STRATA

Bulletin of the Anglo-Israel Archaeological Society

Volume 27

2009

STRATA

Bulletin of the Anglo-Israel Archaeological Society

Volume 27

2009

The Anglo-Israel Archaeological Society
2nd floor, Supreme House
300 Regents Park Road
London N3 2JX

This periodical is indexed in the ***ATLA Religion Database®,***
published by the American Theological Library Association,
250 S. Wacker Dr., 16th Flr, Suite 2100, Chicago, IL 60606,
E-mail: *atla@atla.com*; website: *www.atla.com*

Cover image: Beth Alpha synagogue mosiac, NASA image.

2nd floor, Supreme House, 300 Regents Park Road, London N3 2JX

ISSN Series 0266 2442

Typeset, printed and bound in Great Britain by
4word Page & Print Production Ltd.

Strata: Bulletin of the Anglo-Israel Archaeological Society

Please send correspondence and books for review to:

The Executive Secretary
The Anglo-Israel Archaeological Society
2nd floor, Supreme House
300 Regents Park Road
London N3 2JX
UK

Please format material according to the 'Notes for Contributors' found at the back of this volume and submit articles to the editor electronically at: *taylorjoan@btinternet.com*

Subscription Rates

Strata is published annually. Subscription for 2009 is £20.00 (including postage and packing) within the UK, or £27.50 overseas, payable to 'The Anglo-Israel Archaeological Society' by cheque or credit card. Those wishing to become members of the Society and to receive details of the annual lecture programme should apply for details from the Executive Secretary (see application form at the back of this volume), or consult the Society's website: www.aias.org.uk.

Honorary Officers and Committee Members

Honorary President
Rt Hon. The Viscount Allenby of Megiddo

Chairman
Professor H. G. M. Williamson D.D., F.B.A.

Vice-Chairman
Ashley Jones

Vice-Chairman (Israel)
Professor Amihai Mazar

Hon. Secretary
Dr Nick Slope

Hon. Treasurer
Dr Paul Newham

Committee
Barbara Barnett
Dr Simcha Shalom Brooks
Dr Rupert Chapman III
Dr Adrian Curtis
Dr Irving Finkel
Prof. Shimon Gibson
Dr Sean Kingsley
Dr Mark Merrony
Dr Stephen Rosenberg
Dr Joan Taylor

Executive Secretary
Sheila Ford

Editorial

I take over as sole Editor of this journal with a great debt of gratitude to Prof. Shimon Gibson, who has been Editor since 1986, and developed the *Bulletin of the Anglo-Israel Archaeological Society* from being a small publication akin to a newsletter to a well-regarded academic annual. Prof. Gibson has worked very hard to develop excellent standards, to promote the Society and to elicit high-quality material. Everyone in the Society is much indebted to him for his labours, and the enthusiasm he has brought to this project, even when so busy with his many archaeological excavations, teaching, articles, books and television work.

Readers will immediately notice in this issue a change. The name that was appropriate to the general bulletin of the Society, continuing in use as the name of the academic journal, is in this first issue under my editorial direction slightly modified with the additional title 'Strata'. This has come about because the old name was a little dry, and not easy to shorten. Informally, we on the committee tend to call it 'the Bulletin', but this does not have any immediate resonance in terms of archaeology. In academic citations, the title has been either written out in full, or else shortened to *BAIAS*. Unfortunately, this acronym is never used as such, since it sounds like 'bias': the very last thing one would wish for in an academic publication. With the additional *pronomen* of 'Strata' we hope that this will be an easy way of citing the journal, and of referring to it. We hope we do not cause problems for librarians and for scholars using serials sections in libraries; note that the series continues in volume number. It is not a new series.

The cover image has been changed. The 6th-century Beth Alpha synagogue mosaic, depicting the zodiac with a central image of the sun on a four-horsed chariot, is one of the iconic images from archaeological discoveries in the region. In its symbolism it seems to reach west from the east, making it an interesting image for a society that reaches east from the west, from Britain to the Levant.

The aims and purposes of the journal will remain the same. The Anglo-Israel Archaeological Society was founded and named in 1961, which of course was a time of different political and national boundaries to those of today, when the area that had been Palestine under the British Mandate was divided between the nations of Israel and Jordan. The focus of the Society developed out of close connections between scholars in Britain and Israel and is affiliated with the British Friends of the Hebrew University of Jerusalem. The Society today fosters scholarly openness and links with both Israeli and Palestinian scholars and institutions, and runs a vibrant lecture series in London (with joint lectures with the British Friends of the Hebrew University, the Palestine Exploration Fund, and the Institute for Jewish Studies at UCL) and Manchester (linked with the Jewish Historical Society and

the Centre for Jewish Studies), lectures which cover a broad range of topics and periods of history.

This journal has a particular geographical interest in the region known in Biblical and Jewish tradition as 'Eretz-Israel', in European and Arabic tradition as 'Palestine', and in Christian tradition as 'the Holy Land', as well as in proximate places. It aims to highlight for an English-speaking audience the archaeological work taking place within areas currently having their archaeological surveys and excavations overseen by diverse administrations: by the Israel Antiquities Authority, the Israel Defence Forces' 'Staff Officer for Archaeology in the Civil Administration for Judaea and Samaria', and by the Palestinian National Authority's Department of Antiquities and Cultural Heritage. In other words, I would like both Israeli and Palestinian scholars to feel welcome here. I would also like to note that the term 'Anglo' in the Society's name is something I interpret to indicate the English language, so any articles written in English are welcome, regardless of the provenance of authors. *Strata* looks in addition to Lebanon, Jordan, Syria, or places further afield, in appreciation of the shifting cultural boundaries and interactions of former times in this region. The scope of both the Society and this journal is not in any way politically, religiously or, in any other sense, socially defined. Its interests are to promote academic study and research.

Along with archaeology, the interest of this journal is in aspects of study that bear upon archaeological discussion, such as history, art, the history of excavation and exploration, numismatics, epigraphy, historical geography, site identification, and wide comparative analyses. Excavation reports are published as long as these are not too long. Translations of important articles that have previously appeared only in Hebrew and Arabic are particularly sought, but these must always be submitted with a high standard of English, with illustrations modified for an English-speaking audience. Articles of relevance to regional archaeology that have appeared in other languages are also welcomed.

In terms of format the only new addition in the journal this year is the inclusion of an edited version of Stephen Rosenberg's 'Reports from Jerusalem' after the summaries of lectures and grant reports at the end of this volume. These informal notes are already issued to members, and also appear on the website, at www.aias.org.uk, and, in having them within *Strata*, we hope that they will provide a useful summary of current archaeological discovery.

The contents of this issue provide a range of discussions which illustrate the broadness of the scope. To introduce myself a little to readers, I include a translation of an article of my own that appears in German. The topic is one of travel to the Holy Land and what travellers' accounts can tell us about site identification in regard to the 'cities of the Plain', Qumran, and the changing circumstances of the Dead Sea, especially in terms of its water levels and exploitation.

There are then two articles springing from the Study Day, held on 24 January 2009 at Rewley House, Oxford, which considered the contribution of British scholars to the archaeology of the region. 'Archaeology of the Holy Land: The

Contribution of British Scholars' was held in conjunction with the Department for Continuing Education at Oxford University. Prof. David Jacobson provides a very full appraisal of the work of Charles Warren; Felicity Cobbing re-evaluates Garstang's contribution to the understanding of ancient Jericho. Linked in theme with these studies is the article by Stephen Rosenberg, where the focus is on the Parker mission and construction of Hezekiah's tunnel. Collectively, these first articles provide a diverse examination of western interest in Eretz-Israel/Palestine and what we may learn by reviewing previous studies.

Strata includes a very thorough and yet concise excavation report on Givat Sher, a site which has great importance in terms of understanding ancient Modi'in. The significance of the site is great in terms of Jewish history in the region, and the involvement of local people in the venture is particularly noteworthy in this project. There is also a report of salvage excavations in Ramla, which provides helpful information about water utilisation in the period prior to the 11-century earthquakes, and also the location of the city walls. This is a translation of an article that appeared in *Qadmoniot* in 2007.

There is also a review article by Dr Sean Kingsley focusing on books which provide evidence for ancient trade.

In the lectures section I would like to draw attention to one presentation in particular. Dennis Mizzi gave a stimulating talk on the caves of Qumran. This paper was an explorative analysis additional to his D.Phil. thesis, 'The Archaeology of Khirbet Qumran: A Contextual Approach' (Oxford University, 2009) which is soon to be available for consultation in the Bodleian Library. I would like here simply to highlight this thesis (for which I was co-examiner with Prof. Geza Vermes). It was supervised by Dr Martin Goodman, and contains material made available to Dr Mizzi by Father Jean-Baptiste Humbert of the École biblique et archéologique française de Jérusalem. For scholars of Qumran archaeology this thesis is a valuable resource not only for its original and insightful arguments but for the fact that it utilises very important unpublished material, especially Roland de Vaux's dossier of stone vessels from Qumran, and numerous illustrations drawn for the Qumran final report, in preparation. Specialists on the archaeology of Qumran have had a long wait for the full publication resulting from de Vaux's excavations at the site in the 1950s, but the appearance of information and drawings within Dr Mizzi's thesis is very much appreciated. It is hoped that it will soon be widely available for consultation via the Oxford electronic archive.

I would also like to note that this issue is also the last one to appear with the help of the Society's Executive Secretary Diana Davis. Her support and efficiency, and her magnificent work as proof-reader, I have very much appreciated in the last two issues, and I will miss her greatly. I look forward to working with the new Secretary, Sheila Ford, as we enter this new era of the journal.

I am grateful also to Ashley Jones for his work on reviews.

The Society's annual grants went to Ian Cipin and Sevinc Duvarci, who are both digging at Tel Beit Yerah.

We would like to thank the following people for their very generous donations. We are indebted to Dr David Jeselsohn, who has sponsored this volume. We also thank Mr C. Boxer, Mr Alan Brener, Mr Paul Brett, the Sidney and Elizabeth Corob Charitable Trust, Mr Joe Dwek CBE, Mr & Mrs R. Grutz and others.

Joan E. Taylor

Strata: Bulletin of the Anglo-Israel Archaeological Society 2009 Volume 27

The Dead Sea in Western Travellers' Accounts from the Byzantine to the Modern Period

JOAN E. TAYLOR

From the early days of western literature the Dead Sea has been fascinating to historians, travellers, scientists and geographers. Classical Greek and Latin sources provide important information about settlements and economic enterprises around the lake, and these are fairly well known. Western travellers and commentators continued to visit and report on the Dead Sea over the centuries, particularly when it became a stop on the Christian pilgrimage trail, but this material is not so often noted. From the 19th century onwards proper scientific studies meant that old myths could be put aside (see Kreiger 1997), but even before this time European travellers' accounts provide valuable observations of the changing circumstances of the Dead Sea region (see Fig. 1), observations which are important in terms of the historical context for the archaeology and also, critically, for changing water levels. This article will focus on these little-known sources.[1]

The Byzantine and medieval periods, 4th to 12th centuries

Since the Dead Sea had religious significance in terms of the story of Sodom and Gomorrah and the narrative of Lot, these are mentioned frequently in Byzantine and medieval sources; travellers visited the monastery of Lot, located southeast of Zoara, from the 5th century CE. The Spanish nun Egeria (*Itin.* 5–6), identifies 'the whole country of the Sodomites' as lying to the left of her lookout on Mount Nebo, meaning the entire Dead Sea basin; she notes that while Zoar/Segor remains, 'all that is left of the other [cities] is heaps of ruins, because they were burned to ashes'. The Piacenza Pilgrim (*Itin.* 10, 15, 21), however, situates Sodom in a northern locality, since going westwards from Jericho 'you encounter the ashes of Sodom and Gomorrah, which are on your left'.

Adomnán (*Loc. Sanct.* 2: 17: 7 cf. Bede, *Loc. Sanct.* 11: 1) measures the sea as 580 stadia 'to Zoar of Arabia' and 150 stadia 'to the region of Sodom' (from Hegesippus, *Hist.* 4: 18), meaning Sodom was on the east or west, but the notion that 'the cities of the plain' lay under the Dead Sea eventually prevailed (Theodosius, *Top.* 20; *Gesta Francorum Expugnantium* 15; *Descriptio locorum* 25; *Second Guide* 127/9).

The pillar of salt identified as Lot's wife was a feature of much interest to later Christian visitors. Egeria was shown 'the place where Lot's wife had her memorial'.

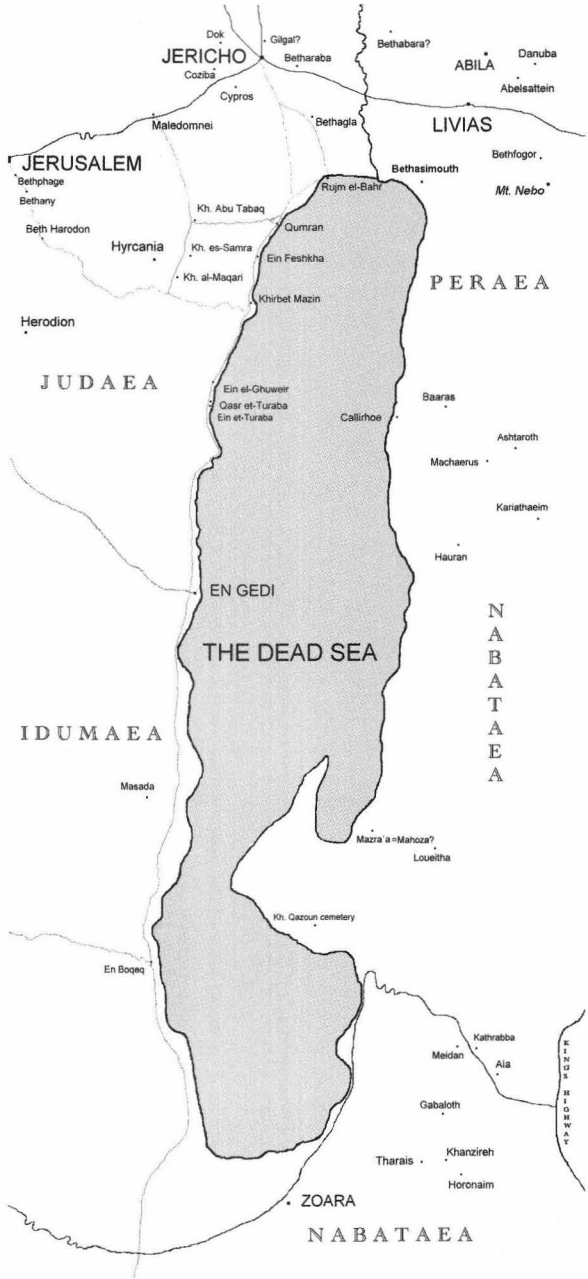


Fig. 1. The Dead Sea area. Major roadways passed to the north and south of the lake, both of which linked with the main north-south 'King's Highway' in the east (only a small curve of this is shown on the map). Within the Dead Sea region, there were small connecting tracks and narrow passes, such as those around Qumran (as indicated), and along the western shoreline.

This 'was not the actual pillar, but only the place where it had once been' because 'the pillar has been submerged by the Dead Sea; at any rate, we did not see it, and I cannot pretend that we did'. The Bishop of Zoar (later?) informed Egeria that it was a long time since the pillar had been visible, though it used to stand near the sixth milestone from Zoar' (Egeria, *Itin.* 12: 6–7). Zoar(a) was, in the Byzantine period, clearly situated south of the lake, as shown in the Madaba mosaic map. The pillar would have been impossible to see from Mount Nebo. This slightly confused passage provides useful data in terms of the rising water level of the lake, and appears to indicate that there were two rival locations for the pillar: one visible from the lookout on Mount Nebo (Fig. 2), and the other near the sixth milestone from Zoar/Segor to Bennamareim (Eusebius, *Onom.* 138: 20–1). Clearly, there was a pillar identified as Lot's wife situated conveniently close to the northern end of the Dead Sea, since in the account of Epiphanius the Monk (*Civ. Sanct.* 32) it is 2 miles south of the cave of John the Baptist.[2] By the 12th century (*Descriptio locorum* 26; Daniel the Abbot 56), however, the pillar is identified near Zoar.

Of some note also is that the Piacenza Pilgrim saw 'the tomb of Absalom' in this region of Mount Nebo. He writes: 'From the Jordan it is eight miles to the place where Moses departed from this life, and a little further on is Segor .... and we saw too the tomb of Absalom' (*Itin.* 10/166). This may relate to one of the few identifiable places in the Copper Scroll (3Q15: 12–13).[3] The place where Moses died is identified at Ras el-Siyagha, ancient Mount Nebo (Egeria, *Itin.* 12: 1; Theodosius, *Top.* 19/145; John Rufus, *Vita Per. Iber.* 85–9), which means the tomb of Absalom was located somewhere nearby. Segor here appears to relate to the Arabic name 'Siyagha', which may then preserve an ancient name. Ruins from the

Fig. 2. The view from the Byzantine memorial on Mount Nebo provides a (usually misty) view of the lower Jordan Valley and the northern part of the Dead Sea. Note that the level of the lake is much lower than it was in antiquity.

Early Bronze Age and Iron Age have been found around the Hellenistic-Byzantine settlement at modern el-Makhayyat, which were perhaps identified with Segor of old, and it is interesting to note the presence of a number of Iron Age tombs (Saller and Bagatti 1949; Saller 1966). In Byzantine times, this region was included within the territory of Livias, identified as being 12 miles from Jericho (Theodosius, *Top.* 19), though the (post-3rd-century) Roman milestones of the main road north of Mount Nebo were marked from Hesbon (Esbus, Heshbon, see Eusebius, *Onom.* 136: 6). A route away from the main road – on which today's modern road to the Dead Sea is effectively constructed – led directly to the Dead Sea (where there was the shoreline village of Bethasimouth, *Onom.* 48: 6–8) and a route to Jericho. At the Dead Sea those seeking healing would bathe during the day, afterwards walking up to the Baths of Moses in the evening (*Itin.* 10/166, and Theodosius, *Top.* 19/145; cf. John Rufus, *Vita Pet. Iber.* 89) (Fig. 3). The baths were located beside the Springs of Moses in the valley north of Mount Nebo.

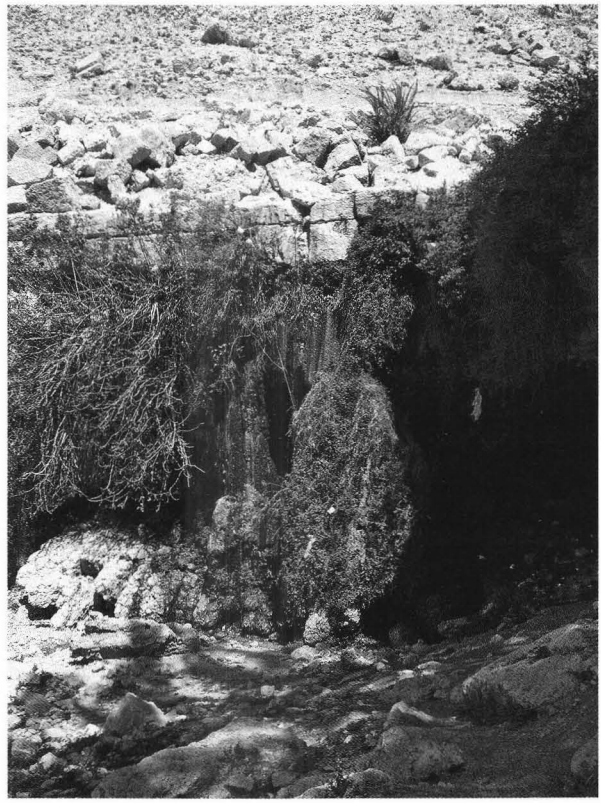


Fig. 3. The Baths of Moses today are mainly comprised by a natural waterfall over a ledge, though there is Byzantine pottery visible on the surface of the surrounding ground. These natural hot springs are located in a valley to the north of Mount Nebo.

Western pilgrims record the presence of hermits in caves around the Dead Sea, as well as monasteries (cf. Egeria, *Itin.* 10.9; see Hirschfeld 1992). The Piacenza Pilgrim (*Itin.* 10/166) notes that there were 'many hermits' in the region, the presence of which is confirmed by archaeological discoveries.[4] By the time of the visit of Daniel the Abbot in 1106–1108, however, these hermits were gone. Daniel mentions Mar Saba and a place called Ruva (Rouba) 'near the sea of Sodom' but the anchorites who dwelt in caves are referred to in the past tense: the 'holy fathers lived in these mountains in this fearful waterless wilderness' where there are 'lairs of the panther and many wild asses' (38). In the 9th-century *Commemoratorium di casis Dei* (32), a compilation of information from travellers made for the Emperor Charlemagne, the monastery of St. Theodosius in the Judaean wilderness was burnt by 'Saracen brigands', two other churches in the area were destroyed and many monks were killed. This situation repeated before the desert monasteries of St. Cyriac, Theodosius, Chariton, Euthymius and Saba were abandoned (Gil 1997: 474–7).

Apart from these snippets of historical information, pilgrims reported what guides told them and made personal observations, which generally resulted in a curious mix of erroneous and factual material. On the side of truth, they could report, for example, on economic activity and agriculture. The Piacenza Pilgrim (*Itin.* 9/165; 14/169) mentions the date palms in the lower Jordan Valley as well as olive groves, citrons and grape vines (see also Adomnán, *Loc. Sanct.* 13: 5/264; Bede, *Loc. Sanct.* 9: 3/314; Theoderic 37/30). Livias was famous for the Nicolaitan date-palm (Theodosius, *Top.* 19/145). Ioannes Phocas (12th-century) notes that the Jericho region was gardened for the desert monasteries of the region, and towers set up there by the monks (20: 1–2).

Christian visitors confirm the existence of opobalsam in the districts of En Gedi (Jerome, *Letter 108, to Eustochium*, 11.5, here 'vines'[5]) and Jericho (Bede, *Loc. Sanct.* 9: 3/313),[6] during the Byzantine period. Both palm trees and opobalsam appear to be depicted in the 6th-century Madaba mosaic map (Hepper and Taylor 2004; see Fig. 4). However, by the 12th-century *Descriptio locorum* these opobalsam trees had gone, transferred to Matariya, outside Cairo (see Milright 2003).

Western visitors to the end of Frankish rule certainly indicate a thriving range of activities around the lake.

The Piacenza Pilgrim (*Itin.* 10/166) also records that 'sulphur and pitch are collected' on the shore of the 'Salt Sea'. Daniel the Abbot writes that the pitch rises to the surface and then 'lies on the shore in great quantity' (38). The *Descriptio locorum* describes the alum (alumen), tar and bitumen being gathered (31–2).

Adomnán writes about the salt industry, noting that when the waves are churned up by a storm a great deal of salt is brought ashore. His source, Arculf, observed that the sun's heat dries it out, and he 'tested it in three ways', i.e. by sight, touch and taste (Adomnán, *Loc. Sanct.* 2: 17: 2).[7] The *Descriptio locorum* describes salt being taken from 'a mountain next to the Asphalt Lake ... almost entirely made of crystal salt' (32), presumably the salt diapir of today's Mount Sodom.

Fig. 4. Part of the sixth-century Madaba Mosaic Map: a fish swims against the current up the Jordan River to avoid death in the Dead Sea. Depicted east of the river (top left) is the city of Livias. Note also the palm trees. An opobalsam plant is depicted close to the Jordan River near Sapsaphas. The valley of Zarqa Main and the Arnon ravine are shown at the top, and between them the thermal baths of Callirhoe. A ship carrying a pile of white salt sails high on the buoyant water.

Various European visitors of the Byzantine and medieval periods were fascinated by the quality of the sea that caused people to float (e.g. Bordeaux Pilgrim, *Itin.* 597). The story reported by Josephus that Vespasian commanded prisoners who could not swim to have their hands and feet tied and be thrown into the sea (Josephus, *War* 4: 476, this was possibly done to test Aristotle, *Meteorologica* 2: 4) is reported in Bede's compilation (*Loc. Sanct.* 11.3/317). The Piacenza Pilgrim (*Itin.* 166/10) records that anything put into the sea will sink, a false apprehension found already in Justin's epitome of Pompeius Trogus (*Hist.* 36: 3).

Further on the side of falsehood, early western visitors reported all kinds of strange beliefs about the Dead Sea:

1. A lighted lantern floats, but when the light is out it sinks (Bede, *Loc. Sanct.* 11/317).

2. No ships can sail there (Bordeaux Pilgrim, *Itin.* 597).[8]
3. The bitumen will only be softened by means of menstrual blood (or urine) (Bede, *Loc. Sanct.* 11/317).[9]
4. There are apples ('of Sodom') which look good but inside are full of ash (and smoke) (Bede, *Loc. Sanct.* 11/317; *Descriptio locorum* 32).[10]
5. The water of the Jordan is white and milky, and you therefore see its current stretching far into the Dead Sea (Bede, *Loc. Sanct.* 10: 1; Saewulf 30).
6. The sea gives off a very hot and stinking (sulphurous) vapour or smoke (Daniel the Abbot 27; 38).[11]
7. The water is so clear you can see ancient buildings and ruins beneath it (*Descriptio locorum* 32).
8. No birds can fly across it (*Descriptio locorum* 32).
9. If you put sweet water or wine on the ground next to you when you sleep by the lake, the next day it will be bitter and undrinkable (*Descriptio locorum* 32).

Early modern: 13th to the 16th Centuries

In the early modern period after the end of Frankish rule the area of the lower Jordan Valley and the Dead Sea was in the hands of Bedouin, who allowed visitors only after payments for protection and guidance. This situation continued until the later 19th century, when the power of the Bedouin waned. Even when visitors went to the Dead Sea, they tended to skirt only the northern edge and did not venture further south because of the dangers; most were content to repeat the same body of true and untrue information given above. Noteworthy descriptions are given by only a few visitors.

In Jacques de Vitry's *Historia Orientalis seu Hierosolymitana* (1226) there is a changed location for Zoar/Segor: it is now placed at the northern end of the lake on the western side. De Vitry otherwise lists a series of the usual beliefs about the lake, though adds that sugar cane grows beside the Jordan River and that people use the reeds there for roofs and walls. [12]

In the description by Burchard de Monte Sion, *Descriptio Terrae Sanctae* (1280), Biblical Zoar, called Segor by Christians, was now pointed out just 5 leagues southwest of Jericho 'at the foot of Mount Engaddi'.[13] Given that Burchard measures that it is '2 leagues' from Jericho to Deir Hajla (5.7 km), the locality of Segor, on the western side of the Dead Sea, must be approximately 14.25 km from Jericho, which takes you a little south of Kh. Qumran, i.e. he must mean the ruins on the Qumran plateau (Fig. 5), with Mount Engaddi referring to the mountain range behind the site.[14] He writes that between Segor and the Dead Sea stands the pillar of salt into which Lot's wife was turned. However, Burchard is prevented from going to this place by 'Saracens' who said the place was dangerous because of wild animals, snakes and worms 'and more especially because of the Bedouin who dwell in those parts, who are exceedingly bold and evil men'.

Burchard mentions that the Dead Sea is 'smoking' and dark, and the surrounding countryside is barren apart from near Jericho, where sugar-canes, gardens and

orchards are watered by Elisha's Fountain. He describes the bitumen cast up on the shore, mentions its medicinal use, repeats the belief that it cannot be melted without menstrual blood, and calls it 'Jews' pitch'. While Burchard himself does not go to the site identified as En Gedi, he incorporates reports about it: that there are old vine-stocks still growing, but no Christians live there, and there are fruit with ashes and dust inside.

The compilation book of the travels of Jehan de Mandeville, published 1357–71 in Anglo-Norman French, includes information about the lower Jordan Valley and Dead Sea which represents a kind of standard body of misinformation with a few smatterings of truth: the land of En Gedi is between Jericho and the Dead Sea, where formerly opobalsam grew, now in Babylon; the Dead Sea divides India (Judaea?) and Arabia, reaching from Soara to Arabia; the water is bitter and salty and cannot be used for irrigation; the earth and land often change colour; the sea casts out asphalt in pieces as large as a horse; it is 200 furlongs (40 km) from Jerusalem and measures 580 x 150 furlongs (116 km x 30 km); no one can drown in it; no one can drink the water; iron floats but feathers sink; the apples here are full of ash; it is called the Dead Sea, Lake Dasfetidee, River of Devils; into the sea sunk Sodom,

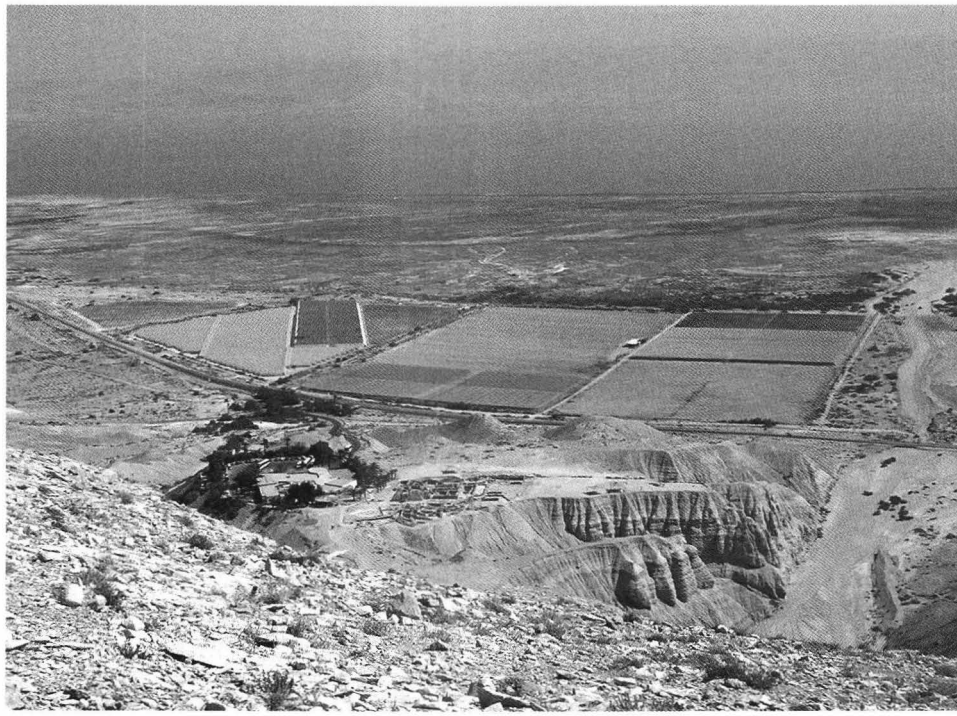


Fig. 5. View of the ruins of Qumran (taken from the top of the pass to the west), situated on a plateau above the level of the Dead Sea. The cultivated land beyond Qumran (beyond the modern road) was formerly water, but the level of the lake has dropped considerably.

Gomorrah, Aldama (Admah), Seboim, but Segor 'by the prayer of Lot, was saved a great while, for it was set upon a hill, and some part of it still appears above the water, and men may see the walls when it is fair and clear weather' (a comment again suggestive of Kh. Qumran, the walls of the tower would have been visible from some distance in clear weather); there was a 'hill above Segor' called Edom, Seyr, and then Idumaea, and 'at the right side of the Dead Sea' (looking from the north) the wife of Lot still stands in the likeness of a salt stone.

Whether the Polish or German visitor John Poloner (*c.* 1421) actually visited the Dead Sea is doubtful. He simply noted a report that the pillar of Lot's wife stands between Zoar and the Dead Sea, and reiterated the myth that there is continual smoke and smell and that everything is barren all around for 6 leagues.

The most important western visitor to the Dead Sea area in the 15th century was Father Felix Fabri, a German Dominican friar who made two pilgrimages, one in 1480 and another in 1483–4, the second being the subject of a monumental and meticulous work of literature in which Fabri tells the story of his visit to the Dead Sea at length (1893: 235a–247b). Interestingly, he describes how his guides in Jerusalem tried to dissuade him and his companions from going there by the following arguments: (a) it was an area God had cursed; (b) it was extremely dangerous because of the Bedouin; (c) there were wild animals and poisonous things living there; (d) the Mamlūk Sultan had forbidden foreigners, in case they steal poisonous serpents called 'tyr' (probably sand vipers) out of the country, since the snake provided the ingredient for theriac (a costly medicine);[15] (e) the stench from the sea makes you vulnerable to infection, sickness and death; (f) to go to this ugly region was hard, expensive and dangerous.

Undeterred, Fabri went under the guidance of Ameth, Governor of Bethlehem, who took the pilgrims on mules and asses via the Kidron Valley to the monastery of Mar Saba, where they paid money to Bedouin for guidance to the lake. Fabri then reports on a Muslim massacre of monks during Ayyubid or early Mamlūk times. Following the Kidron Valley the party then come to the fertile but uncultivated Buqeia, which he calls the Valley of Blessing (2 Chron. 20: 26), and they leave the course of the Kidron, going north. They spot ruins of ancient buildings, possibly Karm es-Samra and Kh. Abu Tabaq, then turn east, and apparently use the pass of the Wadi Mukallik to descend. At the northern sea edge, Felix Fabri notes ruins and that 'once a great square house must have stood there, partly built on land and partly in the sea'; clearly the ruins of the tower of Rujm el-Bahr (Fig. 6; and see for this site Schult 1966: 139–48; Bar Adon 1989 and Hirschfeld 2006: 215–17), which shows the high water level of the sea in the 15th century. They then go north to the *ghor*, where they disturb a herd of wild asses, and come to Biblical 'Bethhoglah', Deir Hajla, the church now dilapidated (desecrated by Bedouin), and a haunt of huge (apparently nose-eating!) bats, scorpions and snakes (see Fig. 7 for location). They press on to the foot of the western hills, to a place to lodge that Fabri calls 'Engaddi', probably Khan al-Askar. The next day (with a huge dung beetle uncomfortably lodged in his boot) Fabri goes up the hill to observe the region and notes rightly that the 'smoke' of the Dead Sea is actually misty vapour: 'we saw a

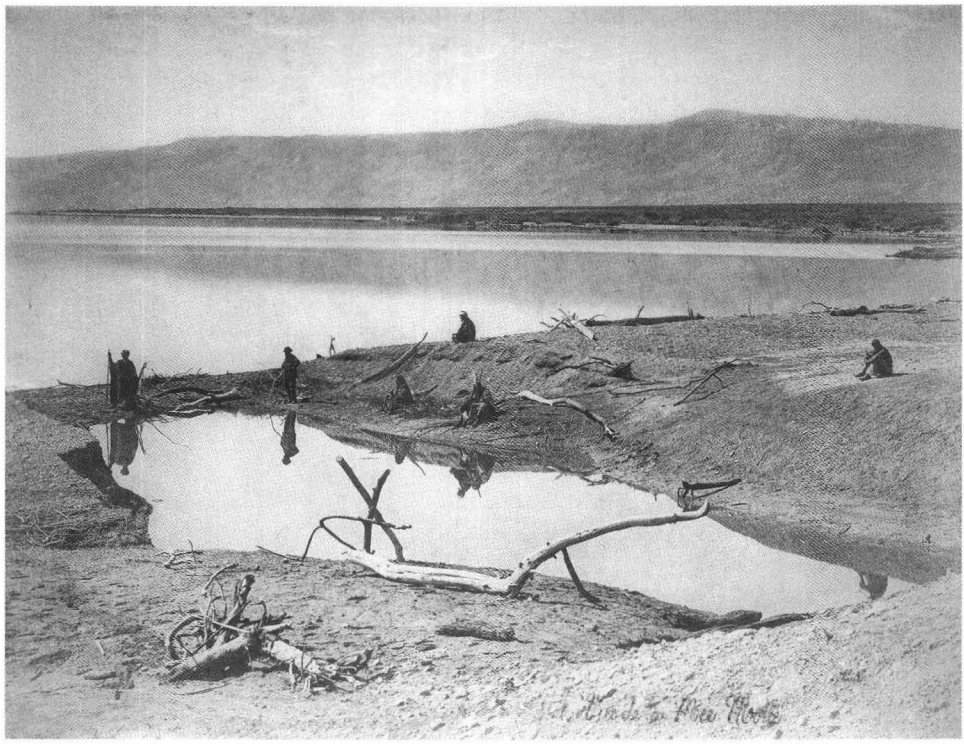


Fig. 6. This photograph from the 19th century showing a high level of the lake, with Rujm el-Bahr as a separate island. It was to this desolate northern area only that most western travellers, from the Medieval period onwards, were taken. Courtesy of the Palestine Exploration Fund, London: PEF.P.1898.

cloud going up, not from fire, but from water' (246a). He records that the statue of the pillar of salt into which Lot's wife was turned used to stand on their (western) side to the south between Segor and the sea, but was now covered by water, though he also says it was a 'stone one of white marble' (246a–b). Fabri situates Segor on rock/stone overhanging the sea, with lofty mountains behind it, which, as above, seems to indicate Kh. Qumran. This would then indicate there was a white marble pillar of some kind at the foot of the Qumran plateau that had been identified as Lot's wife. Fabri's lookout was near to Nabi Musa, which the party visit, meaning Fabri was on Rujm al-Qibliya (see Fig. 7 for location), a site where Muslims built piles of stones (*rujm*) in honour of Moses, because you can see mounts Abarim and Pisgah, which Fabri identifies as Mount Engaddi (i.e. the northwestern stretch of mountains), which leads him to a discussion of opobalsam (246b–247a): 'I have read in an ancient pilgrim's book that some pilgrims to the Holy Land once

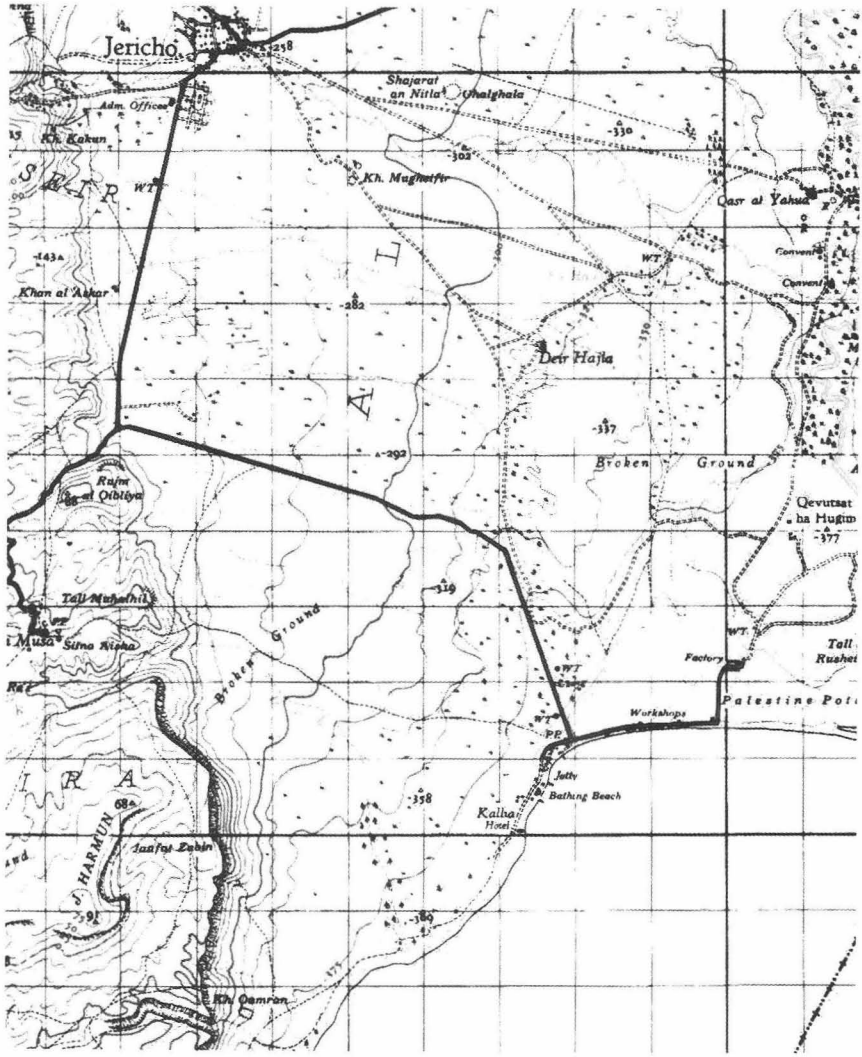


Fig. 7. Detail from the 1924 British Ordnance Survey Map of Palestine.

wandered over these mountains searching carefully, and that in one place they found shoots of balsam, but no shrubs' (247a).

Fabri inserts a description of the Dead Sea within this narrative (239b–241b), largely based on Biblical literature, with the traditional mix of true and false beliefs about the sea. He gives a detailed description of Sodom's apples, which he claims to have seen, and appears to be describing the plant *Calotropis procera* (Fig. 8). He notes that salt is produced from the sea, and 'to this day there are wells of bitumen on its shore which are dug out and sold' and that bitumen is cast out by the sea,

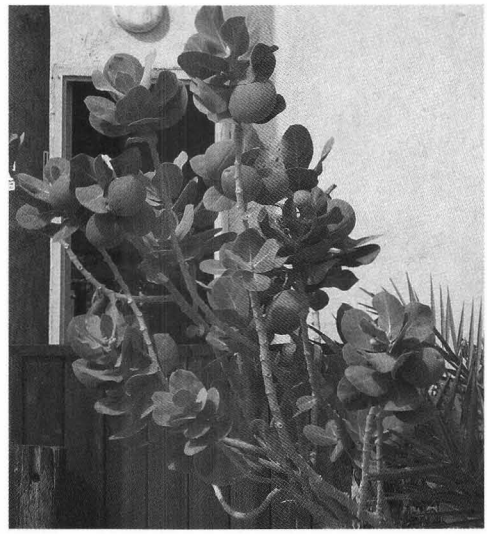


Fig. 8. 'Sodom's Apple': *Calotropis procera*.

called 'Jew's pitch' (and melted only with menstrual blood). Fabri believed that Sodom was engulfed by the water.

The modern era, from the 17th to 18th centuries

From Mamlūk times through most of the period of Ottoman rule in Palestine (from 1517), the security situation of the Dead Sea and lower Jordan Valley by no means improved and western visitors were still dissuaded from going to either place in terms much the same as greeted Felix Fabri. There was a pilgrim caravan that went down once a year from Jerusalem to the Jordan River that sometimes incorporated a visit to the northern shore, near Rujm el-Bahr, now identified with Zeboim (Bodington 1683: 102), and nearly all reports relate to this. When they did venture there independently, it was only with Bedouin protection, and the visits were brief.

Those Europeans who were daring enough to make the journey east from Jerusalem to the Dead Sea shores were not the usual pious pilgrims who only wished to look at sacred sites, but rather men of a more scientific and sceptical mind who made careful records of their observations, such as Henry Timberlake (1603; Taylor 2006). A map of the Dead Sea was printed in Thomas Fuller (1650), which summarised current views about the shape of the lake and the sites around it (Fig. 9). Henry Maundrell (1703) was quick to dispel the myth that birds could not fly over the lake: this report 'I saw actually confuted, by several birds flying about and over the sea without any visible harm'. He sees no smoke coming from the lake. His party stop two hours distant from the mouth of the Jordan, clearly close to Rujm

Fig. 9. Map from Thomas Fuller, *A Pisgah-Sight of Palestine and the Confines Thereof* (London: John William at the Crowne in St. Paul's Churchyard, 1650). Fuller used a combination of travellers' accounts, ancient sources and Biblical evidence to construct this imaginary map, in which the Dead Sea is much larger than in reality. Zeboim is in the north, since visitors identified the remains of Rujm el-Bahr as part of the ruins. Using travellers' evidence, Fuller placed the ruins of Belah/Zoar above En Gedi on the north-western shore, since the ruins of Qumran were associated with this city. The town, 'the wife of Lot' and 'the cave of Lot' are illustrated as lying in close proximity. Reproduced courtesy of the Palestine Exploration Fund, London.

el-Bahr. He sees no ruins, but he reports that the Padre Guardiano of the Franciscans and also the Governor of Jerusalem had, with some French visitors, found ruins near the shore with pillars and other parts of buildings; 'the cause of our being deprived of this sight was, I suppose, the height of the water'. The lake was therefore higher that the ruins of Rujm el-Bahr. He notes that:

> on the west side of the sea is a small promontory, near which, as our guides told us, stood the monument of Lot's metamorphosed wife; part of which (if they may be credited) is visible to this day. But neither would the present occasion permit us to go and examine the truth of this relation, nor, had the opportunity served, could we give faith enough to their report to induce us to go on such an errand.

Again the location of Lot's wife in the northwestern area is confirmed.

Maundrell tests the water's buoyancy by going into it: 'as for that relation of some authors, that men wading into it were buoyed up to the top, as soon as they go as deep as the navel, I found it, upon experiment, not true'. Maundrel thought that Sodom's apples did not exist.

This scientific tendency is no more manifest than in the work of the English traveller Richard Pococke (1745), who visited the region from 1737 to 1741. Pococke and his party followed the road down the Kidron Valley to Mar Saba, the monastery described as being three hours from Jerusalem, Bethlehem and the Dead Sea. Using the same old track walked by Felix Fabri, he went to the east along the Kidron Valley (Wadi en-Nar) and then north on the Jericho to Hebron road across the Buqeia, 'a plain full of little hillocks, which had some herbage in it'. They went some way and then turned to the east, going through hills of white stone until they came to 'steep, rocky clifts' that hung over the Dead Sea, 'and make a most dreadful appearance; the descent was very difficult, and we were obliged to leave our horses, in order to get to the banks of the Dead Sea, at that part of it which is about two miles south of the north end of it'. This important measurement indicates that the Bedouin took Pococke down the steep pass of Qumran or else turned south to descend a little south of Ein Feshkha. He later says, 'As I descended the hill, I observed [some of?] the stones had a black coat about half an inch thick, which tho' of the same hardness as the stone, yet might be separated from it': this suggests some coating of bitumen on stones at the sea shore rather than on the pass. He certainly must have gone to the area of Ein Feshkha, because he notes vegetation and 'a small fountain which runs into the lake at this place, and has such shell-fish in it, as are at the fountain of Elisha' (Fig. 10).

Using classical sources, Pococke gives the name for the lake as Asphaltites, on account of the pitch found in it, its ancient boundaries, and its dimensions. He wonders about the suggestion that there is some subterranean passage to the Mediterranean Sea, given that not only the Jordan but other streams run into it. He notes: 'It is certain that of late there have been very extraordinary inundations of this sea over its lower banks, and such as had not happened in many years before, because I saw many trees that had been killed by the overflowing of it. I also

Fig. 10. View to the oasis of Ein Feshkha from the pass of Qumran.

observed several dead shrubs in the lake, so that the water seems of late years to have gained on land'.

Pococke refers to the Book of Genesis, Josephus and Strabo in terms of the fate of Sodom, and adds, regarding Strabo: 'And he seems to speak of it as a certain truth that there were subterraneous fires in these parts, as might be concluded from the burnt stones, the caverns, ashes, and pitch distilling from the stones, and also from streams of hot water, which sent forth a stench that was perceived at a great distance: And likewise from the ruins of ancient habitations'.

He tastes the water and finds it very salty, his mouth 'constringed as if it has been a strong allum water'. He notes the belief that the water of Jordan passes into the Dead Sea without mixing, and 'I thought I saw the stream of a different colour; and possibly, as it is rapid, it may run unmixed for some way'. The water is clear and the colour of sea water. He took a bottle of water back and had it scientifically analysed, which showed it to have salt and some allum in it, oiliness possibly due to bitumous or sulphurous matter, and a weight of 5 to 4 in proportion with fresh water.

Pococke went into the lake as part of his scientific testing. He swam and dipped, without ill effect. For him, he was 'much pleased with what I observed of this

extraordinary water, and stayed in it near a quarter of an hour'. He found he could lie in it in any posture without sinking, and it was hard to put his feet down after swimming. 'They (the Arabs) have a notion that if any one attempted to swim over, it would burn up the body, and they say the same of boats, for there are none on the lake'. Pococke's companions viewed this experiment with great unease, and warned him of the risks. Later, 'when I was seized two days after with an extraordinary disorder in my stomach, attended with a very great giddiness of the head, of which I had frequent returns, and did not perfectly recover in less than three weeks, the monks would persuade me, that my indisposition was occasioned by my going into the Dead Sea.'

Pococke describes salt-making by the Arabs (Bedouin) on the side of the lake: 'they make pits into which water is poured and left to evaporate, leaving a cake of salt one inch thick'. He notes that the rocks on the shore are covered with a white substance made by a different overflowing of the lake, which apparently was salt and bitumen. This bitumen, he notes, is observed to float on the water and come ashore in windy weather, after which it is gathered up by the Arabs, and used for medicines and embalming. He thinks there are subterranean fires that throw up this bitumen from the bottom of the sea.

He saw nothing of the so-called 'fruits of Sodom', and imagines they may be pomegranates which, if left on the tree for two or three years, would be dust inside. He notes that it is said no fish live in the sea, but he has heard a report that a monk saw fish caught in this water.

As for the pillar of Lot's wife at the northern end of the lake, Pococke trusts the reports of local Jews that 'the pillar or heap of salt into which Lot's wife was turned, is much further south, and consequently, that those who have affirmed that it has been seen in these parts, must have been deceived'. He is clearly in the region where it should have been seen. However, he does not mention any ruins of Segor.

