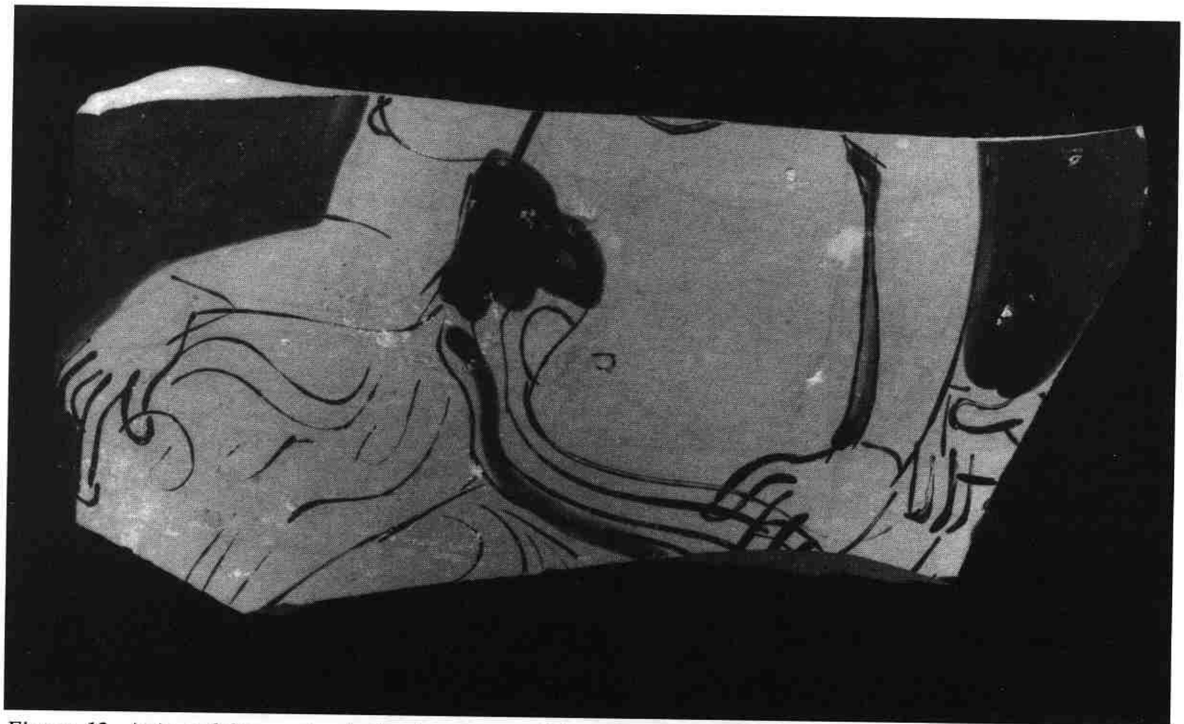

Figure 12. Attic red-figure sherd showing a seated bare-breasted female figure, from Area P (late fifth century BC*). Height: 3.2 cm. (Photo: M. Halliwell.)*

mid-fourth centuries BC were also recovered, including fragments of two possibly Corinthian pyxides similar in form to a pyxis found in 1996 beneath the debris filling the quarry in area L, dated to the fourth century by parallels from Apollonia (Buzaian and Lloyd 1996, 138, fig. 8 p. 139; Goodchild, Pedley, and White 1976, 123–124, pl. XXIII c–d.). The majority of the fineware from Area P consists of Attic imports, including a very fine red-figure fragment depicting a seated bare-breasted woman (Fig. 12), datable around the end of the fifth century BC, and numerous Attic black-glaze fragments with stamped palmettes and rouletting; a number of bases of black-glaze ware bear graffiti on the underside, including one reading [...] ΙΣΘΟΣ ΟΙΚΙΑ. [...]. A near-complete Attic black-glaze kantharos with graffiti on the underside of its foot (Figs 13–14), dating to the second quarter of the fourth century BC and similar to Athenian Agora XII, no. 698, was found at the edge of a modern grave. The graffiti are probably to be read as Κ(άνθαρος ΙΑΡΑ (sacred offering, written in the Dorian dialect), and a trade symbol (a circle cut by two lines). A stamped bolsal of the early fourth century BC has parallels in Athenian Agora, XII, nos. 556, 557. The latest piece from area P was a fragment of a Gnathian oinochoe datable to the early third century BC.

The coarseware comprised primarily local products, but numerous fragments of Corinthian amphorae, jars and mortars as well as Attic cooking pots were also recognised, implying extensive trade between Euesperides and the Aegean region. An intriguing stamped handle of a transport amphora in local fabric bears a weathered and broken stamp of a plant, perhaps of silphium (Fig. 15). While the possible depiction of silphium here does not prove that the amphora carried silphium derivatives, it nevertheless hints at commerce in silphium and its consequent use as a trademark of Euesperides, further corroborating the association of Euesperides with silphium already inferred from literary sources and from the depiction of silphium on the city's coinage.

Figure 13. Attic black-glaze kantharos from Area P (second quarter of the fourth century BC*); similar to Athenian Agora XII, no. 698. (Photo: M. Halliwell.)*

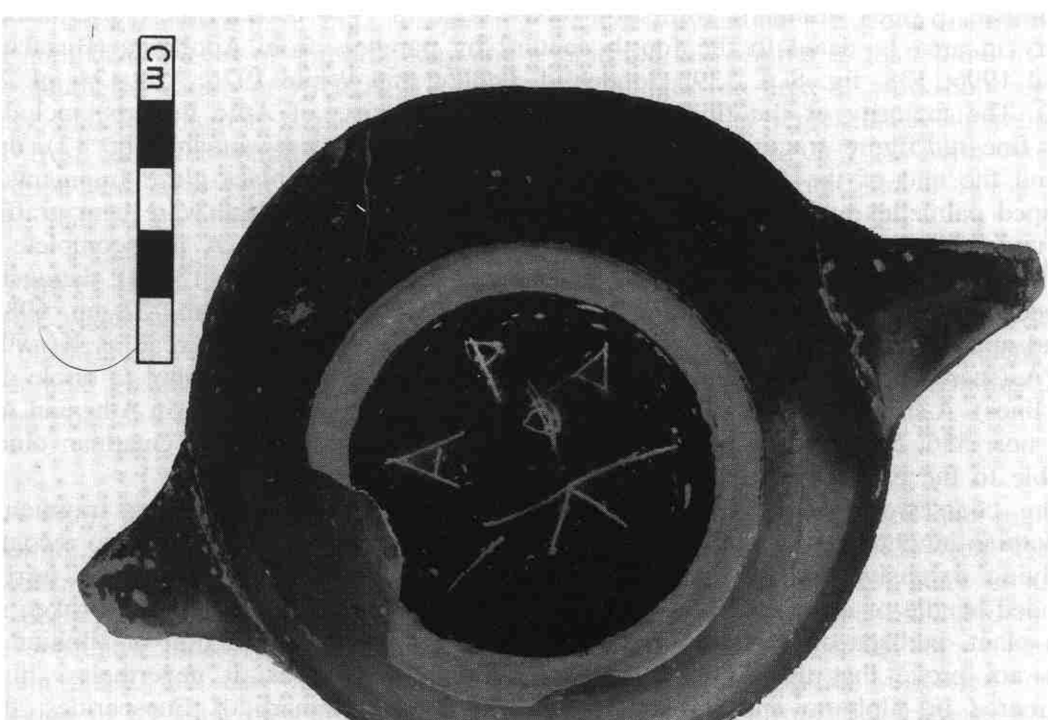

Figure 14. Grafitti on the underside of the base of the kantharos in fig. 13. (Photo: M. Halliwell.)

Figure 15. Stamped amphora handle from Area P, showing what appears to be a silphium plant. (Photo: A. I. Wilson.)