Pococke then refers to the matter of the bad air, noting that 'Pliny says, that the Essenes inhabited no nearer to it on the west, than the air would permit them'. The Arabs put their scarves over their mouths when it was particularly bad, in summer. Pococke goes on to dismiss the notion that birds could not fly over the lake, because of the bad vapours, saying it was not true at all times.

With Pococke, who sets the scene for scientific exploration in the contemporary era of the 19th century and our own (see Taylor 2002), this discussion ends. A more detailed and comprehensive survey of all literature from travellers to the region would involve a much longer study than is possible here, but this examination indicates what valuable data is preserved in these accounts. The information from western literature can be placed with other sources to provide a chronicle of myths surrounding the lake, its resources and economy, water levels, roads, and placements of sites of religious significance. Most interesting perhaps is the shifting of significant sites to the northern (accessible) part of the lake after the Middle Ages, and the identifications of the ruins of Rujm el-Bahr with Zeboim, and Zoar/Segor with Qumran ('Sekaka', 3Q15 5:13). The curious record of 'Lot's wife' being a

pillar of white marble between the ruins and the sea – at the bottom of the plateau – may indicate the remains of an anchorage. Column drums found on site at Qumran are not made of marble, however, but of limestone (Chambon 2003).

Notes

1 This article is a translation of one appearing in German as 'Aus dem Westen ans Tote Meer. Frühe Reisende und Entdecker', which also has an appendix on Conder's draft maps for the *Survey of Western Palestine in Qumran und die Region am Toten Meer*, ed. Jürgen Zangenberg (Philipp von Zabern Verlag, 2009). The illustrations are somewhat different, however. For a full repertoire of illustrations please see the German edition.

2 The Piacenza Pilgrim scoffs at the suggestion that Lot's wife was being reduced in size by animals licking her (Piacenza Pilgrim, *Itin.* 15/169–70, cf. Benjamin of Tudela 37). Theodosius (*Top.* 20) notes that 'when the moon waxes she grows, and when it wanes she shrinks'.

3 The tomb of Absalom was eventually, by the 12th century, identified with a monumental edifice in the Valley of Jehoshaphat (so Benjamin of Tudela 36). Josephus, *Ant.* 7: 243, indicates a tradition that the tomb of Absalom was in the 'valley of the kings' two stadia (*c.* 426 m.) from Jerusalem, which makes the current tomb of Absalom too close to the walls (120 m.) to match this attestation. There is no way of determining how early a tomb of Absalom was identified by the Dead Sea; Josephus' remark does not invalidate an alternative tomb since traditions of placements could be multiple.

4 At the site of Kh. Qumran coins from the 4th century include two from the reign of Theodosius (379–95) in Loci 34 and 152; six other coins of the 4th century in Loci 7, 68, 88, 91, 96, 119, and 5th- to 6th-century coins were found in Loci 42 and 76 (see De Vaux, Rohrhirsch and Hofmeir 1996: 127–8). This quite large assemblage of Byzantine coins may indicate that people used the Period III ruins for transient settlement. De Vaux noted Byzantine sherds in the large cave no. 23, which is located just above Qumran near the aqueduct route (Baillet, Milik and de Vaux, 1962: 23). At Khirbet el-Yahoud (= Kh. Mazin), 3 km south of Ras Feshkha, there is evidence of Byzantine settlement and at Ain Feshkha, to the south of Qumran, Loc. 20 was made into a dwelling of some kind (de Vaux 1973: 60, 72, 75, 86, 88). A cave situated above 'Ain Turaba and near 'Ain el-Ghuweir was occupied in the Byzantine period (Blake 1966). Joannes Moscus, *The Spiritual Meadow* (*Pratum Spirituale*), *c.* 600, refers to a gardener who grew vegetables for the anchorite community of Mardes (or Marda) which was located on the hill of Khirbet Mird, ancient Hyrcania, at a locality close to the Dead Sea and mentions anchorites such as Abba Sophronios 'the grazer', who 'grazed around the Dead Sea. For seventy years he went naked, eating wild plants and nothing else whatsoever' *Spiritual Meadow*, Chap. 159, cf. Abba Gregory, Chap. 139. An elder named Cyriacos from the laura of Mar Saba went down to a place named Coutila: 'He stayed for a little while ‹there› beside the Dead Sea; then he started back to his cell', Chap. 53. The route from Mar Saba led most simply either to the Qumran pass to the passes above Ras Feshkha. *Qouti'a* in Syriac means 'heap' (of stones etc.), (see Payne Smith 1903: 493, 499).

5 Additionally, in the Byzantine period, there is a curse in the floor of the synagogue (6th–7th cents.) on anyone who reveals 'the secrets of the town', i.e. information about balsam propagation and processing.

6 Eusebius, at the beginning of the 4th century, writes of opobalsam and date-palms growing in Zoara, at the southernmost point of the Dead Sea (*Onom.* 42) as well as in Engaddi (*Onom.* 86).

7 The 10th-century Muslim writer at-Tamimi (*Al-Murshid* 36b–37a; 54b–55a) wrote that a special type of salt was collected on the northwestern shores of the Dead Sea. Another

type of salt, called 'Andarani', was produced around az-Zara, which is identified as Callirhoe, see Amar 1998: 3–7; Bloch 1962: 3–8, cf. Rosenson 1986: 16–20.

8 A matter plainly contradicted by the Madaba mosaic map. Bede, *Loc. Sanct.* 11/317 notes that bitumen is collected from the surface of the water by those going out in boats, information he may derive from Diodorus Siculus, *Bibl.* 19: 99 –100.

9 For urine used to soften the bitumen, see Strabo, *Geogr.* 16: 2: 43; for menstrual blood, see Josephus, *War* 4: 478. Tacitus, *Hist.* 5: 6 said there was a tale that bitumen would shrink from blood, particularly menstrual blood, but this belief was one of several old stories not confirmed by those who knew the country, and that bitumen was cut like wood with any implement.

10 From Josephus, *War* 4: 480. Tacitus, *Hist.* 5: 6 has all plants crumpling to dust. The fruit with ash inside may be based on truth. There are several species of fruiting tree around the Dead Sea that might be identified as Sodom's apple, the most likely being *Calatropis procera*, which has flesh that is a skin irritant and poisonous juice: the inside is made of fluffy white fibres (smoke?) and black seeds (ashes?) or possibly *Solanum incanum*, with a small tomato-like fruit that ripens into a dusty powder (I am grateful to Nigel Hepper for this information).

11 Strabo, *Geogr.* 16: 2: 42 has sooty smoke coming out of the lake and tarnishing metal. The truth is that the lake is often misty, not smoky. There is some odour to the lake but it is not as extreme as is indicated in certain sources.

12 This sugar industry at Jericho and around (old) Zoar (es-Safi) – now called Zughar – was developed by the Franks, and continued in importance throughout the Ayyubid and Mamlūk periods. An 11th-century sugar mill has been excavated at Tawahin al-Sukkar in between Tel el-Sultan and the Mount of Temptation, while another dating to the same period has been excavated in the Ghor es-Safi, see Jones, Politis, James et al. 2002; Hamarneh, 1977–8: 12–19.

13 The southern town previously called Segor or Zoar was now no more and a new town named Zukhar (which flourished from the 11th to the 15th centuries) had taken its place. Thus memory of Zoar/Segor appears to have been eroded.

14 To go southwest from Jericho would place you in the Judaean mountains; the measure is due south, to locate the site on the western shore of the Dead Sea.

15 Theriac was an ancient cure-all that Galen wrote an entire treatise about, and was usually made from a mix including opium and viper's flesh. According to Fabri, the Sultan wanted a sole monopoly on two lucrative things: the medicine theriac (the making of which is described here) and opobalsam (see Amar 1996–7: 16–28).

Bibliography

Primary Sources with Dates of Composition or Publication in Chronological Order

Eusebius (*c.* 295–325) *Onomasticon: Das Onomastikon der biblischen Ortsnamen,* ed. E. Klostermann, with parallel work of Jerome, *De locis sanctis* (Hildesheim, 1904, reprinted 1966); Eng. transl. by G. S. P. Freeman-Grenville in J. E. Taylor (ed.), *Palestine in the Fourth Century. The Onomasticon by Eusebius of Caesarea*, with index by R. L. Chapman III (Jerusalem, 2003).

Bordeaux Pilgrim (333). *Itinerarium Burdigalense*, ed. P. Geyer and O. Cunz, *Corpus Christianorum Series Latina* (Turnhout, 1953–) 175; Eng. transl. Wilkinson (1981:153–61).

Egeria (381–384). *Itinerarium*, ed. A. Franceschin and R. Weber, *Corpus Christianorum Series Latina* (Turnhout, 1953–) 175; Eng. transl. Wilkinson, (1981: 91–147, 180–210).

Synesius (*c.* 400). *Synesios von Kyrene, ein Kommentar zu seinem 'Dion'*, Greek text and German transl. ed. K. Treu (Texte und Untersuchungen zur Geschichte der altchristlichen Literatur 71; Berlin, 1958).

Jerome (404). *Letter 108, to Eustochium*, ed. I. Hilberg, *Corpus Scriptorum Ecclesiasticorum Latinorum* 55 (1912); Eng. transl. W. Fremantle, *Nicene and Post-Nicene Fathers*, 2nd series, Vol. 6, eds. P. Schaff and H. Wace (New York/Oxford/Grand Rapids, 1893/1995).

Ioannes [John] Rufus (*c.* 500). *Vita Petri Iberiani*, ed. R. Raabe, *Petrus der Iberer* (Leipzig, 1895).

Theodosius (*c.*515). *Topographia Terrae Sanctae*, ed. P. Geyer, *Corpus Christianorum Series Latina* (Turnhout, 1953–) 175; Eng. transl. Wilkinson (2002: 63–71).

Piacenza Pilgrim (*c.*570). *Itinerarium*, ed. P. Geyer, *Corpus Christianorum Series Latina* (Turnhout, 1953–) 175; Eng. transl. Wilkinson (2002: 79–89).

John Moschus (*c.*615). *Pratum Spirituale*, ed. J. B. Cotelier and J. P. Migne, *Patrologia Graeca* 89; Eng. transl. John Wortley, *The Spiritual Meadow of John Moschus* (Kalamazoo, Michigan, 2000).

Epiphanius the Monk (*c.*690). *Civitatis Sanctis*, ed. H. Donner, *ZDPV* 87 (1971), 66–82; Eng. transl. Wilkinson (2002: 117–21).

Adomnán (*c.*685). *De Locis Sanctis*, ed. L. Bieler *Corpus Christianorum Series Latina* (Turnhout, 1953–) 175; Eng. transl. Wilkinson, (2002: 93–116).

Bede (702–3). *De Locis Sanctis*, ed. I. Fraipoint, *Corpus Christianorum Series Latina* (Turnhout, 1953–) 175; Eng. transl. Wilkinson (2002: 216–30).

Anon. (*c.* 808). *Commemoratorium di Casis Dei*, ed. T. Tobler and A. Molinier, *Itinera Hierolymitana et Descriptiones Terrae Sanctae* (Paris: 1879, repr. Osnabruck, 1966); Eng. transl. Wilkinson (2002: 137–8).

Saewulf (1101–3). MS 111, Corpus Christi College Cambridge; Eng. transl. Wilkinson, 2002: 94–109).

Daniel the Abbot (1106–8). Russian ed. M. A. Venevitinov, *Zhitie i knozhenie Danila rus'kyya zemli igumena1106–1108* (Palestinskiy pravoslavnyy sbornik 3, 9 (St. Petersburg, 1883–5); German transl. K.-D. Seeman, *Abt Daniil: Wallfahrtsbericht* (Munich, 1970); Eng. transl. W. F. Ryan, in Wilkinson (2002 :120–70).

Anon. (1109). *Gesta Francorum Expugnantium Recueil des Histoires des Croisades, Historiens Occidentaux* 3 (Académie des Inscriptions et Belles Lettres; Paris, 1866), xxxvi, 509–12; J. de Sandoli, *Itinera Hierolymitana Crucesignatorum* (Saec. XII–XIII), 147–94. Eng. transl. Wilkinson (1988 :172–5).

Anon. (1128–37). *Descriptio locorum circa Hierusalem adjacentium*, MS Fonds Latin No. 5129, Bibliothèque Nationale, Paris; ed. M. de Vogüë, *Les Eglises de la Terre Sainte* (Paris, 1860), 414–33; Eng. transl. 'Work on Geography', Wilkinson (1988: 181–211).

Benjamin of Tudela (1166–73), ed. and Eng. transl. M. N. Adler. *The Itinerary of Benjamin of Tudela* (London, 1907).

Theoderic (1168–74), ed. T. Tobler. *Theoderici Libellus de Locis Sanctis editus circa 1172* (Paris: 1865), 1–112; ed. M. L. and W. Bulst, Theodericus, *Libellus de locis sanctis* (Editiones Heidelbergenses XVIII; Heidelberg, 1976); Eng. transl. Wilkinson (1988: 274–314).

Anon. (*c.* 1170). *Second Guide*, MS Pergamont 4 (609), Vienna; ed. T. Tobler, *Theoderici Libellus de Locis Sanctis editus circa 1172* (Paris: 1865), 118–28; Eng. transl. Wilkinson (1988: 238–43).

Phocas, Ioannes (1185), ed. K. M. Koikylides and K. Phokylides. *Archaia Latinika, Hellenika Rossika kai Callika tina Odoiporika – Proskynetaria tes Hagias Ges* (Jerusalem, 1912); Eng. transl. Wilkinson (1988: 315–36).

de Vitry, Jacques (1226). *Historia Orientalis seu Hierosolymitana;* ed. G. Zacher (Konigsberg, 1885); Eng. transl. *Palestine Pilgrims' Text Society* XI (1895).

Burchard de Monte Sion (1280). *Descriptio Terrae Sanctae*; ed. J. C. M. Laurent, *Peregrinatores medii aevi quatuor* (Leipzig, 1864); Eng. transl. *Palestine Pilgrims' Text Society* XII (1896).

Jehan de Mandeville (1357–71). *The Bodley Version of Mandeville's Travels, from Bodleian Version E. Musaeo 116, with Parallel Extracts from the the Latin text of the British Museum MS. Royal 13 E. IX*, ed. M. C. Seymour (Oxford, 1963); Eng. transl. Wright (1848) and E. Coleman, *The Travels of Sir John Mandeville* (Stroud, 2006).
Poloner, John (*c.* 1421). *Peregrinatio ad Terram Sanctam*, ed. T. Tobler and A. Molinier, *Itinera Hierolymitana et Descriptiones Terrae Sanctae* (Leipzig, 1874; Paris, 1879, repr. Osnabruck, 1966); Eng. transl. *Palestine Pilgrims' Text Society* VI (1894).
Fabri, Felix (1483–4). *Evagatorium in Terrae Sanctae, Arabiae et Egypti peregrinationem*, ed. C. D. Hassler, 3 vols. (Stuttgart, 1843); Eng. transl. *Palestine Pilgrims' Text Society* VII–IX (1893–97).
Timberlake, Henry (1601). A True and Strange Discourse on the Travailes of two English Pilgrimes: what admirable accidents befell them in their journey to Ierusalem, Gaza, Gran Cayro, Alexandria, and other places, ... etc. (London, 1603). repr., 1974).
Bodington, Thomas (1683). 'A Journey to Jerusalem or, the Travels of Fourteen English Men to Jerusalem in the Year 1669.' Pp. 79–10 in R. Burton (N. Crouch) (ed.), *Two journeys to Jerusalem, containing first, A strange and true account of the travels of two English pilgrims* ... etc. (London, 1669).
Maundrell, Henry (1703). *A Journey from Aleppo to Jerusalem at Easter A.D. 1697* (Oxford); repr. Wright (1848).
Pococke, Richard (1737–41). *A Description of the East and Some Other Countries 1745* (London).

Secondary Sources

Amar, Z., (1996–7). 'The Export of Theriac from the Land of Israel and its Uses in the Middle Ages', *Korot* 12: 16–28 (Hebrew).
Amar, Z., (1998). 'The Production of Salt and Sulphur from the Dead Sea Region in the Tenth Century According to at-Tamimi', *PEQ* 130: 3–7.
Baillet, M., Milik, J. T. and de Vaux, R., (1962). *Les 'Petites Grottes' de Qumran* (Discoveries in the Judaean Desert of Jordan III ; Oxford).
Bar Adon, P., (1989). *Excavations in the Judaean Desert* (*Atiqot* 9; Jerusalem).
Blake, I., (1966). 'Chronique archéologique', *RB* 73: 566.
Bloch, R. M., (1962). 'Red Salt and Grey Salt', *Mad`a* 6: 3–8.
Gil, M., (1997). *A History of Palestine, 634–1099* (Cambridge).
Hamarneh, S., (1977–78). 'Sugar Cultivation and Refining under the Muslims during the Middle Ages', *ADAJ* 22, 12–19.
Hepper, F. N., and Taylor, J. E., (2004). 'Date Palms and Opobalsam in the Madaba Mosaic Map', *PEQ* 136: 5–44.
Hirscheld, Y., (1992). *The Judean Desert Monasteries in the Byzantine Period* (New Haven).
Hirschfeld, Y., (2004). *Qumran in Context* (Peabody, Mass: Hendrickson, 2004).
Jones, E., Politis, K. D., James H. F., *et al.* (2002). 'The Sugar Industry in the Southern Jordan Valley', *ADAJ* 46: 591–614.
Kreiger, B., (1997). *The Dead Sea: Myth, History and Politics* (Hanover/London).
Milright, M., (2003). 'The Balsam of Matariyya: An Exploration of a Medieval Panacea', *Bulletin of the School of Oriental and African Studies* 66: 193–209.
Payne Smith, R., (1903). *A Compendious Syriac Dictionary* (Oxford).
Rosenson, J., (1986). 'What were the Ships sailing on the Dead Sea in the Map of Madaba carrying?' *Halamish* 3: 16–20.
Saller, S., (1966). 'Iron Age Tombs at Nebo, Jordan', *Liber Annuus* 16: 165–298.
Saller, S., and Bagatti, B., (1949). The Town of Nebo (Khirbet el-Mukhayyat) (Jerusalem).
Schult, H., (1966). 'Zwei Häfen aus römischer Zeit am Toten Meer: Rujum el-bahr und el-beled (ez-Zara)', *ZDPV* 82: 139–48.
Taylor, J. E., (2006). *The Englishman, the Moor and the Holy City: The True Adventures*

of an Elizabethan Traveller (Stroud).
Taylor, J. E., (2002). 'Nineteenth Century Visitors to Khirbet Qumran and the Name of the Site', *PEQ* 134: 144–63.
de Vaux, R., (1973). *Archaeology and the Dead Sea Scrolls* (The Schweich Lectures of the British Academy, 1959; London/Oxford).
de Vaux, R., Rohrhirsch, F., and Hofmeir, B., (1996), *Die Ausgrabungen von Qumran, 1A: Die Grabungstagebücher* (Freiburg/Göttingen).
Wilkinson, J., (1981). *Egeria's Travels* (Warminster).
Wilkinson, J., (1988). *Jerusalem Pilgrimage 1099–1185* (London).
Wilkinson, J., (2002). *Jerusalem Pilgrims before the Crusades*, 2nd ed. (Warminster).
Wright, T., (ed.) (1848). *Early Travels in Palestine* (London).
Zangenberg, J., (2009). *Qumran und die Region am Toten Meer* (Mainz).

Strata: Bulletin of the Anglo-Israel Archaeological Society 2009 Volume 27

Charles Warren: An Appraisal of his Contribution to the Archaeology of Jerusalem

DAVID M. JACOBSON

Modern exploration of the Temple Mount began towards the middle of the 19th century. Prior to that time, the Temple Mount precincts, recognised by the Muslims as the *Haram al-Sharif* (Noble Sanctuary) and which include the Dome of the Rock and *Aqsa* Mosque, were out of bounds to non-Muslims. Only a few daring European visitors managed to breach the ban. Two developments conspired to change the situation. One of these was the trend towards liberalisation and western influences begun by the autonomous Pasha of Egypt, Mehemet Ali (1832–40), who controlled Palestine. The other was the awakening of interest in the ancient Near East, following the remarkable rediscovery of Assyrian palaces by Paul-Émile Botta, Austen Henry Layard and other pioneering excavators in the 1840s and 1850s. Some of their discoveries, such as the Black Obelisk of Shalmaneser III, which depicts Jehu, King of Israel, paying homage to the Assyrian king on one of its panels, shed new light on the world of the Bible. Such finds created a thirst for more artefacts linked to the Scriptures.

It was during the rule of Mehemet Ali that the architect and graphic artist, Frederick Catherwood, dressed as an Egyptian officer and, armed with a document from the governor of Jerusalem describing him as an engineer in the service of the Egyptian Pasha, succeeded in spending six weeks during 1833 on the Temple Mount with two companions, Francis Arundale and Joseph Bonomi. Under this cover, these visitors managed to study the Dome of the Rock and other monuments within the enclosure. Catherwood and his colleagues also managed to undertake a ground survey of the *Haram* and their plan is the first reasonably accurate one ever published (Fergusson 1847, Pl. IV; Fig. 1). Their descriptions and drawings had a strong impact on the European public through such popular works as William Bartlett's travel book, *Walks about the City and Environs of Jerusalem* (1844), which drew attention to their achievements. Many of Catherwood's plans and drawings made in Jerusalem were snatched up by the influential architectural historian, James Fergusson (1808–86), but these have since disappeared without trace.[1] Fergusson had recognised the Byzantine features of the Dome of the Rock and the *Aqsa* Mosque. He rashly identified the former with the original Rotunda of the Holy Sepulchre built in the 4th century CE by the Emperor Constantine, presenting his case in an *Essay on the Ancient Topography of Jerusalem* (1847). He contended that this building and not the existing church of the Holy Sepulchre

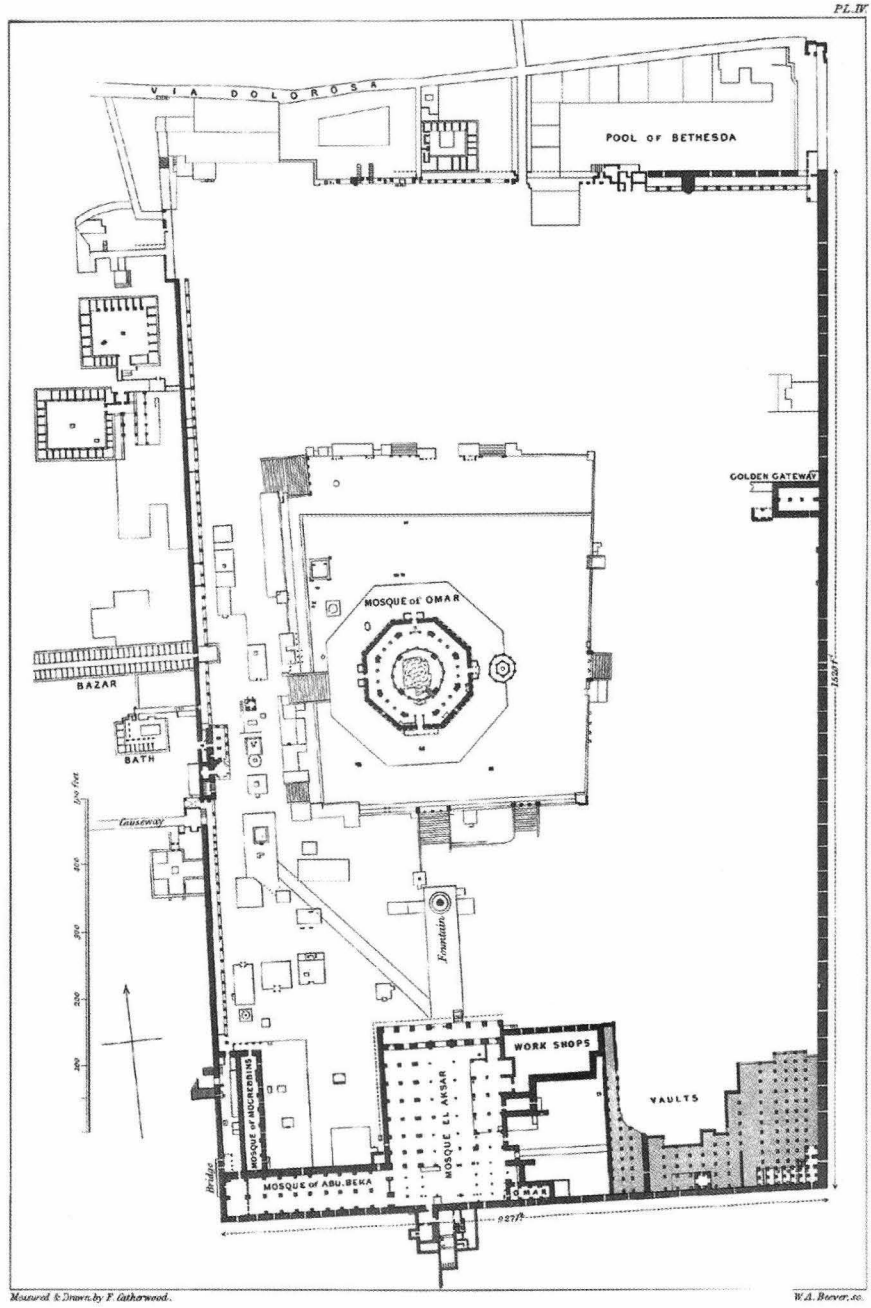


Fig. 1. Plan of the Haram al-Sharif, produced in a survey made by Frederick Catherwood and his companions in 1833 (Fergusson 1847, Plan IV).

was the genuine burial-place of Jesus. Fergusson elaborated his thesis in later publications (Fergusson 1861; 1865).

In the 1850s, an American doctor and missionary, James Turner Barclay, was granted permission to visit and take measurements on the Temple Mount, as a reward for curing the Turkish governor in Jerusalem of an infection (Lewis 1988). He recorded a number of cisterns and underground passages on the *Haram* and a blocked gateway in the western wall that he described was later named after him. At about the same time, an Italian military engineer, Ermete Pierotti, who had been ignominiously discharged from the Piedmontese army for embezzlement, was engaged as architect and engineer to the Ottoman authorities in the city. This role gave him unrestricted freedom to study the Temple Mount. In 1864 Pierotti published a book, entitled *Jerusalem Explored*, which included descriptions of the structures, and some of the underground cisterns and conduits of the *Haram*. Pierotti included details of some of the underground cisterns, based on a mixture of direct observation and hearsay. The impact that this publication made on Fergusson and another Victorian luminary, George Grove, had important repercussions.

George Grove (1820–1900), was one of those remarkable men whose knowledge and interests ranged over many fields (Graves 1903; Young 1980). Trained as a civil engineer and builder of the first iron lighthouse, at Morant Point in Jamaica (completed in 1842), Grove is now mostly remembered as the founding editor of the famous *Grove's Dictionary of Music and Musicians* and the first Director of the Royal College of Music. From 1852 he was Secretary of the Crystal Palace, that revolutionary glass and iron structure designed by Joseph Paxton for the first great industrial trade exhibition held in London in 1851. Afterwards, this acclaimed exhibition hall was moved to a park in Sydenham in south London, where it remained for exhibitions and entertainments up till 1936 when it was destroyed by fire. Grove's close friend James Fergusson served as General Manager at the same establishment from 1856 to 1858. Grove had acquired a deep knowledge of the Bible from childhood. Fired by a remark made by Fergusson, that no full concordance existed in English of the proper names mentioned in the Bible, he drew up a complete index of every occurrence of all the names mentioned in the Hebrew Bible, New Testament and Apocrypha. In 1854, the year that Grove completed his index of Biblical names, he made the acquaintance of another remarkable individual, Arthur Penrhyn Stanley (1815–81), a progressive churchman, who was then Canon of Canterbury (Prothero 1893; 1897). Stanley was a courageous champion of religious tolerance and scientific enquiry and supportive of Charles Darwin's revolutionary ideas about evolution and natural selection. When Grove first met him, Stanley was engaged on writing an account of his journey from Egypt to Palestine through Sinai in 1852. Grove contributed a 'Vocabulary of Hebrew Topographical Words' to Stanley's book, *Sinai and Palestine in Connection with Their History*, published in 1856, which was a best seller. This collaboration engendered in Grove a strong desire to visit the Holy Land, which he accomplished in 1859 and again in 1861. At the recommendation of Fergusson, he also contributed

much of the content for Sir William Smith's encyclopaedic *Dictionary of the Bible*, issued in three volumes between 1860 and 1863 (Young 1980: 72).

Following the publication of *Jerusalem Explored*, Grove and Fergusson, almost certainly at the latter's instigation, publicly accused Pierotti of plagiarism of maps, plans and photographs of Catherwood, Graham, and others, in his book (Young 1980: 69; Graves 1903: 105–6). Pierotti maintained that he had used photographs that he had legitimately purchased from the missionary James Graham, John Mendel Diness (a Jewish watchmaker from Odessa, who converted to Christianity in Jerusalem, where he learnt photography from Graham) and others, but he had omitted to give due acknowledgements.

At about this time, an unexpected opportunity arose for a detailed survey of Jerusalem. Baroness Angela Burdett-Coutts, scion of a prestigious banking family, made an offer to provide Jerusalem with a clean and reliable water supply. With his authority as an accomplished civil engineer, Grove was able to persuade her that a survey of Jerusalem was a necessary prerequisite for a new water system, and she agreed to fund it to the tune of £500. In 1864 an Ordnance Survey Team was dispatched to Jerusalem,under the able leadership of Captain Charles Wilson of the Royal Engineers.[2]

The survey work was carried out with the sanction of the Ottoman Governor of Jerusalem, Izzet Pasha. The main result of the survey was a 1:10,000 map of Jerusalem and its environs and a 1:2,500 plan of the walled city, which was so accurate that when a new one came to be made in 1937, only a revision of Wilson's 1865 map of the city was necessary. The survey publication also included descriptions of the topography and ancient remains in Jerusalem and an album of photographs (Wilson 1866). As part of their expedition, but using separate funding provided by James Fergusson, Wilson and his team mapped the walled enclosure of the Temple Mount (see Fig. 2), and they produced the first reliable map of this compound to a scale of 1:500. At the same time, accurate plans were made of the Dome of the Rock and the Aqsa Mosque. The Jerusalem survey, which was accomplished and published within a year, uncovered much new information about the shrines and related structures, and also on the cisterns and underground passages of the Temple Mount. A great arch springing from the western wall beneath a Mamlūk madrassa, the *Tankiziyya*, first recognised by the Swiss explorer, Titus Tobler, as having formed part of an ancient viaduct joining the Temple Mount to the Western Hill, was re-examined by Wilson, and is named after him ('Wilson's Arch'). Wilson refrained from putting forward suggestions concerning the specific location of the Temple of Solomon or that of Herod, and he was reluctant to suggest dates for the ancient masonry of the enclosure walls with its characteristic recessed margins, although he believed that its use extended over several building periods.

While Grove is widely credited as the initiator and institutor of the Palestine Exploration Fund (PEF), it was Fergusson's vigorous promotion of his theory concerning the location of the Jewish Temple and identification of the Dome of the Rock with the Rotunda of the Holy Sepulchre that provided the catalyst for the creation of the PEF (Burnet 1888: 1225). In his writings, Fergusson claimed that

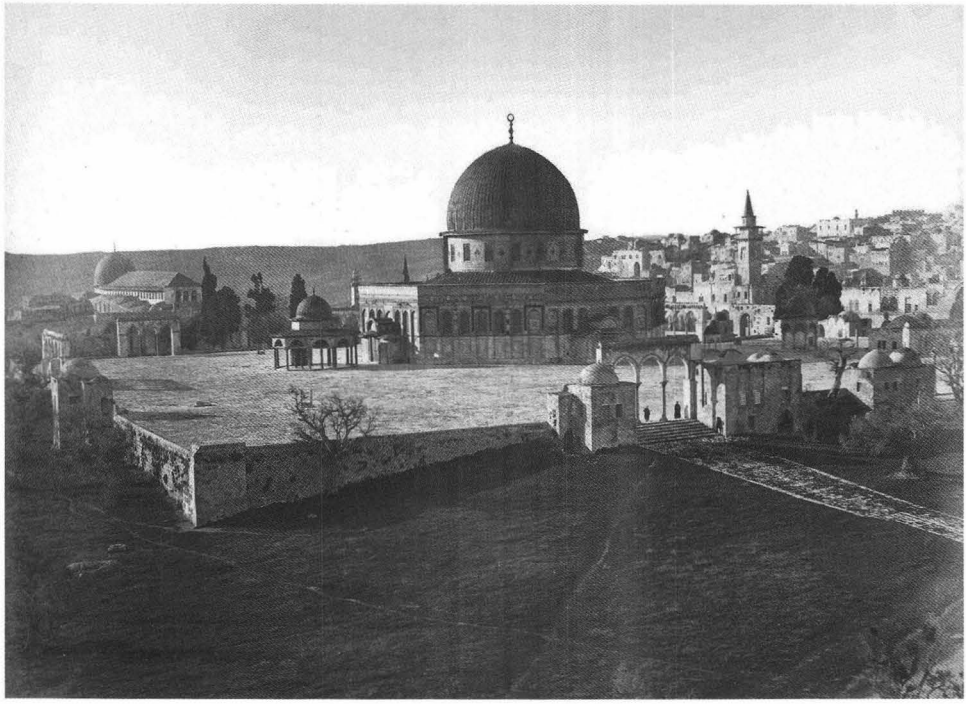


Fig. 2. View from the Bab al-Asbat Minaret, towards the southwest across the Haram platform, showing the Dome of the Rock in the centre and the Aqsa Mosque in the background to the left. Photograph taken by Sgt. James McDonald for the Ordnance Survey of Jerusalem (1864-65) (Wilson 1966, Photograph 2a = PEF/P/4272, courtesy of the Palestine Exploration Fund).

the Jewish Temple lay at the southwest corner of the existing *Haram* enclosure, occupying a square, a *stade* (600 Roman feet) each side, as noted by Josephus for the consecrated area of the Temple Mount (Jos., *Ant.* 15: 400). It is shown as such in his plans (e.g., Fergusson 1847, Pl. VI; see Fig. 3).

Grove's call for the establishment of a learned organisation dedicated to exploration in the Holy Land fell on fertile ground and it was picked up by Sir Henry James, head of the British Ordnance Survey, who wrote in *The Times* on 31 December 1864 about the exciting discoveries that were being made by Charles Wilson's expedition. He expressed the hope that funds might be forthcoming to enable such work to continue. Another influential supporter, Arthur Stanley, who had risen to the position of Dean of Westminster, organised a meeting in the Jerusalem Chamber of Westminster Abbey on 12 May 1865, which was presided over by the Archbishop of York. It was agreed at that meeting 'that an Association be formed, under the title of the Palestine Exploration Fund, for the purpose of investigating the Archaeology, Geography, Geology and Natural History of Palestine.' A committee was set up with George Grove as its Honorary Secretary.

At the meeting held in London on 22 June 1865 to formally establish the Palestine

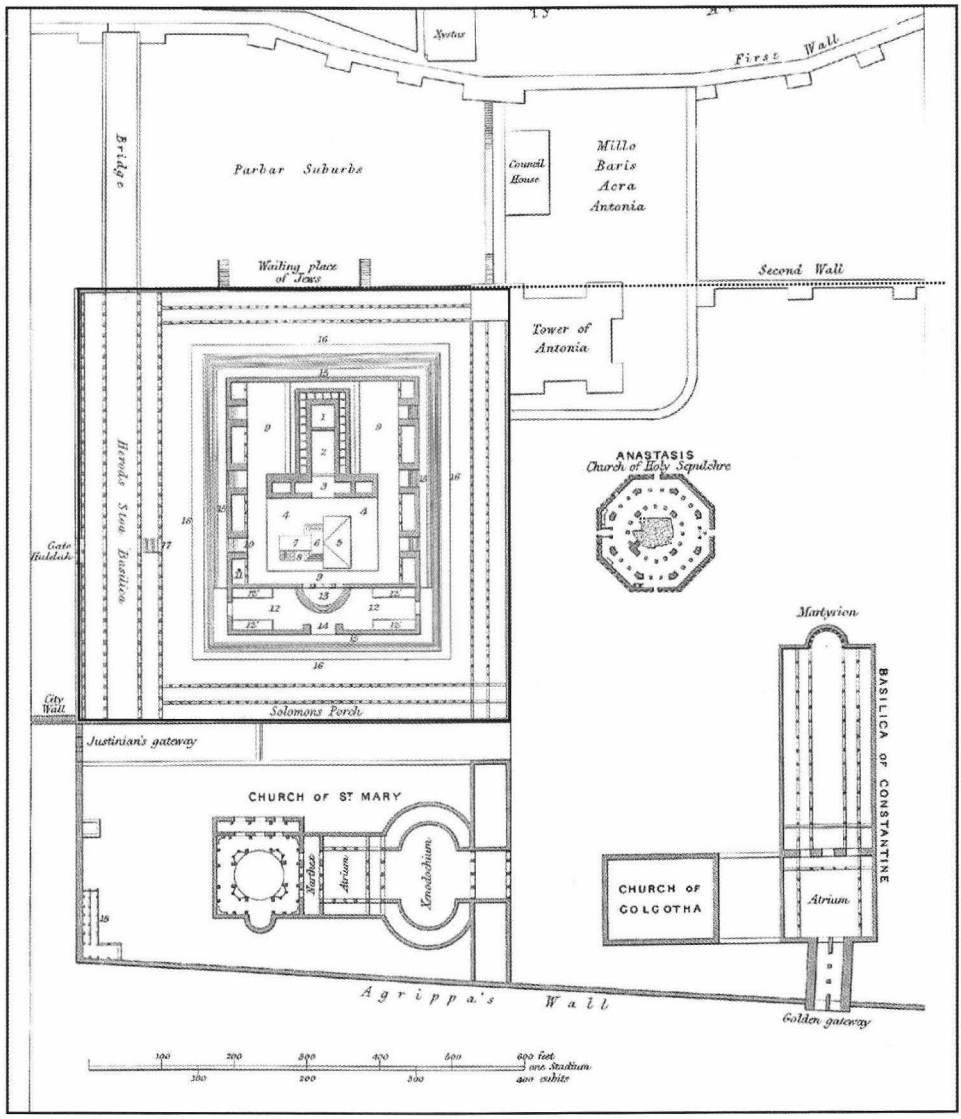


Fig. 3. Plan showing Fergusson's scheme of ancient buildings on the Temple Mount. The ancient Temple is placed at the south west corner of the Haram and the Dome of the Rock is identified with the Anastasis of the Holy Sepulchre. (After Fergusson 1847, Plan VII.) The eastern wall of the Temple Mount is at the bottom, and is erroneously labelled 'Agrippa's Wall'.

Exploration Fund (PEF), the Archbishop of York set out the principles upon which the activities of the new organisation would be based:

1. That whatever was undertaken should be carried out on scientific principles.
2. That the Society should, as a body, abstain from controversy.
3. That it should not be started, nor should it be conducted, as a religious Society.

An appeal for funds was made at the meeting and the response was immediate. Queen Victoria, who sent a donation of £150, consented to become the Patron of the Fund. It was agreed that the first task should be the preparation of a complete and detailed survey map of Palestine. However, a preliminary reconnaissance of northern Palestine by Wilson, on behalf of the PEF, between January and April 1866 had shown that such a survey project would take several years and would require financial support well beyond what the Fund then had at its disposal. As it was, Wilson's limited expedition of reconnaissance had cost the PEF £1,550. Moreover, many of the founding subscribers wanted priority given to obtaining answers to questions connected with the topography of ancient Jerusalem, in the wake of the Ordnance Survey of that city. There was a particular wish to have the following questions settled (Watson 1915, 41–2):

1. What was the exact location of the Jewish Temple, as built by Solomon and finally destroyed by the Romans under Titus?
2. What was the date of construction of the Dome of the Rock?
3. Did the existing Church of the Holy Sepulchre stand on the site of the Constantinian complex built in the 4th century?
4. What were the lines followed by the three walls of Jerusalem in the 1st century CE, as described by the Jewish historian Flavius Josephus?
5. Where were the ancient gates of the city referred to in the Scriptures and in the writings of Josephus?
6. Where were the locations of the City of David, the fortress of Antonia, the Palace of Herod and the Pool of Bethesda, and other important sites mentioned in the ancient texts, whose sites were uncertain?

Most of these questions were at the centre of a passionate debate, which was raging on the position of the Temple and the authenticity of the site of the Holy Sepulchre, stoked by the contentious theories of James Fergusson (Jacobson 2003).

A 27-year-old lieutenant of the Royal Engineers, Charles Warren, was appointed to head the new expedition to Jerusalem.[3] Warren had gained working experience in Gibraltar, maintaining the fortifications and designing new ones, and accomplishing a detailed trigonometrical survey of the Rock of Gibraltar on a scale of 1:600.

Warren, accompanied by three corporals of the Royal Engineers (Birtles, Phillips and Hancock), sailed to Palestine in February 1867. From the outset, Warren's expedition immediately ran into strong opposition from Nazif Pasha, who served

as Ottoman Governor of the Holy City from April 1867 to September 1869. Soon after his arrival, Warren received a letter from the Grand Vizier in Constantinople authorising him to conduct excavations everywhere in Jerusalem, with the exception of the *Haram al-Sharif* and other sites sacred to Christians and Muslims (Warren, in Morrison *et al.* 1871: 329). Nazif Pasha took advantage of the exclusion clauses in the official letter to impede Warren at every turn.[4]

Warren had to pay bribes to the Governor's entourage for conducting his excavations, although he claimed that he had resisted giving 'heavy bakshish' lest this might have prejudiced the climate for later explorers (Warren 1876: 12–13). After difficult negotiations lasting two years he succeeded in overcoming local opposition to his excavations around the perimeter of the *Haram*.[5] As John 'Rob Roy' Macgregor piquantly stated in an article published in *The Times* on 5 April 1869:[6]

> Nor can we wonder that the Turk should refuse a stranger leave to dig quite close to his cherished *sanctum*. Even the Dean of Westminster (Stanley), so valuable a co-operator on the committee of the Palestine Exploration Fund, would be reluctant to allow a Turkish officer of Engineers to dig by the east buttresses of Westminster Abbey.

The situation was even more sensitive because the area around the enclosure, including the substructures, were also sacred to the Muslims, as noted by Warren in his popular book on his exploration campaign, *Underground Jerusalem* (1876, 10–11). Warren was able to skirt this obstacle by sinking most of his shafts at a considerable distance beyond the enclosure walls of the Temple Mount, and then driving galleries up to the walls (Warren, in Morrison *et al.* 1871: 57–75; see Fig. 4). Having dealt with this problem, he encountered fresh ordeals, which are briefly mentioned in the Jerusalem volume of the *Survey of Western Palestine* (*SWP*, *Jerusalem*: 117–18).

Warren was chronically short of money, a problem exacerbated by having to bribe the authorities. He set out with a sum of just £300, handed to him by George Grove to cover his preliminary expenses and a blessing to 'go and prosper'. After ten months in Palestine, Warren had spent £2,100 and had only received £1,050 from London, leaving him with a deficit that was twice the outlay received from Baroness Burdett-Coutts for Wilson's Ordnance Survey of Jerusalem a few years earlier. He was destitute and, with a family to provide for back in England, Warren was driven to the depths of despair. From the PEF came the exhortation: 'Give us results and we will send you the money.' Warren replied with justified indignation: 'Give me tools, materials, money, food, and I will get you results.' His pleas were answered with the refrain: 'Results furnished, and you shall have the money!' (Warren 1876: 3).

Warren spent two summer months of 1868 back in England, during which he persuaded the PEF to pay him a regular sum each month in advance for his expedition. When he left again for Jerusalem, he took his wife and baby daughter

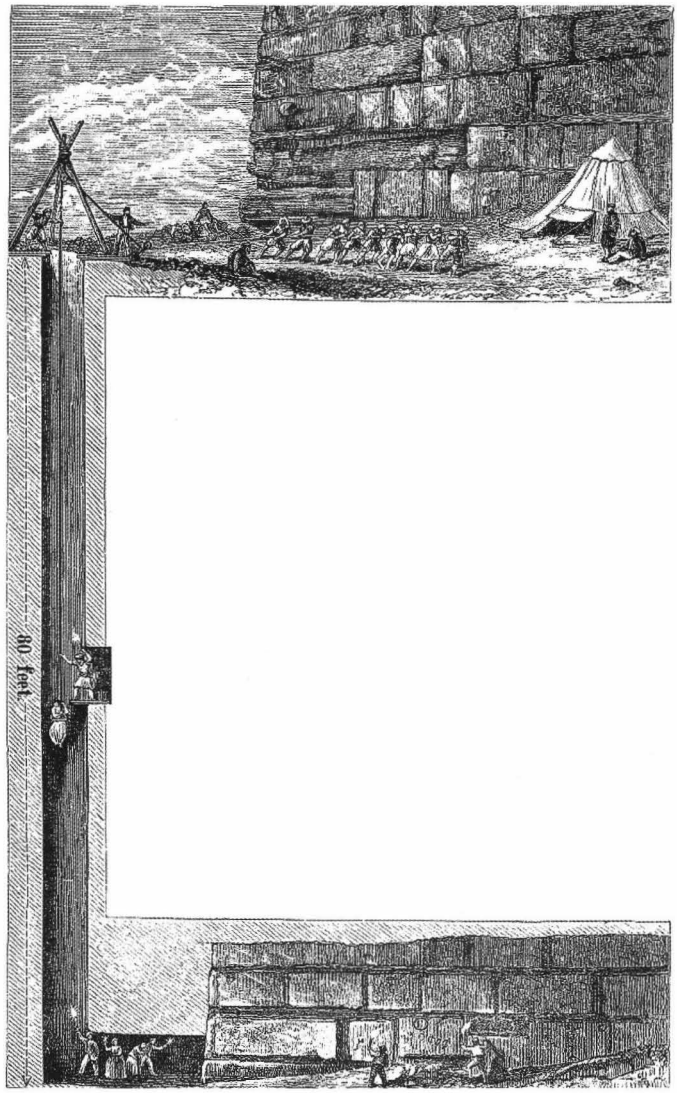


Fig. 4. Warren's shaft at the southeast corner of the Haram al-Sharif. A lady visitor is being lowered in a chair to join a party of visitors in the gallery leading to the foot of the wall where two of the party are seen inspecting ancient characters inscribed on two of the ashlars. Engraving made from a sketch by William Simpson made in 1869 for the Illustrated London News (Simpson, in Morrison et al. 1871, 35)

with him and they stayed there together for the remainder of the expedition. Notwithstanding the new financial arrangements, more often than not, Warren was never less than £200 out of pocket to the end of his stay. At the conclusion of the expedition, the total costs had run to £8,000. This sum supported a complement of four to six non-commissioned officers of the Royal Engineers, 20 to 50 Arab labourers, the purchase of timber for mining frames and all other incidental expenditure over three years.

Warren and his team also laboured under continuous physical danger and the local labour force could not be relied on for the safety of all concerned. As Warren explained in a letter to Walter Besant, the Acting Secretary of the PEF and accomplished novelist, dated 10 June 1870:

> The work at Jerusalem has been one of constant danger and anxiety, and is totally different to mining in natural soils among civilised men. The fellahîn could only be induced by degrees to go under the ground and then in time of danger were worse than useless.
> We had however in our daily labor to trust ourselves entirely to these fellahîn, all the hauling up had to be done by them and our lives were in their hands: now though these men can be brought into working order they cannot be made careful, and the hair-breadth escapes of each man of our party were numerous: on more than one occasion an iron crow bar weighing over 20 lbs. [9kg] was let slip down the shaft just missing Sgt. Birtles, and stones were allowed to fall back again when just at the top of the shafts: and when it is remembered that many of these shafts were from fifty to a hundred feet deep the danger from such an accident will be understood.
> But besides the carelessness of the Arab workmen was the danger of digging in an artificial soil; a soil composed of layers of earth, shingles, stone chippings and broken ashlar, resting at different angles; on some occasions after going along a layer of earth we would come suddenly upon the ashlar, each piece weighing several tons, which crashed in our frames: on other occasions the shingle would suddenly burst in like water, burying our tools and sometimes partially our workmen: once when we had been working close to the top of an earth layer, on going down one morning 27 feet (8.2m) of the gallery was found smashed in by stones from above (*PEF Archives* JER/WAR/25; Warren 1876: 149–55).

The fill that surrounded the *Haram* enclosure was largely composed of stone fragments from destroyed structures, separated here and there by layers of earth which had collected in times of peace. This debris formed the shingle described by Warren in the letter. It had no cohesion and had a tendency to flow into the shafts and galleries, while large stones, scattered through the fill threatened to crash through the wooden cases and scaffolding. In places, these deposits were contaminated with sewage, which caused wounds on the limbs of the workmen to fester.

The shafts sunk into this fill were rectangular, from 3 to 4 ft (1 to 1.2 m) across, and were lined with the wooden mining cases, referred to earlier. Initially Warren procured mining frames from Malta, but the Mediterranean softwood would not endure the Jerusalem climate and rotted after a few weeks; subsequent frames supplied from England proved robust and durable. The mining cases were fixed to

one another in series as the depth of the shaft was increased. Galleries were driven horizontally along the bottom of the shafts and lined with mining cases. Warren's attention to working procedures and imposition of discipline ensured that there were no fatalities and few serious accidents, which was remarkable because some of the shafts were of considerable depth, up to almost 40 m and the galleries were of considerable length. Occasionally, foul gases filled the passages and fresh air had to be pumped down to sustain the workmen. Most accidents occurred through labourers flouting Warren's instructions, as on one occasion when a workman climbed up a shaft on the frame timbers against the rules and fell over and broke his back. Luck also played a part as, in the incident described above, when stones fell into a gallery before a morning shift. On another occasion, large stones collapsed into an underground passage below the Single Gate in the south wall of the *Haram*, cutting off Warren's deputy, Sergeant Henry Birtles, from his companions. Fortunately, no one was hurt and the blockage was quickly cleared (Warren 1876: 328–9; 1867d: 27).

Fig. 5. The skewback of Robinson's Arch in the Western Wall of the Haram al-Sharif. Photograph taken by Sgt. James McDonald for the Ordnance Survey of Jerusalem (1864-65) (Wilson 1966, Photograph 14a = PEF/P/4297, courtesy of the Palestine Exploration Fund).

The exploration around the *Haram* enclosure below ground revealed that the ancient walls had survived to a far greater height than had been believed previously. At the southeast angle, for example, while the visible part of the wall above ground was 21 m in height, counting both the ancient courses and the medieval ones, the excavations showed that there was an additional 80 ft (24.3 m) buried in the artificial fill (see Fig. 4).[7] Near the southwest corner a shaft had to be sunk 90 ft (27.4 m) in order to reach the foundations (*SWP*, *Warren Atlas*, Pls. XXVII and XXVIII).

Warren made especially interesting discoveries in the vicinity to Robinson's Arch, the name given to the skewback of a large arch slightly to the north of the southwest corner of the *Haram*.[8] Fig. 5 shows a photograph of this remnant taken during the Ordnance Survey of Jerusalem in 1864–5. Seven shafts were sunk in a line across the Tyropoeon Valley, westwards from the arch, and it was established that the level of rock at the deepest point was no less than 75 ft (22.8 m) below the present surface, so great had been the accumulation of earth and spoil over the centuries. At the bottom of the valley, Warren discovered a rock-cut canal, now known to be part of a network of drainage channels, dating from the Herodian period that skirt the Western Wall of the enclosure (*SWP*, *Warren Atlas*, Pl. XXIX). These channels were covered by a broad pavement of a similar date which ran along the base of the wall. To its west was encountered the foot of a large masonry pier, which had supported the other end of Robinson's Arch. Several of the arch voussoirs were found resting on the pavement, where they had fallen, as shown in the watercolour by William Simpson painted in 1869, reproduced in Fig. 6. Digging through the pavement, Warren discovered two voussoirs lodged in the roof of the drainage canal from a different arch, which he believed to predate those belonging to Robinson's Arch.

Careful examination of the remains in this area convinced Warren that the arch formed part of a large stairway supported 'on piers and arches' that led down from Herod's 'Royal Cloister' (i.e. the *basileios stoa*) at the southern edge of the Temple Mount, mentioned by Josephus (*War* xv 411–16), to the suburbs below (Warren 1876: 69). He correctly connected this with the exit from the Temple enclosure that led down 'by many steps going down the ravine and from here up again to the hill [i.e. the Upper City]',[9] adding:

> Now we have ascertained that this arch was not one of a series, reaching across the valley to the Upper City, and so far Dr. Robinson was mistaken (Warren 1876: 311 and 316).

He correctly deduced that Herod had built this impressive ascent when he enlarged the Temple enclosure (Warren 1876: 317). Warren sketched reconstructions of this grand stairway which survive in manuscript form in the Archives of the Palestine Exploration Fund (*PEF Archives*, JER/WAR/62/4), one signed and dated 1 January 1868 and the other attached to a letter sent by Warren to the PEF, dated 12 October 1867 (with both bearing the same PEF Archive reference number). The second drawing was also printed together with two of Warren's letters to the PEF, which were sent at the same time, and it is reproduced as Fig. 7 (Warren 1867b; 1867c;

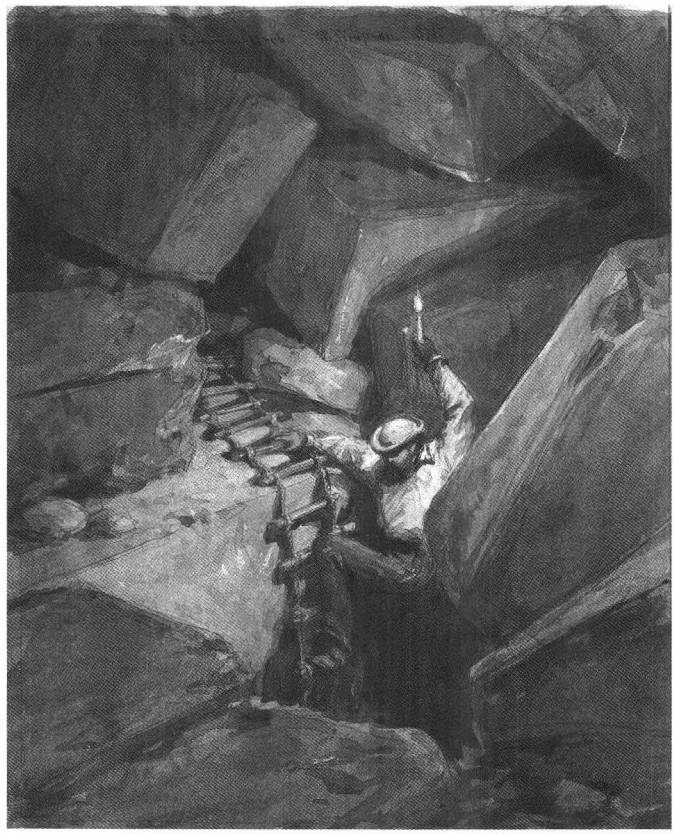


Fig. 6. Sgt. Henry Birtles descending through the Herodian pavement beneath Robinson's Arch, surrounded by the fallen arch voussoirs. Birtles was in charge of the excavations conducted during the PEF exploration of Jerusalem. Watercolour from a sketch made by William Simpson in 1869 (PEF/PI/16, courtesy of the Palestine Exploration Fund).

SWP, *Warren Atlas*, Pl. XXIX). Therefore, it is surprising that subsequent scholars took the view that Robinson's Arch formed part of a raised viaduct joining the Temple to the Upper City of Jerusalem, just as Wilson's Arch did further north.

In a letter to me dated 19 September 2001, Brian Lalor, who had been the architect on Benjamin Mazar's team in the Temple Mount Excavations, notes that when he joined the excavations in 1969, 'the bridge theory was as firmly espoused by the excavation team'. After studying the archaeological evidence and precedents from Roman architecture, he deduced that Robinson's Arch was part of a stairway and, with some difficulty, managed to convince the excavation team that this was the case. However, neither Lalor nor Mazar knew about Warren's similar conclusions.

There is a popular misconception that Charles Wilson attempted to suppress Warren's reconstruction of Robinson's Arch. However, in his book, *Jerusalem, the*

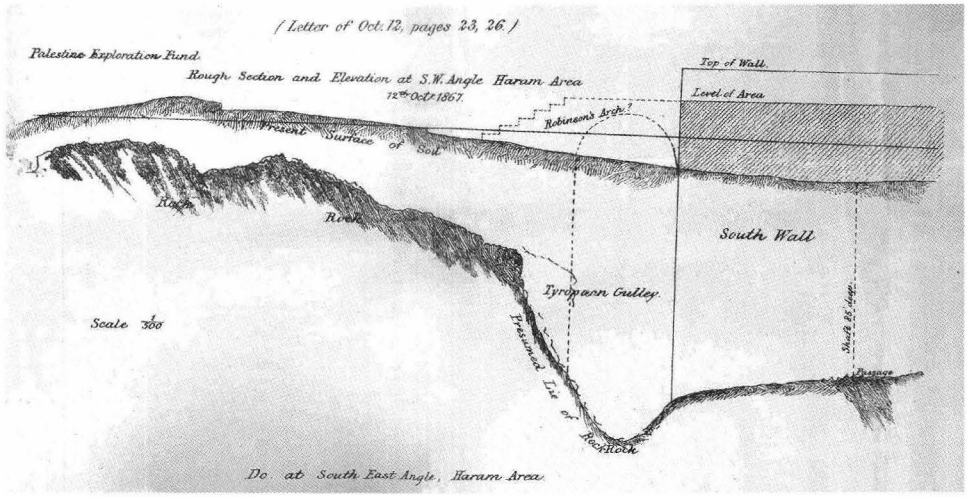


Fig. 7. Rough section and elevation at the south-west angle of the Haram al-Sharif. Drawings prepared by Warren in Jerusalem to accompany his letters to the PEF, dated October 11 and 12, 1867 (Warren 1867b; 1867c). The reconstruction of Robinson's Arch shows it supporting a staircase rather than forming part of a viaduct of arches across the Tyropoean Valley.

Holy City, Wilson clearly echoes Warren's view that Robinson's Arch 'formed the first of a series of arches which supported a broad flight of steps leading from the Tyropoeon Valley to the centre aisle of the Royal Cloisters, "Stoa Basilica", which ran along the south wall of Herod's Temple' (Wilson 1880a: 39). Claude Conder, who took command of the Survey of Western Palestine from 1872 to 1876, was less judicious in his terminology and referred to Robinson's Arch as part of 'a great bridge' which spanned the Tyropoeon Valley (Conder 1878, vol. 1: 351; 1909: 137). Thereafter, this interpretation held sway until Professor Benjamin Mazar and his archaeological team from the Hebrew University re-excavated the site in 1968 and confirmed Warren's deduction that Robinson's Arch indeed supported a monumental stairway (Mazar 1975: 25–6).

Warren made other important discoveries at the northeast corner of the *Haram al-Sharif* (Warren, in Morrison *et al.* 1871, 159–88; SWP, *Jerusalem*: 129–41). By digging a series of shafts at intervals along the eastern wall and running galleries underground from these shafts, he identified a deep valley running down from a northwesterly direction. This valley intersects the wall about 40 m south of the northeast corner of the *Haram* platform and joins the Kidron Valley. Inside the *Haram*, this branch of the Kidron Valley has been entirely filled in, almost certainly during the levelling operations carried out by Herod when he reconstructed the Temple complex. The floor of this valley, where it emerges from the *Haram*, was found to be 43 m below the level of the esplanade, which indicates the extent to which the Temple platform was artificially raised at this point (*SWP*, Warren *Atlas*, Pls. XII and XIV).

Above ground, there is a noticeable projection in the eastern wall at the northeast corner of the *Haram*, which the Royal Engineers mistakenly called the 'Tower of Antonia', since the Antonia fortress stood at the northwest corner of the Temple enclosure (see Fig. 8). Warren dug a shaft alongside the southern corner of this salient and demonstrated that the projection diminishes and disappears towards the base of the walls. The northern end of this apparent tower is defined by a straight joint in the wall above ground, corresponding to the northeast corner of the *Haram*. However, below ground, the courses of drafted ashlars were seen to continue northwards without a break for at least 23 m (*SWP*, *Warren Atlas*, Pl. XIII). This finding raises doubts as to whether the present northeast corner of the *Haram* coincides with that of the enclosure of Herod's Temple. Charles Wilson pronounced the excavations conducted by Warren in the vicinity of the northeast corner of the *Haram* 'to be without parallel in the history of excavation; the deepest shaft struck rock at 125 feet [38 m] from the surface, and in one shaft alone no less than 600 feet [183 m] run of shaft and gallery were excavated' (Wilson 1880b: 41).

Fig. 8. East face of the northeast angle of the Haram al-Sharif, showing the projection in the wall, referred to by the 19th century explorers as the "Tower of Antonia." Photograph taken by Sgt. James McDonald for the Ordnance Survey of Jerusalem (1864-65) (Wilson 1966, Photograph 14a = PEF/P/4304, courtesy of the Palestine Exploration Fund).

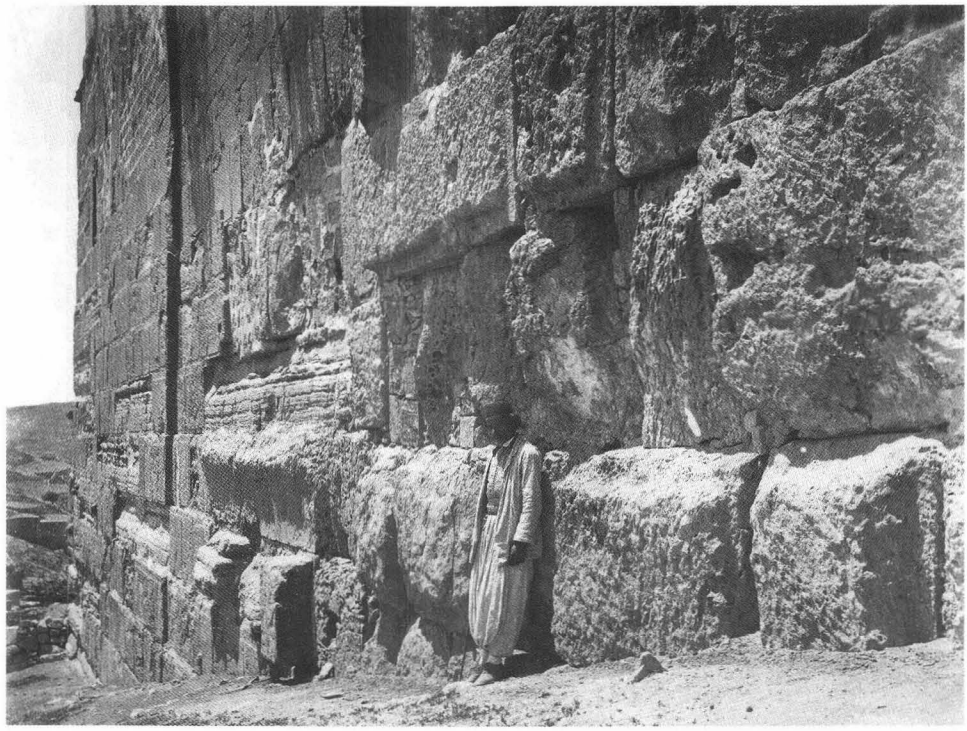


Fig. 9. Eastern wall of the Haram al-Sharif, showing two showing two of the three styles of masonry described by Warren. Ashlars of pre-Herodian date with drafted margins and coarse projecting bosses are visible in the foreground. Smooth-faced masonry from the Herodian period can be seen further away to the left of the picture. Photograph taken by Sgt. James McDonald for the Ordnance Survey of Jerusalem (1864-65) (Wilson 1966, Photograph 11a = PEF/P/4291, courtesy of the Palestine Exploration Fund).

Warren's investigations showed that there were at least three types of ancient ashlar in the walls of the *Haram* (see Fig. 9), and this led to different theories regarding the sequence of construction. Warren supposed that the south wall east of the Double Gate dated from Solomon's time, which is now known to be incorrect, while to the west, where the base of the wall is composed of blocks with rough bosses, he assigned a Herodian date. Conder re-examined the *Haram* masonry in the 1870s and concluded that all the ancient drafted ashlars in the western and southern walls of the *Haram*, and also in the eastern wall south of the Golden Gate, were from a single period, that of Herod the Great. He put paid to the suggestion that the Phoenician characters on some of the ashlars, which had been examined by Deutsch (see p.51), linked the masonry to Solomon's Temple. Conder correctly pointed out that such lettering 'is found on the Maccabean (i.e. Hasmonaean) coins, and was apparently in common use at a yet later period' (Conder 1879: 28).

The third style of masonry, seen by Warren in the eastern wall of the enclosure north of the join or 'seam' where it abutted on the smooth-faced section of wall at the southeast corner, is judged to be of an earlier date, with the broad consensus falling within the period from the sixth century BCE, under Persian hegemony, to the time of Hasmonaean rule. On the northern perimeter of the Temple Mount, the only ancient masonry to be seen is near the northeast corner and it is not clear whether the blocks that are visible are in their original location.

Although Warren was refused permission to extend his exploration work to the interior of the *Haram al-Sharif*, he struck up a good relationship with its Islamic guardians. This enabled him to carry out a thorough examination of the Dome of the Rock and of many of the subterranean cisterns within the enclosure (*SWP, Jerusalem*: 217–25). The largest of these cisterns, referred to by Warren as the 'Great Sea' (*al-Bahr al-Kabir* in Arabic), number VIII in Wilson and Warren's sequence of cisterns and underground chambers, occupies an area of about 12,000 cubic metres (Wilson 1866: 44; *SWP, Jerusalem*: 220; Gibson and Jacobson 1996: 33–9). A watercolour view of this cistern by William Simpson, dating from 1869, is shown in Fig. 10.

John 'Rob Roy' Macgregor, who captured public attention in Victorian Britain through his adventurous canoe trip down the River Jordan in 1869, has left a

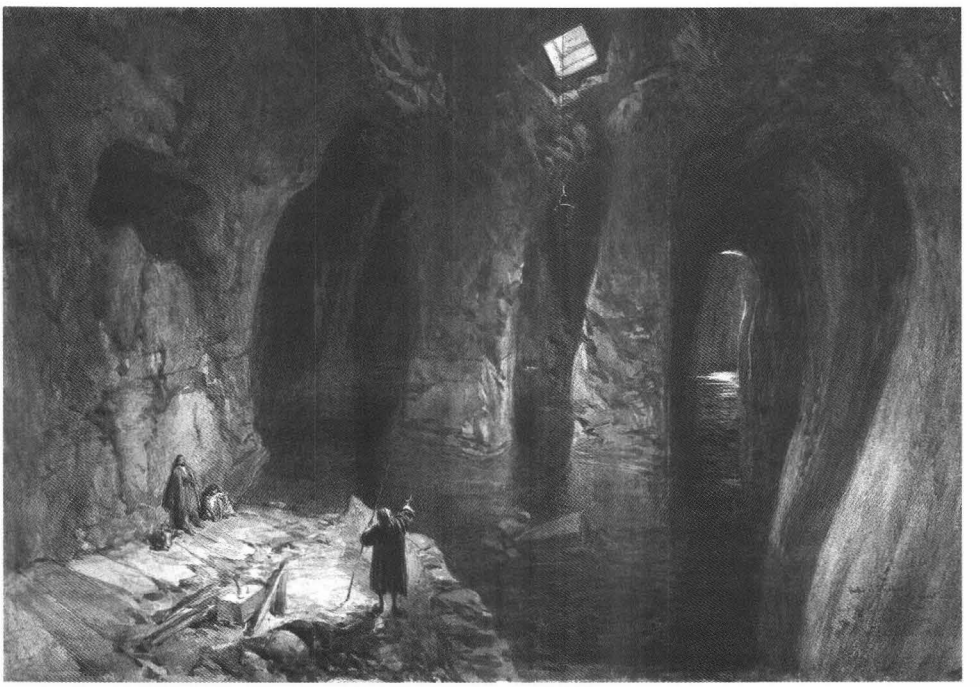


Fig. 10. View of the interior of the immense rock-cut cistern beneath the Haram al-Sharif, towards its southern end, known as the "Great Sea," which was explored by Warren. Watercolour from a sketch made by William Simpson in 1869 (PEF/PI/20, courtesy of the Palestine Exploration Fund).

colourful eye-witness account of Warren going about his work exploring cisterns within the *Haram*:

> Mr. Warren, indeed, seems to have a subterranean turn of mind, and it is fortunate when one's duty and one's inclination are both in the same direction. To-day we were privately visiting the Haram enclosure, where the level sward of green is gorgeous with spring flowers in bouquets here and there round the old pillars or marble blocks. Suddenly Mr. Warren resolves to raise one particular stone of these, and ropes, levers, and ladders were speedily at work. The old Sheikh of the Temple Area ... sits restless on the grass, now and then groaning deeply, as he sees the Englishman disappear into a great cavern, the last of the cisterns examined in this hollow-sounding, grassy square. After measuring this below, by swinging to and fro on a rope in the hollow gloom fitfully lit up by his magnesium light, Mr. Warren entered a small hole in the turf above, where one could scarcely expect a terrier to go in, taking leave of us all, with a good-humoured joke to the anxious Sheikh, who forced a grim smile into his face, evidently half-fearing, half-worshipping the mysterious intruder he was set to watch ... After 20 minutes of suspense we heard a cheerful "Hallo!" far off and in a totally unexpected direction, and there was Mr. Warren erect again on the surface some hundred yards away, having traversed a new passage under the grass in total darkness, and creeping on his side. A bit of magnesium was given to the grave Sheikh in reward for his easy guardianship. The old man took it like a child, and thanked the giver, but with a more audible groan (*The Times*, 5 April 1869, reproduced in Rob Roy 1869: 20).

From this light-hearted sketch, we can appreciate that Warren was far from the stern archetypal Victorian military man and that he had an amiable personality. Fig. 11 shows him in a relaxed mood with some of his colleagues in Jerusalem in 1867. His sense of humour combined with bravura is, perhaps, best illustrated in Warren's account of his exploration of the ancient channel running in a southerly direction from the double Struthion Pool, which is situated beyond the northwest corner of the *Haram*. Warren and Birtles navigated and mapped the channel on 28 October 1867, undeterred by the fact that it was filled with fetid sewage, as recounted in *Underground Jerusalem*:

> I, however, determined to trace out this passage, and for this purpose got a few old planks and made a perilous voyage on the sewage to a distance of twelve feet, to a bend from whence I could see a magnificent passage cut in the rock, leading due south, thirty feet (9m) high, and covered by large slabs or stones laid horizontally across. Finding the excessive danger of planks, I procured three old doors, and proceeded with Sergeant Birtles to our work, The sewage was not water, and was not mud; it was just in such a state that a door would not float, but yet if left for a minute or two would not sink very deep; at the same time a plank would go down rapidly with one's weight on it. We laid the first door on the sewage, then one in front of it, taking care to keep ourselves each on a door; then taking up the hinder of the three it was passed to the front, and so we moved on. The sewage in some places was more liquid than in others, but in every case it sucked in the doors so that we

Fig. 11. Photograph taken in Jerusalem in 1867, probably by John E. Hanauer. In the back row: possibly Jerius (the dragoman to the British Consulate); middle row, from left to right: Charles Warren, Dr. Joseph Barclay (incumbent of the Anglican Church in Jerusalem), Corporal Henry Phillips; front row: Frederick W. Eaton (of the PEF) (PEF/P/1315, courtesy of the Palestine Exploration Fund).

> had much difficulty in getting the hinder ones up, while those we were on sunk down, first on one side and then on the other as we tried to keep our balance.
> After advancing sixty feet (18m), we came to a dam built across the passage retaining the sewage on the north side four feet (1.2m) higher than to the south; here we drew up our doors and stopped some minutes to get breath.
> Everything had now become so slippery with sewage that we had to exercise the greatest caution in lowering the doors and ourselves down, lest an unlucky false step might cause a header into the murky liquid – a fall which must have been fatal – and what honour would there have been in dying like a rat in a pool of sewage? (Warren 1876, 350–1; cf. Warren 1867e: 35; *SWP*, *Jerusalem*: 211–22).

After gingerly proceeding for 15 m further to the south, the sewage became firmer and the duo were able to negotiate the remainder of the channel without the doors. It ended 61 m from its exit point from the cistern, blocked by the Western Wall of

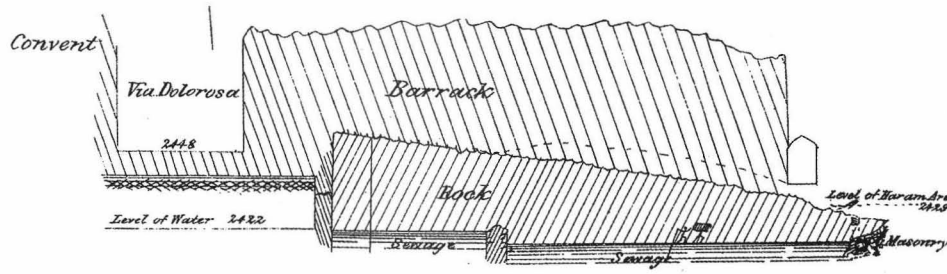


Fig. 12. Section of the rock-cut passage leading from Struthion Pool, beneath the Convent of the Sisters of Zion, to the northwest corner of the Haram al-Sharif. Drawing prepared by Warren in Jerusalem to accompany his letter to the PEF, dated October 28, 1867 (Warren 1867e). He has depicted Birtles and himself negotiating the sewage-filled conduit, equipped with a wooden door held aloft.

the *Haram*, which must, accordingly, post-date the channel. The channel is widely dated to the Hasmonaean period and, today, it constitutes the northernmost section of the western wall tunnel, which has been opened up to enable visitors to follow the entire length of the Herodian wall along that boundary.

Seemingly unrattled by his perilous adventure, Warren dutifully filed his report on the day's findings to London the very same evening, in a calm, matter-of-fact manner. To it he appended schematic sketches of the channel in plan and section. The sectional view, reproduced in Fig. 12, shows two tiny figures edging forward on their makeshift rafts.

Besides having a light-hearted side, Warren was an excellent communicator. He went out of his way to show others what he was doing, and the enthusiasm, which he imparted to visitors, helped to stimulate interest in his exploration work and furnish the funding to enable it to proceed:

> I was asked whether I was not doing too much for the visitors, but I do not find that I did. I thought, as it was a public Fund, that all visitors should have facilities for seeing what was going on, so long as the work was not actually impeded detrimentally. Of course it made us lose time, much time, for I often took two or three parties a day over the works – consuming most of the day thereby; but we did not lose in the end. For each party went back full of interest in the subject, and prepared to push it through on arrival in England (Warren 1876: 378).
>
> It was the people who had actually seen the work who planted the interest in the public mind; and it has always been a source of gratification to me, that the facilities I rendered were so fully taken advantage of, that when Mr. Grove did appeal in his vigorous and forcible style after I had been ten months in the Land, the public was ready to respond, and did respond so heartily, that the debt to me (i.e. the money owed to Warren by the Fund) was paid up, and we were enabled to continue our work for some months without anxiety about financial matters: in fact, I have no doubt

> that the great success of the Fund at the present time is in a great measure due to the course then pursued (Warren 1876: 8).

By the beginning of 1869, Warren's publicity efforts were paying off and he had become something of a celebrity in England. An almost continuous stream of distinguished visitors, who assisted his enterprise in different ways, now sought him out. The visit paid by the artist and raconteur, John 'Rob Roy' Macgregor, has already been mentioned. The writer, Dr. William Russell, famous for his reporting of the Crimean War, also paid Warren a call and, through his travel book, *Diary in the East* (1869), he assisted in popularising his exploration work. The Marquis of Bute was in Jerusalem at this time and took a great interest in the excavations. He was greatly concerned about the dangers posed to the explorers through the shortage of mining frames so he handed Warren a cheque for £250 then and there, expressly for new mining frames. The painter and friend of Russell, William Simpson, an artist employed by the *Illustrated London News*, who had achieved fame through his on-the-spot battle scenes during the Crimean War, arrived in Jerusalem early in 1869 to make drawings of Warren's discoveries for his journal. Simpson made dozens of drawings during his stay there, including sketches inside the shafts and galleries excavated by Warren around the perimeter of the *Haram al-Sharif*. He made his drawings below ground by the light of magnesium wire that Warren burned for him. Forty of the watercolours based on his sketches were put on display at an exhibition held at the Pall Mall Gallery in London in 1872. Roughly half these watercolours are presently in the collections of the PEF and the Marquis of Bute snapped up most of the others. Simpson was so fired with enthusiasm for Warren's explorations that, like 'Rob Roy' Macgregor, he later became a member of the PEF's Committee.

A different sort of visitor from London was Emanuel Deutsch. He was a distinguished Jewish scholar and a friend of the great Victorian writer George Eliot (Brier 2004). Deutsch was a major source of inspiration for her famous 'Zionist' novel, *Daniel Deronda*, written in the years 1874–6. Late in 1868, at the base of the southeast angle of the *Haram* wall and 24.5 m below ground, Warren found signs cut into some of the stones and, on one of them, characters painted in red (see Fig. 13). During his visit to Jerusalem in the early spring of 1869, Deutsch inspected these markings and pronounced them to be partly mason's marks and partly alphabetic characters and numerals in the Phoenician script (Deutsch 1869/70; *SWP, Jerusalem*: 151–2). This discovery created a considerable stir, with the old Phoenician characters being used by some scholars as evidence in favour of an Israelite date for the ancient drafted masonry, and connected with Solomon's Temple.

Besides his explorations in and around the *Haram*, Warren investigated other sites in Jerusalem, adding to the information, which had been accumulated during Wilson's Ordnance Survey of the city, especially with regard to the walls, gates and aqueducts. He sunk several shafts on the Ophel, where David's City was situated, which slopes southwards from the Temple Mount towards the Pool of Siloam (Warren 1868a: 73–4; 1868b; *SWP, Jerusalem*: 226–33). Here, he found part of a

Fig. 13. View of the gallery excavated at the base of the east wall close to the southeast corner of the Haram al-Sharif, showing two visitors examining ancient characters inscribed on an ashlar by candle-light. Watercolour from a sketch made by William Simpson in 1869 (PEF/PI/09, courtesy of the Palestine Exploration Fund. See also SWP, Warren Atlas, Pls. XXI-XXIII).

massive wall, which protected the east side of the city along the Kidron Valley, and followed it for over 200 m. This section of wall was restored in the Byzantine period, but may have originated with Nehemiah's reconstruction of Jerusalem's defences in the 5th century BCE (Bartlett 2008).

Warren was also the first to properly survey the rock-cut tunnel, joining the Gihon Spring to the Siloam Pool over a meandering course some 533 m long, which he accomplished with the assistance of Sergeant Birtles in December1867 (Warren 1867f: 50–1; Warren, in Morrison *et al.*, 1871: 238–42; *SWP Jerusalem*: 353–6). Charles Wilson and his team had negotiated the tunnel during his survey of Jerusalem in 1864–5, but were unable to map it, 'as water got into the compass and prevented the needle from acting freely' (Wilson 1866: 65). Even before the discovery of the famous inscription in ancient Hebrew made in the tunnel describing its excavation (Sayce 1881), Warren correctly attributed the water conduit to King Hezekiah (in *c.* 700 BCE), in accordance with the descriptions given in the Bible:

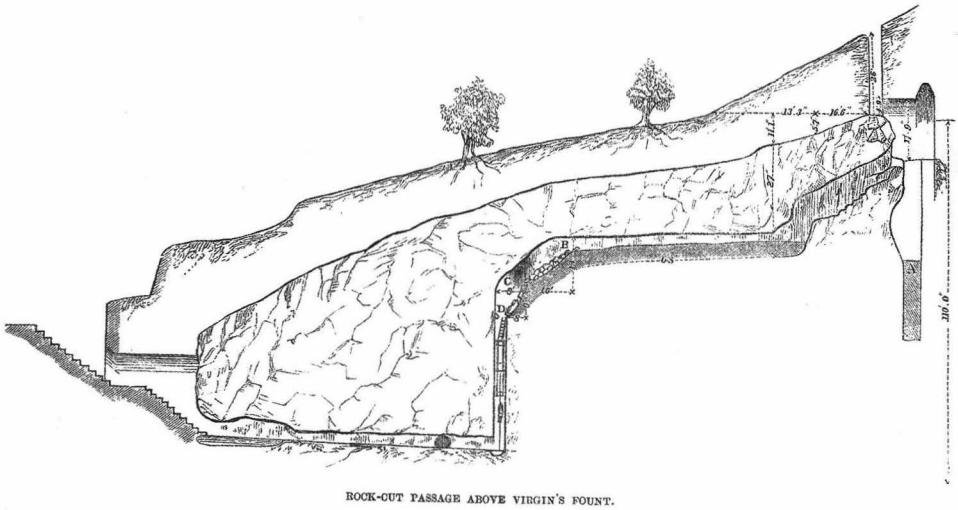


Fig. 14. Section through Warren's Shaft, situated on the eastern slope of the City of David (Warren in Morrison et al. 1871: 249), which is still the subject of controversy and stimulus to new discoveries.

'And the rest of the acts of Hezekiah, and all his might, and how he made a pool and a conduit, and brought water into the city, are they not written in the book of the chronicles of the kings of Judah?' (2 Kings 20:20; 2 Chron. 32:2–4; 30).

A little earlier, in October 1867, Warren discovered a related water system, now called Warren's Shaft, after him, which leads from a spot on the eastern slope of the Ophel Ridge to the Gihon Spring (Warren 1867b: 25; 1867e: 37–9; Warren, in Morrison *et al.* 1871, 238–56; *SWP, Jerusalem*: 363–71). It was found to consist of four distinct sections; see Fig. 14. Starting from the Ophel, a sloping tunnel with steps leads down to a horizontal tunnel, which follows a curve. This was seen to terminate in a vertical shaft, with a drop of over 12 m. The base of the shaft is connected by another tunnel to the Gihon Spring, which fed it with water. Until the 1980s this system was believed to have been man-made and considered to be a unitary scheme. More recently, it has been established that the vertical shaft originated as a natural fissure in the soft limestone rock, which has developed into a sinkhole. According to current opinion, Warren's Shaft system as we have it today is the result of two or more phases of tunnelling (Reich and Shukron 2000; 2004). In the first main phase, during the Middle Bronze Age II period (*c.*1700 BCE), the upper part of the system was cut through the soft rock. This tunnel followed a curving course with a gradual slope to its outlet on the surface, opposite a rock-cut pool protected by towers, the remains of which were discovered in the 1990s. Then, some time during the Iron Age II period (9th – 7th century BCE), the tunnel was deepened and cut into harder rock. Work was halted when the tunnel cutters

encountered the top of the vertical shaft, through which water could be drawn from the Gihon Spring. This is not the only example where an archaeological discovery made by Charles Warren opened up an ongoing debate.

Warren also examined the Muristan area, inside the walls of the Old City, which had been occupied in the Middle Ages by the Hospital of the Knights of St. John, and was then completely derelict (Warren 1867a: 21–2; 1867d, 27–8; *SWP*, *Jerusalem*: 254–61). It is fortunate that we have Warren's records of this site before it was largely rebuilt. Moreover, Warren carried out occasional reconnaissance work and some surveying outside Jerusalem. In the summer of 1867, Warren and a small team made excursions to the coastal plain of Philistia, the Dead Sea and Trans-Jordan (Warren 1869/70b; 1869/1870f; *SWP*, *Jerusalem*: 436–71), and early in 1868 a visit was made to the Jordan Valley (Warren 1868/69; *SWP*, *Jerusalem*: 473–80). Warren spent the summer and autumn of 1869 in the Lebanon collecting valuable information on the ancient remains of its towns and monumental buildings, and recording the plans of the temples that he visited (Warren 1869/70a; 1869/70c; 1869/70d; 1869/70e; *SWP*, *Jerusalem*: 480–533).

In 1871, a year after his return to England, a volume encapsulating the results of Warren's explorations was issued by the PEF under the title *The Recovery of Jerusalem*, under the editorship of the Treasurer, Walter Morrison. Warren separately published a popular account of his work in the Holy City, called *Underground Jerusalem* in 1876, which included a presention of his views. However, financial constraints delayed the publication of the definitive account of Warren's explorations by the PEF until 1884. This appeared in print as the Jerusalem Volume of the *Survey of Western Palestine*, together with a large folio atlas, bearing the inelegant title, *Plans, Elevations, Sections, etc., Shewing the Results of the Excavations at Jerusalem, 1867–79*. The Jerusalem Volume was put together with the considerable assistance of Claude Conder. The portfolio of plates is today simply referred to as the 'Warren Atlas'.

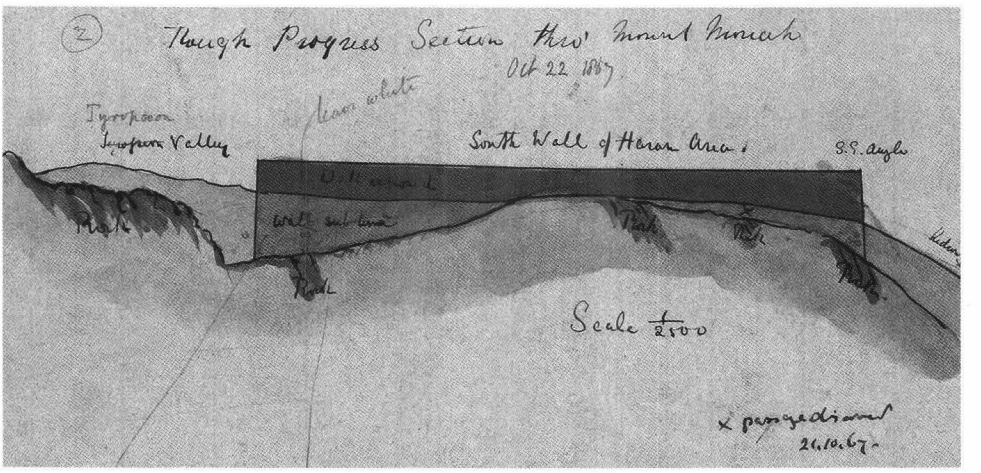
Warren's explorations were conducted before archaeology became a science and the concept of stratigraphy was as yet unheard of. There were no established excavation methodologies or developed dating techniques, such as pottery sequences, to guide him, so Warren was unable to establish reliable chronologies for his finds, which included a large quantity of ceramics and other minor objects. Occasionally he and his team did irreparable damage to archaeological remains, as when they blasted the voussoirs of Robinson's Arch and broke up Herodian paving stones, in the course of descending to the canal beneath. But to criticise some of their methods is to judge with the benefit of hindsight. For all that, the achievements of Warren's expedition to Jerusalem were considerable. Through their daring mining operations, Warren and his team were able to accomplish an extensive examination of much of the circumference of the *Haram al-Sharif*. Their work furnished fresh knowledge about the construction of the *Haram* platform, which we now know to be substantially the work of Herod the Great. However, the most enduring contribution of Warren's explorations was in bringing to light the topography of the ancient city, which lay hidden beneath thick layers of debris, to

the extent of concealing the Tyropoeon Valley and hiding or distorting other natural features. In his verbal report to the Annual General Meeting of the Palestine Exploration Fund held on 16 May 1870, he succinctly summed up the two major achievements of his exploration work in Jerusalem as follows:

> We have now advanced so far as to be able to lay down an approximate contoured plan of the city as it existed in olden times, and we have also examined round two-thirds of the Haram wall on the outside, some part of which is acknowledged by each theorist to have formed part of the outer court of Herod's Temple (Warren 1869/70: 338).

Indeed, Warren's descriptions and drawings of the topography of Jerusalem and of the ancient walls are still used by archaeologists to this day. The tremendous public interest that Warren's expedition generated and the extensive press coverage that it received were seen by the Committee of the PEF as a vote of confidence in its ambitious programme of exploration and gave it the encouragement to raise fresh funds for proceeding with a survey of the entire Holy Land.

Warren had not succeeded in settling all the questions that he and his team were asked to address. However, his investigations did prove beyond reasonable doubt that the Temple could not have been located in the southwest part of the *Haram* enclosure, as James Fergusson had advocated, because that site had formed part of the deep Tyropoeon Valley up to the time that Herod had filled it up to incorporate it into his Temple scheme (Warren 1876, 317–19; *SWP, Jerusalem*, 97–116; see



15. 'Section through Mount Moriah (i.e. the Temple Mount),' coincident with the south wall of the Haram, drawn by Warren on 22 October 1867 (uncatalogued; courtesy of the Palestine Exploration Fund). As can be seen in this sketch, the southwest corner of the Haram (shown towards the left) was raised high above the Tyropoeon Valley by King Herod, so that Solomon's Temple could not have been situated there.

Fig. 15). Rather, the Temple Sanctuary must have been situated on the elevated inner platform of the Dome of the Rock, which marks the summit of a spur and the highest natural feature within the enclosure. Here, one is reminded of the testimony of Josephus, the 1st century historian, namely that the Temple Sanctuary was built at the top of the 'mountain' (Jos., *Ant.* 8: 97; cf. Ezek. 43:12; *Letter of Aristeas* 84). Having fixed the site of the Temple Sanctuary, the second main plank of Fergusson's theory, that the Dome of the Rock was the original Church of the Holy Sepulchre built by the Emperor Constantine, automatically collapses. More recent studies at the traditional Church of the Holy Sepulchre have brought to light and elucidated the Constantinian ensemble of buildings (Gibson and Taylor 1994).

Fergusson refused to accept Warren's conclusions with good grace and persisted with his theories, which he publicised in a book entitled *The Temples of the Jews and the Other Buildings in the Haram Area at Jerusalem*, published in 1878. In that publication, he tried to disparage Warren's work and mischievously dragged Wilson into this vendetta. He rashly asserted:

> The praise of accuracy must be understood as applying only to the work of Major Wilson ... The surveys of Captain Warren ... have only been published in rough lithographs executed from tentative drawings sent home by him during the progress of the survey, or in a popular manner and on a small scale, in a work entitled 'The Recovery of Jerusalem', in 1860, [(sic!). This is a slip by Fergusson because 'Recovery of Jerusalem' was published in 1871!] As neither of these make any pretensions to scientific accuracy, Major Wilson has undertaken to republish his Notes, incorporating Captain Warren's work with his own. The difficulty, however, of reconciling the two has been so great that the task has been indefinitely delayed, and may not improbably have to be abandoned (Fergusson 1878: 11–12, n. 1).

Seemingly oblivious to the embarrassment that he might cause, Fergusson brazenly continued:

> Major Wilson informs me that he has found it impossible to protract Captain Warren's data in such a manner as to agree with the Ordnance Survey (of Jerusalem) (Fergusson 1878: 172, n. 1).

These aspersions on his work provoked a furious response from Warren. In his letter of complaint to the Committee of the PEF, channelled through Walter Besant, the PEF Secretary, Warren challenged Fergusson's accusations and, more particularly, the comments attributed to Wilson (*PEF Archives*, JER/WAR/52, 22 June 1880). He requested that a special sub-committee of the PEF be appointed to determine, *inter alia*:

1. Whether the plans I sent from Palestine can be considered as 'tentative drawings' without pretension to scientific accuracy.
2. Whether there are any grounds for the remark imputed to Col. Wilson, that he found it impossible to protract my work so as to agree with his own, it being

shown that in the plans I forwarded the work was already protracted on to O. Survey sheets.

The special Sub-Committee was duly set up and vindicated Warren. The minutes of the meeting of the Executive Committee, held on 5 October 1880, included a denial from Wilson of the charges that he was reputed to have made. The report of the Sub-Committee, endorsed by the Chairman of the PEF, James Glaisher, was appended to the meeting minutes. It pronounced that:

1. The drawings under consideration are highly finished, very distinctly and clearly drawn and on a large scale, so far as the Sub-Committee can discover there are some few discrepancies between Colonel Warren's plans and the engraved sheets edited by Colonel Wilson but these are trivial and only such as might occur with the most careful surveyors. Even in these cases there is no evidence that Colonel Warren's plans may not give the correct representation of the localities.
2. With the unimportant exceptions alluded to above we find that Colonel Wilson appears to have accepted the whole of the plans as perfectly trustworthy and has engraved them from Colonel Warren's originals and published them in the year 1876.

Glaisher further expressed the hope that in the volume of 'Memoirs' devoted to the excavations at Jerusalem, planned by the PEF, 'all Colonel Warren's finished drawings may appear as his own work'. The definitive report of Warren's work duly appeared, with an accompanying album of maps and plans based on Warren's drawings, under the joint authorship of Claude Conder and himself in 1884, as part of the *Survey of Western Palestine*.

While the Sub-Committee was deliberating, Warren rushed to press with an exposition of his side of the argument, published as *The Temple or the Tomb; Giving Further Evidence in Favour of the Authenticity of the Present Site of the Holy Sepulchre, and Pointing Out Some of the Principal Misconceptions Contained in Fergusson's 'Holy Sepulchre' and 'The Temples of the Jews'*, which savagely attacked his antagonist's raft of theories. He was absolutely merciless in his counter-attack. On the very title page of his book, Warren flung back in Fergusson's face a jibe that the latter had earlier directed at another distinguished scholar, Robert Willis, a long-time Professor of Mechanics at Cambridge and accomplished antiquarian, for affirming the traditional location of the tomb of Jesus at the spot marked by the Rotunda of the Church of the Holy Sepulchre:

It would be demanding a little too much from human nature to ask any one in his position to confess the error of his ways, and to admit the success of a rival (Fergusson 1878: p. vii; Warren 1880, title page).

Warren had demonstrated pugnacity, which was to stand him in good stead in later years.

It was ill health that brought the expedition to Jerusalem to a close and forced Charles Warren to return to England in the spring of 1870. It took him four years to rid himself of fever and fatigue. However, by 1877 he had sufficiently recovered to accept an invitation by the Colonial Office to serve in South Africa as a special commissioner to delimit the boundary between British-administered Griqualand West and the Boer Republic of the Orange Free State. The discovery of diamonds at Kimberley on their common border had made this boundary demarcation a British priority. Although, as a British official Warren represented the 'enemy' in the eyes of the Boers, his personal magnetism and tact endeared him to them and one Afrikaners community in the northern Cape honoured him by naming their settlement Warrenton after him; it is still in existence. In October 1877Warren hosted the writer, Anthony Trollope, in Kimberley, during his visit to South Africa.

Warren saw action in the Cape Frontier War of 1877–8, sustaining severe injuries in combat, and in 1879 he was appointed British Administrator and Commander-in-Chief of Griqualand West. Three years later, in 1882, he was asked to lead a search party to find the orientalist and explorer, Professor Edward Palmer, and his companions in Sinai. They were found murdered and Warren tracked down the culprits, who were duly punished. In 1884 he was elected Fellow of the Royal Society. Back in South Africa later that year, Warren was appointed Administrator of the British Protectorate of Bechuanaland. Warren stood as Liberal Party candidate for the Hallam Constituency of Sheffield in the general election of 1885 on a platform that included free primary education, home-rule for Ireland and abolition of hereditary privileges in the House of Lords. He was defeated by a narrow margin of just 609 votes. In March 1886 Warren was appointed Commissioner of the Metropolitan Police and held that post for two years, dealing with such matters as the security arrangements for Queen Victoria's golden jubilee and the notorious Whitechapel ('Jack the Ripper') murders.

Further military duties followed, first as Commander in Singapore (1889–94), then as Commander of the Thames defences (1895–9). From 1899 to 1900, Warren served in the Boer War, as Senior Divisional Commander to Sir Redvers Buller in Natal, participating in several of the epic engagements. He incurred blame for the debacle at Spion Kop in January 1900, when the British forces relinquished a strategic hill to the Boers while attempting to relieve the besieged town of Ladysmith. Warren was promoted to the rank of General in 1904 and Colonel Commandant of the Royal Engineers the following year. He died at Weston-super-Mare in 1927, after enjoying a long retirement. During these years Warren maintained his close connection with the Palestine Exploration Fund, taking an interest in its activities and continuing to publish on the subject of ancient Jerusalem until late in his life. He also wrote monographs on ancient weights and measures (Warren 1903; 1913). Unfortunately, after Warren's death, his son destroyed his personal archives.[10]

Notes

1 Reared in Scotland, James Fergusson went to India as a young man where he briefly worked for the mercantile firm of Fairlie, Fergusson & Co. in Calcutta, in which his elder brother was a partner, and then set up his own indigo business in Bengal. He made a fortune from these commercial activities and was able to retire to London after only ten years. While travelling extensively through India between 1835 and 1845, Fergusson developed an interest in Indian architecture, and painstakingly measured and recorded ancient buildings throughout the sub-continent. He quickly became a leading authority on the subject, which was little appreciated by Europeans up till that time. Fergusson's first publication on the subject was on the rock-cut temples of India, in the *Journal of the Royal Asiatic Society* in 1843. His landmark *History of Indian and Eastern Architecture* (1876) is still a basic work of reference on Indian architecture, and remains in print. Fergusson's major achievement was to present Indian architecture to western readers on a par with 'the other great styles, which have ennobled the arts of mankind', as he justly remarks in the preface (Fergusson 1876: p. xi). His studies led him to undertake a critical survey of world architecture, which was initially published in two volumes in 1855 under the title of *The Illustrated Handbook of Architecture, Being a Concise and Popular Account of the Different Styles of Architecture Prevailing in All Ages and Countries*. On the life of James Fergusson, see Burnet 1888.

2 Jacobson 1999. For a detailed biography of Charles W. Wilson, see Watson 1909.

3 For a detailed biography of Charles Warren, see Williams 1941.

4 Warren summed up the obstacles from officialdom that he ran up against, and how he proceeded by stealth: 'I was sent out to do that which the vizier's letter did not authorize, which the Pacha (i.e. Governor of Jerusalem) forbade, which the (British) Consul urged me to abandon; my work was one of active progression, in which each day I run the chance of getting into complications, but which I avoided by always looking ahead and playing my game carefully.' (Warren 1876: 408–9).