Area Q

Pottery from this area includes numerous black-glaze fragments in Attic fabric, a little local black gloss, both imported and local coarseware as well as transport amphorae, a number of which with stamped handles. The earliest piece is a fragment of a Middle Corinthian kotyle (*c.* 590–570 BC) decorated with animal friezes. There are also Attic red-figure pieces, primarily kraters; fragments of two red-figure lekanis lids showing women carrying pyxides are dated to the second quarter of the fourth century BC. Attic black-glaze wares include numerous fragments bearing stamped palmettes and rouletting as well as a few bases with graffiti on the underside. A complete Attic black-glaze lamp, similar to Athenian Agora XII, no. 237, dated to the last quarter of the fourth century BC, is among the latest pieces found in Area Q. Corinthian finewares datable to the fourth century BC also appear, including a fragment of a pyxis similar to that from Area P, and of a West Slope stemless bell-krater (preserving one of the two knobs flanking the handles; *cf.* McPhee, 1997) decorated with a wavy ivy vine with leaves and clusters of ivy alternating above and below the main stem (Fig. 16), datable to the end of the fourth century BC. This is the latest piece found in Area Q. The coarseware comprised largely local pieces, but certain Attic cooking wares of the fifth century BC and Corinthian amphorae, jars and mortars were also recognised. The transport amphorae included a stamped handle of a Thasian amphora (Fig. 17), identified and dated by Susanne Ebbinghaus and dated probably to shortly before the middle of the fourth century BC (Bon and Bon 1957, 304, no. 1178: Μυΐσ(κος)| Φείδ|ιπ(πος) Θα|σί(ον)).

Lower city survey

The diagnostic pottery collected during surveying the later extension of the city is

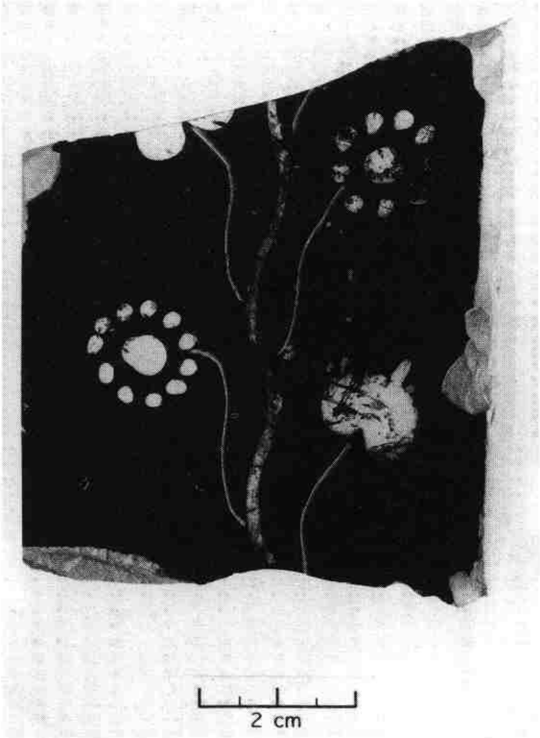

Figure 16. Sherd from West Slope stemless bell-krater with vine motif, from Area Q (end of the fourth century BC). (Photo: M. Halliwell.)

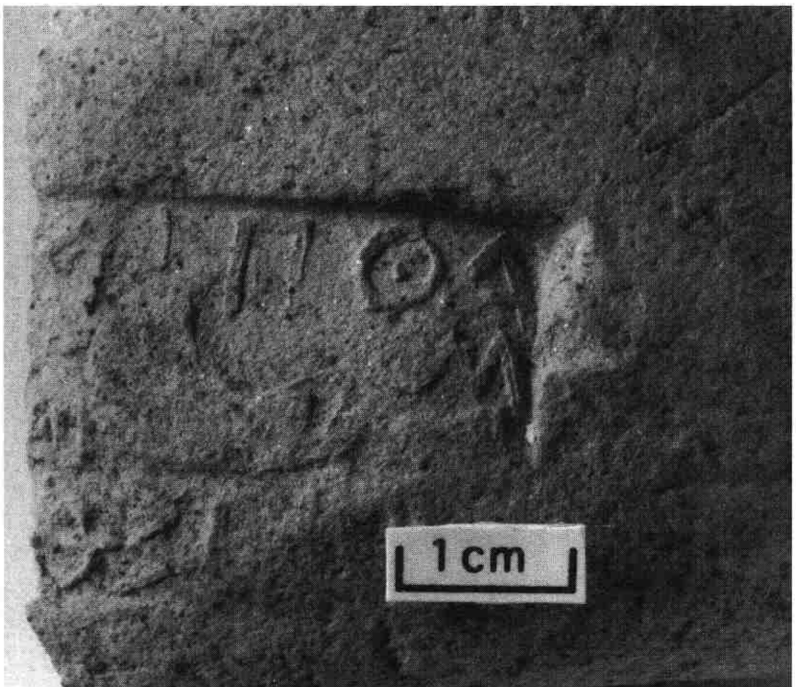

Figure 17. Stamped handle of a Thasian amphora from Area Q (before the middle of the fourth century BC; = Bon and Bon 1957, 304, no. 1178). The stamp is poorly formed and has not made an impression in the lower right hand corner (where the scale is placed). (Photo: M. Halliwell.)

primarily dated to the last quarter of the fourth century BC, although a wine amphora from Mende in north Greece, dated around the end of the fifth or early fourth century BC and found in the second cemetery of Sidi Abeid, is among the earliest material from the lower city. Besides the Mende amphora, there were numerous fragments of transport amphorae and stamped handles mainly from the Aegean region, including Thasian and Coan, as well as Attic and local black-glaze ware. A fragmentary black-glaze fish-plate, similar to Athenian Agora XII, no. 1074, is dated around 325 BC and a handle of a black-glaze kantharos with a parallel in Athenian Agora XII, no. 714, is datable between 320 and 310 BC.

Conclusions: Euesperides and its Economy (Andrew Wilson, Paul Bennett and Ahmed Buzaian)

Pottery and amphora evidence from this season and from earlier work shows considerable maritime trading activity, supporting the view that a functioning harbour was vital to the city's existence and that this was the major reason behind the transfer to Berenice (Buzaian and Lloyd 1996, 132, although the pottery evidence now suggests that commerce was of considerably greater importance than is allowed there). The quantity of pottery from the site is large, and the majority of the finewares are imported. Notwithstanding a long-running debate on the issue, it is unlikely that most of these would have fetched high prices as individual items (*cf.* Gill 1998, with bibliography); while there is evidence for deliberate export to particular markets, it is difficult to credit that pottery alone would have constituted a full maritime cargo, and it was presumably therefore traded along with other goods. A new dimension is added to this debate by the recognition that ordinary coarsewares were also being imported, a phenomenon long known from the Roman world. The chief value of pottery (other than amphorae) for the economic historian is as a generic proxy tracer for the movement of perishable goods (*cf.* Fulford 1987): the bulk of imports, by weight and value, was undoubtedly in textiles, foodstuffs and other goods. Amphorae from the site attest wine imports from Corinth (amphorae types A and B), Cos, Thasos and Mende, and no doubt olive oil and other foodstuffs as well; fine and coarse pottery would have been traded as part cargoes on the back of this larger trade. The size of the imported ceramic assemblage suggests extensive trading activity, although it is not yet possible to say whether trade with the various overseas sources represented was direct or via entrepôts.

The question obviously arises of what Euesperides was exporting in return. The agricultural possibilities of the region are limited (Buzaian and Lloyd 1996, 132); although Herodotos (IV.198–199) says that there is good soil around Euesperides which will sometimes yield 100-fold, the rainfall pattern (nowadays averaging some 250 mm p.a., unevenly spread) is too variable for good harvests every year, and Theophrastus (*History of Plants* 8.6.6) lays stress on the marginality of rainfall, with overnight dew precipitation making the critical difference to the viability of agriculture. The soils of the region are today better suited to grazing sheep and goats. Ptolemy VIII Euergetes II (Jacoby 1929, 983 no. 234) also mentions good artichokes grown around Berenice, while Scylax (*Periplus* 108) mentions vines, pomegranates, olives and other trees around the nearby area known as the Gardens of the Hesperides.

Previous discussions (e.g. Buzaian and Lloyd 1996, 132) have suggested silphium as a possible export, on the basis of literary sources attesting the importance of silphium in the pre-desert steppe to the south of Euesperides (e.g. Herodotos IV.170–171). Silphium appears on coins of Euesperides as well as of Cyrene, but some of the Euesperides issues were evidently minted at Cyrene and imitate the iconography of Cyrene's coins (Buttrey 1994). Nevertheless, the discovery of a stamp depicting a silphium plant on a locally made amphora now provides confirmation that the association of Euesperides with silphium goes beyond simple imitation of Cyrene's coinage. Fish and shellfish were certainly consumed in quantity at the site, to judge from refuse and occupation deposits (Buzaian and Lloyd 96, 148; Lloyd *et al.* 1998, 149); Ptolemy VIII Euergetes II (Jacoby 1929, 983 no. 234) mentions the numerous species of fish and eels in the region (although with reference to Berenice, after the abandonment of Euesperides), and possibly salted fish and other fish derivatives may have been exported as well. Salt would have been readily available from the shores of the lagoons, and may also have been traded in its own right.