5 However, an Ottoman *firman*, dated 1 May 1869 and signed by the Sultan himself, expressly stated that Warren should on no account be permitted to make excavations at the *Haram al-Sharif*, the *Masjid al-Aqsa*, the *Kubbet al-Sakhra* [Dome of the Rock] or any other places in the immediate vicinity of the *Haram al-Sharif* (Morrison *et al.* 1871: 330).

6 Reproduced in Rob Roy 1869: 20–21.

7 See, also, *SWP*, *Warren Atlas*, Pls. XVIII, IXX and XX.

8 *SWP*, *Jerusalem*, 176–83. The arch fragment was called after the American theologian, Edward Robinson, who had first drawn attention to it, believing that it had formed part of the bridge leading from Herod's Temple to the Upper City, mentioned by Josephus (Robinson and Smith 1841, vol. 1: 238; 287–8; Jos., *War* 6: 325; *Ant.* 15: 410).

9 Jos., Ant. 15: 410. Warren seems, initially, to have wavered in his interpretation because, in *The Recovery of Jerusalem*, he describes Robinson's Arch as part of a bridge leading to the Upper City (Warren, in Morrison *et al.* 1871: 310).

10 Personal communication from Penny Warren.

Bibliography

Abbreviated References

DNB	*Dictionary of National Biography*, ed. L. Stephen and S. Lee, London 1885–1901.
P&N	*PEF Proceedings and Notes,* London 1865–9.
SWP, Jerusalem	*Survey of Western Palestine:* C. Warren and C.R. Conder, *Jerusalem Volume,* London 1884.
SWP, Warren Atlas	*Survey of Western Palestine: Plans, Elevations, Sections, &c., Shewing the Results of the Excavations at Jerusalem, 1867–70,* London 1884.

Other references

Bartlett, J., (2008).'Nehemiah's Wall', *PEQ* 140.2, 77–9.
Bartlett, W. H., (1844). *Walks about the City and Environs of Jerusalem* (London).
Brier, P., (2004). 'Deutsch, Emanuel Oscar Menachem', *Oxford DNB* (Oxford) [http://www.oxforddnb.com/view/article/7561, accessed 28 Sept. 2009]
Burnet, G.W., (1888). 'Fergusson, James', in *DNB*, vol. 6: 1224–6.
Conder, C. R., (1878). *Tent Work in Palestine: A Record of Discovery and Adventure*, 2 vols. (London).
Conder, C. R., (1879). 'The High Sanctuary at Jerusalem', *Transactions of the Royal Institute of British Architects*, Session 1878–1879: 25–60.
Conder, C. R., (1909). *The City of Jerusalem* (London).
Deutsch, E., (1869/70). 'Letter of Mr. Emanuel Deutsch on the Characters Found by Lieut. Warren at the S.E. Angle of the Haram Area', *PEFQSt*. 1–2: 33–7.
Eliav, M., (1997). *Britain and the Holy Land, 1838–1914: Selected Documents from the British Consulate in Jerusalem* (Jerusalem).
Fergusson, J., (1847). *An Essay on the Ancient Topography of Jerusalem; with Restored Plans of the Temple, and with Plans, Sections, and Details of the Church Built by Constantine the Great over the Holy Sepulchre, Now Known as the Mosque of Omar* (London).
Fergusson, J., (1861). *Notes on the Site of the Holy Sepulchre at Jerusalem: An Answer to 'The Edinburgh Review'* (London).
Fergusson, J., (1865). *The Holy Sepulchre and the Temple at Jerusalem: Being the Substance of Two Lectures Delivered in the Royal Institution, Albemarle Street, on 21st February, 1862, and 3rd March, 1865* (London).
Fergusson, J., (1878). *The Temples of the Jews and the Other Buildings in the Haram Area at Jerusalem* (London).
Gibson, S., and Jacobson, D. M., (1996). *Below the Temple Mount: A Sourcebook on the Cisterns, Subterranean Chambers and Conduits of the Haram al-Sharif* (Oxford).
Gibson, S., and Taylor, J. E., (1994). *Beneath the Church of the Holy Sepulchre Jerusalem: The Archaeology and Early History of Traditional Golgotha* (London).
Jacobson, D. M., (1999). *Introduction to the Palestine Exploration Fund Explorations at Jerusalem, 1867–1870* (Introductory Essay) (London).
Jacobson, D. M., (2003). 'Charles Warren v. James Fergusson', *Biblical Archaeology Review*, 29.5: 58–69; 84–5.
Lewis, J. P., (1988). 'James Turner Barclay: Explorer of Nineteenth-Century Jerusalem', *Biblical Archaeologist*, 51.3: 163–70.
Mazar, B., (1975). 'The Archaeological Excavations near the Temple Mount', Pp. 25–40 in Y. Yadin (ed.), *Jerusalem Revealed: Archaeology in the Holy City 1968–1974* (Jerusalem).
Morrison, W., *et al.*, (1871). *The Recovery of Jerusalem; A Narrative of Exploration and Discovery in the City and the Holy Land* (London).
Pierotti, E., (1864). *Jerusalem Explored* (London).
Prothero, R. E., (1893). *The Life and Correspondence of Arthur Penrhyn Stanley, D.D., Late Dean of Westminster*, 2 vols. (London).
Prothero, R. E., (1897). 'Stanley, Arthur Penrhyn', in *DNB*, vol. 18: 931–5.
Reich, R., and Shukron, E., (2000). 'The Excavations at the Gihon Spring and Warren's Shaft System in the City of David', Pp. 327–39 in H. Geva (ed.), *Ancient Jerusalem Revealed* (Expanded Edition) (Jerusalem).
Reich, R., and Shukron, E., (2004). 'The History of the Gihon Spring in Jerusalem', *Levant* 36: 211–323.
Rob Roy (Macgregor, J.), (1869/70). '"Rob Roy" on the Works at Jerusalem', *PEFQSt*. 1–2: 17–23.

Robinson, E., and Smith, E., (1841). *Biblical Researches in Palestine, and in the Adjacent Regions. A Journal of Travels in the Year 1838*, 3 vols. (London).
Russell, W. H., (1869). *A Diary in the East during the Tour of the Prince and Princess of Wales* (London).
Sayce, A. H., (1881). 'The Ancient Hebrew Inscription in the Pool of Siloam', *PEFQSt*. 13: 69–73; 141–53; 282–5.
Smith, W., (ed.), (1860–63). *A Dictionary of the Bible, Comprising its Antiquities, Biography, Geography and Natural History*, 3 vols. (London).
Stanley, A. P., (1856). *Sinai and Palestine in Connection with Their History* (London).
Warren, C., (1867a). 'Letter VIII', *P&N*, 2 October: 19–22.
Warren, C., (1867b). 'Letter X', *P&N*, 11 October: 23–5.
Warren, C., (1867c). 'Letter XI', *P&N*, 12 October: 26.
Warren, C., (1867d). 'Letter XII', *P&N*, 22 October: 26–8.
Warren, C., (1867e). 'Letters XIV–XV', *P&N*, 28 October: 35–40.
Warren, C., (1867f). 'Letter XIX', *P&N*, 12 December: 49–52.
Warren, C., (1868a). 'Letter XXIX', *P&N*, 2 October: 71–4.
Warren, C., (1868b). 'Letter XXX', *P&N*, 12 November: 75.
Warren, C., (1868/69). 'Notes of a journey up the Jordan made by Lieut. Warren in February 1868, in company with Dr. Chaplin', *P&N*, 16 pp.
Warren, C., (1869/70a). 'Notes on a visit to Saida in July 1869', *PEFQSt*. 1–2: 136–41.
Warren, C., (1869/70b). 'Remarks on a visit to 'Ain Jidy and the southern shores of the Dead Sea in mid-summer 1867', *PEFQSt*. 1–2, 143–50.
Warren, C., (1869/70c). 'The temples of Coele-Syria', 183–210.
Warren, C., (1869/70d). 'Summit of Hermon', *PEFQSt*. 1–2: 210–15
Warren, C., (1869/70e). 'Our summer in the Lebanon, 1869', *PEFQSt*. 1–2: 215–44
Warren, C., (1869/70f). 'Expedition to east of Jordan, July and August 1867', *PEFQSt*. 1–2: 284–311.
Warren, C., (1869/70g). 'Annual General Meeting: Report of Captain Warren R.E.', *PEFQSt*. 1–2: 337–47.
Warren, C., (1876). *Underground Jerusalem: An Account of Some of the Principal Difficulties Encountered in its Exploration and the Results Obtained. With a Narrative of an Expedition through the Jordan Valley and a Visit to the Samaritans* (London).
Warren, C., (1880). *The Temple or the Tomb; Giving Further Evidence in Favour of the Authenticity of the Present Site of the Holy Sepulchre, and Pointing Out Some of the Principal Misconceptions Contained in Fergusson's 'Holy Sepulchre' and 'The Temples of the Jews'* (London).
Warren, C., (1903). *The Ancient Cubit and Our Weights and Measures* (London).
Warren, C., (1913). *The Early Weights and Measures of Mankind* (London).
Watson, C. M., (1909). *The Life of Major-General Sir Charles William Wilson, Royal Engineers, K.C.B., K.C.M.G., F.R.S., D.C.L., L.L.D., M.E.* (London).
Watson, C. M., (1915). *Fifty Years' Work in the Holy Land: A Record and a Summary, 1865–1915*, (London).
Williams, W. W., (1941). *The Life of General Sir Charles Warren G.C.M.G., K.C.B., F.R.S. Colonel Commandant, Royal Engineers* (Oxford).
Wilson, C. W., (1866). *Ordnance Survey of Jerusalem Made in the Years 1864 to 1865* (Southampton).
Wilson, C. W., (1880a). *Picturesque Palestine, Sinai and Egypt: Vol. 1, Jerusalem the Holy City* (London).
Wilson, C. W., (1880b). *The Masonry of the Haram Wall*, *PEFQSt*. 12.2: 9–65.
Young, P. M., (1980). *George Grove, 1820–1900: A Biography* (London).

Strata: Bulletin of the Anglo-Israel Archaeological Society 2009 Volume 27

John Garstang's Excavations at Jericho: A Cautionary Tale

FELICITY COBBING

The city of Jericho is a particularly famous Biblical site, even though it features fairly infrequently in the Hebrew Bible. It is perhaps best known from the story told in the Book of Joshua (Josh. 2:1– 6:26). In this story, following the death of Moses on Mount Nebo in Moab, the baton fell to Joshua to lead the tribes of Israel over the River Jordan into the Promised Land of Canaan. Joshua, a clever general, sent spies into the city to collect information to facilitate an attack. On the spies' return, and with instructions received from God, Joshua and his men laid siege to the city, walking around the strong walls for seven days, blowing on trumpets. After a final blast on the trumpets and accompanied by a great deal of shouting, the walls of Jericho came tumbling down and the Israelites were able to take the town and destroy it.

The account of Joshua's conquest of Jericho is a lynch-pin in the Biblical story of the wandering Israelites' entry into the Promised Land and is therefore crucial for the creation of the Biblical kingdom of Israel under David and Solomon some time later.

The site of Tell es-Sultan (Fig. 1) on the west bank of the Jordan River had been identified with Jericho as far back as the year 333 CE, when it is mentioned by the 'Bordeaux Pilgrim' (Wilkinson 1981: 160–1). It was first investigated archaeologically by the Palestine Exploration Fund, both by Charles Warren in 1868 (Warren 1869), and by Claude Conder in 1874 (Conder and Kitchener 1883: 173–84; 222–3). The site was excavated by Ernst Sellin and Carl Watzinger for the German Oriental Society between 1907 and 1909 and again in 1911 (Sellin and Watzinger 1913). The German expedition revealed a great deal, particularly about the 2nd millennium BCE Middle Bronze Age defensive systems and the preceding Early Bronze Age walls. Portions of what the excavators characterised as 'Israelite occupation' dating from the 11th to the 6th centuries BCE were also found.

John Garstang came to the site in 1930, and with sponsorship from numerous sources conducted excavations there until 1936 (Garstang 1932a; 1932b; 1933; 1934; 1935; 1936) (see Fig. 2) His results were controversial from the outset. Garstang claimed that he had excavated evidence of the violent destruction of a Late Bronze Age city, dating from around 1400 to 1385 BCE. He attributed this destruction to an earthquake which aided the conquest of the site by Joshua and the Israelites. Initially, the controversy was not over his attribution of an archaeological

Fig. 1. PEF/P/JER/GAR/PN25.15: Jericho from the North (Garstang, 1931).

Fig. 2. PEF/P/JER/GAR/AlbumJ33.PSR17.Pl.4: Garstang at work in the Palace Store Rooms at Jericho (anon. 1933).

event to a Biblical story but rather, the controversy was over the dating of the destroyed city itself. The American scholar W. F. Albright preferred a date of 1375 to 1300 BCE, whilst Father Vincent of the École Biblique favoured an even later date of 1250 BCE (see Bartlett 1982: 32–33).

Some years later Garstang asked the British archaeologist Kathleen Kenyon to look again at his results. This she did, using the archival material from the excavations which Garstang had gifted to the PEF in 1949. She published her findings in the 1951 edition of the *Palestine Exploration Quarterly* (101–38). The following year, she began excavations at the site herself, which lasted until 1958 (Fig. 3). Her results were dramatic. The walls attributed by Garstang to the Late Bronze Age, and Joshua's destruction, were in fact shown to be at least a thousand years older, belonging to the Early Bronze Age of the 3rd millennium BCE. In addition, she found there was very little in the way of any Late Bronze Age settlement at Jericho at all. As a consequence, the likelihood of an Israelite army destroying the town began to evaporate. The Early Bronze Age was deemed to be too early by anybody's reckoning for these events to have plausibly taken place, as was the prosperous Middle Bronze Age which followed. During the Late Bronze Age, the region was controlled by the Egyptians, making it highly unlikely that such an invasion of Canaan, as is told in the Bible, could have happened then. The only window for such an event to have occurred was towards the end of the Late Bronze Age, around 1200 BCE when the Egyptians were dissolving their empire and would have been powerless to halt such movements of people. However, as Kenyon demonstrated, the occupation of Jericho during the Late Bronze Age was minimal and no walls dating to this time were destroyed (Kenyon 1957: 259–63). Taking all these factors into account, the entire story, not only of the destruction of Jericho, but also of the Israelite conquest of Canaan, began to be questioned.

As a result of these revelations, John Garstang has often been seized upon, particularly by the media and general public, to exemplify the dangers of linking archaeological finds too explicitly to the Biblical texts. However, this opinion of Garstang, which has tainted his work at Jericho is, I believe, unbalanced. It takes out of context just one element of an otherwise varied and extraordinary career in archaeology not only in Palestine but also in Egypt and Anatolia, as an active field archaeologist and also as an administrator and a university lecturer at Liverpool. Indeed, John Garstang was largely responsible for establishing the administration of archaeological excavation, research and publication in British Mandate Palestine, as well as making a significant contribution to the advancement of the subject itself.

In addition, the popular perspective misrepresents Garstang's own ideological position in relation to archaeology.

Although perhaps not as well known as Flinders Petrie, or later Kathleen Kenyon, John Garstang was an archaeologist of considerable energy who achieved a great deal in his professional career. Born in 1876, Garstang started off his academic life as a mathematician, studying the subject at Jesus College, Oxford. Whilst there, his interest in archaeology took hold and, aged 23, he joined Flinders Petrie at his excavations at Abydos in Egypt. From 1904 to 1909 he dug at Sakje Geuzi in

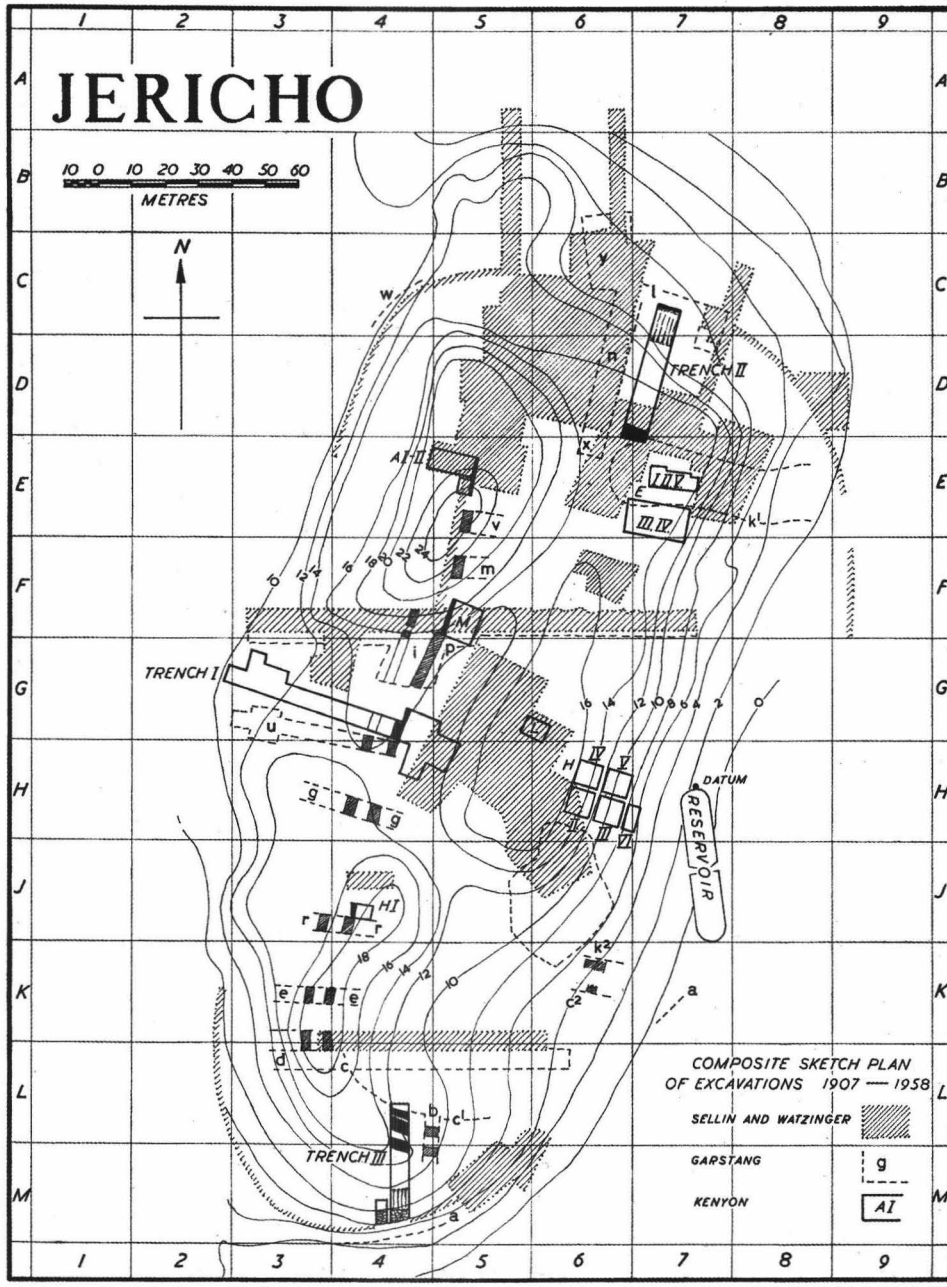


Fig. 3. Plan of successive areas of excavations at Jericho (from Kenyon 1981, Vol.3 Fig 1).

Anatolia, returning in 1911. From 1900 until the First World War, he directed excavations at numerous sites in Egypt, including Abydos, Beni Hassan and Naqada. From 1909 to 1914 he excavated the site of Meroë in the Sudan.

At the tender age of 26 he was appointed Honorary Reader in Egyptian Archaeology at Liverpool University and five years later, in 1907, he became Professor of the Methods and Practice of Archaeology, a post which he held until his retirement in 1941. In 1912 he was appointed as the first Director of both the British School of Archaeology in Jerusalem (BSAJ), and the Department of Antiquities in the newly formed British Mandatory Government of Palestine. He excavated a number of sites in Palestine, including Ashkelon, Hazor and, of course, Jericho. After the Second World War Garstang went again to Anatolia, where he became the founding Director of the British Institute of Archaeology at Ankara in 1947. He excavated at Mersin in Cilicia, uncovering Neolithic and Bronze Age remains. He died in 1956 in Beirut (Chapman 1997: 390).

The recently opened Egyptian gallery at the University of Liverpool's Garstang Museum displays much from Garstang's own excavations in Egypt. The new gallery is particularly illuminating with regard to his personality, as well as his achievements and working methods in this field. Garstang's interest in the burial practices of ordinary ancient Egyptians was unusual at a time when many were focusing on the remains left by the elite. It seems also that he was a talented fundraiser, with a gift for targeting wealthy benefactors and institutions for money to fund his excavations.

As previously mentioned, Garstang's career in Palestine began when he was appointed as the first Director of the BSAJ in 1920. At the same time, he was also made the first Director of the British Mandatory Department of Antiquities of Palestine, a job which he held for six years. This double role put him in an extraordinary position, and effectively made him the architect of British antiquities policy and practice, as well as putting him in direct control of the programme of research. Garstang was an ideal choice for this hugely significant role. He was industrious and very capable but also unassuming and gentlemanly in his manner. Under his directorship the framework for the antiquities policy in Palestine was designed, refined and put into practice. His approach was pragmatic and enlightened and he established a robust framework which helped generate what was undoubtedly a very fruitful period of archaeological research in the region.

Together with W. F. Albright of the American Schools of Oriental Research and Father Vincent of the École Biblique, he was responsible for the formalisation of the archaeological terminology in Palestine, within the universal three–age system. It continues in use to this day, albeit with strains on its integrity beginning to show in places.

Perhaps the most visible sign of Garstang's impressive contribution to the archaeological heritage of Palestine is what is now the Rockefeller Museum in Jerusalem. Currently home to the Israel Antiquities Authority, under the British Mandate it was the headquarters for a few years of the Department of Antiquities of Palestine. The present iconic building, designed by Austin Harrison, was finished

in 1938 some time after Garstang's time as Director. However, the very existence of the museum and the significance of its collections can be largely attributed to his industry, both as the designer of British archaeological policy in Palestine and as a field archaeologist himself.

Following the First World War, the British Mandate inherited a collection of archaeological material from numerous excavations which the Ottoman administration had brought together as a significant museum exhibit in the last few years of the 19th century. The exhibits included, among other things, material from the British PEF excavations at sites such as Jerusalem and the Shephelah sites of Tell Sandahannah, Tell Judeidah, and Tell es-Safi. The Ottomans had enlisted as consultant the American archaeologist and explorer for the PEF, Frederick Jones Bliss. Finds from later excavations, including the PEF's seasons at Tell Gezer and Beth-Shemesh, were also housed in this Ottoman museum, which had its first home in the Mamuniyyah School building in the Old City.

Under Garstang's directorship, this collection was protected and re-housed, first in the Citadel from 1921–4 and then at the British School of Archaeology, which also served for a time as the headquarters for the Department of Antiquities itself. John Garstang appointed his close friend and colleague W. J. Phythian-Adams as the first Keeper of the Palestine Archaeological Museum. It is very clear from the PEF's archives, however, that Garstang took a close interest in the development of the museum. Numerous photographs of the museum in its various stages are contained in the archives together with a not insignificant collection of correspondence relating to it. During the Mandate, the already impressive collections were enhanced by material from several newly excavated sites, including Tell el-'Ajjul, Tell Fara and Tell Jemmeh (all excavated by the now elderly Flinders Petrie); Samaria, excavated under the direction of John Crowfoot leading the Joint Expedition; Tell Beit Mirsim under the direction of W. F. Albright; and Tell ed-Duweir, now better known as the site of Lachish, directed by James Starkey on behalf of the Welcome-Marston Expedition. In addition, material from Garstang's own excavations, including those at Jericho, were added to the collections.

John Garstang donated a wealth of archival material to several institutions worldwide including the Palestine Exploration Fund and Liverpool University. The PEF hold his records from Ashkelon and Hazor, all the records from his Jericho excavations and numerous photographs of sites throughout the country. He was a very fine photographer and a meticulous record keeper. His photograph albums of the excavations at Jericho are wonderful records, revealing a high level of care and attention, and are a lesson to us all in thoroughness.

It is clear that John Garstang was no fool. He understood as well as anyone in his day the material culture of ancient Palestine, and indeed the material culture of many parts of the eastern Mediterranean, and he was a careful and scientific man.

Turning now to his excavations at Jericho, Garstang's first season was in 1931 and his last in 1936. The excavations were undertaken not, as one might expect, under the auspices of the BSAJ or the PEF, but were sponsored instead by numerous British and French organisations as well as individual sponsors such as Lord

Melchett and Mr. Davies Bryan. However, the main sponsor was Sir Charles Marston, which gave him a great deal of influence in the project.

Garstang excavated in several areas, uncovering remains from all periods of the site's history. He identified the following phases of occupation, dating them from the 4th to the 1st millennium BCE, with five main city phases, four of which fall within the Bronze Ages (Garstang and Garstang 1948: 1).

This phasing was as follows:

Stone Age
4500–3000 BCE: 'Pre-City Phase Neolithic'

Bronze Age
3000–2500 BCE: City 1: 'Babylonian Influence'
2500–2000 BCE: City 2: 'Babylonian Influence'
1900–1750 BCE: City 3: 'Canaanite'
1750–1600 BCE: City 3: 'Hyksos Stronghold'
1580–1480 BCE: City 4: Egyptian Domination
1480–1400 BCE: City 4: 'Egyptian Suzerainty'
1400–1385 BCE: City 4: 'Destruction by Joshua' (Josh. Vi)

Iron Age
1285–1150 BCE: 'Blockhouse and cremation pit'
900–700 BCE: City 5: 'Restoration of Jericho during reign of Ahab' (I Kings 16: 34)

Garstang's excavations uncovered much of interest from the early levels of the site, which contributed to a greater understanding of the Neolithic period in Palestine. Following subsequent excavations at numerous sites, it would transpire that the dates he gave to these early levels were far too low. Remains which Garstang dated to the 4th millennium BCE should have been dated to the 8th millennium BCE. Garstang's excavation of this Neolithic material marks the beginning of our detailed understanding of these early periods (Bartlett 1982: 32). However, the subject of Garstang's controversy is not the Neolithic phases at Jericho, but rather the features which he associated with Joshua's alleged destruction, in particular, his 'Double Walled Rampart' which he attributed to his 'City 4'.

It would appear from the archives, and from his actions following his excavations, that the dating of the double walls troubled Garstang (see Figs. 4 and 5). At no stage do you feel he was entirely happy with the solution. Given his uncertainty, it seems out of character that this careful and precise man should make such a definite and public statement as the one he came to be associated with, linking Joshua and the walls of Jericho.

Kathleen Kenyon's 1951 article explains the mechanics of Garstang's error. Firstly, he was confused by the extent of mixing of ceramic material cased by erosion. It is obvious both from the archives and from the published sections that

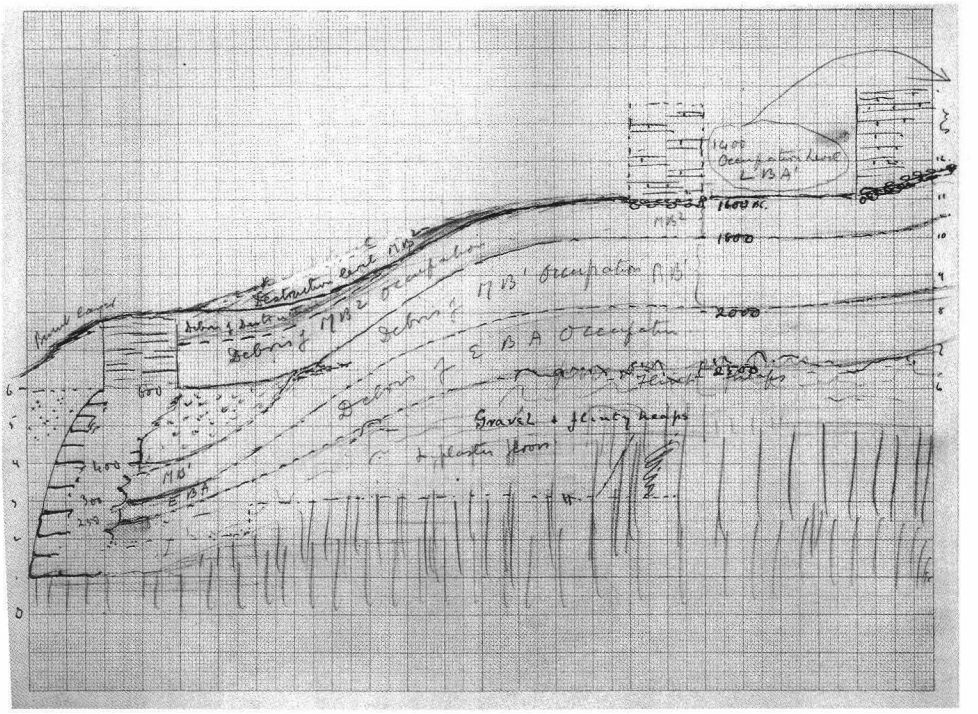


Fig. 4. PEF/DA/JER/GAR/DSP/1.4: sketch drawing by Garstang of north section showing his interpretation of the stratigraphy from the Fosse to the 'Double Rampart' on the summit of the tell.

he did not really observe the erosion (see Kenyon 1951: Fig. 4 and Garstang 1932: 5, Fig. 1).

This failure of observation had a particular effect on his dating of the use of the 'Palace Store Rooms' (Fig. 6). These extensive store rooms were filled with large storage jars packed with foodstuffs. The jars were demonstrably Middle Bronze Age and were therefore attributed to his City 3, but the erosion of the site had brought later material down into these contexts, leading Garstang to suggest that they were partially restored and remained to some extent in use during the Late Bronze Age (his City 4), despite being so comprehensively destroyed by fire. As a result, Garstang's Late Bronze Age City 4 was seen as a much more extensive settlement than it really was.

Secondly, he overlooked the slope, which might affect the levels of the site and therefore the stratigraphy. Thirdly, he failed to observe a layer of silting indicating abandonment. This is important because, without it, Garstang again saw a continuous occupation of the site from the Middle Bronze Age, through the 15th and 14th centuries, ending with the destruction of what he saw as a major city in about 1400 BCE. With the silting layer, however, Kenyon recognised a hiatus in

Fig. 5. PEF/P/JER/GAR/Album/Wall.6: One of the Early Bronze Age walls misidentified by Garstang as Late Bronze Age.

the occupation of Jericho between the Middle and Late Bronze Ages lasting some 150 years from about 1550 to about 1400 BCE (Kenyon 1951: 113; 117–22).

Finally, Garstang's understanding of the pottery of the early Late Bronze Age I period was, like that of his peers, somewhat limited. This, together with the factors described above, was in part what led to his error in continuing the occupation of the Palace Store Rooms into the City 4 period.

In addition he misdated some of the pottery from Jericho, which he mistakenly concluded was associated with the city walls. Here he was influenced by the recent attribution of similar material from Beth Shan level IX made by the excavators from the University of Pennsylvania to early 15th century BCE (Kenyon 1951:114).

The major difference between Kenyon's conclusions in 1951 and those of Garstang related to the scale of the City 4 occupation and the history of the site between the Middle and Late Bronze Ages. Garstang saw continuous, extensive occupation right the way through the Middle Bronze and well into the Late Bronze Age, with the destroyed City 3 being replaced immediately with his City 4. Kenyon saw the destruction of City 3 as the end of significant occupation at Jericho, which was followed by a period of abandonment that lasted 150 years, with a brief period

Fig. 6. PEF/P/JER/GAR/AlbumJ33.PSR/Pl.4: View over the excavated Palace Store Rooms (Garstang 1933).

of re-settlement, represented by the Double Walled Rampart, before abandonment some 50 years later.

What is interesting is that even at this stage, the true extent of Garstang's error was not realised by Kenyon. She only gave a difference of dating of some 30 to 50 years at the most. Where Garstang put the destruction of City 4 at 1400–1385 BCE, Kenyon dated the same destruction to 1350 BCE. With the exception of the silting layer, which she also observed in the tombs, and her recognition that the later material in the Palace Store Rooms was intrusive, she broadly confirmed Garstang's stratigraphy, including the observation he had made that his 'Double Rampart Wall' was built on top of a layer of debris that backed up inside the Middle Bronze Glacis and Wall at the bottom of the tell, making it, of course, Late Bronze Age in date. It was only with her own re-excavation of these areas from 1952 to 1958 that she was able to analyse the stratigraphy and the associated ceramic data sufficiently to come to the startling conclusion that the alleged Late Bronze Age walls, supposedly demolished by Joshua, were, in fact of Early Bronze Age date. Furthermore, her excavations failed to reveal any defensive wall attributable to the Late Bronze Age (Garstang's City 4).

Without its walls, Jericho's association with Joshua and the conquest becomes doubtful and raises the question as to where the story came from. Ironically, it may

be that the archaeology of Jericho, including the double ramparts, holds a part of the answer. These walls, now known to be Early Bronze Age in date, collapsed as a result of earthquake damage no less than 17 times, some of the collapses being very severe indeed. It is not hard to understand how this city would have earned an enduring reputation for its tumbling walls.[1] It is also important to remember that the Hebrew Bible was not written in a cultural vacuum. Its numerous writers would have been familiar with many sources: historical, mythological, oral and literary. The Late Bronze Ugaritic texts, a wonderful source for Canaanite theology and literature, preserve for us the Epic of Keret, containing an account of a siege which might well have been a source of inspiration for the writers of the Biblical story (Coogan 1978: 63–4).

Kenyon's examination of Garstang's records, combined with her own work at the site, demonstrated that his mistake was perfectly understandable, given the complexity of the stratigraphy. Indeed, any of Garstang's peers could have made the same mistake. His real error, however, was not an archaeological one but rather a profound error of judgement in linking his uncertain conclusions with a Biblical event.

So why did John Garstang, otherwise so careful and precise, do this? As is often the case, the answer probably lies, at least in part, with money. As noted above, the primary and most significant sponsor of Garstang's excavations was Sir Charles Marston. Marston was a British industrialist and a keen archaeological enthusiast. He had been involved in British archaeology for some time when in 1909 he embarked on a trip to Palestine. There he met R. A. S. Macalister who had just completed his excavations at Gezer under the auspices of the PEF. In 1924 he returned to the Holy Land and again met Macalister, who was then conducting the Ophel Excavations on behalf of the Palestine Exploration Fund and the *Daily Telegraph*. As a result of this meeting Sir Charles became a very active member of the PEF and served on its committee from 1924 to 1931. He contributed to the funding of several important excavations, including Crowfoot's later Ophel excavations, Petrie's work at Ajjul, and later the excavations at Tell ed-Duweir led by James Starkey.

Marston was also a devout fundamentalist Christian with more than a streak of the firebrand preacher about him. It is clear from his biography, *Man of Wolverhampton*, written by his daughters, that for him, archaeology was in the service of his faith. 'The Bible is substantially true and I want to prove it,' he once told the American journalist, Alfred Murray (von Harton and Marston 1974: dustcover). For a man like Charles Marston, the archaeology of a site like Jericho would naturally uncover a record of the events so eloquently described in the Biblical accounts. One has only to glance at Marston's own publications to get a clear idea of his religious beliefs: *Christian Faith and Industry* (1927), *New Knowledge about the Old Testament* (1933), *New Bible Evidence* (1934), *The Bible Is True* (1937), *The Bible Comes Alive* (1937) together with numerous pamphlets and lectures on subjects such as: 'The Archaeological Evidence for the correctness of Pentateuch and Joshua' and 'Did Moses write the Pentateuch?'

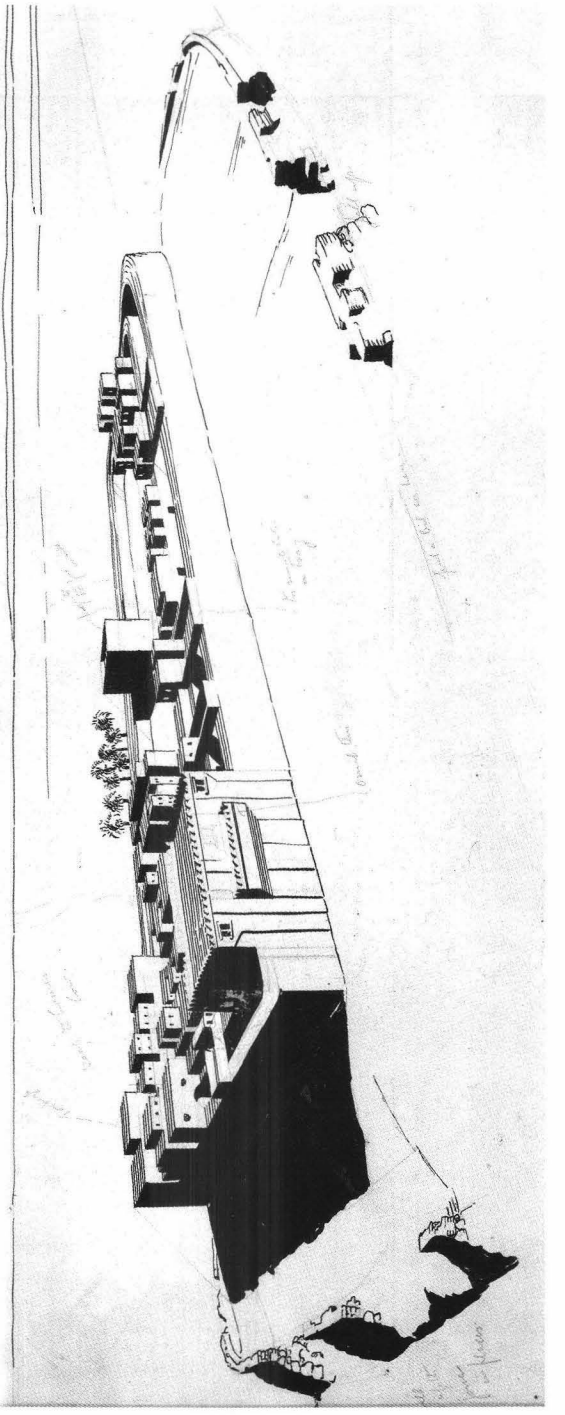


Fig. 7. PEF/DA/JER/GAR/DSP114: An artist's impression of Garstang's 'City 4', based on his excavations.

It seems likely, then, that Garstang succumbed to pressure from his sponsor to forge a link between archaeology and the Bible that he himself did not entirely believe in. If he had simply dated the walls on the basis of the evidence he had adduced, but not linked their destruction to the Biblical account of Joshua, history might not have been so hard on him. As it was, John Garstang came to regret his error bitterly, and his colleagues were aware of this.

Towards the end of the excavations at Jericho, plans were being made to excavate the site of Tell ed-Duweir. Marston's biographers write:

> When James Leslie Starkey first asked Sir Charles to support the plan of excavations at Tell ed-Duweir, he made it very clear that he had no expectations that anything would be found to confirm that the Bible was a true account of historical events (von Harten and Marston 1976: 137).

Ironically, whereas Jericho's Biblical links were to prove unfounded, Duweir's was spectacularly confirmed. At the city of Lachish, the archaeology graphically corroborates the Biblical accounts of the Assyrian and Babylonian sieges.

Correspondence in the archives of the Australian Institute of Archaeology is very revealing of John Garstang's position in the aftermath of the Jericho excavations, and in the light of Kenyon's revelations. A proportion of the Institute's collection was given to them by John Garstang, following discussions with the Institute's founder, Walter Beasley. Like Charles Marston, Beasley was a businessman with a strong interest in 'Biblical archaeology'(and even stronger fundamentalist beliefs), and it seems that John Garstang was wary of forming close ties with both the man and the institution as a result. In addition, the minutes of the Institute reveal that his proposed trip in 1950 was cancelled due to a 'difference in opinion' between Garstang and the Institute. And finally, while Garstang was Director of the School in Ankara, the Institute sent him £500, which he returned (IAA Council minutes for a meeting of 3 June 1948). No longer was he to be seduced by those with cash whose intellectual position he did not agree with.[2]

In conclusion, taking Garstang's Joshua/Jericho error of judgement out of the context of the rest of his career in archaeology, and out of the context of the state of knowledge at the time, is a mistake. It has led to an unbalanced view of his reputation which has tended to dominate writing on the subject. It is surely better to try and understand the reasons for his mistake. It would seem most likely that the complexities of the archaeological record, combined with the influence of a forceful and ideologically motivated sponsor, were the key factors which caused Garstang to veer away from his own better judgement. Perhaps he was just too busy to give proper thought to the archaeological issues themselves, making the Biblical version an even more attractive, and easy, option?[3] In any event, it seems clear that Garstang very soon knew that all was not right and set about trying to correct the situation. In asking Kenyon to re-analyse his data and in giving his blessing for her re-excavation of the site, he put his own reputation on the line in the interests of

scholarship. This was a brave and honest approach and one which should have been more widely acknowledged by the scholarly community.

Thanks are due to Ros Henry, Christopher Davey, Jonathan Tubb and David Jacobson for their information and opinion whilst researching this article.

All illustrations, unless otherwise specified, are from the Garstang Archive at the PEF in London.

Notes

1. Thanks to Jonathan N. Tubb for this observation.
2. Christopher Davey kindly furnished me with the following information regarding the relationship between Garstang and Walter J. Beasley: 'Walter J. Beasley was a businessman and the founder of the Australian Institute of Archaeology. He visited Jericho annually while Garstang was there from at least 1934 – and maybe earlier. He received deliveries from Liverpool on 14 June 1935, 7 October 1947 and 4 November 1947. The last two included material from Mersin and Sakje Geuzi. The Institute Council minutes for a meeting of 3 June 1948 state that the President [Beasley] reported the following: "Ankara expedition – Because of the sectarian clause in our articles, the donation of 500 pounds had been returned. A further donation of 100 pounds from the Institute was forwarded as a friendly gesture..." There is an intention to discuss the matter with Prof. Garstang when he visited Melbourne – but the visit did not occur.'
3. This explanation was offered by David M. Jacobson.

Bibliography

Bartlett, J. R., (1982).*Jericho* (Cities of the Biblical World; Guildford).
Chapman, R. L., (1997). 'Garstang, John (1876–1956)'. P. 390 in E. M. Meyers (ed.), *The Oxford Encyclopedia of Archaeology in the Near East*, Vol. 2 (New York/Oxford).
Conder, C. R., and Kitchener, H. H., (1883).*The Survey of Western Palestine: Memoirs of the Topography, Orography, Hydrography and Archaeology. Volume III. Sheets XVII–XXVI. Judaea (*London).
Coogan, M. D., (1978). *Stories from Ancient Canaan* (Philadelphia).
Garstang, J., (1932a). 'Jericho: City and Necropolis I, Late Stone Age. II, Early Bronze Age. III, Middle Bronze Age', *Liverpool Annals of Archaeology and Anthropology* 19: 3–22.
Garstang, J., (1932b). 'Jericho: City and Necropolis II, Early Bronze Age (additional). III, Middle Bronze Age I (continued). IV, Middle Bronze Age ii', *Liverpool Annals of Archaeology and Anthropology* 19: 35–54.
Garstang, J., (1933). 'Jericho: City and Necropolis IV, Tombs of MBA ii (continued). V, Tombs of MBA ii and LBA i. VI, The Palace Area (Introductory)', *Liverpool Annals of Archaeology and Anthropology* 20: 3–42.
Garstang, J., (1934). 'Jericho: City and Necropolis. Fourth Report. VI, The Palace Area (continued). Palace and Store Rooms. MB ii Pottery and Houses. LB I Upper Stone Building. EI i', *Liverpool Annals of Archaeology and Anthropology* 21: 99–136.
Garstang, J., (1935). 'Jericho: City and Necropolis. Fifth Report. VII, General Report for 1935. The Early Bronze Age', *Liverpool Annals of Archaeology and Anthropology* 22: 143–68.
Garstang, J., (1936). 'Jericho: City and Necropolis. Report for Sixth and Concluding Season, 1936. I, General Survey and Special Features', *Liverpool Annals of Archaeology and Anthropology* 23: 67–76.
Garstang, J., and Garstang, J. B. E., (1948). *The Story of Jericho*, rev. ed. (London).

von Harten, M., and Marston, M., (1976). *Man of Wolverhampton (The Life and Times of Sir Charles Marston)* (Daglingworth).
Kenyon, K. M., (1951). 'Some Notes on the History of Jericho in the Second Millennium BC', *PEQ* 83: 101–38.
Kenyon, K. M., (1957). *Digging up Jericho* (London).
Sellin, E., and Watzinger, C., (1913). *Jericho: Die Ergebnisse der Ausgrabungen.* (Wissenschaftliche Veroffentlichung der Deutschen Orient-Gesellschaft 22; Leipzig).
Warren, C., (1869). 'Note on the Mounds at Jericho', *Palestine Exploration Fund Quarterly Statement* 1: 209–10.
Wilkinson, J., (1981). *Egeria's Travels to the Holy Land* (Warminster).

Strata: Bulletin of the Anglo-Israel Archaeological Society 2009 Volume 27

The Parker Mission and Hezekiah's Tunnel

STEPHEN G. ROSENBERG

It was just one hundred years ago in August 1909 that Captain Parker of the Grenadier Guards sailed his yacht into Jaffa Bay. He was on his way to Jerusalem to look for the lost treasures of Solomon's Temple. With him were a number of other adventurers, all with time on their hands and money in their pockets, who had been persuaded by Parker of the definite success of the mission and had put their time and money behind the enterprise (Silberman 1982: 180–88).

Montague Parker was a hero of the Boer War and had risen to the rank of major but preferred to be known by his substantive rank of captain. At the end of the war he was at a loose end and came across a project that suited his adventurous spirit. A chance meeting with a Finnish amateur Bible scholar called Juvelius persuaded him that Juvelius had uncovered the location of the treasures of the Solomonic Temple in a certain secret passage under the Temple Mount in Jerusalem where, according to Jewish and other texts, Jeremiah had hidden them. All that was needed to pursue the quest was money, quite a lot of it, to the tune of over $100,000, and a man to lead the team of lucky explorers.

Parker was willing and able to fit the bill, he could even raise the money. As the son of the Earl of Morley he had the right connections, and promised his donors a good percentage of the expected treasures. The golden Ark of the Covenant alone was considered to be worth ten times the cost of the expedition. While Parker was busy raising the funds and enlisting his friends to join him, Juvelius was arranging for an Irish medium to direct his powers to the exact find spot, so that the explorers would locate the treasure in the shortest possible time.

Parker managed to charter a friend's luxury yacht for the crossing, but not before he had gone to Constantinople and obtained a *firman* or permit for the work from two senior officials of the Ottoman Empire, They would themselves travel to Jerusalem to supervise Parker's efforts, receiving a monthly salary of 200 Turkish pounds (Dalman 1912) and a promise of a share of the treasure's expected return, and they ordered the Jerusalem Governor to make land and facilities available to themselves and to Parker's team. In Parker's eyes all was ready for the expedition to start on site.

From Jaffa the mission travelled on horseback to Jerusalem and set up headquarters in the grandiose Augusta Victoria Hospital, recently completed on the Mount of Olives. Parker lost no time in collecting all the necessary equipment and staking out his plot on the south side of the Temple Mount, opposite the Arab village of Siloam. The old-established archaeological communities of the city were alarmed

to see this activity but Parker, protected by his Turkish supervisors, kept the archaeologists at bay and refused to open the excavation to them or to the press.

However progress of the dig was too slow for Parker's liking and he brought out mining engineers from England and decided to explore the water channel known as Hezekiah's Tunnel, which promised to reveal possible passageways to the Temple Mount, one of which might lead the expedition to the treasure they were seeking. Parker now had the sense to invite Father Vincent of the École Biblique et Archéologique Française of Jerusalem to act as his archaeological adviser. Vincent could aid him in his searches and his participation would help to still the critical voices of the local archaeological community.

Louis-Hugues Vincent was Professor of Archaeology at the École (from 1895 until his death in 1960) and was later described by Albright as 'the unrivalled master of Palestinian archaeology' (Murphy O'Connor 1997). Vincent saw this invitation as a unique opportunity to examine the ancient waterways of the city, which had never been cleared of accumulated refuse and silt. In the event, his contribution to the mission was to be indeed unrivalled, he being the only trained scholar amongst that group of treasure-hunting adventurers.

While Parker was busy receiving location instructions from Juvelius and his Irish medium in London, Vincent started a meticulous survey of all the caves and passages that Parker's men were uncovering around the so-called Warren's Shaft and the Gihon Spring, which had first been investigated 42 years earlier in 1867 by Warren, and recorded by Warren and Conder in the Jerusalem volume of the *Survey of Western Palestine* (1884: 354–65). Warren and Sergeant Birtles, and later Conder and his men, had had to work in a tunnel full of silt and debris, but thanks to the efforts of Parker and his well-paid local labourers, Vincent was able to survey the whole tunnel in late 1910, after it had been cleared of all obstructions. His work in this connection has proved a godsend to all later researchers, of whom there have been many.

Not only did Vincent carry out the survey in a most accurate manner, but he also published his findings almost immediately in a French edition of 1911 and nearly simultaneously in English in the same year (Vincent 1911). This rapid transmission of the material may have been the result of pressure by Parker, who must have been desperate to publish some scholarly justification of his mission, which had so spectacularly failed to find any recompense, in the form of hidden treasure, for the investment made by his financial backers.

In publishing his work so quickly, Vincent rather ignored the debt he owed to the earlier survey of 1867 by Lt. Warren, even suggesting that Warren's work contained errors and omissions. This elicited a sharp response from (now General Sir Charles) Warren who published a spirited defence of his own survey and criticism of Vincent's methods (Warren 1912a). Luckily Vincent's response was most diplomatic and the two were able to settle their differences in a friendly and amicable way (Vincent 1912; Warren 1912b).

To establish his survey of the tunnel, Vincent divided its internal length of 512 m into 52 stations. At each station, starting from the Siloam Pool and going

northwards to the Gihon spring, which he calls the Virgin's Well, Vincent took a compass reading and established the distance to the next station. Although he only published 13 cross-sections of the tunnel (1911: Pl. 29) we can assume that he took dimensions at each station and decided that it was only necessary to publish one in four of the cross-sections.

He took levels of the tunnel base and heights of the ceiling at 40 intervals, not corresponding to the stations where he took compass readings. Why he worked with two different sets of locations is not clear. His plan of the tunnel (1911: Pl. IV) is still the one used today.

Vincent also calculated the fall in the base of the tunnel between these 40 intervals and at each interval he recorded notes about the state of the walls, evidence of workmanship, and location of any apertures (looking for the secret passage?) or other unusual features (1911: 42). It will be seen that Vincent carried out a most careful survey and that he recorded his work at each step of the way. His painstaking work, though of little help to the treasure seekers, has proved invaluable to all subsequent researchers.

As is well known, the heights of the tunnel vary considerably, but the base fall is remarkably consistent. The average fall along the full length is about 1 in 350 (or 0.003%), a very shallow fall, which was necessary as the water level in the Siloam Pool had to be as high as possible to ensure that it could be contained on the hill within the city walls. This very shallow fall was enough to allow the waters to flow but clearly it proved to be sluggish and that is why, by the time that Lt. Warren and Sgt. Birtles first crawled through it, more than 2,500 years after it was cut, it was badly silted up, and in several places they were 'crawling on all fours' to get through (Warren and Conder 1884: 355).

To maintain an even fall, even a shallow one, is not difficult, but to cut the tunnel from both ends, as the engineers planned, and meet approximately halfway, is an achievement that is still not fully explained. As Vincent (1911: 21) had written,

> The analysis of the outline is far from easy. This curious S hidden under the hill between the Pool of Siloam and the Virgin's Well has for a long time remained as an irritating enigma; for it is impossible to put forward as a solution Capt. Conder's theory that it is due to the carelessness of the old engineers.

Vincent goes on to say that the two major curves in the layout could not be by chance and he supports the 'piercing sagacity of this French scholar', C. Clermont-Ganneau, who had suggested that the southern curve was to avoid some royal graves, and the northern curve was made in an attempt to tap freshwater wells or springs en route (Vincent 1911: 21).

In spite of Vincent's backing for these ideas, they cannot be substantiated. No springs or wells were ever encountered and the royal graves, if indeed they are royal, are at a much higher level on the hill and would not have been disturbed by the water tunnel. Indeed Vincent may not have been totally convinced by Clermont-Ganneau's ideas, as he himself put forward the idea that the tunnel in some places

was cut through the softer stratum of rock (1911: 23) to reduce time and labour. However, modern geologists have shown that the soft rock theory is not correct either (Gill 1994).

The other theory to explain the sinuous line of the tunnels, which makes it one third longer than a straight line course, is that the engineers followed a fissure in the rock that provided a karstic solution channel from the spring to the pool (Issar 1976). The idea was first mooted by Henry Sulley, a Nottingham architect (Sulley 1929), and was taken up by Ruth Amiran in 1968 and again in 1976 (Amiran 1976).

It was given geological legitimacy by Dan Gill (Gill 1994), but the theory that there was just one major fissure to guide the engineers cannot be substantiated, as there are hundreds of fissures and fractures throughout the tunnel walls and it is not clear how the tunnellers managed to choose just the right one every time (Reich and Shukron 2002).

Another idea, first suggested some years ago, has been taken up again lately by Hershel Shanks (Shanks 2008), that the engineers were guided by their fellow workers on the hill above sending sound signals to guide them through the rock. This idea had already been suggested by Naseeb Shaheen 30 years ago (Shaheen 1979) and ignored by most researchers. It is clear from the Siloam Inscription, which was found on the tunnel wall in 1880, that the engineers were only able to hear each other when they were at a distance of three cubits (1.5 m) apart, so how the tunnellers were able to accurately hear their colleagues on the surface, in most cases at least 25 m above them (and at one section 50 m), is a mystery.

However, the suggestion of acoustic guidance is supported by geologist Aryeh Shimron, who assumes that the engineers on the surface had sufficiently sophisticated hammers to enable them to communicate with the tunnellers below (Shimron *et al.* 1998). If this is correct, they would still have had to set out a plan on level ground so as to know how to correct their directions. This would be exactly the kind of plan suggested below, which could in fact guide the tunnellers without the necessity for geological hammers.

The suggestion of Conder that the tunnel was the work of primitive engineers (Conder 1882: 130) can be refined and turned to good use, if we apply it to mean that the tunnellers used a primitive form of survey. As it was impossible for the engineers to survey their progress underground, they would have to be able somehow to transfer the line of their operations to a site above ground, and that has indeed been suggested and worked out in some detail (Rosenberg 1998).

The starting point of this primitive survey method is the recognition that both ends of the tunnel are partly dissolution channels, that is, natural channels made by the action of the dissolving karstic waters. These channels would have had to be widened and deepened to a common level and could then be used to carry the waters from Gihon to Siloam. The engineers would have recognised this and decided that using these channels would make their work that much easier. The tunneller's job would then be to join the ends of these two channels, which finished about 250 m

apart. The trick would be to locate these two points above ground, work out the line needed to join them, and then transfer it back to the tunnel below.

It so happens that the southern point was located under a natural vertical sinkhole shaft (between Vincent's stations XIII and XIV) that would have appeared above ground, and is known today as the 'Shaft to surface'. This point is very clear in the tunnel (Warren and Conder 1884: 355 & 357). To the south of this point the tunnel is natural in form and irregular in profile with few pickmarks, while to the north it is square cut with pickmarks throughout wall and ceiling. And right above this point is the base of the sinkhole shaft to surface (see Fig. 1), which is today sealed by a building at ground level.

The end of the northern (from Gihon) dissolution channel is more difficult to locate but it is clearly visible in the tunnel, where there is a sharp turn and a change from smooth irregular natural wall surfaces to ones created by picks (between Vincent's stations XLIII and XLIV). As it was only about 60 m from Warren's shaft in a single westerly direction, it could be accurately measured from the tunnel entrance and then located to a point above ground.

The engineers would then have to find a suitable piece of level ground on which to transfer these two points and lay out their proposed plan for the remainder of the tunnel. Such a piece was available just outside the Iron Age city wall nearby, a piece of ground that is still open and has today been made into grassed parkland. What they had to do then was to measure equal offsets for each of the two located ground-level points and establish them on the open ground.

If one now considers the plan of the waterway (see Fig. 2) it will be seen that the tunnel between these two natural ends (points 1 and 1A) switches backwards and forwards in opposite directions from the opposite ends and this demonstrates that the engineers were continually correcting their workers until they were able to meet at a point common to both teams. They would have to do this by taking dimensions in the tunnel, transferring them and plotting them on the model on the ground outside, and then transferring the correction back to the tunnel. It was a method subject to faults, and the mistakes can be seen in the tunnel, but when the work reached the points 3 and 3A (of Fig. 2) underground, one can see the rather frantic twists and turns – in opposite directions – that eventually led the tunnellers to a successful place of meeting.

It is surprising that Vincent, who made such a careful survey of the tunnel, did not appreciate the natural features of the two ends, indicated by the unnecessarily high ceilings and the smooth walls, with minimal pickmarks, and reach the conclusion that each end was the result of natural forces. And that it was then for the 'primitive engineers' to establish a kind of primitive survey to enable them to connect these two ends.

Vincent (1911: 24) records that Parker's men completed the clearing of the tunnel on 11 October 1910 and, when the last obstructions had been cleared,

> the flow of water gradually passed through to the pool of Siloam; the shouts of acclamation and the noise of the feast to celebrate this occasion will long sound in

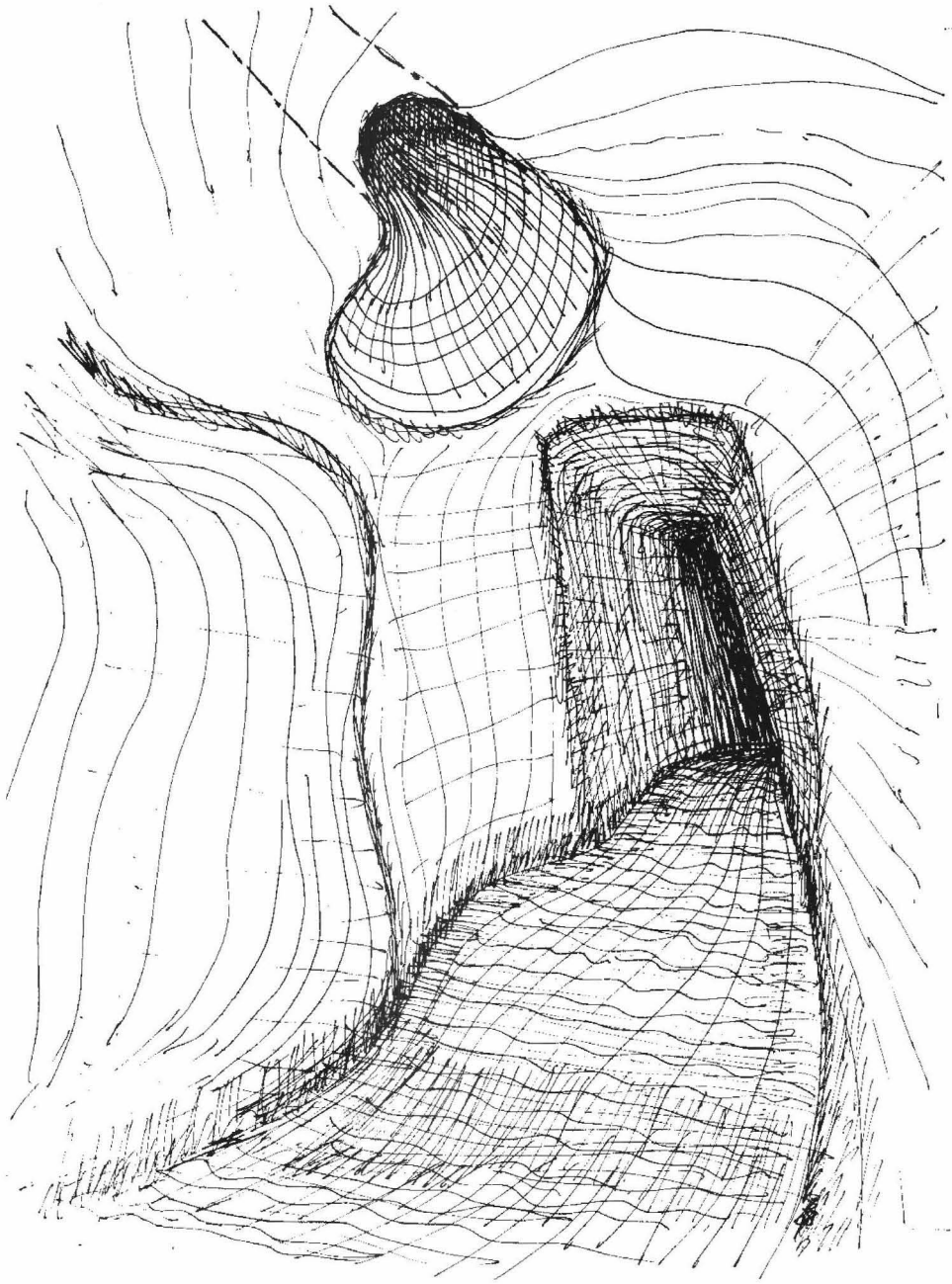


Fig. 1. Point in the Tunnel at the end of southern dissolution channel (on left), where it changes to regular cut profile going north (on right) with base of sinkhole to surface above (drawing by author, impossible to photograph elements together in the very restricted space).

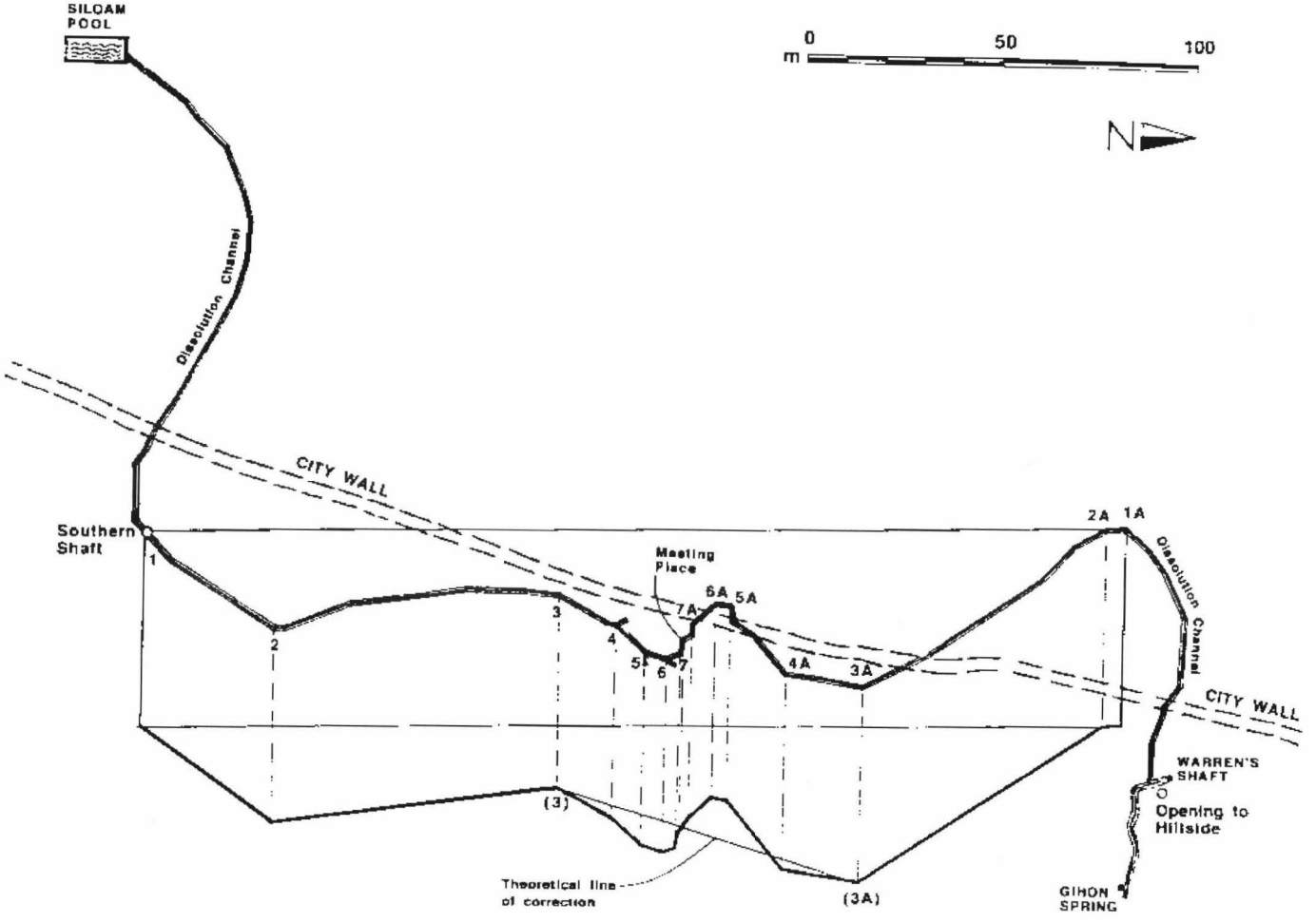


Fig. 2. Plan of Tunnel (based on Vincent 1911) with projected survey lines on ground outside the city walls (from Rosenberg 1998).

> my ears like an echo of the more ardent acclamations on the day, many years ago, when the two gangs met.

Besides his work on the tunnel, Vincent made accurate notes and drawings on the approaches to the spring and the tunnel and on many side passages, on some adjoining tombs, on the pottery and small finds. It is remarkable that he seems to have done all this work himself, and all the drawings published with the account are signed and dated by him. He was aged 38 or 39 at the time.

As for the Parker Mission, Vincent's work on the tunnel was their one and only positive achievement. But the sound archaeological aspects of Vincent's work did not interest Parker's financial backers and after two seasons of work he had no treasure to report to them, nor had he found the secret underground passage to the Temple Mount where the treasure was supposedly buried.

By autumn 1910 the tunnel had been cleared and Parker only had a few months left on his excavation permit. His two official Turkish supervisors had left in disgust and Parker was forced to bribe the Jerusalem Pasha to be able to continue work. As no secret tunnels had been located, Parker now received instructions from the Irish medium, via Juvelius, that it would be necessary to dig on the Temple Mount itself, at a spot in the southeast corner above Solomon's stables.

Parker arranged for this to be done with the consent of the bribed Jerusalem Pasha but, working at night for several days, nothing was found. The medium then instructed them to dig in the Dome of the Rock itself, in the cave beneath the *Even Shethiyah*, the holy foundation rock.

Parker and his small band of diggers started this work one night and were unlucky enough to waken the guardian of the Mount who, unknown to Parker, was sleeping in the Dome that night. He spotted the intruding infidels and, thoroughly frightened, raised the alarm. Crowds rushed to the site and in the ensuing hue and cry, Parker and his men were able to slip out and make their way back to Jaffa, where they were stopped by the port officials. But Parker was able to placate them, show them that he had no secret treasure, and suggest they come to his yacht to check any hidden goods and to discuss matters in calmer surroundings. Of course, by the time the officials came, the yacht had slipped its moorings and Parker and his colleagues were on their way back to the Port of London.

We have mentioned the positive side of the Parker Mission, that we have the excellent work of Father Vincent in his survey of the tunnel and surrounding areas. Another positive effect, though an indirect one, was that Baron Edmund de Rothschild had been persuaded to purchase a plot of ground beside that being dug by Parker, in an attempt to stop Parker extending his activities. That plot was later excavated for the Baron by Raymond Weill, the first Jewish archaeologist to work in Jerusalem. He found a Roman quarry over what he claimed may have been the 'Royal Tombs in the City of David' (Weill 1920: 35–44). Perhaps these were the tombs that Clermont-Ganneau had suspected of diverting the line of the waterway below.

On the other hand, the Parker Mission had one major negative effect. It alerted the Muslim authorities of the Temple Mount to the possible depredations of amateur

treasure hunters, and it tarred legitimate archaeologists with the same brush (Dalman 1912). The results of this unfortunate prejudice are still felt today, one hundred years later.

Note

I am indebted to the work of Neil Asher Silberman (1982: 180–88) for all the main outlines of the activities of the Parker Mission.

Bibliography

Amiran, R., (1976). 'The Water Supply of Israelite Jerusalem', Pp. 75–8 in Y. Yadin (ed.), *Jerusalem Revealed* (New Haven).
Conder, C.R., (1882). 'The Siloam Tunnel', *PEFQS*: 122–31.
Dalman, G., (1912). 'The Search for the Temple Treasure at Jerusalem', *PEFQS*: 35–9.
Gill, D., (1994). 'How they Met – Geology solves long-standing Mystery of Hezekiah's Tunnellers', *BAR 20/4:* 20–33.
Issar, A., (1976). 'The Evolution of the Ancient Water Supply System in the Region of Jerusalem', *IEJ. 26:* 130–6.
Murphy-O'Connor, J., (1997). 'Vincent, Louis-Hughes', Pp. 303–4 in E. M. Meyers (ed.), *Oxford Encyclopedia of Archaeology in the Near East, 5* (New York).
Reich, R., and Shukron, E., (2002). 'Reconsidering the Karstic Theory as an Explanation to the Cutting of Hezekiah's Tunnel in Jerusalem', *BASOR 325:* 75–80.
Rosenberg, S. G., (1998). 'The Siloam Tunnel Revisited', *Tel Aviv 25/1:* 116–30.
Shaheen, N., (1979). 'The Sinuous Shape of Hezekiah's Tunnel', *PEQ* 146*:* 103–8.
Shanks, H., (2008). 'Sound Proof', in *BAR 34/5*: 50–57.
Shimron, A. E., Frumkin, A., Rosenbaum, J., and Porath, Y., (1998). 'The City of David Waterworks, a Geological and Engineering Overview'. Pp. iii–xvi in E. Baruch (ed.), *New Studies on Jerusalem* (Ramat Gan).
Silverman, N. A., (1982). *Digging for God and Country* (New York).
Sulley, H., (1929). 'Notes and Queries', *PEFQS:* 124.
Vincent, L-H., (1911). *Underground Jerusalem, Discoveries on the Hill of Ophel, (1909–11)* (London).
Vincent, L-H., (1912). 'A Reply to General Sir Charles Warren', *PEFQS*: 133–4.
Warren, C., and Conder, C.R., (1884). *Survey of Western Palestine, Jerusalem* [Archive Edition 1998] (London).
Warren, C., (1912a). 'The Results of the Excavations on the Hill of Ophel, 1909–11', *PEFQS:* 68–74.
Warren, C., (1912b). Observations by General Sir Charles Warren, *PEFQS:* 134–5.
Weill, R., (1920). *La Cité de David, 1913–14* (Paris).

Strata: Bulletin of the Anglo-Israel Archaeological Society 2009 Volume 27

The Givat Sher-Modi'in Community-Based Excavation: Preliminary Report on the 2004–6 Seasons

YOAV FARHI, YUVAL GADOT, DAVID ILAN, JESSIE PINCUS–BEN-AVRAHAM, ITAMAR TAXEL, LEVANA TSFANIA, SHLOMIT BECHAR

Introduction

The site of Horvat Sher (Umm es-Sur in Arabic, grid reference OIG 1431 1491) is a small settlement site dating to the Hellenistic, Byzantine, Early Islamic and Mamlūk periods. The site is located in the Modi'in hills (the northern Shephela of Israel), traditionally in the hinterland of Lod. The hills surrounding H. Sher have always supported various agrarian activities: horticulture, dry farming, viticulture and pastoralism. The site was first mentioned in the publication of the *British Survey of Western Palestine*, conducted at the close of the 19th century (Conder & Kitchener 1882: 161) and regularly visited during the 1930s by inspectors of the mandatory Palestinian Department of Antiquities. Written reports found at the archive of the Palestinian Department of Antiquities mention the 'ruins of a church' but the lack of details in these reports prevent us from knowing what exactly was seen at the site that led the inspectors to recognise a church there (but see Ovadiah & de Silva 1984: 144). Thereafter the site was visited by several archaeological surveyors, who reported various features – stone columns, walls and strange stone edifices of unknown function (Israel Antiquity Authority Archives; Shavit not published).[1] Ten years ago, as the new city of Modi'in sprung up in the surrounding hills (Fig. 1) – today with more than 50,000 inhabitants – H. Sher and the hill to its east were declared an 'archaeological park' (named 'Givat Sher') preserving both the natural environment and human heritage.

The proximity of the site to the newly built town and its designation as an urban heritage park led us[2] to initiate a long-term archaeological project that aims to conduct both in-depth research into the history and archaeology of the site and to encourage community involvement in its study, development and preservation, one that would serve the community by providing it with a forum to ask questions about its natural environment and cultural history and with the means to answer some of these questions. Specifically, we hope that community involvement with an ancient site located within walking distance will encourage the site's preservation and

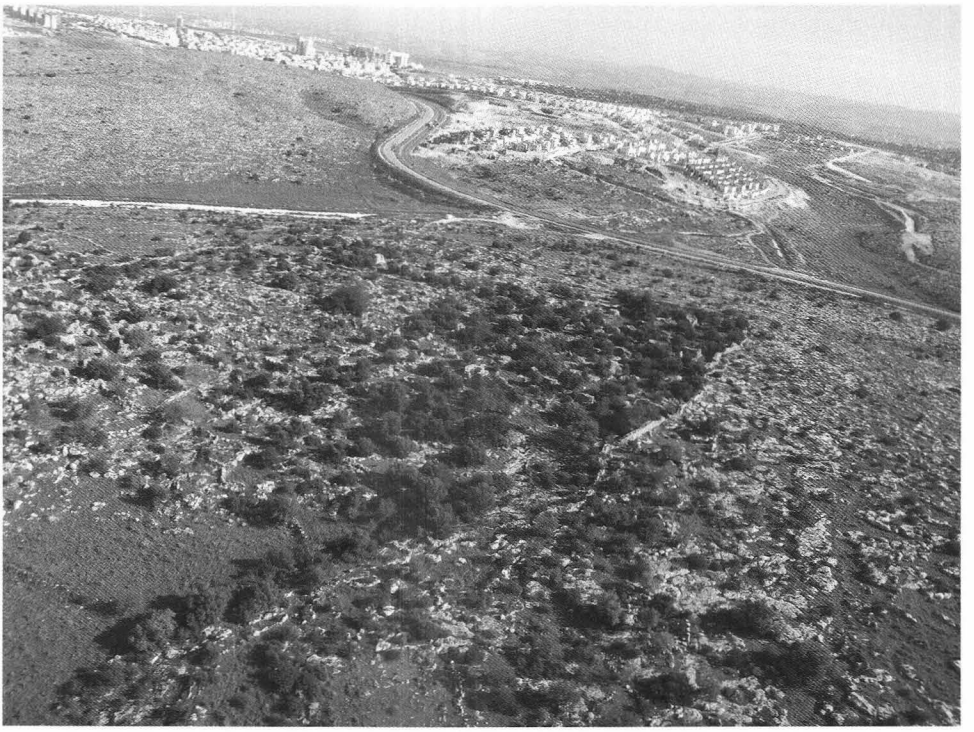


Fig. 1. Aerial photograph of Givat Sher and the city of Modi'in. Looking north-east. (skyballoon)

contribute to the community's sense of identification with place and its multi-layered past, notwithstanding the pitfalls of complexity and conflict.

Since 2004 we have conducted six seasons of excavations, each lasting two weeks. The excavations are advertised widely and the public is invited to participate. Volunteers come from all age groups: small children (accompanied by adults), teenagers, parents and grandparents. As at the writing of this article approximately 2,200 people – ages 3 to 83 – have actually excavated at H. Sher and dozens of volunteers have participated in our surveys. Many of these people return season after season. Countless others visit the site in the afternoons and on weekends. Volunteers are distributed in the excavation fields according to their experience and age. Families with younger children and first-time visitors are directed to new sections opened with thick top-soil while participants with previous experience (and who have proved their acumen to some degree) join students and staff in excavating the more delicate contexts. Concurrently, we also conduct an ongoing survey of the surrounding landscape.

The following is a report on the findings from the first two years. The many social implications of the project have been examined in more detail in Ilan and Gadot (forthcoming).

The survey

The area surveyed (hereafter: 'Givat Sher') is a low chalk hill with a *nari* crust, 253 m above sea level. The hill is delineated by four small drainages which themselves are drained by two small wadis, one to the west and one to the east (Fig. 2). A topographical saddle connects the hill with a second hill to the east.

Up to now two survey seasons were conducted in an area of 1 sq km (grid reference 149 143). The 2005 season was aimed at mapping all artificial features found upon the hill. The 2006 season concentrated on mapping the stone-walled enclosures located at the centre of the hill and the many stone pile features found inside the enclosures[3] (see below), a survey which is still in progress.

The survey had led us to the conclusion that most of the hill was utilised only for extra-settlement activities related to agriculture, pastoralism and burial (Fig. 2). The settlement of H. Sher is confined to a topographical saddle on the western part of the hill. Other settlements have been identified nearby: Umm el-'Umdan to the northeast (Fig. 2; Weksler-Bdolach *et al.* 2003) and Beit Shanna (Zissu & Bordowicz 2007), to the west. We are associating the features discussed below with the inhabitants of H. Sher, but they may have be owned or used by the people of Umm el-'Umdan or Beit Shanna.

Stone walled enclosures and stone piles

The most common artificial features on Givat Sher are rectangular enclosures made of stone walls on the hill's crest and western slopes (Figs. 3 and 4). The largest enclosure measures c.230 x 100 m. Seven more enclosures lay perpendicular to the large enclosure, sharing its long northern wall. These enclosures are of similar dimensions, measuring 120 x 50 m on average. An eighth enclosure lies further to the west being the only isolated enclosure.

The walls are constructed of different-sized field stones that exhibit little attempt at a good fit and without any binding material. The height and width of the walls also varies; in some places being close to 2 m high and two rows wide while in other places the wall is nothing more than a single row of stones. In some places the wall was thickened by stones that were piled against the wall. It would seem that the enclosures represent land plots, although such an investment of labour is more typical of the Judaean and Samarian hills than the northern Shephelah hills (Ron 1977).

Today the enclosures contain two main features: unprecedented numbers of stone heaps and orchard trees such figs, almonds and carobs. Over 300 heaps are found inside the stone enclosures. The stones are usually pilled carefully upon bedrock surfaces. The shape and size of the heaps varies. Some are round structures *c*.2 m high. In such cases the stones are carefully laid but there is no binding material. Other piles are irregularly shaped and seem to indicate simple clearance. The size of the stones also varies from small field stones up to large blocks. Significantly, the stone piles are all located inside the enclosures. The concentration of the stones upon bedrock exposures created small plots of soil in between the piles. Evidently

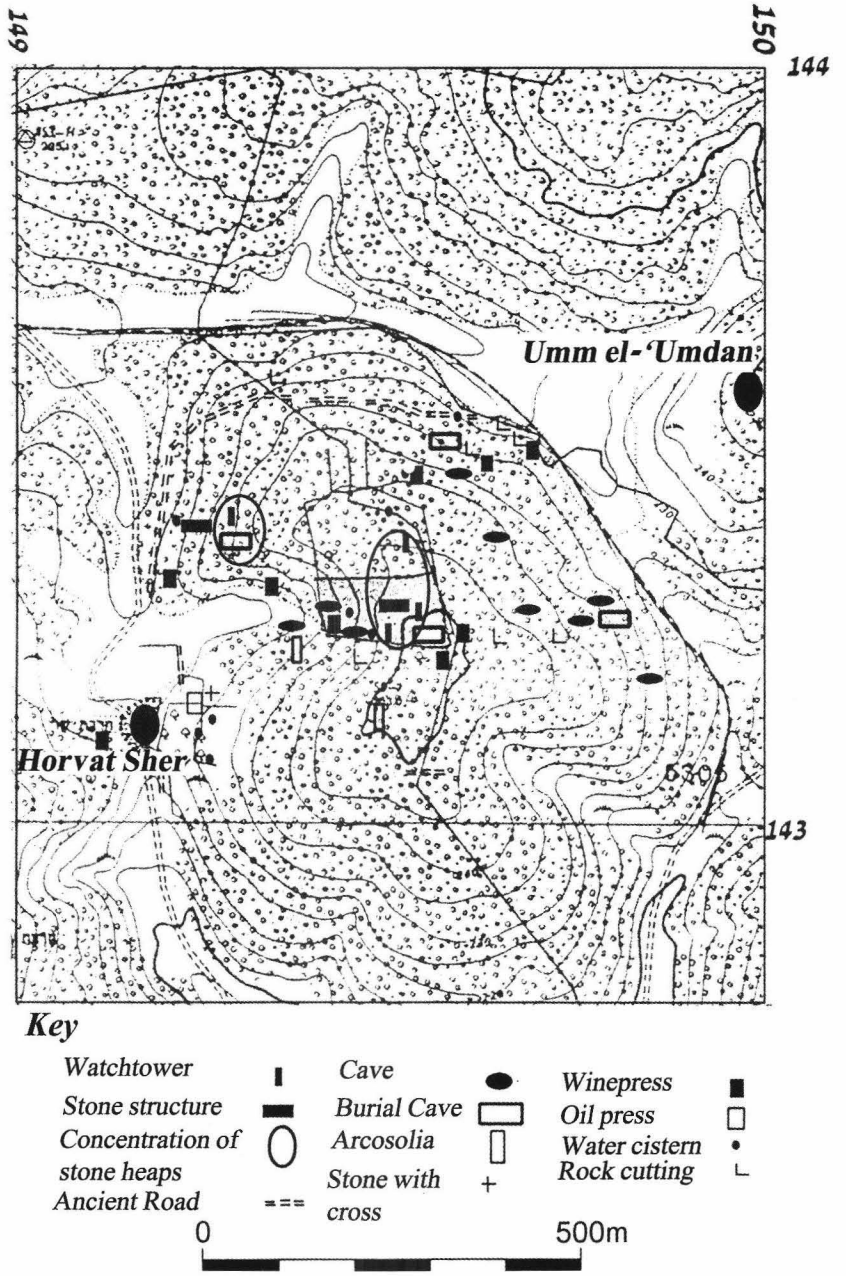


Fig. 2. Map showing the location of H. Sher and the various installations near it.

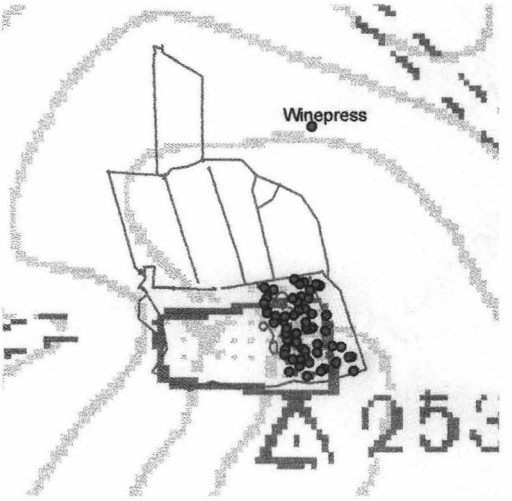


Fig. 3. Plan of the stone enclosures and the many stone piles found inside. The piles were only partially mapped.

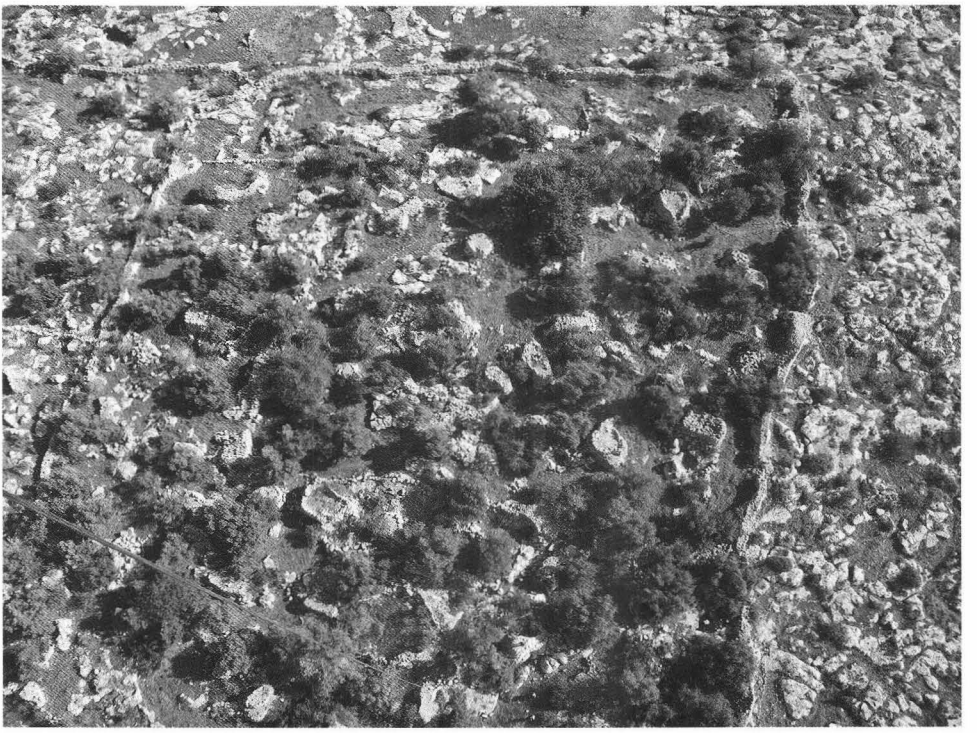


Fig. 4. Aerial photo of the part of the stone enclosure and the many stone piles (skyballoon).

the clearing of the stones into piles and the building of the stone wall around was done in order to create plots suitable for cultivation. These activities have led to a striking difference between the landscape inside the enclosures and that of the surrounding hill (Fig. 3). While the area surrounding the enclosures is typified by continuous rock surfaces and seasonal vegetation, inside the enclosures we find small soil-bearing plots, many trees and many stone piles.

At the present time, we have no evidence for the dating of the enclosures and their associated features. The fact that the enclosures are unique in the Modi'in suggests that their explanation is not to be found in the usual agricultural and horticultural practices. Future excavation inside the enclosures may resolve our questions.

Stone hut and watchtowers

Four of the stone heaps, particularly well-made ones, include built-in flights of stairs which define them as watchtowers (cf. Ron 1977: 507–13). As always they are built of dry stone construction (Fig. 5). None of the towers contained inner chambers and thus did not serve for shelter or storage. A single stone hut preserved to the height of the door lintel was also recorded (Fig. 6). The towers and the hut are located inside the enclosures and must be associated with them.

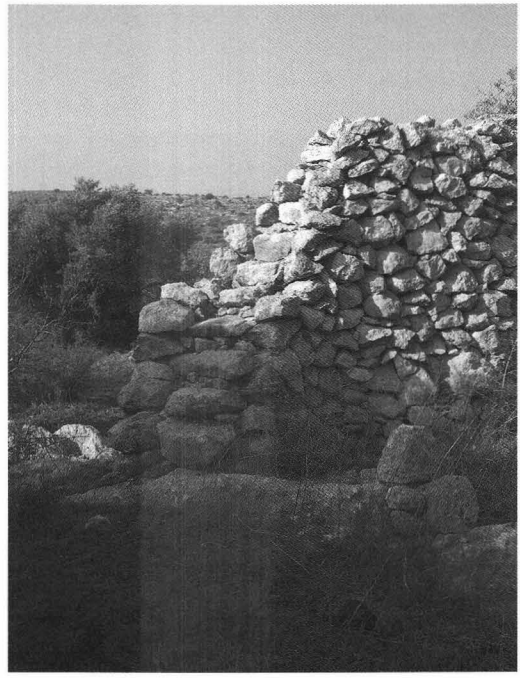


Fig. 5. A watchtower and flight of stairs (David Ilan).

Rock-cutting

Signs of rock cutting are frequent. Rock surfaces inside the enclosures were sometimes cut as part of the plot delineation process. In other cases, the hewing belongs to rock-cut installations such as burial caves or winepresses. In a survey it is often difficult to determine whether the rock-cutting represents quarrying for building material or the hewing of installations.

Winepresses

Ten winepressing installations were found (Fig. 2). The presses are found in all parts of the hill except for the southern slope. It is important to note that the winepresses are found inside and outside the stone enclosures. Thus, there is no one-to-one ratio between presses and enclosures. The winepresses are average in size and all comprise of a treading surface and a collecting vat, both rock carved (Frankel 1999: 51–8). A single winepress, located on the northern slope, holds evidence for a more complex mechanism; a stone tunnel was cut in the collecting vat wall and led to a second rock-cut surface (Fig. 7). Unfortunately, the stone surface was cut again by later quarrying activities and its full plan and function cannot be reconstructed.

Fig. 6. Stone hut (David Ilan)

Water cisterns

Twelve water cisterns were found in the survey, six of them in the settlement (see below) and two by the road connecting the site of H. Sher with the site of Umm el-'Umdan (Fig. 2 and see below). Two further cisterns were found within stone enclosures, both having two stone troughs next to them (Fig. 8). Two more cisterns were found on the northern slope. One of them was carved next to a winepress and re-used its collecting vat as a trough (Fig. 7).

Caves

Rock-cut caves were found throughout the hill. Most caves were intended for burials but some were used for shelter. Two concentrations of burial caves were discerned. The first of these is on the northern and eastern slopes that face towards Umm el-'Umdan; it seems the burials were connected with that site (Weksler-Bdolach *et al.* 2003). A second concentration of burial caves was noted along Givat Sher's southwestern slope, northeast of H. Sher itself. Both concentrations show tombs with a quarried entrance court leading to a pediment-shaped entrance.

Fig. 7. A winepress and a cistern. A tunnel opening is cut in the vats outer wall suggests the existence of a second, lower vat. (skyballoon)

Other caves were used as dwellings or shelter. Three of these were found inside enclosures. Two had an artificially carved entrance while the third seems to be a natural cave adapted for human use.

Rural roads

Traces of an ancient road were followed along the western and northwestern slopes of the hill. The road is bordered on either side by two lines of boulders generally approximately 2 m apart. Aerial photographs show that it connected H. Sher and Kh. Umm el-'Umdan and may even have joined up with the main street of Umm el-'Umdan (Onn *et al.* 2003: 65*). Two more road sections (Fig. 3) were noticed in aerial photos but could not be connected in a coherent way. The road must have been part of a dense network serving the village communities scattered amongst the hills of Modi'in (see for example Haddad 2003: 60*; Torge 2000: 88*; Kogan-Zehavi 2000: 89*). These roads tapped into the Lod-Jerusalem highway that crossed over the nearby hills (Fischer *et al.* 1996: 85–7; 98–9).

Fig. 8. A Cistern with stone troughs next to it (David Ilan).

Terrace walls

Large and significant terraces were found only on the steeper western slopes of Givat Sher. The other slopes were either very gentle (the southern and most of the eastern slopes) or terraced by sporadic terrace segments in single courses.

From the survey it is possible to conclude that the north and northeastern slopes of the hill were utilised by the inhabitants of Umm el-'Umdan mostly for burial. The settlement of H. Sher is confined to the topographical saddle at the western part of the hill. The main part of the hill was used over the ages for growing vines and other agricultural activities. At some stage, yet to be dated, a vast operation demanding much investment of energy turned the crest of the hill and its western part into enclosed gardens, unique to the Modi'in regional landscape. We shall devote our next field season to explaining this 'out-of-place' phenomenon.

Ground-penetrating survey (Jessie Pincus-Ben-Avraham)

Ground Penetrating Radar (GPR) is a non-invasive sub-service geophysical technique that has proved useful in archaeology, among other fields. The technology can work to make the archaeologist efficient in his or her planning by providing sub-surface information at a site prior to excavation (Conyers and Goodman 1997).

On 15 and 29 July and 3 August 2005 Jessie Pincus–Ben-Avraham, in collaboration with Mnemotrix Systems Inc., began the long-range survey intended for the site. The results presented in this report were determined by the exploratory, preliminary nature of our initial GPR survey, which was designed to provide as much sub-surface information as possible before the August 2005 season began. It is hoped that future research and survey at the site will expand upon this initial effort.

Our equipment consisted of a GSSI SIR 2000 GPR system using a lower resolution 200 MHz antenna in Area 1 and a high-resolution 400 MHz antenna in Areas 2 and 3. Standard field methods were used, acquiring data every metre in addition to standard post-processing methods (Conyers and Goodman 1997). Datasets were linked and then studied in terms of visible reflections. Data modelling of this information in the form of useable figures was then completed, followed by the writing of this report.

In the figures below we look for high amplitude reflections, as marked by different colours in respective colour tables. When we encounter high amplitude reflections it is an indication that the GPR signal has just passed through a material that is significantly different from the previous one it was travelling through.

It is recommended that excavation begin in Area 3 to identify the flat horizontal reflection seen there. The anomaly seen in Fig. 2 may be geological in nature as the bedrock of the site. With time and more data acquisition a better understanding of the sub-surface features will be acquired. With the combination of more post-processing time in the lab and excavation we will be able to determine more fully the usefulness of GPR in locating specific features. For the moment, this 'first look' report succeeded in directing excavations for the August 2005 season. More comprehensive reports will be forthcoming as fieldwork and research continue at the site.

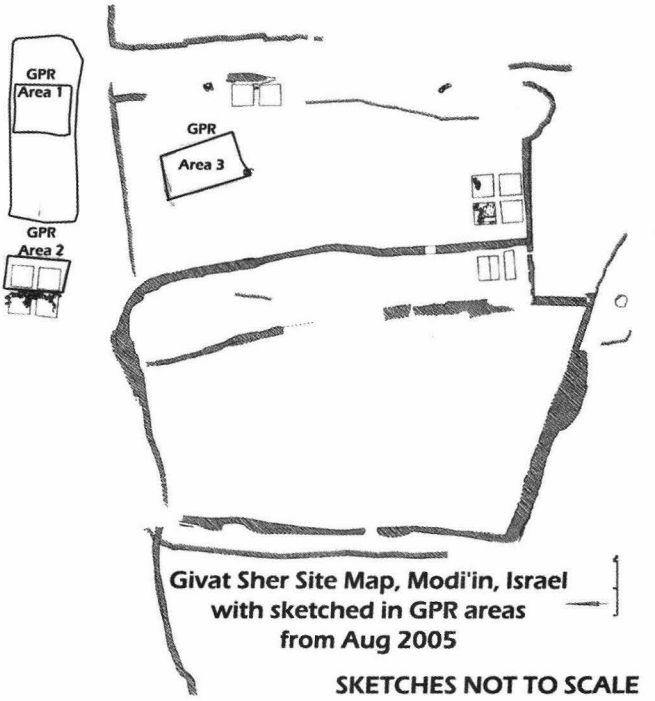


Fig. 9.1: Archaeological map of H. Sher with GPR Survey Areas labelled.

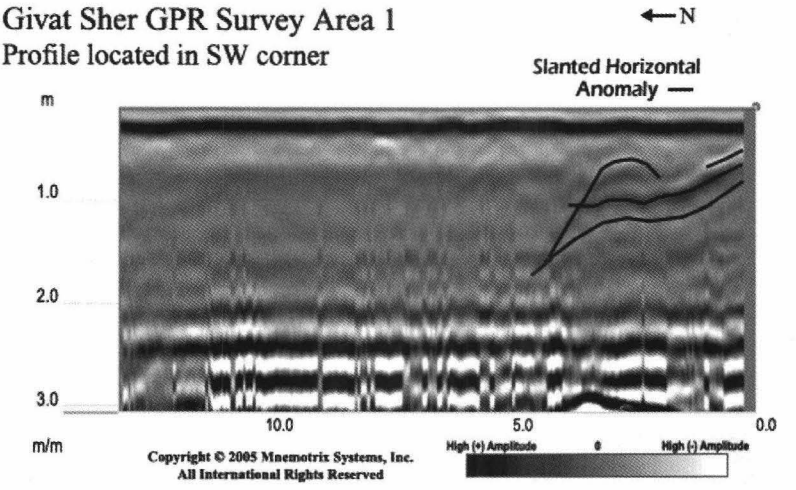


Fig. 9.2: This side-view x-slice is part of GPR Area 1, located in the SW corner of the grid. A slanted horizontal anomaly has been traced (~35 – 45 degree angle), evidenced by the sloping lines and hyperbolic reflection. The anomaly extends about 4 m N from the southern grid boundary and about 5.5 m E of the western boundary. This anomaly can also be seen in Fig. 12.3 below as an X.

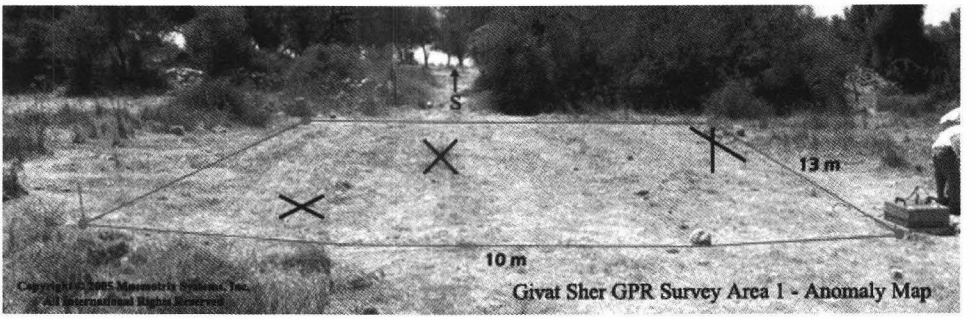


Fig. 9.3: Anomaly map for GPR Survey Area 1. Three anomalies seen in the GPR data were studied and their locations have been marked by an X. The northernmost anomaly begins around 1.7 m depth, becomes a large/round anomaly at 1.9 m, then stronger at 2.07 m. The feature is about 1 m wide and stays consistently visible until 3 m depth. The middle anomaly is similar in size and depth to the northernmost anomaly.