The current project is starting to refine the picture and suggest other activities: the large areas of *Murex* deposits indicate the production of purple dye on a considerable scale, and since the dyestuff must be used immediately it is produced, as the colour quickly precipitates out (Doumet 1980, 47), the production of the dye implies also the dyeing of wool on site. It is therefore likely that dyed wool, or even finished cloth, was being produced and exported. The Benghazi plain and Djebel Akhdar are well suited to pastoral grazing of sheep and goats: Herodotos tells us that the Libyans of the coast were nomads rearing sheep and perhaps goats (IV.186.1), and livestock raising seems to have been a key component of the later settlement of Berenice (Barker 1979). Whether Euesperides exported dyed wool or finished cloth it is not yet possible to say; loomweights have been found at the site, although large scale production cannot at present be proven from them. Finds of *Murex* shells from Roman and late Roman contexts at Berenice (Reese 1979–80) suggest that some kind of dyeing industry continued after the move to the new site, although the quantities discovered were limited.

Hellenistic *Murex* dyeworks are also known from Delos, where the industry was taxed from the third century BC, and where sondages have been made in a first-century BC workshop (Bruneau 1969), and from several sites in Israel (Tell Dor, Tell Mor, Tell Akko and Tell Keisan — Karmon and Spanier 1987); other Hellenistic dyeworks have been found at Mycenae and Halieis (Bowkett 1995), Isthmia (Kardara 1961), and Chorsiai (Roesch 1986), although it is not known what colours they produced. In general, though, few have been investigated in detail. The significance of the Euesperides material is twofold. First, it offers the potential for the excavation and examination of an early Hellenistic dyeworks. Secondly, it sheds light on the significance of urban production. The nature of urban production in the ancient world, in workshops predominantly of limited size, does not exclude the possibility that aggregate economic significance was achieved by a large number of small workshops, but has meant that archaeological investigation has rarely been able to demonstrate that this was the case. This in turn has led many historians to believe that urban production was not important in the ancient world (most influentially Finley 1985, especially pp. 123–49). However, this view may be due in part to the limitations of our techniques of investigation; modern excavations cover too limited a surface area to prove or disprove the presence of workshops in quantity. At Euesperides, however, the large surface spreads of industrial waste covering much of the lower city suggest that such production was a major feature in the city's economy. A combination of surface survey and excavation could provide information both on aggregate extent and on detail of individual workshops. Work in future seasons will investigate both dye production and metalworking establishments, and examine the nature and importance of metalworking at the site.

A greater understanding of the economy of Euesperides may help explain why the history of the city as revealed by the literary sources is marked by conflict with local tribes. Struggles for control over silphium exploitation are one possibility, but it is not clear whether the Libyans of the interior sold silphium to the Greek cities, or whether the cities tried to exercise control over the areas of the steppe where it grew. Another possibility is more direct disputes over grazing lands (cf. Barker 1979, 32–38), and the scope for conflict is exacerbated if exports requiring not only marine exploitation but also wool production from sheep rearing in the Djebel Akhdar were becoming increasingly important to the city's economy.

Goodchild in 1952 called Euesperides 'a devastated city site', and time has not been kind to it since. The two cemeteries of Sidi Abeid have damaged the original nucleus on the mound and the later extension on the south-east fringe, and extensive bulldozing has obliterated many surface traces around the fringes of the mound and to the south and east; the broken tombs of the partially cleared earlier cemetery lend the site a ghastly aspect, compounded by the dumping and burning of animal carcases, tyres and other refuse. Yet this stretch of urban wasteland constitutes an archaeological site of rare importance for its potential to illuminate the diet, economy and domestic architecture of an Archaic, Classical and early Hellenistic city. The 1999 season has already borne out the prophecy that 'future work would pay a rich reward' (Lloyd *et al.* 1998, 167). Preservation of stratified material on the Sidi Abeid mound offers great potential in future seasons for the study of early Hellenistic mosaics and wall plaster, and for the architecture of this and earlier phases, while the material from the lower city is casting new light on the economy of a Hellenistic port. It is hoped that excavation of several representative areas, supported by surface prospection and geophysical survey, will allow us to gain some idea of the functioning of the city as a whole.

Acknowledgements

The excavations took place under the aegis of the Department of Antiquities of Libya, and were organized and funded by the Society for Libyan Studies, the Department of Archaeology, Garyunis University, Benghazi, and the Libyan Department of Antiquities. To all of these bodies we are most grateful.