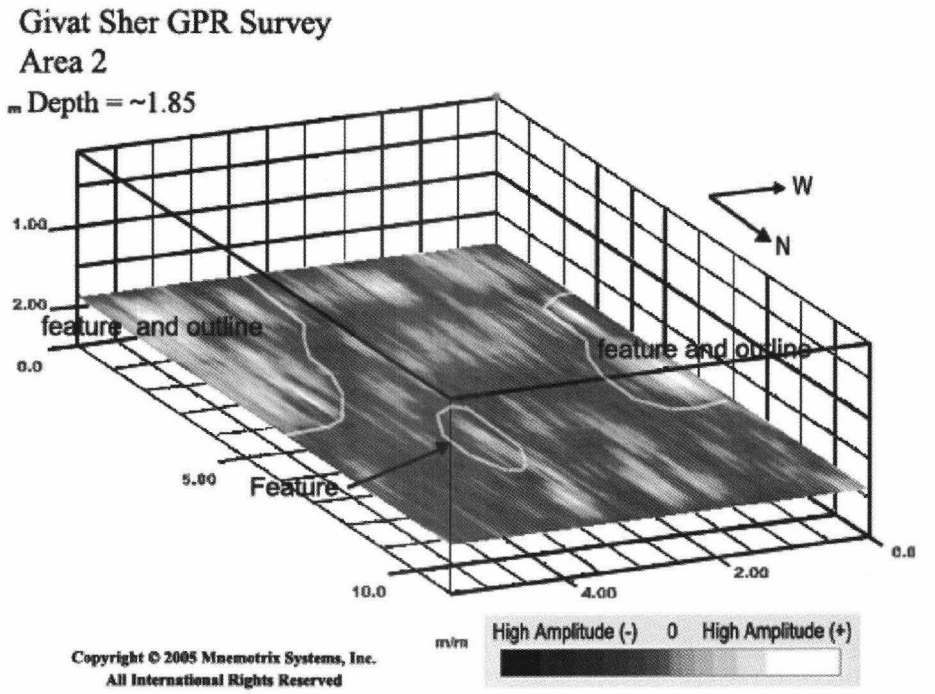


Fig. 9.4: Three main anomalies were visible in the Area 2 GPR survey and are outlined above. The easternmost feature seems to be remnants seen in the sub-surface of the elevation change from excavated trench to ground level, and thus have not been marked in Fig. 5 below.

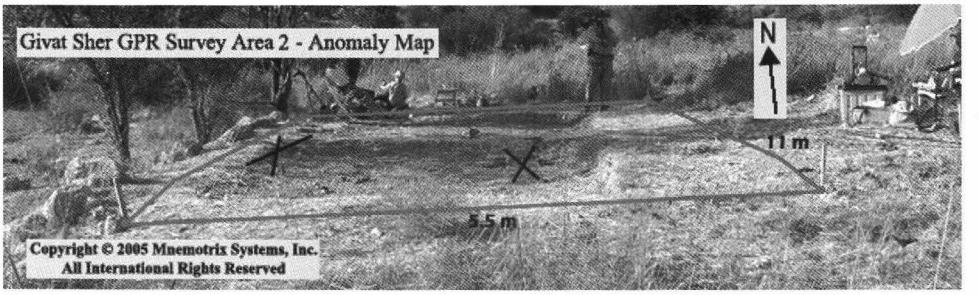


Fig. 9.5: Anomaly map of GPR survey Area 3. As with Fig. 3, anomalies have been mapped in this field picture. The westernmost anomaly is located closely to a remnant lintel, which is just over the terrace edge to the west.

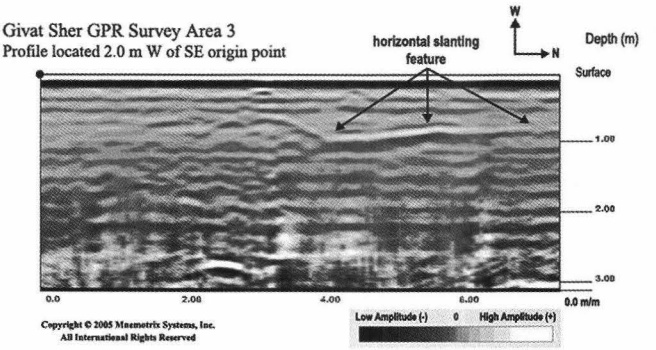


Fig. 9.6: In this figure a horizontal slanting feature is clearly visible. It is seen here in profile view and from the top in Fig. 7. This seems to be a most promising reflector due to its consistency and form. Ground-truth excavation of this feature will be particularly interesting.

The excavation results (Yuval Gadot and Yoav Farhi)

After recognising that the settlement site is located at the western topographical saddle, we decided to concentrate our first effort here. Three areas (A1, A2, A3; Fig. 10), were chosen for excavation.

Area A1 is located at the northern limits of the site (Fig. 10). Four 5 x 5 squares were marked off, two on each side of a large northwest terrace wall (W400; Fig. 11). One of the stones incorporated into the terrace wall is a large rectangular dressed stone decorated with two crosses (Fig. 12). Our aim in choosing to dig here was to locate the building (church or monastery?) from which this stone originated and determine whether the ancient settlement extended this far to the north.

Area A2, located at the centre of the site, holds two sub-areas. The eastern of these is comprised, at present, of four squares located on both sides of a terrace wall (W450). The second is located 9 m to the west and consists, at present, of three squares. The results of the GPR survey (above) indicated the existence of a

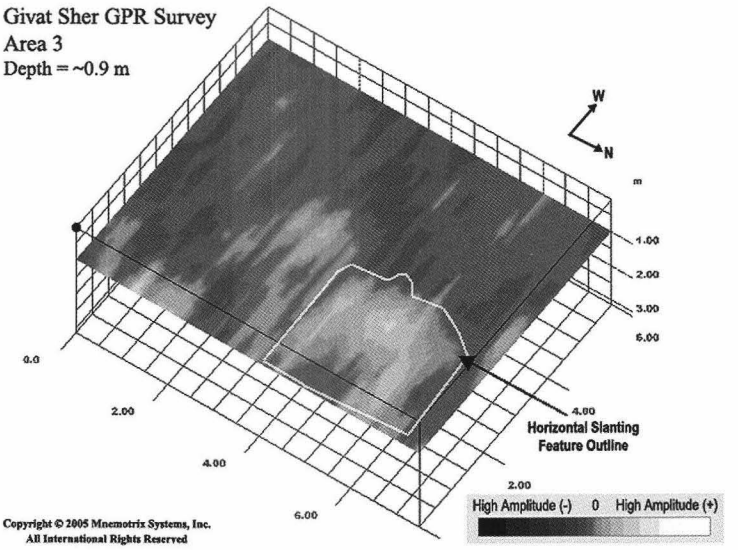


Fig. 9.7: This is a top view of the same reflector from Fig. 6 above. The anomaly seems to be quite wide, about 4 m E/W and 3 m N/S. In Fig. 8, it can be seen that this is a place of depression. Past the southern end of the grid is a cistern, possibly built at a time when the soil height was shallower. It is possible that this anomaly is related to the mentioned cistern. Only ground-truth excavations can solve the true identity, located less than 1 m below the surface.

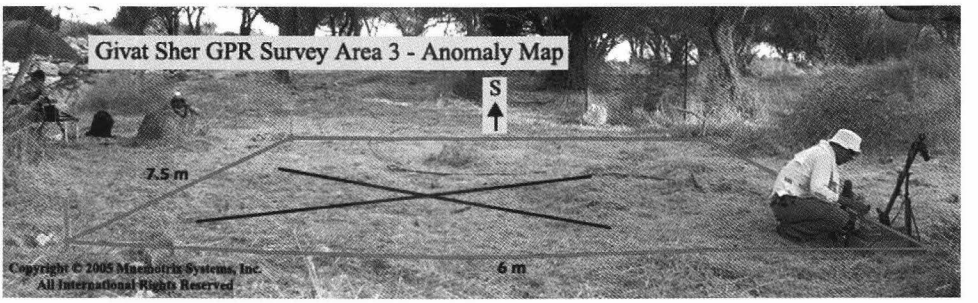


Fig. 9.8: Anomaly map from GPR Survey Area 3. The anomaly discussed in Fig. 7 is demarcated as a large X.

rock-cut installation close to the surface at this location. Two water cisterns are located in this area and one of our future goals will be to elucidate the relationship between them and the architecture that will be revealed in future seasons.

The largest of our areas is Area A3, located in the southern part of the site. The area is limited by three, large, well-built terrace walls (W501, W502 and W506, Figs. 13 and 14), whose lower courses are made of well-dressed stones (Fig. 16). We opened four 4.5 x 4.5 m squares on the upper terrace enclosed by wall W502

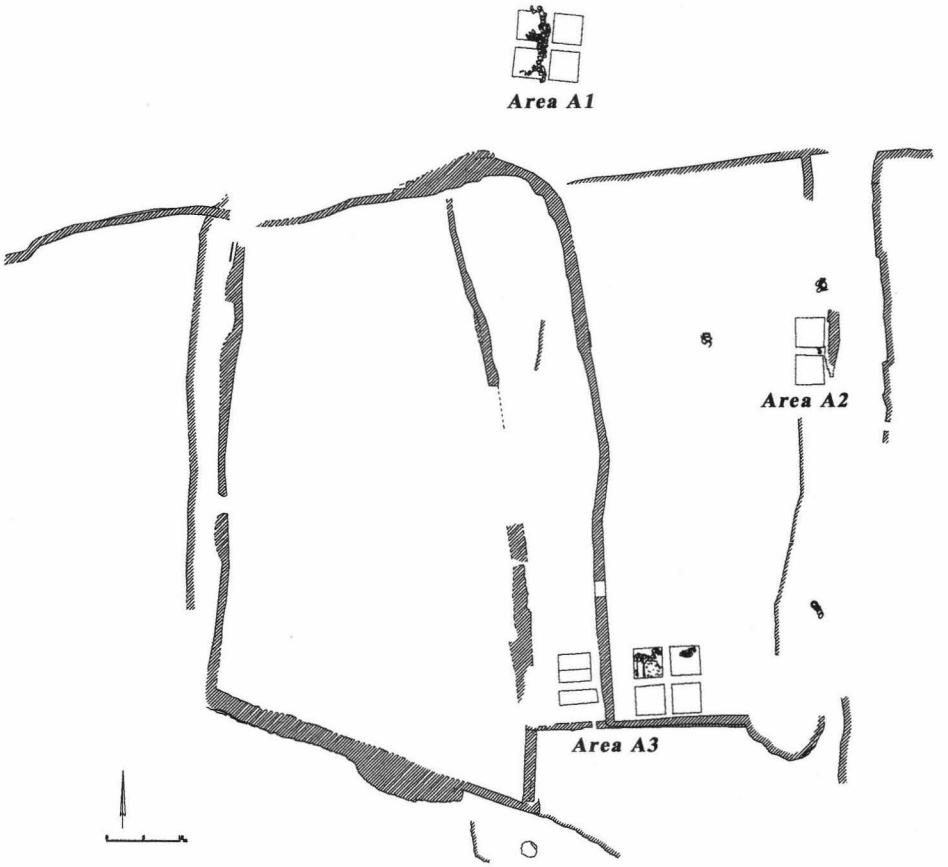


Fig. 10. Plan of the settlement site with areas of excavations marked.

to the west and W501 to the east. Two more squares were excavated in a lower terrace to the west of wall W502.

To date, the only architectural remains exposed are of the latest habitation level, dating to the 14th–16th centuries CE. The pace of our work allowed us to study closely this uppermost level and the post-abandonment formation processes that shaped the site's current appearance. The soil fill that covered the ruin contained numerous ceramics, metals, glass and coins that gave us a comprehensive picture of H. Sher's settlement chronology. The following is a description of the excavation results starting from the uppermost level.

Topsoil layer

In all three areas a layer of soil over a metre thick in some places was exposed. Soil attributes – colour and density – were different in each of the three areas. Area A3

Fig. 11. Terrace wall W400 and the large rectangular stone lintel decorated with two crosses.

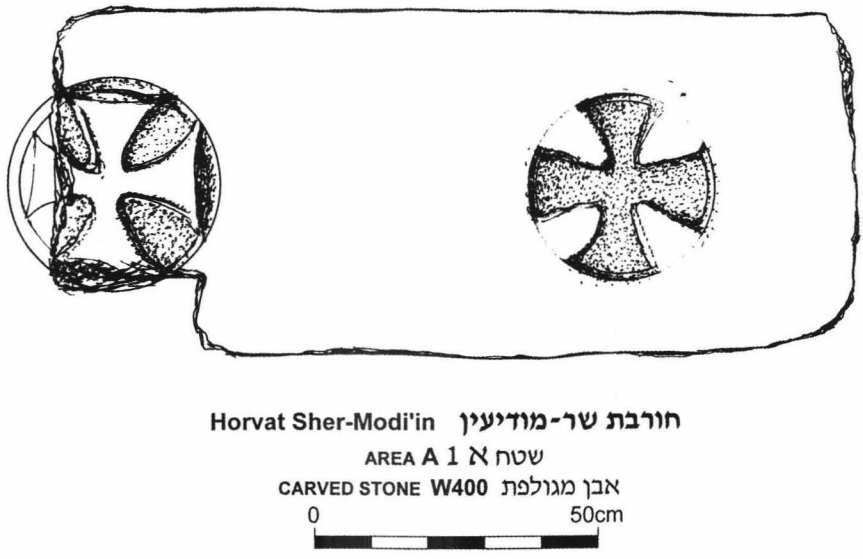


Fig. 12. The two crosses curved on the surface of the rectangular stone lintel (drawing by Gila Kook).

Fig. 13. Area A3 at the start of the excavations. Terrace wall W501 is seen at the back (looking south).

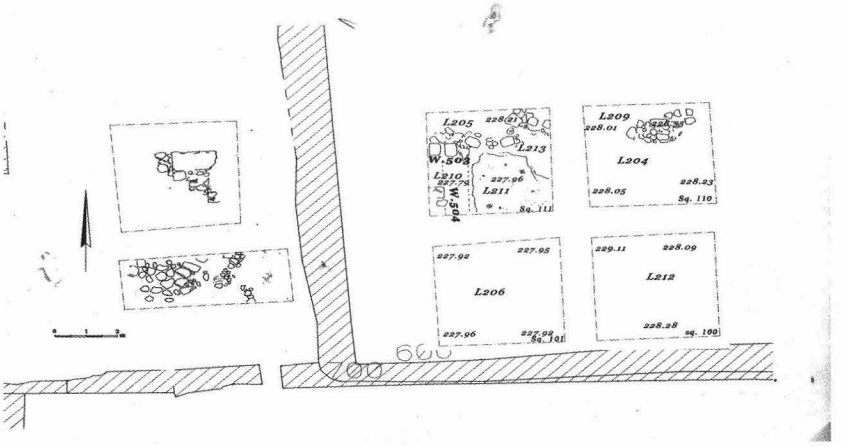


Fig. 14. Plan of area A3

is characterised by a layer of grey loose soil abounding with both field- and worked stones. The layer is 0.8 m thick on average in all four squares located in the upper terrace. The two squares located in the lower western terrace are covered by the same soil, but here it is only 0.5 m thick. Area A2, at the centre of the site, is characterised by a very dense, dark soil. This reaches a depth of almost a metre in the most western square while no more then a few centimetres in the eastern parts. Area A1 has a more red to brown *terra rosa* soil, typical to the area. In the upper eastern squares we excavated nearly a metre of the soil without any change in texture or colour suggesting that this *terra rosa* is the original, natural topsoil. If this conclusion is correct then the topsoil in the other two areas should be attributed to human agency, perhaps in connection with the planting of the olive grove now covering the site. In preparing the plot for planting seedlings, terrace walls were built and soil brought in from the nearby archaeological site. The nature of the soil in area A3 (loose, grey earth and many stones) suggests that earlier Mamlūk-period architecture was dismantled and its stones reused in the later terrace walls. The fact that the grey earth matrix is absent from Area A2 indicates that the Mamlūk settlement was confined to the southern part of the ruin and did not reach northwards as far as Area A2. In Area A2, levelling was achieved by laying soil brought from some other part the site, and most likely entailed the dismantling of earlier Byzantine and Early Islamic remains. The sharp difference between the thickness of the topsoil in the eastern parts of Area A2 (a few centimetres) and that of the soil in the western part (more than a metre) reveals that a steep east-west slope was compensated for, one that was either natural or the result of construction during the Byzantine and Early Islamic periods.

Mamlūk architecture

Architectural remains dating to the Mamlūk period were exposed in Area A3 only (Fig. 14). They include robber trenches of walls, some patches of a floor and many stone cairns. A segment of a floor (L211) made of hard-packed earth was found in the northwestern square. The floor measures *c*.2.5 x 2.5 m. To the west the floor ends in a straight south-north line. The loose earth with few building stones found further to the west (L 210) suggests that this is a robber trench of the wall that once bordered the floor to the west. A second and very similar trench can be seen to the east of the floor. Bounding the floor from the north there is a line of fieldstones and worked stones. This line continued eastwards and appeared also in the square to the east. The stones were laid in no apparent order and should therefore be understood as collapse, though it is possible that the wall is still buried below the collapse.

A second stamped earth floor was found to the south (L214). A small ash circle was found on it, probably a hearth. While floor L211 was void of finds, a concentration of restorable pottery was found along the line of stones to the north of the floor (Loci 203 and 205 in the northwestern square and L204 in the northeastern square). Six complete vessels were eventually restored from this location, all dating to the Mamlūk period (Fig. 15 and see the pottery discussion

below). The vessels' find spot – amongst a jumble of stones – raises several possible explanations as to their context. One possibility is that the stones and the pottery vessels are located in a pit whose contours were not discerned. Another possibility is that the pottery was buried below the collapsed wall.

More architecture from this period was found in the two squares located on the lower terrace of Area A3. Here we uncovered the top of a large dressed stone, abutted by a segment of stone paving (L219). Unfortunately, one night, in the course of the August 2005 season, looters excavated a large crater here, disturbing the context.

The Finds from the Hellenistic, Byzantine and Early Islamic periods

No *in-situ* architectural remains predating the Mamlūk period were exposed in the 2004–5 seasons. Even so, many finds from different periods were collected from the thick topsoil deposits from all areas. Most of these are described below. These finds reveal that the site was first settled during the Late Hellenistic (Hasmonaean) period, from which we inventory nine coins, two oil lamp fragments and a number of indicative sherds. After a long gap of *c*.500 years the site was resettled in the Byzantine period and continued to exist through the Abbassid period. Diagnostic

Fig. 15. An assemblage of pottery dating to the Mamlūk period found in the pit or collapse (Yuval Gadot)

finds from these periods include oil lamp fragments, eighteen coins and many glass vessel fragments (again, below). The many stone tesserae signify the existence of mosaic floors that were part of industrial installations (the larger, cruder tesserae) or household surfaces (the smaller, polished tesserae). In this context one should also mention the large rectangular stone lintel decorated with two crosses, found in secondary use incorporated into the terrace wall in Area A1 (Figs. 11–12). Clearly, this stone originally adorned a Byzantine church or monastery. Two more stone columns and a suspected stone capital, positioned amongst the many stone piles at the site, were located and recorded. One is reminded of the reports found in the archives of the British mandatory Palestine Department of Antiquities describing ruins of a church at the site. Might this be the stone that the inspectors came across? Stones curved with similar crosses were found in nearby locations such as the Mevo Modi'im monastery (Eisenberg and Ovadiah 1998: 16*).

Pottery (Itamar Taxel)

The pottery recovered in the excavations of H. Sher belongs to six periods: Persian, late Hellenistic-Early Roman (late Second Temple period), Byzantine-Umayyad, Abbassid, Mamlūk and late Ottoman. The great majority of the pottery originated in topsoil loci, without architectural context (the only relatively homogeneous assemblage was a group of Mamlūk-period pottery, found in the topsoil layer and stone collapse in Area A3 (Loci 202–5, 207 and 209). The following discussion, therefore, will be typological rather than contextual, by period. At the present juncture this assemblage can only give a general picture of the site's history.

The Persian period

Only one sherd represents the Persian period at H. Sher. This is the rim of a holemouth-shaped krater, decorated with wedge-shaped impressions (Fig. 16: 1). Kraters with wedge-shaped impressions, dated to the 6th–4th centuries BCE (Stern 1982: 133–5), are known mainly from the central hill country (e.g. Aharoni 1964, Fig. 13: 9; Ben-Arieh 2000, Fig. 9).

The Late Hellenistic-Early Roman period

The amount of pottery that belongs to the 2nd century BCE–1st century CE (the late Second Temple period) horizon is small and represented almost exclusively by local types (excluding a few fragments of red-slipped, presumably imported bowls, not illustrated). The small, delicate bowl with flaring rim and carinated body (Fig. 16: 2) is characteristic of the Herodian period (Bar-Nathan 2002: 86, 184, Pls. 15: 245, 28: 527). The cooking pot with the everted, thickened rim and strap handle (Fig. 16: 3) probably belongs to the so-called Herodian cooking pot type of the late 1st century BCE and 1st century CE (Bar-Nathan 2002: 72, 171–2, Pls. 12: 150, 26: 481; Silberstein 2000, Pl. 5: 11). Three types of jars of this period

are represented. The first type is a bag-shaped jar with a short neck and an everted rim (Fig. 16: 4), which appeared both in the Hasmonaean and early Herodian periods (2nd–1st centuries BCE; Bar-Nathan 2002: 22–3, Pl. 1: 1). The second type is a bag-shaped jar with short neck and thickened flaring rim (Fig. 16: 5–7). This jar appeared towards the late 2nd century BCE and is typical of the Hasmonaean period (Bar-Nathan 2002: 27–8, Pl. 3: 12–17). The third type is a collar-rim jar (Fig. 16: 8), a feature of the Hasmonaean and Herodian periods (1st century BCE–1st century CE), mainly in Judaea (Bar-Nathan 2002, Pls. 3: 18–21, 4, 5; Loffreda 1996, Figs. 1–3).

The Byzantine and Umayyad periods

The largest group of pottery belongs to the span of time which starts in the 5th and ends in the mid 8th century. Some of the types described below continued to exist also in the Abbassid period, so there is no certainty in attributing them to the Byzantine-Umayyad phase.

Among the local open forms are two types of the *Fine Byzantine Ware* (*FBW*) bowls. The first type is a rounded bowl/cup with a wavy incised line below the rim (Fig. 17: 1–2). Magness dates it to the mid 6th–late 7th/early 8th centuries (1993: 193–4, *FBW Bowls* Form 1A). The second type has a narrow, down-turned ledge rim (Fig. 17: 3–4). This variant of *FBW* bowls is dated by Magness to the mid 7th–9th/10th centuries (ibid: 198–201, *FBW Bowls* Form 2C), although it may be present in assemblages as early as the first half of the 7th century (Watson 1992: 242, Fig. 12: 100). Another open form is a basin with almost vertical walls, incurved thickened rim and horizontal and wavy external combing (Fig. 17: 5). This type seems to have evolved in the Umayyad period from an earlier type of basin and continued into the Abbassid period (Cohen Finkelstein 1997, Fig. 2: 1; Eisenberg and Ovadiah 1998, Fig. 14: 7; Greenhut 1998, Fig. 24: 1).

The imported *Late Roman Red Ware* (*LRRW*) bowls found at the site include mainly western Asia Minor (*LRC*) bowls, although African (*ARS*), Cypriot (*CRS*) and Egyptian (*ERS*) bowls are also represented by a single example each. The *LRC* bowls include three types, all covered with slip in shades of red or orange. The first subtype, which has a rectangular, vertical rim decorated with rouletting (Fig. 17: 6–8), was dated by Hayes to the mid 5th until the mid 6th century. The H. Sher examples, however, belong to the late 5th and 6th century variants (Hayes 1972: 329–38, Forms 3D and 3F). The second type has a thickened rim which continues the line of wall (Fig. 17: 9). Hayes has dated it to the late 6th–early 7th century (ibid: 343–6, Form 10A). The third type differs from the second by its more flattened rim (Fig. 17: 10) and is dated to the first half of 7th century (Hayes 1972: 343–6, Form 10C).

Two base fragments of *LRC* bowls are decorated with cross-monogramme stamps. The first stamp describe a large Greek cross with double ribs, two circular 'pendants' below the side arms and the Greek letter *rho* (P) attached to the upper arm (Fig. 17: 11). The second stamp was probably of the same type; however only

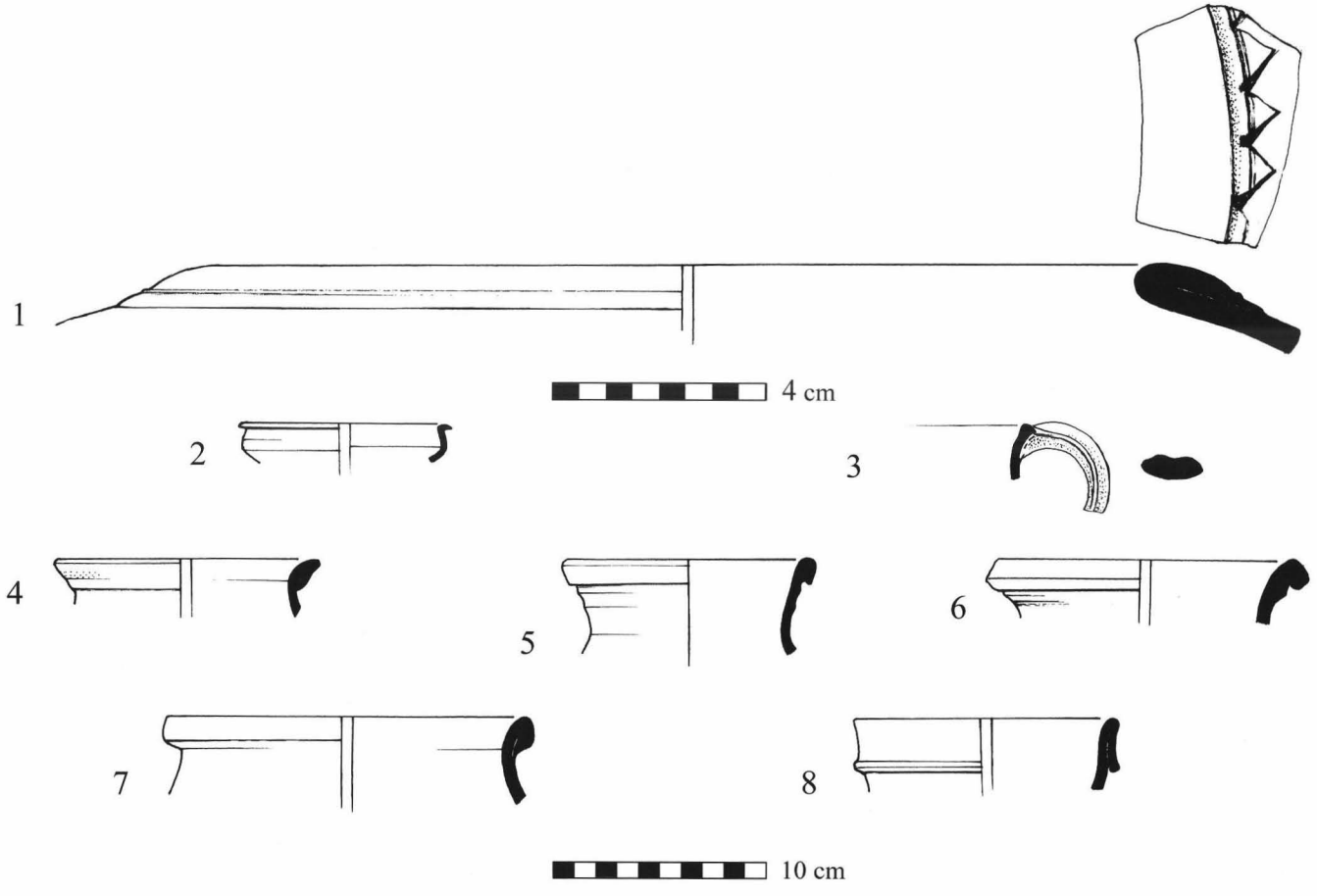


Fig. 16. Pottery dating to the Persian, Hellenistic and Early Roman Period.

the upper end of the cross with the *rho* was preserved (Fig. 17: 12). According to Hayes, this motif should be dated to the late 5th–early 6th century (1972: 363–5, motif 67). Nonetheless, similar finds from various Palestinian sites indicate that *LRC* bowls with this kind of cross-monogramme appeared also in the later 6th century and perhaps even later (e.g. Aharoni 1964: Fig. 22: 26; Gichon 1993: Taf. 46: 1–5; Mazar and Peleg 2003: Pl. I.15: 2).

The *ARS* bowl has a wide, flaring rim with a triangular ending and a shallow groove from its interior. It is covered from the interior and behind the rim with a reddish-orange slip (Fig. 17: 13). According to Hayes, this type should be dated to 400–450 CE (1972: 112–16, Form 67, second group).

The *CRS* bowl has an incurved, grooved rim, decorated with wavy rouletting. It is covered from the interior and below the rim with a reddish-orange slip (Fig. 17: 14). Hayes has dated this type to 580/600 CE to end of 7th century (1972: 382–3, Form 10).

The *ERS* bowl has thick, flaring walls and a thickened rim. The interior is covered with yellowish slip and the exterior is decorated with shallow rouletting (Fig. 17: 15). This bowl belongs to Hayes's *ERS* '*C*' dated to 620–700 CE or later (1972: 399–401).

The cooking vessels of these periods include one type of casserole, a casserole lid and three types of cooking pots. The casserole has everted, plain walls and a cutaway rim (Fig. 18: 1). It belongs to Magness's Form 1, which is dated to the late 3rd/early 4th to 8th/9th century (1993: 211–13), although in this case it cannot be earlier than the 5th or 6th century. The casserole lid is represented by a knob handle (Fig. 18: 2). It belongs to a type dated to the late 3rd/early 4th to 9th/10th centuries (Magness 1993: 215), so theoretically the present example can also date from the Abbassid period. The first cooking pot type has short, vertical neck and thickened, flaring rim (Fig. 18: 3). It has parallels in assemblages dated to the 6th–7th centuries (Hamilton 1944: Fig. 7: 11; Rosenthal-Heginbottom 1988, Pl. 4: 195). The second cooking pot type has a short, slightly everted neck and hooked rim (Fig. 18: 4). According to Magness, it is dated to the 5th/6th–late 7th/early 8th century (1993: 219–20, *Cooking Pots* Form 4B). The third type has a short, slightly everted neck, and thickened rim (Fig. 18: 5), and according to Magness belongs to the same time frame as the previous type (1993: 219–21, *Cooking Pots* Form 4C).

Three types of jar are represented in the Byzantine-Umayyad pottery from the site. The first jar type is also the earliest one. This is a holemouth jar with a very short, wide neck and ledge rim (Fig. 18: 6), which, according to Magness, should be dated to the 5th–6th centuries (1993: 231–3, *Holemouth Jars* Form 1B). The second type is a large bag-shaped jar, of a group characteristic of Judaea and the central hill country. It has a high, slightly turned-in neck with a ridge at its base (Fig. 18: 7) and is dated by Magness to the late 6th/7th–8th centuries (1993: 227–30, *Storage Jars* Form 6B). The third type is represented by the latest variant of the 'Gaza amphora', which is typical of the central and southern coastal plain. It has a plain rim that continues the line of the shoulder (Fig. 18: 8). This variant is dated to the 6th–7th centuries (Majcherek 1995: 169, Form 4, Pls. 7–8).

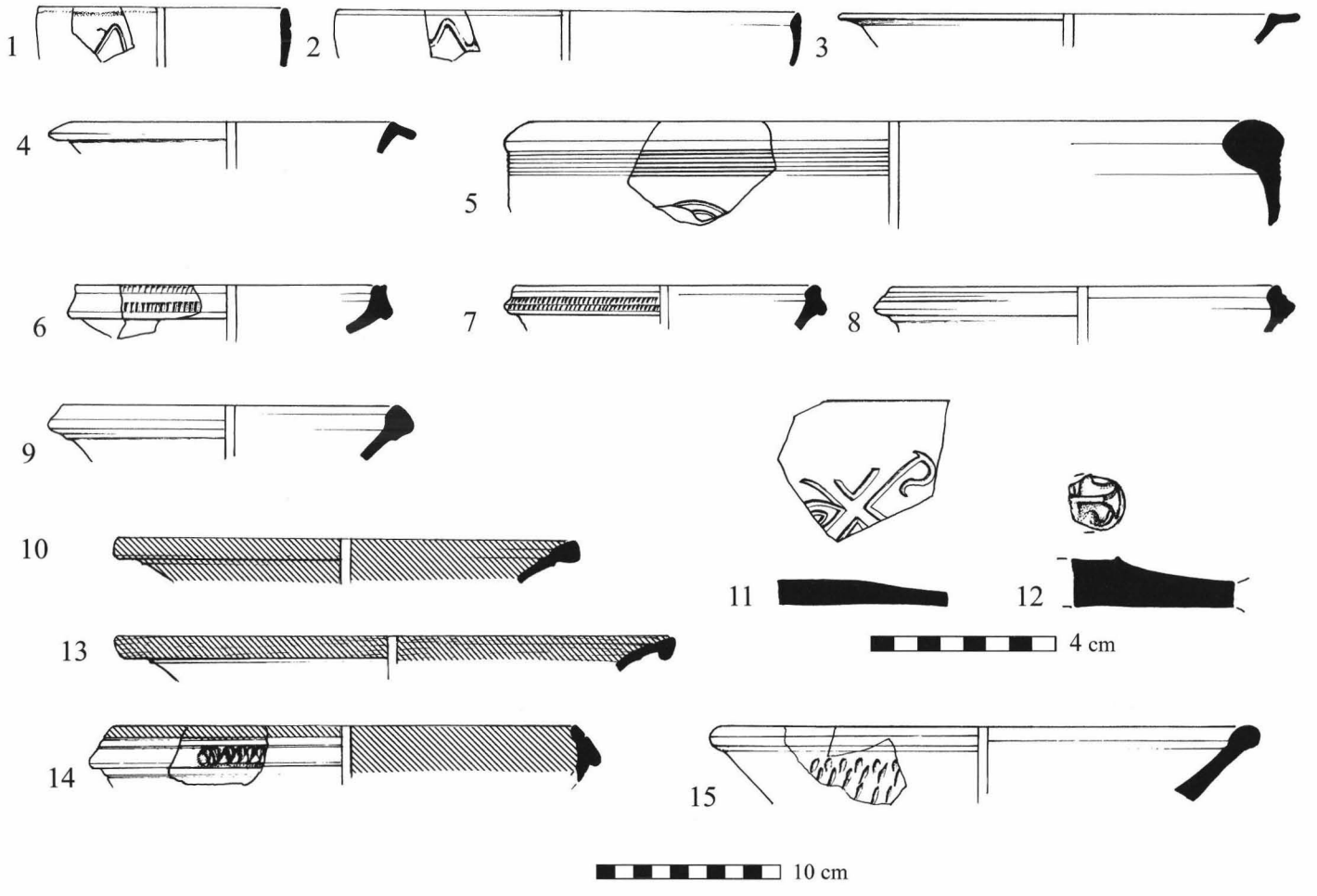


Fig. 17. Pottery dating to the Byzantine and Umayyad periods: Bowls.

The only identifiable jug types of the Byzantine-Umayyad periods are two variants of the *FBW* jugs. The first has a funnel-shaped neck and beaked rim (Fig. 18: 9), and the second has a wide, short neck and an everted, thickened rim (Fig. 18: 10). Both were dated by Magness to the mid 6th–early 8th centuries (1993: 237–9, *FBW Jars, Jugs and Juglets* Forms 1B and 1C).

Roof tiles are also represented in the finds from the site. The illustrated fragment belongs to a lower tile (*tegulae*) with square-sectioned fringes (Fig. 18: 11). Roof tiles are a highly common find in Byzantine and Umayyad assemblages, mainly in connection with public buildings (cf. Pele 2003).

The Abbassid period

Only a few diagnostic sherds dated to the Abbassid period (mid 8th–10th centuries) were found on the site. Some of the types described can also be dated to the late Umayyad period (the first half of the 8th century).

The wide, rounded bowl with an incurved rim (Fig. 19: 1) is a well-known type in Early Islamic assemblages of the 8th–10th centuries (Cohen Finkelstein 1997, Fig. 2: 3; Kletter 2005, Fig. 14: 5). The basin with the thickened, incurved rim and horizontal combing (Fig. 19: 2) seems to be a later variant of the basin in Fig. 19: 5 which was common in the late Umayyad and Abbassid periods (Magness 1993: 210–11, *Incurved-Rim Basins*). The small bowl fragment with the flat base, straight walls and incised decoration (Fig. 19: 3) is an 8th–9th-century local imitation of the contemporary chlorite-schist bowls which were imported from the Arabian Peninsula (Magness 1994).

Another type of contemporary open vessel is represented by buff ware bowls with a low ring base, rounded walls, flaring rim and under-glazed painting (Fig. 19: 4–5). These common glazed bowls are dated to the 9th–11th centuries (Arnon 1999: Fig. 4: h; Avissar 1996: Fig. XIII.2). The body sherd in Fig. 19: 6 belongs to an alkaline-glazed buff ware vessel, probably a bowl. It was covered with monochrome green-turquoise crazed glaze directly on its walls without any slip. Parallels for bowls with similar glaze are gleaned in Abbassid and Fatimid-period contexts (Avissar 1996, Fig. XIII.11: 4; Boas 1992, Figs. 71: 19, 74: 17).

The body sherd of a buff ware jug/jar, decorated with horizontal and wavy incised lines (Fig. 19: 7) has parallels in Early Islamic assemblages (Avissar 1996: Fig. XIII.134; Delougaz and Heines 1960: Pl. 40: 14), but also in an Ayyubid-period assemblage from Jerusalem (Tushingham 1985: Fig. 39: 13).

The jar fragment in Fig. 19: 8 belongs to a type which has a wide cylindrical or convex neck with a slight ridge at its base and painted decoration of horizontal and wavy red stripes. This jar belongs to a wider ceramic group known as *Red Painted Ware* (*RPW*), which originated in Transjordan and is common there and in northern Palestine. This particular type probably appeared in the first half of the 8th century, but is evidenced mainly during its latter part and in the 9th century (Walmsley 1995: 661, Fig. 6: 2).

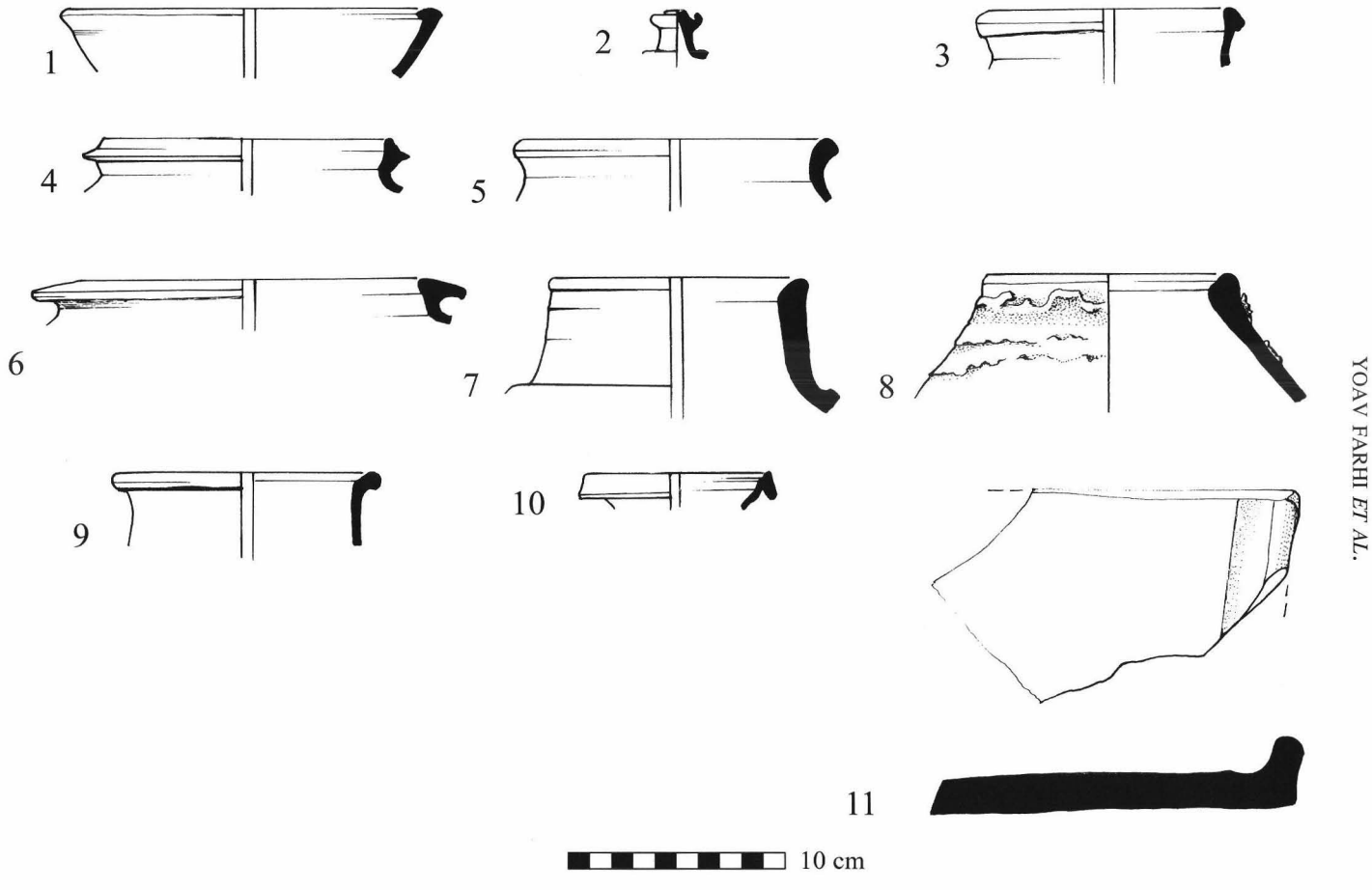


Fig. 18. Pottery dating to the Byzantine and Umayyad periods: Cooking and storage vessels and roof tiles.

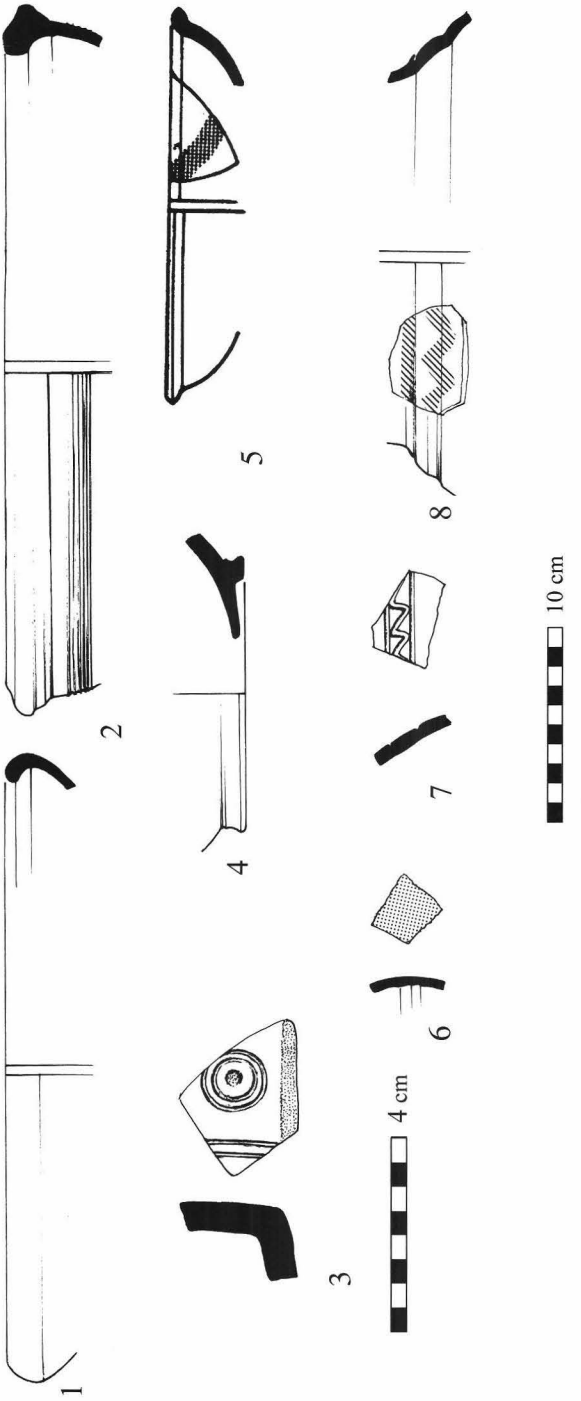


Fig. 19. Pottery dating to the 'Abbasid Period.

The Mamlūk period

Aside from the Byzantine-Umayyad ceramics, the Mamlūk period (13th–15th centuries) has yielded the largest amount of pottery on the site and the only homogeneous assemblage. Some of the following types, however, might be Ottoman.

Three types of bowl were attributed to the Mamlūk period. The first is a heavy, carinated bowl (Fig. 20: 1). Such crude bowls are known from Mamlūk and early Ottoman contexts (Avissar and Stern 2005: 82, Fig. 35: 8–10). The second type is a large, handmade bowl with geometric painted decoration in dark brown black over an orange slip (Fig. 20: 2). These bowls are evidenced mainly in the Mamlūk period (ibid: 88, Fig. 38: 8). The third type is another carinated bowl, glazed monochrome green (Fig. 20: 3), also typical to the Mamlūk period (ibid: 12, Fig. 4: 7–15).

The Mamlūk-period jars include five types, four of which are wheel-made and one handmade. The first type is a large jug/jar with a high cylindrical or convex ridged neck, and a thickened, turned-in rim (Fig. 20: 4–6). Similar vessels from Jerusalem have been dated to the Ayyubid period (Tushingham 1985, Fig. 40: 31–2, 35). The second type has a vertical neck and a thickened rim with a broad ridge below (Fig. 20: 7). It seems that the combed-decorated body sherd (Fig. 20: 8) can also be attributed to this common form of bag-shaped jar, typical to the Mamlūk period (Avissar and Stern 2005: Fig. 42: 5–6; Gophna and Taxel 2007: 49, Fig. 3.9: 15–16). The third jar type has a cylindrical, ridged neck and broad, flattened rim (Fig. 20: 9), also characteristic of the Mamlūk period (Saller 1957: Fig. 42: 5760; Seligman 2001: Fig. 10: 9). The fourth type has a short, wide neck and a thickened rim (Fig. 20: 10). The ware and slip of this jar resembles those of the Mamlūk-period coarse pottery, although its closest parallel is from a late Ottoman context (Ziadeh 1995: Fig. 11: 5). The lower half of a bag-shaped jar with concave base (Fig. 21: 1) cannot be securely attributed to any of the above-mentioned types, although such morphology is known from jars of the third type.

The handmade jars have a rounded body, flat base and high cylindrical neck. One jar has a loop handle on its shoulder and another one probably had a loop handle from neck to shoulder. They are decorated from base to rim with dense geometric painting in shades of red and brown, usually over a yellowish slip (Fig. 21: 2–4). Although these handmade decorated jars had appeared by the late 12th century and continued to exist also in the Ottoman period, they are most evidenced during the Mamlūk period (Avissar and Stern 2005: 113), to which we can attribute the present examples (for the high-necked jar see ibid, Fig. 48: 1; for the loop handle on shoulder see Tushingham 1985, Fig. 38: 31).