Many individuals assisted the project in various ways, and our thanks are due to them; in Tripoli, Mr Ali el-Khadouri, President of the Department of Antiquities and Mr Mustafa Turjiman, for their assistance particularly in the matter of obtaining visas; in Benghazi, Mr Ibrahim Tuwahni, Controller of Antiquities, and his staff; Mr Ali Latrek, Mr Abdullah Rehaby; and in Sabratha, Mr Mabruk Zenati, Controller of Antiquities, and his staff for their hospitality. Mr Ali el-Hassey of the Tourist Authority of Benghazi provided much assistance and equipment. The culinary skills of Mohammed Khair and Moammar Ghouma contributed much to the team's well-being. Back in Britain, Dr John Lloyd provided much help, support and encouragement during the planning stages of the project. We are grateful to the Department of Archaeological Sciences, University of Bradford for assistance, especially for the loan of geophysical equipment, and to the Institute of Archaeology, Oxford, for lending a Total Station and other equipment.

Michael Vickers supplied helpful references and much useful information on the 1950s Ashmolean expedition, and also made available the air photo interpretation for incorporation into fig. 3. The air photo interpretation was carried out in 1994 by Chris Cox of Air Photo Services of Cambridge, and funds for this were provided by a grant from the Society of Antiquaries.

The project was directed in the field by Paul Bennett, Ahmed Buzaian and Dr Andrew Wilson. The Department of Antiquities was represented on site by Yusuf Ben Nasser and Adel Abd Es-Salam. The European team consisted of Dr Susanne Ebbinghaus (site supervisor), Mike Halliwell (photographer and conservator), Kenneth Hamilton and Alette Kattenberg (geophysicists), and Dr Eleni Zimi (pottery specialist). The Garyunis University team consisted of Saleh El-Hassey, Ahmed Mehlud, Fuaad Bentaher, Alamen Ali Alamen and a group of archaeology students; special thanks go to a dedicated band of student volunteers who gave up much of their free time to work on the project. Their skill, enthusiasm and unfailing good humour added much to the project's success.

Bibliography

Andreou, A. 1989. *Griechische Wanddekorationen*, Michelstadt.

Barker, G. W. W. 1979. Economic life at Berenice, in J. A. Lloyd (ed.) *Excavations at Sidi Khrebish Benghazi (Berenice)* vol. 2 (Supplements to Libya Antiqua 5): 1–49. Tripoli.

Bon, A.-M. and Bon, A. 1957. *Les timbres amphoriques de Thasos* (Études Thasiennes 4), Paris.

Bond, R. C. and Swales, J. M. 1965. Surface finds of coins from the city of Euesperides. *Libya Antiqua* 2: 91–101.

Bowkett, L. C. 1995. *Well Built Mycenae. The Helleno-British Excavations within the Citadel at Mycenae, 1959–1969*. Fascicule 36, *The Hellenistic dye-works*, Oxford.

Bruneau, P. 1969. Documents sur l'industrie délienne de la pourpre. *Bulletin de correspondance hellénique* 93: 759-91.

Bruno, V. J. 1969. Antecedents of the Pompeian First Style. *American Journal of Archaeology* 73: 305–317.

Buzaian, A. M. and Lloyd, J. A. 1996. Early urbanism in Cyrenaica: new evidence from Euesperides (Benghazi). *Libyan Studies* 27: 129–52.

Buttrey, T. V. 1994. Coins and coinage at Euesperides. *Libyan Studies* 25: 137–45.

Brown, F. E., Richardson, E. H. and Richardson, L., Jr. 1993. Cosa III: The buildings of the forum. Colony, municipium and village. *Memoirs of the American Academy in Rome* 37.

Chamoux, F. 1953. *Cyrène sous la monarchie des Battiades*, Paris.

Doumet, J. 1980. *Étude sur la couleur pourpre ancienne: et tentative de reproduction du procédé de teinture de la ville de Tyr décrit par Pline l'Ancien*, Beirut.

Fantar, M. 1984. *Kerkouane. Cité punique de Cap Bon (Tunisie)*, vol. 1, Tunis.

Finley, M. I. 1985. *The Ancient Economy* (2nd edition), Berkeley and Los Angeles.

Fraser, P. M. 1951. An inscription from Euesperides. *Bulletin de la Société royale d'archéologie d'Alexandrie* 39: 132–43.