Three types of jugs belong to the Mamlūk period. The first type has a straight, narrow neck and turned-out triangular or grooved rim. At least one example has a prominent ridge more or less at the middle of the neck (Fig. 22: 1–2; Avissar and Stern 2005, Fig. 45: 9). The spout in Fig. 22: 3 belonged either to this type or to a somewhat different type with a swollen neck (ibid, Fig. 45: 4–5). The handle with

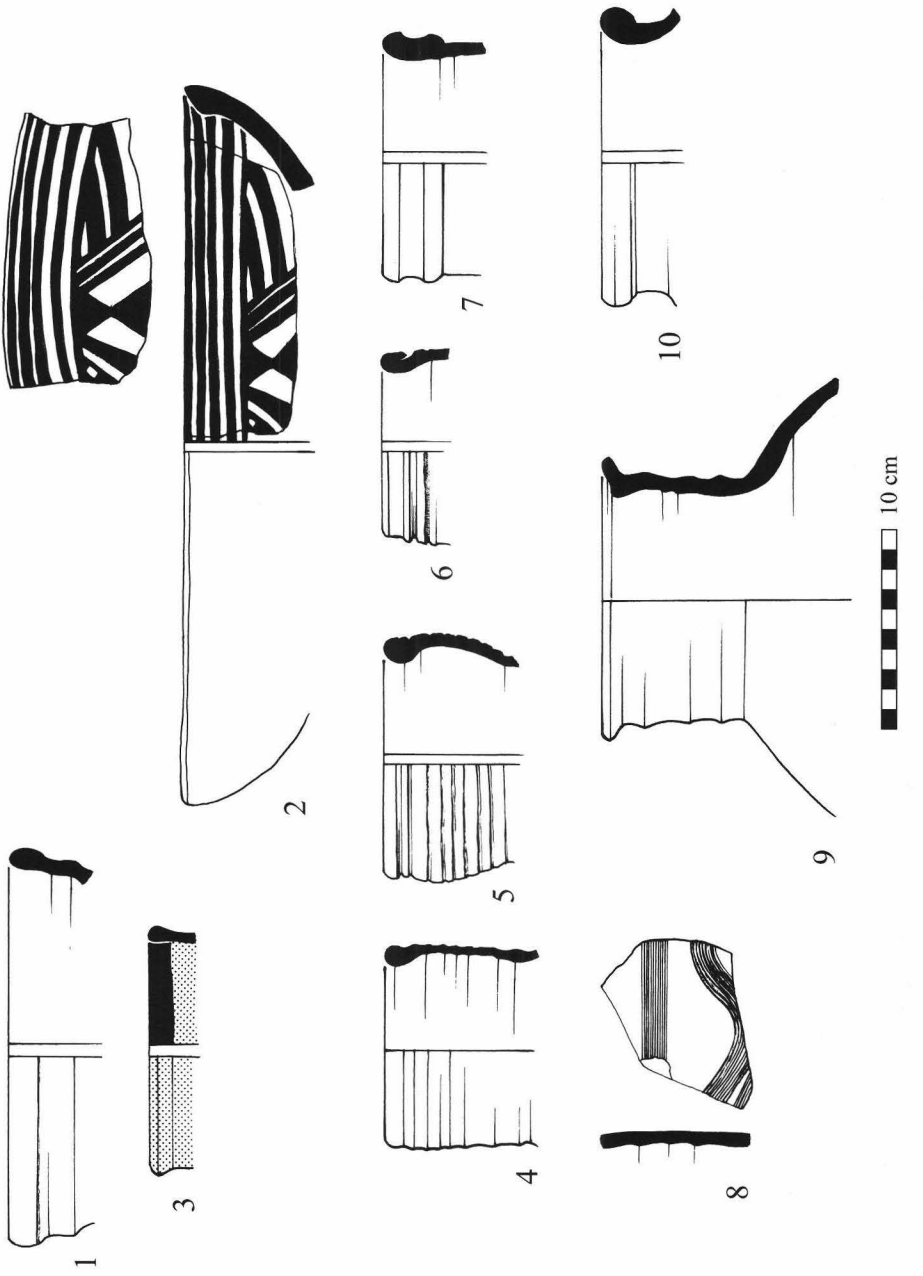


Fig. 20. Pottery dating to the Mamlūk period.

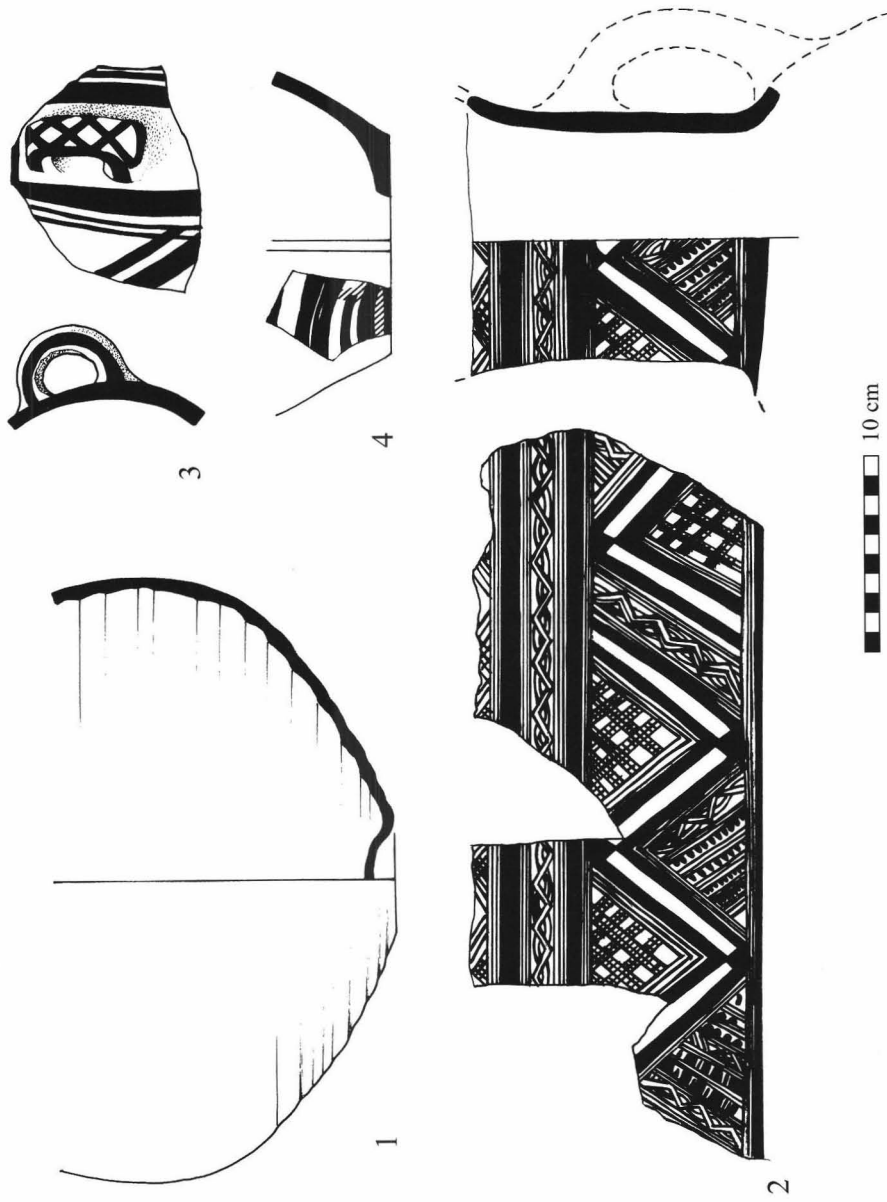


Fig. 21. Pottery dating to the Mamlūk period

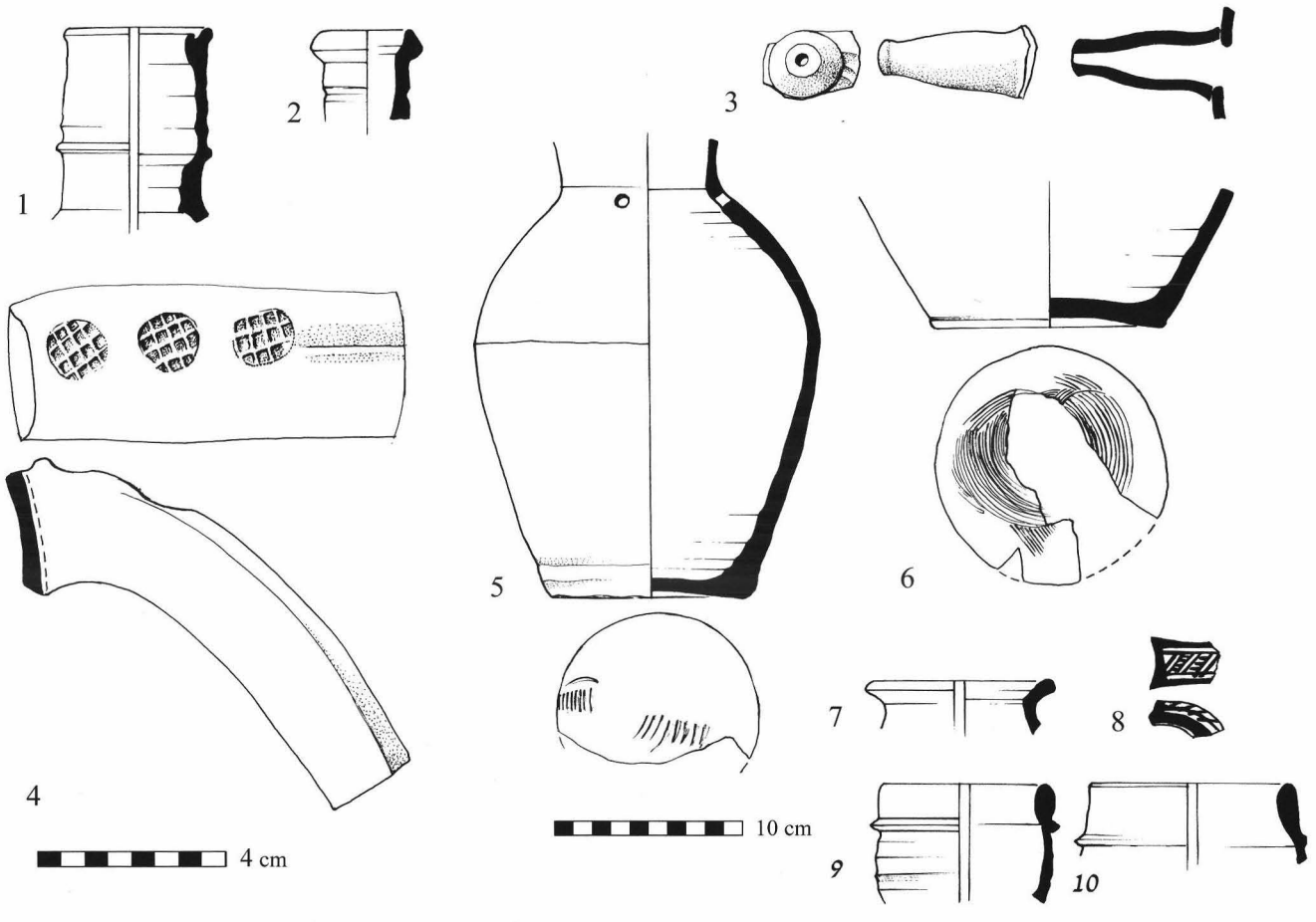


Fig. 22. Pottery dating to the Mamlūk and the Ottoman Periods.

the stamped decoration in net pattern (Fig. 22: 4) belongs to another variant of swollen-neck jug, which is dated to the 13th century (ibid: 110, Fig. 45: 6). The second type has a flat, slightly concave base with visible wheel marks, ovoid body and wide neck (Fig. 22: 5–6). The fragment with the flaring rim (Fig. 22: 7) also seems to belong to this type (*cf.* ibid, Fig. 45: 7–8). The third type is a handmade jug, represented by loop handle fragment decorated with geometric painting in purplish-brown over a yellowish slip (Fig. 22: 8). This common type has the same date as the handmade jars discussed above (ibid, Fig. 47: 1–5).

The Late Ottoman period

The few sherds attributed to the late Ottoman period (the 19th–20th centuries) include a type of jar with convex neck and thickened, turned-in rim with a sharp ridge below (Fig. 22: 9–10). This is a typical late Ottoman form, which is known either in pale ware (the present examples) or in dark grey 'Gaza Ware' (Boas 2000, Pl. 1: 7–11; Eakins 1985, Pl. 19).

The pottery from H. Sher, despite coming from mostly unstratified contexts, reveals important information about the material culture of the site from the Persian to late Ottoman periods. In general, the assemblages are similar to those of nearby sites – Mevo Modi'im (Eisenberg and Ovadiah 1998), Horvat Hermeshit (Greenhut 1998) and Emmaus/Qubeibeh (Bagatti 1993). The great majority of the pottery consists of local types characteristic of central Palestine and the central hill country in particular. Only in the Byzantine and early Umayyad periods do we find some imported tableware, which can be found in almost every contemporaneous site in the country. The pottery also reflects the fluctuations in the site's history. The pottery assemblage, which dates to the Late Hellenistic-Early Roman (late Second Temple period), Byzantine-Umayyad, Abbassid, Mamlūk and late Ottoman periods reflects the periods during which H. Sher was settled. The single sherd from the Persian period seems a random find, not indicative of any true settlement.

Oil lamps (Shlomit Bechar)

Twenty-four fragments of oil-lamps were found during the 2004–6 seasons (Table 1; Fig. 23). The lamps date to the Hellenistic period (three oil lamps), the Roman period (two) the Byzantine period (nine), the Early Islamic period (two), the Abbassid period (two) and the Mamlūk period (four). The rest of the sherds were not identifiable and therefore were not dated. Following is a description of the fragments, from the earliest to the latest:

Hellenistic period (3rd – 1st centuries BCE)

Two fragments of oil lamps are attributed to the Hellenistic period. Fig. 23:1 is of a wheel-made oil lamp made of brown-grey clay. The lamp has a rounded body, a high filling hole, a short nozzle and a flat base. Such lamps were found in Gezer

and Maresha, where they were dated to the 3rd and 2nd centuries BCE (Hadad 2002:13, no.1; Oren and Rappaport 1984: 123, pl. 13E). Fig. 23:2 is a folded lamp. It is made of light-colour clay. Such lamps are usually wheel made. This type of oil lamp is characteristic of Jewish settlements dating from the 2nd to the 1st centuries BCE (Hachlili and Killebrew 1999: 125). Fig. 23:3 is of a closed oil lamp with folded handle. The lamp is wheel made. The clay is light orange covered by red slip. Such oil lamps are rarely found. Few examples were found in a Jewish burial cave in Nahal David, Ein-Gedi, which dates to the first century BCE (unpublished).

Roman period (1st century BCE – 2nd century CE)

Two fragments of oil lamps date to this period. The first is a Herodian oil lamp, which is wheel made and composed of light pink clay (Fig. 23:4). This type dates from the end of the 1st century BCE until the end of the 1st century CE. The second

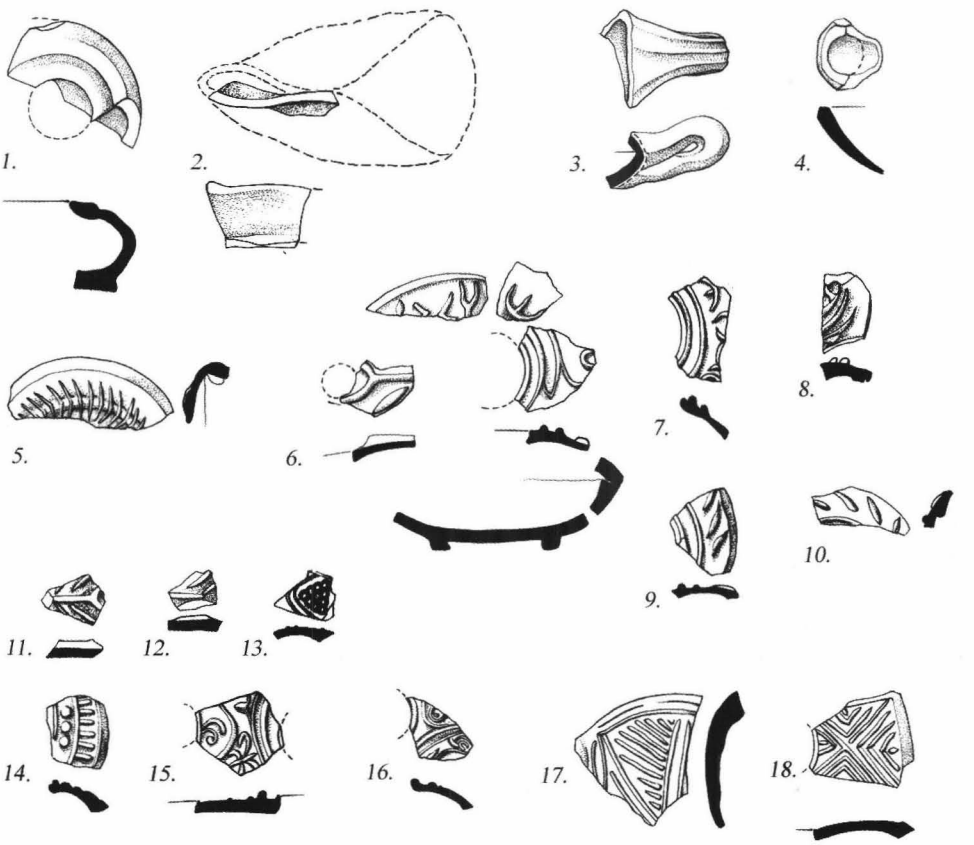


Fig. 23. Oil lamps from all periods

Table 1: Fragments of oil lamps found during the 2004–2006 seasons

No.	Basket and locus	Fragment type	Type and date	Reference	Illustration
1	1060/1, L.03	Filling hole, body fragment and base	Hellenistic, 2nd-3rd centuries BCE	Hadad 2002: 14 no. 1. Oren and Rappaport 1984: 123. pl. 13E.	Fig. 23:1
2	3064/1, L.200	Body fragment	Folded lamp, 2nd-1st centuries BCE	Hachlili and Killebrew 1999: 125, Fig. III.65:1,2	Fig. 23:2
3	1056/1, L.03	Handle	Hellenistic (?), closed oil lamp with folded handle, 1st century BCE (?)	Nahal David, Ein-Gedi (unpublished).	Fig. 23:3
4	2196/1, L.102	Bottom of a nozzle	Wheel-made, knife-pared lamp, 1st century BCE-1st century CE	Barag and Hershkovitz 1994 type C. Geva and Hershkovitz 2006, pl. 4.13:19	Fig. 23:4
5	2177/1, L.112	Body fragment	Judaean lamp ('Southern'), 1st century-mid 2nd century CE	Barag and Hershkovitz 1994, type F	Fig. 23:5
6	2209, L.117	Body fragments, filling hole, nozzle and base	Candlestick type, 5th-8th centuries CE	Hadad 2002: 66-7 Type 28	Fig. 23:6
7	2019/1, L.100	Body fragment and filling hole	Candlestick type, 5th-8th centuries CE	Hadad 2002: 66-7 Type 28	Fig. 23:7
8	3148/1, L.206	Body fragment	Candlestick type, 5th-8th centuries CE	Hadad 2002:65-8 nos. 287-98.	Fig. 23:8
9	3162/1, L.214	Body fragment	Candlestick type, 5th-8th centuries CE	Hadad 2002: 65-8 nos. 287-98	Fig. 23:9
10	2075/1, L.100	Body fragment	Candlestick type, 5th-8th centuries CE	Hadad 2002: 65-8 no. 289	Fig. 23:10

11	2075/2, L.100	Body fragment	Candlestick type, 5th-8th centuries CE	Hadad 2002: 65-8 no. 287	Fig. 23:11
12	2075/3, L.100	Body fragment	Candlestick type, 5th-8th centuries CE	Hadad 2002: 65-8 no. 287	Fig. 23:12
13	2195/1, L.103	Body fragment and filling hole	Candlestick type, 5th-8th centuries CE	Hadad 2002: 65-8 no. 287	
14	2190/1, L.100	Body fragment	Candlestick type, 5th-8th centuries CE	Hadad 2002: 65-8 no. 287	
15	3146/1, L.206	Body fragment	Early Islamic, 7th-8th centuries CE	Hadad 2002: 99 no.442	Fig. 23:13
16	3144/1, L.206	Body fragment	Early Islamic, 7th-8th centuries CE	Avner 1998: fig. 13:4 Magness 1993: 256, Form 4B.	Fig. 23:14
17	2188/1, L.100	Body fragment	Abbassid, 8th-11th centuries CE	Hadad 2002: 100 no. 449 Magness 1993: 258, Form 5	Fig. 23:15
18	2013/1, L.100	Body fragment and filling hole	Abbassid, 8th-11th centuries CE	Hadad 2002: 100 no. 449 Magness 1993: 258, Form 5	Fig. 23:16
19	1060/1, L.203	Body fragment	Mamlūk, 13th-14th centuries CE	Avissar and Stern 2005:171 Pl. 34:3; Reich and Shukron 2006, Fig. 21.16	Fig. 23:17
20	3066/1, L.203	Body fragment and filling hole	Mamlūk, 13th-14th centuries CE	Avissar and Stern 2005:171 Pl. 34: 3Reich and Shukron 2006, Fig. 21.16	Fig. 23:18
21	2075/4, L.100	Body fragment	Unidentifiable		
22	2064/1, L106	Body fragment	Unidentifiable		
23	211/1, L.100	Body fragment	Unidentifiable		
24	2177/2, L.112	Nozzle	Unidentifiable		

oil-lamp fragment is of the 'Judaean' or 'Southern/Daroma' type. (Fig. 23:5) It is made of light pink clay and decorated by a radial branch design around the filling hole. This type dates from the 1st century until the mid 2nd century CE (Barag and Hershkovitz 1994, type F; Zissu 2001: 303; Adler 2004: 33).

Byzantine-Early Islamic (5th – 8th centuries CE)

Fragments presented in Fig. 23.7–12 are of the candlestick type. The clay is brown to orange and some are also light pink. They are made in a mould and their nozzle is decorated by a palm branch or a candlestick. These lamps are very common in all Byzantine sites from the 5th century and until the 8th century (Solimany *et al.* 2006: 89*; Hadad 2002: 66).

Two examples, Fig. 23.7–8, are of candlestick lamps which bear Greek inscriptions. Both examples had a doubled ridge around the filling hole and the inscription was inscribed around the hole. In both examples the inscription was not preserved, but it can be assumed that it was similar to one of the known inscriptions, such as 'the light of Christ shines for all' (Solimany *et al.* 2006, *89–*90). This type of lamp also dates to the 5th – 8th centuries CE (Hadad 2002: 66–8).

Fragments presented in Fig. 23.13–16 are all made in a mould. These oil lamps are typical of the 7th – 8th centuries CE. Fig. 23.13 is made of light orange clay. It is decorated with a bunch of grapes which are circled with two rounded lines representing tendrils, a typical decoration of this period (Hadad 2002: 99 nos.442, 444, 445). Fig. 23.14 is made of light brown clay. The lamp is decorated in geometric relief which includes two strips of decorations surrounding the opening hole. The inner circle is decorated with dots while the outer one is decorated with short radial lines. This type of oil lamp is very common throughout the country (Israeli and Avida 1988: 155).

Abbassid period (8th – 11th centuries CE)

Two fragments should be attributed to the Abbassid period. Fig. 23:15–16 are similar to Hadad's oil lamp type 37. They are made of light orange clay and have a thin section. The ornamentations on these fragments are vegetal decoration. Hadad dates them from the end of the 8th or the beginning of the 9th centuries CE at least until the 11th century CE (Hadad 2002:95–106).

Mamlūk period (13th – 14th centuries CE)

Only two fragments which date to this period have so far been found. These two fragments (Fig. 23.17–18) are of the 'Lamps with Bent Handle' type. They are made of reddish-brown clay and were prepared in a mould. They have a very small filling hole and are decorated by plastic decoration of delicate strips forming geometric forms. These lamps date to the 13th and 14th centuries CE (Reich and Shukron 2006, 136–7, fig.21; Avissar and Stern 2005: 128).

Glass finds (Levana Tsfania)

Eighty broken pieces of glass vessels were catalogued during the 2004–5 excavation seasons. Most of them were found in the upper soil level and are too fragmented for analysis. Therefore 16 diagnostic fragments were picked for further analysis (Fig. 24).

The vessels are all free blown and except for one piece, all the pieces have a green to blue colour. The one exception is coloured in an olive green colour (Fig. 24:2). The fragments are covered with white to silver iridescence and their surface is severely pitted. The majority of the finds are typical of the Byzantine and Early Islamic periods with only one glass bracelet (Fig. 25) dating to the Ottoman period, thus being the latest object in the assemblage collected at the site.

One crude lump of glass, found in Locus 105, seems to be a broken piece of raw glass and may be refuse from manufacturing activities held somewhere at the site.

Following is a typological discussion of the representative assemblage.

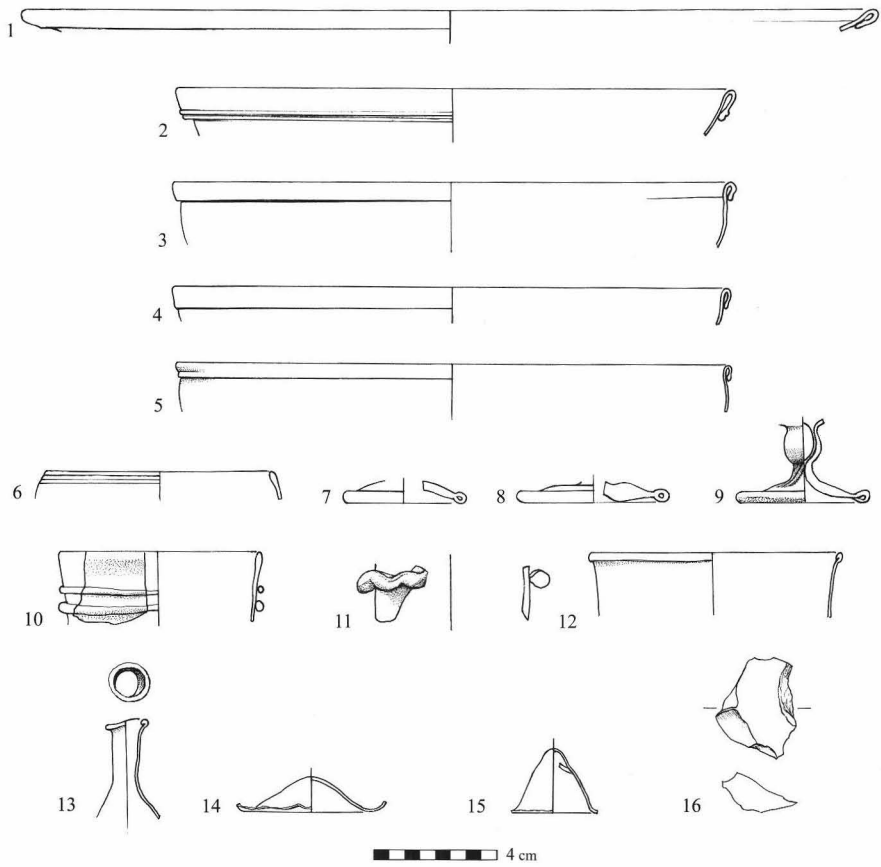


Fig. 24. Glass finds – plate

Fig. 25. Two glass bracelets

Bowls

Seven fragments of bowls were catalogued representing a variety of types. Fig. 24.1 is a small fragment of a bowl with an out-folded rim which turns into a wide, rolled back shelf. It is impossible to reconstruct the entire shape of the bowl, based on this small fragment, but it seems to be a rim of a shallow bowl. Similar types of bowls were reported from Horvat Hermeshit (Winter 1998: Fig. 2:4) and from Nazareth (Bagatti 1969: Fig. 237:13), in both cases from context dating to the Byzantine period. Bowl Fig. 24.2 has a large diameter and an everted rim which is widely folded and thickened at the edge. Figs. 24.3–5 are three out of five bowls catalogued which share an out-folded and hollow rim. Bowl Fig. 24.3 may indicate that these bowls were deep.

Wine goblets

One fragment of a rim and eight more base fragments were catalogued as goblets, all from the same type. The rim (Fig. 24.6) is rounded and is slightly turned-in. The side wall is convex and decorated by horizontal stripes which have a darker colour than that of the rest of the vase. Examples of such goblets were found in many assemblages dating to the 6th–7th centuries CE. Examples are found in Horvat Hermeshit (Winter 1998: Fig. 2: 11 and see there references to Beit Yerah, Beth-Shean, Geresh and Sahvi Zion). All the bases are of the hollow ring type with a diameter of c.4–5 cm. Fig. 24.9 has a bead-shaped foot. Complete goblets of this type were not published but from the many incomplete examples published, it is clear that these bases were common during the Byzantine period and kept appearing in large numbers also in the 7th century CE (Ariel 1990: pp. 159–60, fig. 32: GL72, GL74; Avner 2000: Fig. 26: 5–6; Cohen 2000: p. 168, pl. II:22; 6–5:26; Gorin-Rosen 1999: Fig.2:26 and earlier references there).

Bottles

The rims of three types of bottles were distinguished. Two had a glass-string decoration on their rim. Fig. 24.10 is characterised by a rounded rim which was shaped by heating. Two coils made of thin glass string of dark colour survived beneath the rim. This type was very common during the Byzantine (Barag 1967: 65–7, fig. 16:4, 5) and Umayyad periods. Fig. 24.11 is a bottle, coloured pale blue and decorated by a horizontal thick and wavy glass string which has a greenish colour and is covered by chalky erosion. This type of decoration is known from the end of the Byzantine period and becomes common during the Early Islamic period (Gorin-Rosen 2004: 61 and Fig. 1:4; Gorin-Rosen 1999: p. 210, fig. 1:20; Winter 1998: Fig. 2:3, 13 and earlier references there).

Fig. 24.12 is a rim of a second type of bottle or a cup. It has a thin, inward-folded rim and the glass is coloured pale blue. The third type, Fig. 24.13, is a low-quality bottle, the glass having many air-bubbles. The bottle is coloured green-blue and is covered by silver erosion. The bottle has a carelessly out-turned and then inward-folded rim, a short cylindrical neck and a sloping shoulder. Such bottles usually have a bowl-like body which is either elongated or squashed. They first appear at the very end of the Byzantine period and become common in the Umayyad period (Sion 2004: 87 and Fig. 8:18; Gorin-Rosen and Katsnelson 2005: Fig. 3:25 and earlier references there).

Figs. 24.14–15 are bases of undefined vessels, probably bottles or juglets. Fig. 24.14 is a low convex base while Fig. 24.15 is a 'pushed convex' base, and on it one may see a scar made by the glazier. Bases of this type are typical of closed container vessels from the late Roman period and till the end of the Byzantine period and are therefore hard to date precisely. Complete vases with similar characteristics were published from a grave at Khirbet el-Shubeika (Gorin-Rosen 2002: Fig. 4a:21–3). Other examples are known from Ramat Hanadiv (Cohen 2000: 170, Pl. III: 25) and from the Byzantine monastery of Deir Ghazali (Avner 2000: 48*).

Bracelets

Two fragments of bracelets were catalogued. The first is a twisted bracelet with a rounded section, 0.7 cm in diameter (Fig. 25). The bracelet is made of black-coloured glass and belongs to the 'Plain twisted bracelets type' typical from the 4th century CE (Spaer 2001: nos. 462–5). The second bracelet has a triangular section and is coloured pale blue. Such bracelets were manufactured in workshops at the city of Hebron at the end of the Ottoman period (Spaer 2001: p. 204, nos. 478–80).

Coins (Yoav Farhi)

A. Catalogue of the coins

Thirty-eight coins were found during the 2004–6 excavations at H. Sher. The coins are arranged chronologically, according to coin types. All of them are presented in the following table. Coins bearing an asterisk are illustrated in Figs. 26–7.

Table 2: The coins from H. Sher in chronological order

No.	Dig Ref. (Area, Locus & Basket)	Metal	Wt. (gm)	Diam. (mm)	Axis	Obverse	Reverse	Date of coin	Mint	References	Notes
Ptolemies:											
						Ptolemy II (285–246 BCE)					
1	A2 L. 116 B. 2250	AE	2.73	13-14	↑	Laureate head of Apollo r. with long curls; dotted border.	Eagle standing on thunderbolt to l.; wings open; in front, club. Inscriptions obliterate.	285-246 BCE	Tyre	Cf. Kromann and Mørkholm 1977, nos. 479-81.	
Seleucids:											
						Antiochus III (223-187 BCE)					
2	A2 L. 116 B. 2234	AE	1.58	10	↑	Obliterated head r.; dotted border.	ΒΑΣΙΛ[ΕΩΣ] [……..] Apollo stg. l., holding arrow in extended r. hand and resting l. on bow.	223-187 BCE	Antioch (?)	Cf. Houghton and Spaer 1998: 86-87, no. 587; 92-93, no. 639.	
3*	A3 L. 211 B. 3187	AE	1.43	10	↑	Laureate head of Apollo r.; dotted border.	[ΒΑΣΙ]ΛΕ[ΩΣ] [ΑΝΤΙΟΧΟΥ] Apollo stg. l., holding arrow in extended r. hand and resting l. on bow.	223-187 BCE	Antioch (?)	Cf. Houghton and Spaer 1998: 86-87, no. 589.	Fig. 26:1

						Antiochus IV (175-164 BCE)					
4*	A1 L. 003 B. 1090	AE	1.94	12	↑	Diademed, radiate head of Antiochus r. Serrated edge	[ΒΑΣΙ]ΛΕΩΣ [ΑΝ] ΤΙΟΧΟΥ] Veiled and draped goddess standing facing, holding long sceptre or torch. Dotted border.	175-164 BCE	Akko-Ptolemais (?)	Cf. Houghton and Spaer 1998: 156-157, nos. 1130-1137.	Fig. 26:2
						Antiochus VII (138-129 BCE)					
5*	A2 L. 102 B. 2076	AE	2.30	15	↑	Lily on stem; dotted border.	Anchor, flukes upward. To l.: [Β]ΑΣΙΛΕΩΣ Α[ΝΤΙΟ]ΧΟΥ To r.: [ΕΥΕΡΓΕΤΟΥ] Date illegible.	132-130 BCE (?)	Jerusalem	Cf. Houghton and Spaer 1998: 284-285, no. 2141.	Fig. 26:3
Hasmonaeans:											
						John Hyrcanus I (134-104 BCE)					
6	A2 L. 105 B. 2148	AE	3.13	14-16	↑	Paleo-Hebrew inscription in wreath: /נוהכה[יהו/ח] ן]הגדלוחברהי/די	Double cornucopiae with pomegranate between horns.	134-104 BCE	Jerusalem	Cf. Meshorer 2001:203, Group D.	
						Alexander Jannaeus (104/3-76 BCE)					
7*	A2 L. 102 B. 2092	AE	2.14	13	↓	Paleo-Hebrew inscription in wreath: יהו/נ[ת]נהכה/והגד [לוח /ברהי/י]	Double cornucopiae with pomegranate between horns.	103-76 BCE	Jerusalem	Cf. Meshorer 2001:212, P28.	Fig. 26:4

No.	Dig Ref. (Area, Locus & Basket)	Metal	Wt. (gm)	Diam. (mm)	Axis	Obverse	Reverse	Date of coin	Mint	References	Notes
8*	A3 L. 210 B. 3188	AE	0.85	11–13	-	Six pointed star surrounded by border of dots; around, Aramaic inscription: [מלכא אלכסנדרוס שנת כה]	Anchor surrounded by a circle. Inscription illegible.	79–76 BCE	Same	Cf. Meshorer 2001:210, No. L.8	Crude style Fig. 26:5
Roman Prefects and Procurators in Judaea:											
						Under Augustus: Coponius (6–9 CE) or Ambibulus (9–12 CE)					
9	A2 L. 100 B. 2167	AE	2.12	15–16	↑	Ear of grain; KAICA-[POC]	Palm tree. Date illegible.	6–12 CE	Jerusalem	Cf. Meshorer 2001:256, nos. 311–315.	
Late Roman:											
						Valentinian II (375–392 CE) or Theodosius I (379–395 CE)					
10*	A3 L. 200 B. 3029	AE	0.95	14	→	…VS PF AVG Bust r., pearl-diademed, draped and cuirassed.	VOT X MVLT X X Mintmark illegible.	378–383 CE		Cf. Pearce 1951: 102, no. 37; 128, no. 50; 152, no. 30.	Fig. 26:6
						(383–595 CE)					
11	A1 L. 002 B. 1112	AE	0.98	12–13	↓	Bust r., pearl-diademed, draped and cuirassed. Inscription illegible.	[SALVS REI-PVBLICAE] Victory adv. l., dragging captive and holding trophy. Mintmark illegible.			Cf. Bijovski 1998: 90, nos. 64–65.	

12	A2 L. 103 B. 215	AE	0.95	13	↓	Bust r., pearl-diademed, draped and cuirassed. Inscription illegible.	[SALVS REI-PVBLICAE] Victory advancing l., carrying trophy and dragging captive. On l. field: ₽ Mintmark illegible.		
The following coins are in a poor state of preservation and should be related to the 4th–5th centuries CE									
13	A2 L. 101 B. 2089	AE	1.45 (broken)	19	↑	Head r., laur. Inscription illegible.	[GLORIA RO] MANO[RVM] Emperor draped, with r. hand dragging captive r. and holding labarum in l.	4th century CE	
14	A2 L. 119 B. 2221	AE	1.07	13–14	-	Head r. Inscription illegible.	Obliterated	4th –5th centuries CE	
15	A2 L. 117 B. 2237	AE	0.92 (broken)	13	-	Head r. Inscription illegible.	Obliterated	4th –5th centuries CE	
16	A1 L. 002 B. 1109	AE	0.70 (broken)	14	-	Head r. Inscription illegible.	Obliterated	4th –5th centuries CE	
17	A2 L. 105 B. 2151	AE	0.73	9–10	→	Head r. Inscription illegible.	[SALVS REI-PVBLICAE] Victory adv. l., dragging captive and holding trophy.	Circa 400–450 CE	Cf. Bijovski 2000: 209, no. 2b.

No.	Dig Ref. (Area, Locus & Basket)	Metal	Wt. (gm)	Diam. (mm)	Axis	Obverse	Reverse	Date of coin	Mint	References	Notes
18	A2 L. 102 B. 2093	AE	1.13	12	→	...VS... Bust r. Inscription illegible.	Victory advancing l., and dragging captive. Inscription illegible.	4th – mid 5th centuries CE			
19	A2 L. 108 B. 2242	AE	0.35 (broken)	10	→	Head r. Inscription illegible.	Cross	5th century			
						Byzantine: Mauricius (582–602 CE)					
20*	A2 L. 100 B. 214	AE	5.22	18x25	↓	Frontal bust with cuirass and crown. In r. hand gl. cr.; on l. shoulder, shield. Inscription illegible.	**K** Above, cross. To l., A/N/N/O Illegible date and mint.	582–602 CE	Thessa-lonica (?)	Cf. Bellinger 1966:321, no. 78.1.	Fig. 27:1
Byzantine or Arab-Byzantine:											
						Justin II (565–578 CE) or an Arab Imitation (c.650 CE)					
21	A2 L. 107 B. 2119	AE	3.75	27–29	→	Two Imperial figures seated facing on double throne, holding cruciform sceptres; cross between their heads. Inscription illegible.	**M** Inscriptions illegible.			Cf. Walker 1956: 1–2, nos. (a)-Bel.2.	

6th – mid 7th centuries CE

22*	A2 L. 101 B. 2088	AE	3.53	21–25	↓	Emperor standing, facing, long cross in r. hand. Blundered inscriptions.	**M** Above, cross. To r., cross. Blundered inscriptions.			Over struck Fig. 27:2
Abbassid:										
23	A2 L. 117 B. 2215	AE	1.92	14	→	لا اله الا الله محمد رسول الله	Within a circle with striations; محمد [بن]/ سعيدا/صلحة[الله] Below: flower (?)	152–157 H; 769–773 CE	Egypt – Misr	Lowick unpublished: 304–305, no. 57, pl. 17, no. 57b.
24	A2 L. 100 B. 2168	AE	3.35	19–20	→	Within a circle made as a rope; لا اله الا الله وحده لا سريك له Below: crescent. Around outer plain circle with annulets in it.	Within plain circle; محمد/ رسول/ الله Below: ornament (?) Around, within plain circle, marginal legend: [بسم الله ضرب هذا الفلس] با لرملة شنه سبع عشره ومئتين	217 H.; 832 CE	Al-Ramla	Cf. Ilisch 1993: 14, nos. 98–101; Lowick unpublished: 324, no. 247.
25	A2 L. 118 B. 2251	AE	0.75	13–14	←	Within plain circle: /[لا] اله الا/ /[الله] وحده/ لا سريك [له]	Obliterate Arabic inscription in four lines.	9th century	Syria/ Palestine (?)	

No.	Dig Ref. (Area, Locus & Basket)	Metal	Wt. (gm)	Diam. (mm)	Axis	Obverse	Reverse	Date of coin	Mint	References	Notes
Ayyūbid:											
						Al-'Ādil Sayf Al-Din Abū Bakr Muhammad I ibn Ayyūb (596–615 H.; 1199–1218 CE.)					
26*	Surface. On the track that leads to the site.	AE	5.67	24	→	In dotted circle: * سيف * الملك العادل [* الدين *] Marginal inscription: [ضرب هذا الفلس بدمشق شنة ( ) وتشعين وخمسمائة]	In dotted circle: * ❀ * ابو بكر ايوب بن * ❀ * Marginal inscription: [ضرب هذا الفلس بدمشق شنة ( ) وتشعين وخمسمائة]	1199–1202 CE	Damascus	Cf. Balog 1980: 135, nos. 317–318.	Fig. 27:3
Mamlūk:											
						Al-Ashraf Nāsir al-Din Sha'bān II, 764–778 A.H. (1363–1377 CE)					
27	A2 L. 118 B. 2225	AE	3.19	20	-	Clockwise circular legend: السلطان الملك الاسرف شعبان In the center, spindle-shaped cartouche with fleur-de-lis edges; in it: بن حسن	Concave-sided linear octolobe with floweret on the edges. Pellets between the flowerets. In the center: ضرب/بد/مشق		Damascus	Balog 1964: 221, no. 458.	

The following coins are in a poor state of preservation and should be related to the Mamlūk sultans (1250–1516 CE)

28*	A3 L. 203 B. 3152	AE	0.93	13	-	Obliterate marginal Arabic Inscription. Small circle, in which Obliterate Arabic Inscription.	Obliterate marginal Arabic Inscription. Small circle, in which blundered Arabic Inscription.		Fig. 27:4
29	A2 L. 106 B. 2056	AE	0.76	16–18	-	Obliterate Arabic Inscription	Obliterate Arabic Inscription		
30	A2 L. 106 B. 2097	AE	0.51	12–14	-	Obliterate Arabic Inscription	Obliterate Arabic Inscription		
31	A2 L. 108 B. 2224	AE	0.17	9x13	-	Obliterated	Obliterated		
Unidentified:									
32	A2 L. 118 B. 2247	PB	2.30	14–15	-	Obliterated	Obliterated	7th –8th centuries CE (?)	Date based on shape of flan
33	A2 L. 105 B. 2053	PB	2.04	13–14	-	Obliterated	Obliterated	Same (?)	Same
34	A2 Surface B. 2127	AE	3.19	14	-	Obliterated	Obliterated		

No.	Dig Ref. (Area, Locus & Basket)	Metal	Wt. (gm)	Diam. (mm)	Axis	Obverse	Reverse	Date of coin	Mint	References	Notes
35	A2 L. 104 B. 2096	AE	0.83	9–10	-	Obliterated	Obliterated				
36	A2 L. 106 B. 2054	AE	0.47	12–15	-	Obliterated	Obliterated				
37	A2 L. 116 B. 2236	AE	0.42	11–12	-	Obliterated	Obliterated	4th –15th centuries CE (?)			Date based on shape of flan
38	A2 L. 108 B. 2217	AE	0.38	13–15	-	Obliterated	Obliterated	Same			Same

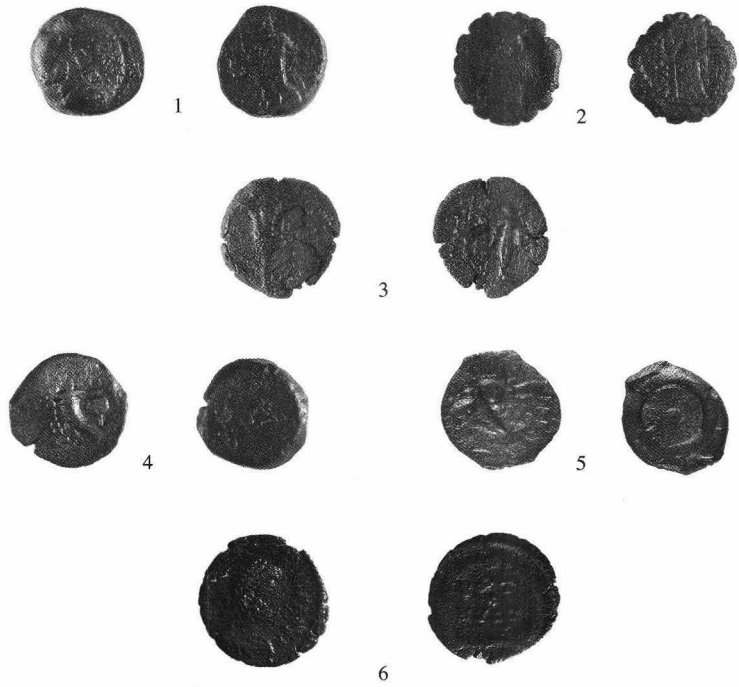


Fig. 26. Coins

B. Numismatic summary

The identified coins range from the 3rd century BCE to the 14th century CE. The coins are all bronze, except nos. 32–3 (lead).

The earliest coin (no. 1) is a well-known coin of Ptolemy II (285–246 BCE). From the Seleucid period we have four coins (nos. 2–5); two of Antiochus III (223–187 BCE), one of Antiochus IV (175–164 BCE), and one of Antiochus VII (138–129 BCE). The first three coins are of common types, minted in the Seleucid mints of Antioch and Akko, but the fourth one is different. This type, bearing the symbols of a lily (as a connection to Jewish religious sensitivities; Hoover 2003) and an anchor (a common symbol of Seleucid authority), is known in the research as a type which was minted in Jerusalem, the capital of John Hyrcanus I, and during his rule, but in the name of the Seleucid king (Meshorer 2001: 30–31). As was noted by Syon (2006), this coin type is not very common and only a few dozen were found in controlled archaeological excavations in Israel. Nine coins of this type are from sites in ancient Judaea but only one of them was published – which makes our coin the second to be published from a site in Judaea. These Ptolemaic and Seleucid coins may indicate that the excavated area was first populated during the early Hellenistic period. The Hasmonaean (late Hellenistic) period is represented by three coins (nos.

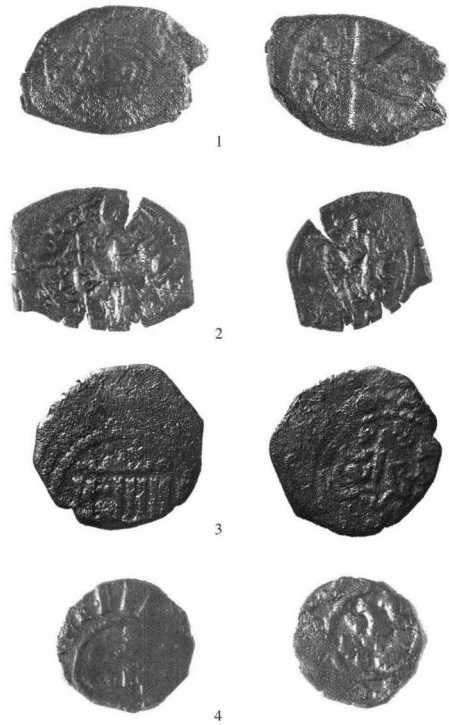


Fig. 27. Coins

6–8), one was minted under John Hyrcanus I, and the other two are from the days of Alexander Jannaeus. All these coins are from well-known types and are frequently found in Jewish sites from this period all over ancient Judaea and Samaria.

The 1st century CE is represented, so far, by one coin only (no. 9), which was struck in the days of Augustus, probably by one of the first Roman procurators, Coponius (6–9 CE) or Ambibulus (9–12 CE). The so far absence of other coins of the 1st–3rd centuries CE (as well as pottery sherds that are indicative to these periods), may indicate that the Jewish settlement of the Hasmonaean period did not continue into the early Roman period.

The bulk of coins from our excavation dates to the 4th–5th centuries CE (nos. 10–19), a period which is known in numismatic terminology as the Late Roman period.[4] All these coins are from well-known types, common in Roman Palestine, and not worthy of special mention.

The late Byzantine and Early Islamic periods (6th–7th centuries CE) are represented by three coins (nos. 20–22). The first is a half *follis* from the reign of Mauricius (582–602 CE), while the other two coins should be dated to the days of Justin II (565–578 CE) or could be an Arab imitation of his coins and hence should

be dated to c.650 CE. Three coins (nos. 23–5) and a few pottery sherds (above) from the Abbassid period might indicate that the site was occupied in this period as well.

The numismatic finds show that the last period in which the site was occupied is the Mamlūk period (13th–15th centuries). Five coins (nos. 27–31) were ascribed to this period, and it is possible that several unidentified coins belong to this period as well.

Most of the coins (as well as most of the pottery sherds) are surface finds or originate from fills and were not found in relation to any architecture (exceptional is coin no. 28 which was found in a Mamlūk context). Thus, the main importance of the numismatic finds that were found so far is in assisting us to trace the periods in which the site was occupied.

A bronze amulet and some miscellaneous small finds (Yoav Farhi)

Amulet (Fig. 28a and 28b)

During the 2005 season of excavations an amulet in the shape of Horus the child (Harpocrates) was found in area A2.

Horus the child was, as the son of Isis, the protector of children. His image in the amulet corresponds to the customary depiction of children in ancient Egypt – he is nude and wears the distinctive 'side-curl of youth', but in contrast to other representations of the god, in which he holds his index finger to his mouth, here his arms are by his side. The lower section of the amulet is broken above the knees, but one can see that the god is in a half-standing, half-sitting position, which is typical of Horus the child statuettes and amulets (Ben-Tor 1997: 41). He wears a *hemhem* crown, an elaborate form of the *atef* crown,[5] consisting of two wavy horizontal horns and three white crowns, each with a sun disk on the front, flanked by *uraei* surmounted by additional sun disks.

The amulet was found in a fill, close to the surface and thus could not be dated due to its finding spot. The amulet was probably made in Egypt and can be dated by its type to the Ptolemaic period (3rd – 1st centuries BCE).[6] This date corresponds to the Hellenistic and early Roman periods in our region and to the first period in which the site was occupied.