Fulford, M. G. 1987. Economic interdependence among urban communities of the Roman Mediterranean. *World Archaeology* 19.1: 58–75.

Gill, D. W. J. 1998. A Greek price inscription from Euesperides, Cyrenaica. *Libyan Studies* 29: 83–8.

Goodchild, R. G. 1952. Euesperides — a devastated city site. *Antiquity* 26 no. 104: 208–12.

Goodchild, R. G., Pedley, J. G., and White, D. 1976. *Apollonia, the Port of Cyrene. Excavations by the University of Michigan 1965–1967*. (Supplements to Libya Antiqua 4). Tripoli.

Guldager Bilde, P. 1993. The International Style: Aspects of Pompeian First Style and its Eastern equivalents. *Acta Hyperborea* 5: 151–177.

Hayes, P. P. and Mattingly, D. J. 1995. Preliminary report on fieldwork at Euesperides (Benghazi) in October 1994. *Libyan Studies* 26: 83–96.

Jacoby, F. 1929. *Die Fragmente der Griechischen Historiker*, vol. II.B, Berlin.

Jones, G. D. B. 1983. Excavations at Tocra and Euhesperides, Cyrenaica 1968–1969. *Libyan Studies* 14: 109–21.

Jones, G. D. B. 1985. Beginnings and endings in Cyrenaican cities, in G. W. W. Barker, J. A. Lloyd and J. M. Reynolds (eds) *Cyrenaica in Antiquity* (British Archaeological Reports, International Series 236): 27–41. Oxford.

Kardara, C. 1961. Dyeing and weaving works at Isthmia. *American Journal of Archaeology* 65.3: 261–6.

Karmon, N. and Spanier, E. 1987. Archaeological evidence of the purple dye industry from Israel, in E. Spanier (ed.) *The Royal purple and the Biblical blue, Argaman and Tekhelet. The study of Chief Rabbi Dr. Isaac Herzog on the dye industries in ancient Israel and recent scientific contributions*: 147–58. Jerusalem.

Laronde, A. 1987. *Cyrène et la Libye hellénistique. 'Libykai Historiai': de l'époque républicaine au principat d'Auguste* (Études d'Antiquités africaines), Paris.

Lloyd, J. A. 1997. Euesperides (Benghazi): Preliminary report on the 1995 and 1996 excavations. *Libya Antiqua* new series 2: 187–94.

Lloyd, J. A., Bennett, P., Buttrey, T. V., Buzaian, A., El Amin, H., Fell, V., Kashbar, G., Morgan, G., Ben Nasser, Y., Roberts, P. C., Wilson, A. I. and Zimi, E. 1998. Excavations at Euesperides (Benghazi): an interim report on the 1998 season. *Libyan Studies* 29: 145–68.

Lloyd, J. A., Buzaian, A. M. and Coulton, J. J. 1995. Excavations at Euesperides (Benghazi), 1995. *Libyan Studies* 26: 97–100.

McPhee, I. 1997. Stemless bell-kraters from Ancient Corinth. *Hesperia* 66: 99–145.

Rakob, F. (ed.) 1991. *Karthago*, vol. 1, Mainz.

Reese, D. S. 1979-1980. The exploitation of murex shells: purple-dye and lime production at Sidi Khrebish, Benghazi (Berenice). *Libyan Studies* 11: 79–93.

Roesch, P. 1986. L'eau et les textiles: Chorsiai de Béotie, in P. Louis (ed.) *L'homme et l'eau en Méditerranée et au Proche Orient* vol. 3 *L'eau dans les techniques* (Travaux de la Maison de l'Orient 11): 93-9. Lyon.

Tsakirgis, B. 1990. The decorated pavements of Morgantina II: the *opus signinum*. *American Journal of Archaeology* 94.3: 425–43.

Vickers, M. and Gill, D. W. J. 1986. Archaic Greek pottery from Euesperides, Cyrenaica. *Libyan Studies* 17: 97–108.

Vickers, M., Gill, D. W. J. and Economou, M. 1994. Euesperides. The rescue of an excavation. *Libyan Studies* 25: 125–36.

A leaflet on the publications of the Society can be obtained from the General Secretary, Society for Libyan Studies, c/o The Institute of Archaeology, 31–34 Gordon Square, London WC1H 0PY.