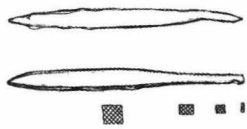
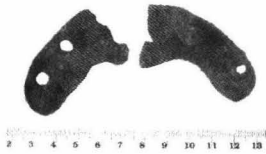
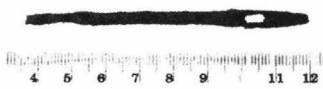
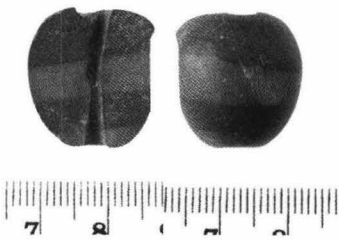
Summary and conclusions

Due to the, as yet, small exposure of the site, we shall refrain from presenting firm conclusions and at this stage of our work we will only present questions stimulated by the finds. Six two-week seasons over a period of three years at H. Sher have uncovered evidence for three main occupational horizons:

(a) Late Hellenistic-Early Roman (c.2nd–1st century BCE)
(b) Byzantine-Early Islamic (c.400–900 CE)
(c) Mamlūk (c.1300–1500 CE)

The many surveys and excavations conducted in the hills of Modi'in demonstrate

Table 3: Index of small finds

	Material	Description	Locus	Basket
Not illustrated	Bronze	Ring - half	003	1016
	Bronze	Ring, complete	101	2090
	Iron	Punch	100	
	Iron	2 fragments of horseshoe	104	2036
	Iron	Sewing needle	206	
	Stone	Bead (half)	206	3136

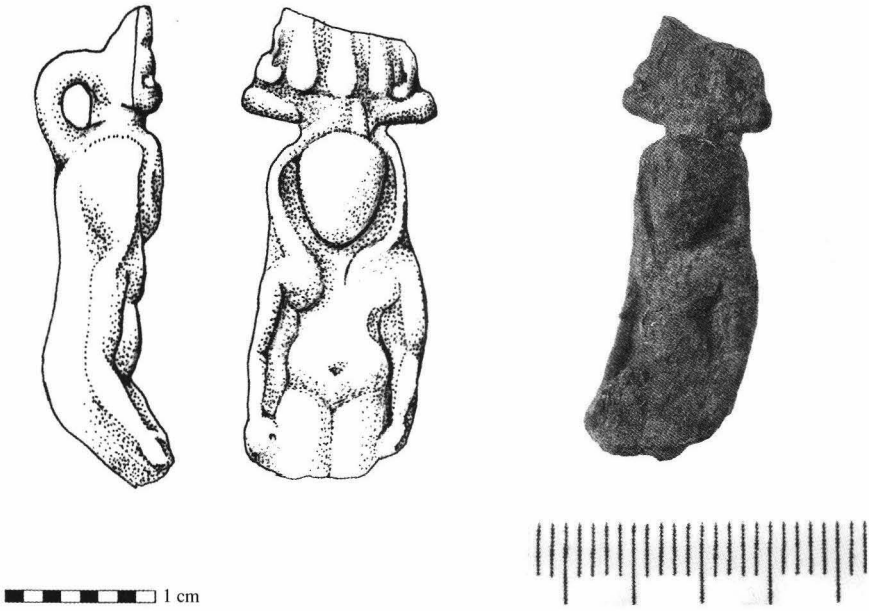


Fig. 28a. and Fig. 28b. Amulet

that during the three periods mentioned above, the rural settlement and population flourished (Gibson 2003: 9) and most of the excavated settlements, such as Mevo Modi'im (Eisenberg and Ovadiah 1998), Horvat Hermeshit (Greenhut 1998), Emmaus/Qubeibeh (Bagatti 1993), and Umm el-'Umdan (Weksler-Bdolach *et.al* 2003) show a similar time pattern.

H. Sher should be characterised as a rural settlement in all the periods in which it was occupied. As such, the surrounding landscape will be an ongoing factor in our research (Roberts 1987; Gibson 2003). Both survey and excavation have shown, even at this early stage, that adaptation to the environment and modification of the landscape are both concurrent and recurring themes. With these in the background, we wish to examine and compare rural communities in different periods. To what degree were these communities integrated into larger economic, social and political frameworks? Were they ethnically and/or religiously homogeneous or heterogeneous?

According to the results of our excavations and based on historical sources, it is clear that H. Sher was not a settlement site during the last hundred years. However, it is suggested by the olive trees which cover the site and several indicative finds reported above that during the late Ottoman period the peasants of the neighbouring village of Beit Shana or Salbit (Khalidi 1992: 366–7; Grossman 1994: 194–7) continued to visit and cultivate the site. It seems that during this time the site was

terraced and walled and the thick layer of brown soil was filled up (see above), creating flat soil beds suitable for growing olive trees.

Below this uppermost layer, we had thus far exposed only the medieval horizon in a stratified context in our southern area (A3). The fact that almost none of the medieval material was gleaned in the northernmost field (Area A1) suggests that this occupation – probably a farmstead or a small village – was confined to the southern portion of the site. During this historical era the hills of Modi'in were part of the 'Amal of el-Ludd which was a sub-district in the greater 'Mamlakah' of Gaza (Drori 1992: map on page 2). Not much has been written on rural life in Palestine during the times of the Mamlūks. With the progress of our excavations we will attempt to compare rural life as it appear in H. Sher and examples of excavated villages in other districts (e.g. Walmsley 1997; Steiner 1997 for excavated villages located east of the river Jordan).

The levels underlying the Mamlūk horizon have not yet been exposed in any meaningful way, but the quantity and quality of the material in the topsoil levels suggest significant settlement. The massive limestone lintel engraved with crosses testifies to a large Christian institution – a church or a monastery. In future seasons we will seek to locate and delineate the physical aspect of this institution. Here, in particular, the extent of its social, economic and political integration into the community and the region is of interest. We may ask what happened to the Christian community here with the establishment of Islamic rule and why the settlement was abandoned in the 10th century.

As for the late Hellenistic level, we will be concerned, for one thing, with the relationship between H. Sher and the nearby site of Umm el-'Umdan to the east. According to the Book of Maccabees, Modi'in was where the Jewish Revolt against the Seleucid Empire began. Following the extensive excavations at the site, it has been suggested that the site of Umm el-'Umdan be identified with Modi'in of the Maccabees (Weksler-Bdolach 2003). Other scholars have rejected this suggestion and proposed other nearby locations (Zissu and Perry 2007 and earlier bibliography there). It seems, however, that there is a consensus among many scholars that ancient Modi'in was located in the hills of the northern Shephelah and earlier opinions that suggested looking for Modi'in in other geographical zones were wrong (Zissu and Perry 2007: 7–17). The rural population inhabiting the hills of the northern Shephelah was mostly Jewish already in the Persian period (Lipschits 1997). Some of the villages, like H. Sher, continued to exist at least until the First Revolt while most of them show a cultural continuum until the Bar-Kochba rebellion (Zissu 2001). H. Sher was a small settlement, inhabited probably by Jews. It will be interesting to question through the material culture found at the site how they responded to the growing Greek and Roman cultural influence on the land.

Finally, we know that the project is creating a sense of identity with the site, and with Modi'in in general, and a positive 'stakeholder' attitude towards the area's natural and cultural resources.[7] The area of Modi'in has a special resonance with Jews everywhere and with the Jewish citizens of modern Modi'in in particular. The people of Modi'in make up the great majority of our stakeholders – those who do

most of the digging and those who will vote for the people that we hope will help maintain the Givat Sher project. For them, the late Hellenistic horizon, or that of the Hasmonaean Period, holds the most interest. It is central to our research programme that local stakeholders have *their* questions answered too. To further this tenet we archaeologists consider ourselves a tool in the hands of the community. In fact, a significant aspect of our research is anthropological or sociological – it is research into community involvement with archaeology. This will be more extensively reported upon elsewhere as the Givat Sher project matures.

Notes

1 We wish to express our gratitude to Nurit Feig and Arieh Rochman-Halperin for allowing us to search through the British Mandatory and state archives and to Alon Shavit for sharing his manuscript with us.

2 The Horvat Sher project is sponsored by the Nelson Glueck School of Biblical Archaeology of the Hebrew Union College, the Society for the Preservation of Nature in Israel and the Modi'in Municipality.

3 The second season survey was conducted together with M. Haiman and J. Pincus who produced the maps. We are grateful to them.

4 The period dating from 324 CE until 498 CE is called by numismatists 'Late Roman'. Byzantine coinage starts only in 498 CE with the monetary reform of the emperor Anastasius I, who introduced a new system of copper currency that abandoned the use of pictorial designs in favour of large value Greek letter marks. See: Bijovsky 2002: 196–7.

5 The atef crown is a combination of the white crown of Upper Egypt and a double-plume crown, with two horns projecting horizontally and a sun disk at the front.

6 I wish to thank Christian Herrmann, Freiburg University, Switzerland, for his help in dating the amulet.

7 For more on the ideology and operative mode of the Givat Sher project see Ilan and Gadot (forthcoming).

Bibliography

Adler, N., (2004). *A Comprehensive Catalogue of Oil Lamps of the Holy Land from the Adler Collection* (Jerusalem).

Aharoni, Y., (ed.) (1964). *Excavations at Ramat Raḥel, Seasons 1961 and 1962* (Rome).

Ariel, D. T., (1990). *Excavations at the City of David 1978–1985. Directed by Yigal Shiloh, Vol. II: Imported Stamped Amphora Handles, Coins, Worked Bone and Ivory, and Glass, Qedem* 30 (Jerusalem).

Arnon, Y. D., (1999). 'Islamic and Crusader Pottery (Area I, 1993–94)'. Pp. 225–51 in K.G. Holum, A. Raban, and J. Patrich (eds.), *Caesarea Papers, Vol. 2: Herod's Temple, the Provincial Governor's Praetorium and Granaries, the Later Harbor, a Gold Coin Hoard and Other Studies, JRA Supplementary Series*, No. 35 (Portsmouth).

Avissar, M., (1996). 'The Medieval Pottery'. Pp. 75–172 in A. Ben-Tor, M. Avissar and Y. Portugali (eds.), *Yoqne'am I, the Late Periods* (*Qedem Reports* 3) (Jerusalem).

Avissar, M., and Stern, E.J., (2005). *Pottery of the Crusader, Ayyubid, and Mamlūk Periods in Israel* (IAA Reports 26) (Jerusalem).

Avner, R., (1998). 'Elat-Elot – An Early Islamic Village', *'Atiqot* 36: 21*–39* (Hebrew with English summary).

Avner, R., (2000). 'Deir Ghazali: A Byzantine Monastery Northeast of Jerusalem', *'Atiqot* 40: 25*–52* (Hebrew with English summary).

Bagatti, B., (1969). *Excavations in Nazareth* I (Jerusalem).
Bagatti, B., (1993). *Emmaus-Qubeibeh, the Results of Excavations at Emmaus- Qubeibseh and Nearby Sites (1873, 1887–1890, 1900–1902, 1940–1944)* (Jerusalem).
Balog, P., (1964). *The Coinage of the Mamlūk Sultans of Egypt and Syria* (New York).
Balog, P., (1980). *The Coinage of the Ayyūbids* (London).
Barag, D., (1967), 'The Glass'. Pp. 65–70 in M.W., Prausnitz, *Excavations at Shavei Zion. The Early Christian Church: Report of the Excavations Carried out by the Israel Department of Antiquities and Museums* (in cooperation with the Hebrew University of Jerusalem), (Rome).
Barag, D., and Hershkovitz, M., (1994). 'Lamps from Masada'. Pp. 1–147, in J. Aviram, G. Foerster, and E. Netzer (eds.), *Masada IV – The Yigael Yadin Excavations 1963–1965, Final Report* (Jerusalem).
Bar-Nathan, R., (2002). *Hasmonean and Herodian Palaces at Jericho. Final Report of the 1973–1987 Excavations*, Vol. III: *The Pottery* (Jerusalem).
Bellinger, A. R., (1966). *Catalogue of the Byzantine Coins in the Dumbarton Oaks Collection and in the Whittemore Collection, I, Anastasius I to Maurice 491–602* (Washington, D. C.)
Ben-Arieh, S., (2000). 'Salvage Excavations near the Holyland Hotel, Jerusalem', *Atiqot* 40: 1–24.
Ben-Tor D., (1997). *The Immortals of Ancient Egypt. From the Abraham Guterman Collection of Ancient Egyptian Art* (Jerusalem).
Bijovski, G., (1998). 'The Gush Halav Hoard Reconsidered', *'Atiqot* 35: 77–105.
Bijovski, G., (2002). 'The Currency of the Fifth Century C.E. in Palestine – Some Reflections in Light of the Numismatic Evidence', *INJ* 14: 196–210.
Boas, A.J., (1992). 'Islamic and Crusader Pottery (*c.*640–1265) from the Crusader City (Area TP/4)'. Pp. 154–66, in R.L. Vann (ed.), *Caesarea Papers. Straton's Tower, Herod's Harbour and Roman and Byzantine Caesarea* (JRA Supplementary Series 5) (University of Michigan).
Boas, A.J., (2000). 'Pottery and Small Finds from the Late Ottoman Village and Early Zionist Settlement'. Pp. 547–80, in Y. Hirschfeld (ed.), *Ramat Hanadiv Excavations. Final Report of the 1984–1988 Seasons* (Jerusalem).
Cohen E., (2000). 'Roman and Byzantine Glass'. Pp. 166–76, in Y. Hirschfeld (ed.) *Ramat Hanadiv Excavations: Final Report of the 1984–1998 Seasons* (Jerusalem).
Cohen Finkelstein, J., (1997). 'The Islamic Pottery from Khirbet Abu Suwwana', *Atiqot* 32: 19*–34*.
Conder, C.R., & Kitchener, R.R., (1882). *The Survey of Western Palestine*. Vol. III: Samaria (London).
Conyers, L. B., and Goodman, D., (1997). *Ground-Penetrating Radar: An Introduction for Archaeologists* (London).
Delougaz, P., and Haines, R.C., (eds.) (1960). *A Byzantine Church at Khirbat al-Karak* (The University of Chicago Oriental Institute Publications 65) (Chicago).
Drori, Y., (1992). 'The Impact of Mamlūks' Rule on the History of Palestine'. Pp. 1–12, in Y. Drori, (ed.), *Palestine in the Mamlūk Period* (Jerusalem) (Hebrew).
Eakins, J.K., (1993). *Tell el-Hesi. The Muslim Cemetery in Fields V and VI/IX (Stratum II)* (The Joint Archaeological Expedition to Tell el-Hesi, Vol. 5) (Winona Lake).
Eisenberg, E., and Ovadiah, R., (1998). 'A Byzantine Monastery at Mevo Modi'im', *Atiqot* 36: 1*–19* (Hebrew with English summary).
Fischer, M., Isaac, B., and Roll, I., (1996). *Roman Roads in Judea II: The Jaffa Jerusalem Roads*. Bar International Series 628 (Oxford).
Frankel, R., (1999). *Wine and Oil Production in Antiquity in Israel and other Mediterranean Countries* (Sheffield).
Geva, H., and Hershkovitz, M., (2006). 'Local Pottery of the Hellenistic and Early Roman

Periods'. Pp. 94–143, in H. Geva (ed.), *Jewish Quarter Excavations in the Old City of Jerusalem, III* (Jerusalem).
Gibson, S., (2003). 'From Wildscape to Landscape: Landscape Archaeology in the Southern Levant – Methods and Practice'. Pp. 1–25, in A., Maeir, S. Dar and Z. Safrai, (eds.), *The rural landscape of Ancient Israel* (Oxford).
Gichon, M., (1993). *En Boqeq, Ausgrabung in einer Oase am Toten Meer*, Band 1: *Geographie und Geschichte der Oase. Das spätrömanisch-byzantinische Kastell* (Mainz am Rhein).
Gorin-Rosen, Y., (1999). 'Glass Vessels from Ras Abu-Ma'aruf (Pisgat Ze'ev East A)', *'Atiqot* 38: 205–14.
Gorin-Rosen, Y., (2002). 'The Glass Vessels from Khirbet el-Shubeika'. Pp. 288–322, in Z. Gal (ed.), *Eretz Zafon. Studies in Galilean Archaeology* (Jerusalem) (Hebrew).
Gorin-Rosen, Y., (2004). 'Glass Vessels from a Salvage Excavation at Sarafand el-Kharab, Nes Ziyyona', *'Atiqot* 46: 59–64 (Hebrew with English summary).
Gorin-Rosen, Y., and Katsnelson, N., (2005). 'Glass Finds from the Salvage Excavation at Ramla', *'Atiqot* 49: 101–14.
Gophna, R., and Taxel, I., (2007). 'Pottery', Pp. 33–65, in R. Gophna, I. Taxel and A. Feldstein, (eds.), *Kafr 'Ana: A Rural Settlement in the Lod Valley* (*Salvage Excavation Reports* 4) (Tel-Aviv).
Greenhut, Z., (1998). 'Horvat Hermeshit (1988–1990)', *Atiqot* 34: 121–72 (Hebrew with English summary).
Grossman, D., (1994). *Expansion and Desertion. The Arab Village and its Offshoots in Ottoman Palestine* (Jerusalem) (Hebrew).
Hachlili, R., and Killebrew A. E., (1999). *Jericho – The Jewish Cemetery of the Second Temple Period* (Jerusalem).
Hadad, S., (2002). *The Oil Lamps from the Hebrew University Excavations at Bet Shean* (*Qedem Reports* 4) (Jerusalem).
Haddad, E., (2003)., 'Modi'in (C)', *Hadashot Arkheologiyot* 114: 60*–61*.
Hamilton, R.W., (1944). 'Excavations against the North Wall of Jerusalem, 1937–1938', *QDAP* 10: 1–54.
Hayes, J.W., (1972). *Late Roman Pottery* (London).
Hoover, O. D., (2003). 'The Seleucid Coinage of John Hyrcanus I: The Transformation of A Dynastic Symbol in Hellenistic Judaea', *AJN* (Second Series) 15: 29–39.
Houghton, A., and Spaer, A., (1998). *SNG Israel I, The Arnold Spaer Collection of Seleucid Coins* (London).
Ilan, D., and Gadot Y., (forthcoming). Undermining the Edifice of Ethnocentric Historical Narrative in Israel with Community-Based Archaeology, in Parker, B. J., Swartz-Dodd, L. and Boytner, R. (eds.) *Filtering the Past, Building the Future: Archaeology, Tradition and Politics in the Middle East*. University of Arizona Press.
Ilisch, L., (1993). *Sylloge Numorum Arabicorum Tübingen. Palästina IV a Bilād aš-Šām I* (Tübingen).
Israeli, Y., and Avida, U., (1988). *Oil Lamps from Eretz Israel. The Louis and Carmen Warschaw Collection* (Jerusalem).
Kahlidi, W., (ed.) (1992). *All That Remains: The Palestinian Villages Occupied and Depopulated by Israel in 1948* (Washington DC).
Kletter, R., (2005). 'Early Islamic Remains at "Opher Park", Ramla', *Atiqot* 49: 57–99.
Kogan-Zehavi, E., (2000). 'Umm el-'Umdan – Road 2 (South)', *Excavations and Surveys in Israel* 20: 89*–90*.
Kromann, A., and Mørkholm, O., (1977). *SNG Copenhagen 40, The Royal Collection of Coins and Medals, Danish National Museum. Egypt: The Ptolemies* (Copenhagen).
Lipschits, O., (1997). 'The Origins of the Jewish Population of Modi'in and its Vicinity'. *Kathedra* 85: 7–32 (Hebrew).

Loffreda, S., (1996). *La Ceramica di Macheronte e dell'Herodion (90a.C.–135d.C.)* (Jerusalem).
Lowick, N., (Unpublished). *Early 'Abbāsid Coinage: A Type Corpus 132–218 H / AD 750–833*.
Magness, J., (1993). *Jerusalem Ceramic Chronology, circa 200–800 CE* (Sheffield).
Magness, J., (1994). 'The Dating of the Black Ceramic Bowl with a Depiction of the Torah Shrine from Nabratin', *Levant* 26: 199–206.
Majcherek, G., (1995). 'Gazan Amphorae: Typology Reconsidered', Pp. 163–78, in H. Meyza and J. Mlynarczyk, (eds.), *Hellenistic and Roman Pottery in the Eastern Mediterranean: Advances in Scientific Studies, Acts of the Second Workshop at Nieborow* (Warsaw).
Mazar, E., and Peleg, O., (2003). 'The Pottery Assemblage in the Large Byzantine Structure in Area XV', Pp. 86–103, in E. Mazar, (ed.), *The Temple Mount Excavations in Jerusalem 1968–1978, Directed by Benjamin Mazar. Final Report,* Vol. II: *The Byzantine and Early Islamic Periods* (*Qedem* 43) (Jerusalem).
Meshorer, Y., (2001). *A Treasury of Jewish Coins* (Jerusalem – New York).
Onn, A., Wexler-Bdolah, S., Rapuano, Y., and Kanias, T. (2003). 'Khirbet Umm el-'Umdan', *Hadashot Arkheologiyot* 114: 64*–68*.
Oren, E. D., and Rappaport, U., (1984). 'The Necropolis of Maresha-Beth Govrin', *IEJ* 34: 114 – 53.
Ovadiah, A., and de Silva, C.G., (1984). 'Supplement to the Corpus of Byzantine Churches in the Holy Land, III', *Levant* 16: 129–65.
Pearce, J. W. E., (1951). *The Roman Imperial Coinage* Vol. IX: *Valentinian I – Theodosius I.* (London).
Pele, O., (2003). 'Roof Tiles of the Byzantine Period from Area XV'. Pp. 133–4, in E. Mazar, (ed.), *The Temple Mount Excavations in Jerusalem 1968–1978, Directed by Benjamin Mazar. Final Report,* Vol. II: *The Byzantine and Early Islamic Periods* (*Qedem* 43) (Jerusalem).
Reich, R., and Shukron, E., (2006). 'Excavations in the Mamillah Area, Jerusalem: The Medieval Fortifications', *'Atiqot* 54: 125–53.
Roberts, B.K., (1987). 'Landscape Archaeology', Pp. 77–95, in J.M. Wagstaff, (ed.), *Landscape and Culture. Geographical and Archaeological Perspectives* (Oxford).
Ron, Z., (1977). *Stone Huts as an Expression of Terrace Agriculture in the Judean and Sumarian Hills*, Unpublished PhD thesis (Tel-Aviv University), (Hebrew with English summary).
Rosenthal-Heginbottom, R., (1988). 'The Pottery', Pp. 78–96, in Y. Tsafrir, (ed.), *Excavations at Rehovot-in-the-Negev*, Vol. I: *The Northern Church* (*Qedem* 25) (Jerusalem).
Saller, F.J., (1957). *Excavations at Bethany (1949–1953)* (Jerusalem).
Seligman, J., (2001). 'Yet another Medieval Tower and Section of Jerusalem's Ancient Walls (Armenian Patriarchate Road)', *Atiqot* 42: 261–76.
Silberstein, N., (2000). 'Hellenistic and Roman Pottery', Pp. 420–72, In Y. Hirschfeld (ed.), *Ramat Hanadiv Excavations, Final Report of the 1984–1988 Seasons* (Jerusalem).
Sion, O., (2004). 'An Early Islamic Period Settlement in Ramla', *'Atiqot* 46: 67–92 (Hebrew with English summary).
Solimany, G., Winter, T. and de Vincenz, A., (2006). 'A Burial Cave from the Byzantine and Early Islamic Periods in Horbat Gores, the Gonen Quarter, Jerusalem', *'Atiqot* 54: *87–*94 (Hebrew with English summary).
Spaer, M. (2001). *Ancient Glass in the Israel Museum – Beads and Other Small Objects* (Jerusalem).
Steiner, M., (1997). 'The Excavation at Tell Abu Sarbut: A *Mamlūk* Village in the Jordan Valley', *ARAM* 9 (1&2): 145–51.

Stern, E., (1982). *Material Culture of the Land of the Bible in the Persian Period, 538–332 BC* (Warminster).
Syon, D., (2006). 'Numismatic Evidence of Jewish Presence in Galilee before the Hasmonean Annexation?' *Israel Numismatic Research* 1: 21–24.
Torge, H., (2000). 'Umm el-'Umdan – Road 2 (centre)', *Excavations and Surveys in Israel* 20: 88*–89*.
Tushingham, A.D., (1985). *Excavations in Jerusalem 1961–1967*, Vol. I (Toronto).
Walker, J., (1956). *A Catalogue of the Arab-Byzantine and Post-Reform Umaiyad Coins* (London).
Walmsley, A., (1995). 'Tradition, Innovation, and Imitation in the Material Culture of Islamic Jordan: The First Four Centuries', *SHAJ* 5: 657–68.
Walmsley, A., (1997). 'Settled Life in Mamlūk Jordan. Views of the Jordan Valley from Fahel (Pella)', *ARAM* 9 (1&2): 129–43.
Watson, P.M., (1992). 'Change in Foreign and Regional Economic Links with Pella in the Seventh Century A.D.: The Ceramic Evidence', Pp. 233–48, in P. Canivet, and J.P. Rey-Coquais, (eds.), *La Syrie de Byzance à l'Islam VII–VIII siècles: Actes du colloque international, Lyon-Maison de l'Orient Méditerranéen, Paris – Institute du Monde Arabe, 11–15 Septembre 1990*.
Weksler-Bdolach, S., Onn, A., and Rapuano, Y., (2003). 'Identifying the Hasmonean Village of Modi'in', *Kathedra* 109: 69–86. (Hebrew with English summary).
Winter, T., (1998). 'The Glass Vessels from Horvat Hermeshit (1998–1990)', *'Atiqot* 34: 173–7. (Hebrew with English summary).
Ziadeh, G., (1995). 'Ottoman Ceramics from Ti`innik, Palestine', *Levant* 27: 209–45.
Zissu, B., (2001). *Rural Settlement in the Judean Hills and Foothills from the Late Second Temple Period to the Bar Kokhba Revolt*. Unpublished PhD thesis, Hebrew University of Jerusalem. (Jerusalem). (Hebrew).
Zissu, B., and Bordowicz, Y., (2007). 'Horvat Beth Shanna – An Ancient Site from the Second Temple Period and the Bar-Kokhba Revolt in the Northern Judean Shephelah', *Judea and Samaria Research Studies* 16: 265–84 (Hebrew).
Zissu, B., and Perry, L., (2007). 'Identification of Ancient Modi'in and Byzantine Moditha – Towards a Solution of a Geographical-Historical Issue', *Kathedra* 125: 5–20 (Hebrew with English summary).

Strata: Bulletin of the Anglo-Israel Archaeological Society 2009 Volume 27

Research Issues from the Excavations along the Eastern Periphery of Ramla

OFER SION, RON TOUEG AND YEHUDAH RAPUANO

Introduction

This survey deals with research problems relating to extensive archaeological work carried out at Ramla in recent years. The insights discussed here were made possible by two comprehensive expeditions: The first project was a salvage excavation in preparation for widening the railway; the second was a salvage excavation in preparation for developing the drainage system of the modern city (both directed by Ofer Sion). The two projects were carried out over a continuous 1.4 km long, 4 m wide strip (Fig. 1: A, B; Fig. 2).

Besides this, included in this survey are finds from two additional excavations: one on Marcus Street (Fig.1: C), within the modern city, and the second on the northeastern margin of the city (Fig.1: D).

The excavations produced a long archaeological section remarkably similar in appearance to those of ancient Middle Eastern tells. Such a long, narrow archaeological section, on the one hand, does not permit us to observe complete architectural units, but, on the other hand, it affords us a wide-angle view that yields a better understanding of the urban archaeological issues relating to Ramla. Such issues include: the water supply, the limits of the city and the earthquake that affected the area. These are the matters we will concentrate upon in this survey.

The noticeably increased number of water installations discovered in the excavations during the Abbasid period and their increased size indicates the prosperity of Ramla at that time. Moreover, this phenomenon gives us clues as to the nature of the agricultural production of the city.

Water installations

1. The water channel

The channel (Figs 3, 4) was constructed of small chalk stones and between them mortar made of lime with much ash. The channel was roofed with stone slabs. Its width was 51–55 cm, and its depth was not uniform. On the north end its depth was 60 cm, and at one point toward the south it was only 40 cm. The foundation trench

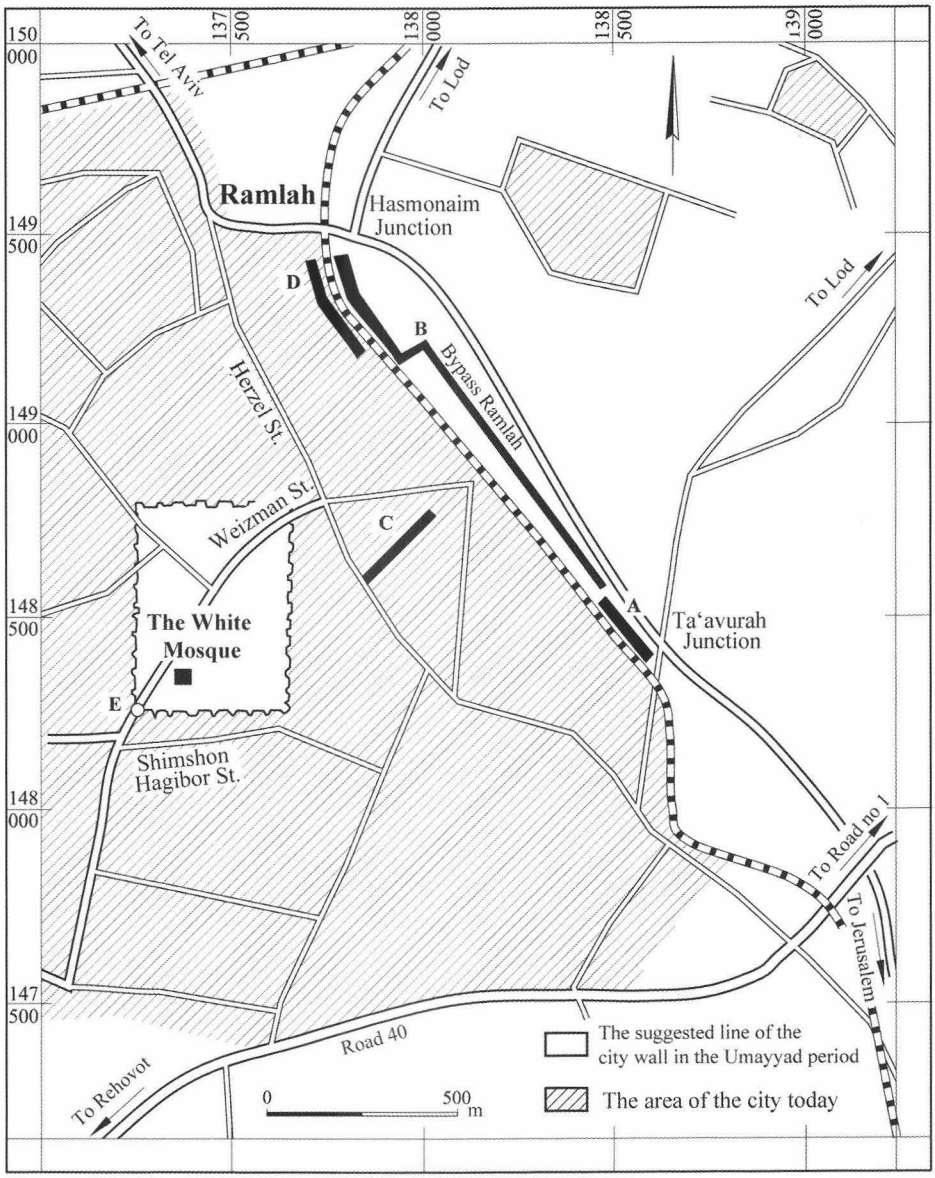


Fig. 1. Location map.

Fig. 2. Photograph of the northern squares in Excavation B.

into which the channel was laid was excavated in a layer of brown clay at a depth of 1.2 m, and at depth 2–2.5 m. beneath the street level of today. The floor of the channel was paved with a grey plaster that had been smoothed. The direction of the water flow within the channel was from south to the north. Above the roofing of the channel rested a thick coarse layer of light yellow plaster 10 to 20 cm thick, 45–75 cm above the covering stones of the channel. This layer evidently sealed the channel over its entire length with the intent of lending strength to it. This supposition is supported by the fact that there was not discovered any structure or installation along the entire length of the channel. Neither the source of the water that flowed in the channel nor its destination was clear. The channel was discovered for a length of 100 m and it continued northeast beyond the limits of the excavation. In its continuation the channel turned 90 degrees southeast. Thirty metres from the south of the turning, there was discovered another east-west channel constructed in a similar manner that intersected with the first channel. This part of the channel continued westward beyond the limits of the excavation and evidently proceeded to the limits of the city. The channel was constructed in the Abbasid period at the end of the 8th or beginning of the 9th century. This was determined from the large amount of pottery recovered from beneath the plaster layer down to the bottom of

the foundation trench. Moreover, there were found three coins from the Umayyad period that yielded a *post terminus quem*.

2. Water installations associated with the water channel

Towards the eastern part of the water channel and 50 cm from its southern wall was discovered a cistern. The cistern was preserved in its entirety except for the upper part of its eastern wall. Its width was 4 m and its length 2.3 m. It was roofed by a barrel vault. Between stones of the roofing and the cistern itself, at the height of the vault there were discovered remainders of a narrow channel measuring 15 cm wide and 15 cm deep. This narrow channel connected the cistern to the main channel.

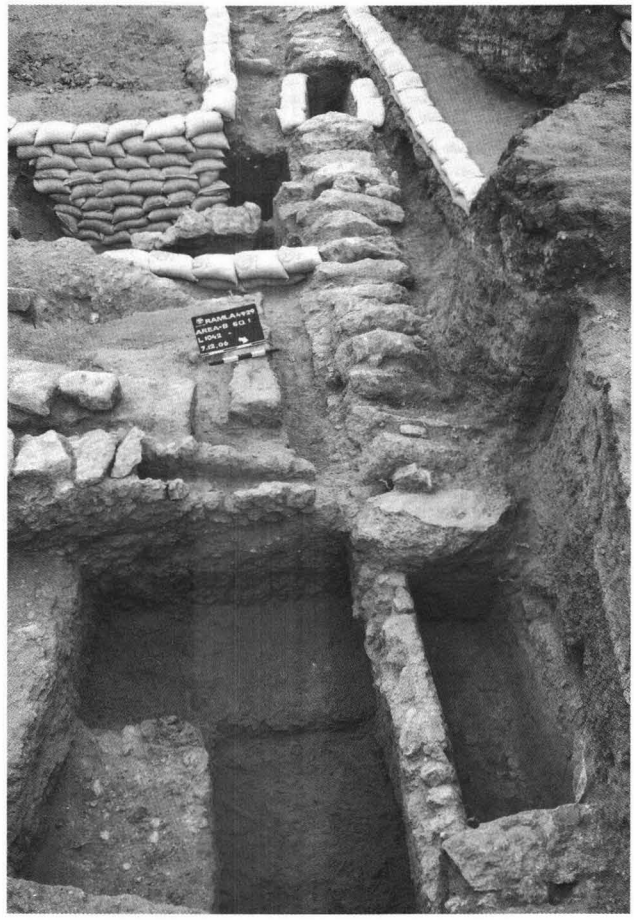


Fig. 3. Photograph of the water channel.

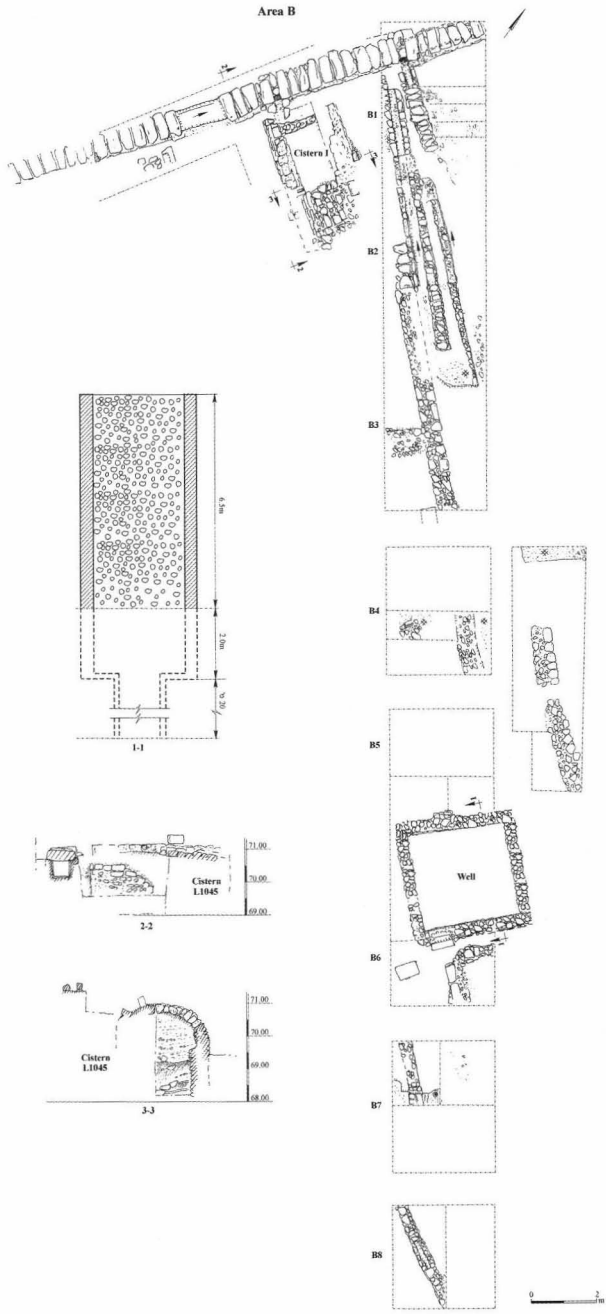


Fig. 4. Plan of the water channel and surrounding area.

3. Well and water channels

About 25 m to the south of the eastern end of the main channel was a square subterranean installation, with sides each side 3.8 m long, that was filled by stone rubble. For safety reasons, it was excavated to a depth of 6.5 m by earthmoving equipment, without reaching the bottom.

The depth of the structure, the construction of its walls built of pebbles bound with cement and devoid of plaster on its inner surface, attest to possibility that it was used as a well, perhaps the pit of the well that housed a waterwheel (Ayalon 2000: 216–220). If this assumption is correct, it would explain the presence of the channels discovered nearby.

The water table at Ramla lies some 40–50 m below ground surface Digging a well to such a depth, mostly though sand, would have required the construction of an installation whose walls were sturdy enough to withstand the threat of collapse. The square subterranean installation that we discovered may have been the upper part of a well and below this a round shaft may have extended down to the depth required to reach the water table. The discovery of a stone threshold in the southeastern side of the well intimates that there might have been a structure built above ground level, over the well. Square wells were not an exceptional occurrence in the history of Eretz Israel. One, for example, was unearthed in the Negev, on the eastern fringes of Tel Nessana, dating to the Byzantine period. Another was found at Tell Ashkelon, dating to the late Ottoman period.

4. Other cisterns

A typical cistern found in the region is rectangular, with a vaulted roof, and of dimensions varying in accordance with the needs of the specific household. The cisterns were built into the natural red sandstone (hamra), and their walls are made of pebbles bonded with grey clay and coated with hydraulic plaster; at times the sides are built of dressed stones. In the excavations the plastered cistern floors were founded upon a bed of small stones bonded with clay. At times the pavements were laid directly over the red clay and/or the local soil without an intervening stone bed, similar to the construction of the channels. The cisterns were fed by channels or pottery pipes from the collection gutters on the roofs of the houses. There are small settling pits along the channels in the centre of the excavation area. Each dwelling unit apparently had its own cistern. Al-Muqaddasi attested to the storage of water in cisterns in Ramla: "and the rainwater is stored in closed cisterns" (Muqaddasi in le Strange 1890: 305; Shiller 1998: 63)

5. Cesspits

Cesspits of different sizes, were uncovered (mainly) during the course of the two projects. They were built in similar manner to the cisterns, but they have no floor

or plaster on their walls. Other pear-shaped cesspits of the type known at Ramla were noted. These are pits filled with pebbles, 1.4–2 m beneath the level of the floor.

Structures

Generally speaking, the entire plans of whole structures were not fully exposed, due to the narrowness of the excavation area, which was some 4 m wide in all. Structures (Fig. 5) or evidence of structures, specifically robber trenches left by the looting of walls, were found in limited numbers, estimated to be less than thirty percent of the space of the excavation squares, throughout nearly all of the excavated area. The remnants of buildings included wall foundations of *kurkar* sandstone or limestone pebbles bonded with grey cement with many charcoal grits laid within trenches, which in many instances was the only surviving element of walls. At times a single foundation course of stones was discovered laid in the cement. The building stones of the walls are mostly rectangular, and finely dressed.

The size of the stones differed according to their use. It seems that every stone that was practical for building was robbed, except those used to construct the walls of the cisterns and stones used to construct walls that were too small for secondary use.

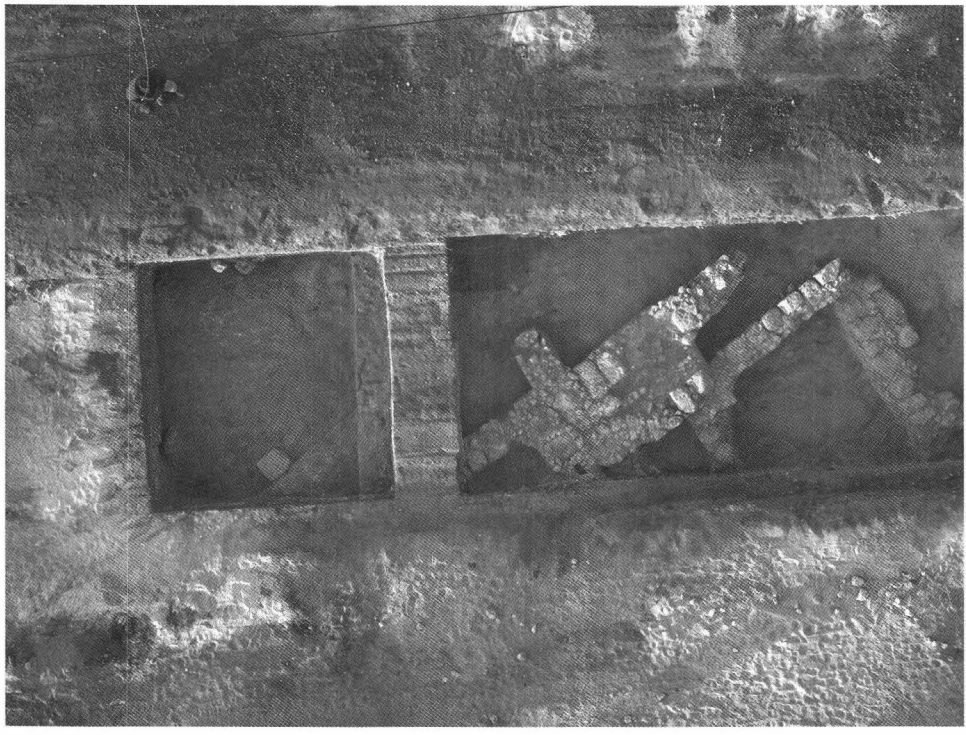


Fig. 5. Photograph of portions of buildings in Excavation B.

A phenomenon that was often noted was the great number of floors: plaster floors, compacted dirt floors, floors comprised of crushed sandstone and crushed lime. Rarely there were floors paved with white tesserae. The thickness of the floors varied from millimetres to tens of centimetres. In many cases it was difficult to find walls associated with the floors. Part of the explanation for this is that since the excavation area was long but not very wide some of the walls lay outside the limits of the excavation. This is not enough, however, to explain this phenomenon entirely. It seems that in some cases these floors were the paving for open courtyards, work areas and for keeping animals.

A common occurrence was the discovery of storage jars found beneath the floors, with only the neck and shoulders rising above them. At times this was the only means of recognising the floors of the site.

In one excavation area, parts of two separate structures were revealed. Between the two buildings a system for collecting water, consisting of a settling pit and a channel, were found. In another case, two pillar bases discovered *in situ* may have been the remains of a courtyard or pergola constructed adjacent to one of the buildings.

Circumference and Wall of the City

One should expect to find the city wall in the very areas we excavated, on the periphery of the site. The absence of city wall in any part of our excavations strengthens our contention that they must be found farther to the west, in area of the White Mosque. while al-Muqaddasi mentions its gates, the wall of Ramla was first explicitly mentioned in the description of Nasir i-Khusrau 1047 CE (le Strange 1890: 306–7). Ibn Shaddad (12th–13th century) gave another testimony regarding the city: 'the situation of Ramla did not change from the time that it was founded.... until it was damaged by an earthquake [in 1033] that destroyed its houses and levelled its walls and every trace of it disappeared' (see Luz 1997 for references).

According to Luz (1997), Ramla had four main gates, one in the centre of each side of the city wall. Leading from each of the gates into the city were streets with arranged markets. Considering similar cities of the Umayyad period, Luz concluded that the wall was an essential element of Umayyad period cities. Al-Muqaddasi noted that the size of the city was one mile by one mile (le Strange 1890: 305; Shiller 1998: 63). Bearing in mind these words, Luz suggested that the urban area of Ramla in the 10th century was four kilometres square. In the excavations undertaken by us and by others, there was not found any clear evidence of the city wall. Surely, if there was indeed a wall, something of it should have remained. Evidently, the area of our excavations was outside the wall of the city, on its margins. It is interesting that in other excavations of 140 m in length, on Marcus Street in the centre of modern Ramla (see Toueg et al. 2007), no evidence was found of the walls.

The only archaeological evidence for the possibility fortification system of the early Islamic period was found in a probe trench that was excavated in 1992 by

Flavia Sontag c 200 m southeast of the White Mosque (Fig 1, E): 'Two parallel, east-west walls (width of 3 m, height of 4.5 m) were exposed in the trench, , 21 m apart.' (Sontag in Glick 1997: 106*–107*). It is reasonable that these discoveries observed by Sontag were indeed part of fortifications in the early Islamic period. The walls of such a width could be part of the city wall, but may also be part of a fortified structure, a palace or governor's house. Considering this evidence, it is possible to situate the eastern city wall to the west of Herzl Street, the main north-south street of Ramla (Fig. 1). Taking into account comparisons with other cities of the Umayyad period, for example Anjar in Lebanon (Ain el-Jar: Chehab 1963: 17–25; Whitcomb 2006: 69), it is possible to suggest the location of the city wall of Ramla. This suggestion is based on the following assumptions: 1) The city of Ramla, as other Umayyad cities, was built as a planned city with a rectangular plan; 2) The centre of the city was located in the vicinity of the White Mosque; 3) The circumference of the city of Ramla was greater than that of Anjar. It must be born in mind that the location of the southern city wall, on the line of the fortifications described above, is correct only if what was found by Sontag is indeed part of the city wall. Accordingly, our proposed location and size of Umayyad Ramla is only a suggestion and the city may have been larger or smaller than what we have proposed here.

Summary and Conclusions

The increased number and enhancement of water installations demonstrates the prosperity of Ramla in the Abbasid period, when most of the installations described in the survey were constructed. The large water channel that we discovered in our excavations was additional to the main aqueduct that conveyed the drinking water to Ramla from Ain Yerdeh located at the foot of Tel Gezer (Gorzalczany 2005; 2008). The quality of the construction of our water channel was inferior to that of the main aqueduct coming from Ain Yerdeh. Evidently, our water channel belonged to a system with many branches that conveyed water from the city limits to the fields and possibly to the nearby city of Lod.

The dating to the Abbasid period, together with other water systems, namely the vaulted pools, witnesses the flourishing of Ramla in this period. We have no evidence of a direct connection between the water channel and the vaulted pools. However, considering the direction and the relatively close proximity of the pools to our channel it appears likely that the waters of the vaulted pools were collected from the channel. If this is true, the channel must have been constructed at the same time as the vaulted pools in the days of Caliph Harun el Rashid. This caliph encouraged the inhabitants of the city to work the soil and, towards that end, reduced the land taxes. Many farmers, were settled in the vicinity of Ramla. Baladhuri wrote of him, that he attempted to develop the fields in the vicinity of Ramla, for this and other references see Gat 2005: 84). The long rule of Caliph Harun el Rashid (24 years), made possible the development of the industries and the enhancement of

agricultural activity that have been revealed in our excavations (Gat 2005: 118–120 and the references cited).

The finds of the excavations: single structures, numerous water installations, mainly cisterns and water channels, confirm the agricultural nature of the area we excavated. The structures excavated, evidently farm houses, belonged to noble land owners with holdings on the outskirts of the city.

The urban area, before the two earthquakes of the city of Ramla in the 11th century (1033 and 1068), included large tracts distant from the city centre. The testimony of al-Muqaddasi that the city extended four and a half square kilometres, is evidently correct in the light of our excavations. The question of the location of the city walls remains open. It seems that Ramla was encompassed by a wall in the Umayyad period. The limited space within the walled city was greatly pressured by the growing population that resulted from the prosperity of Ramla in the 11th century. It seems reasonable that the way that the city was able to accommodate the growth in population was to expand beyond its walls, and, as a result, entirely new neighbourhoods were built outside of them. This supposition is supported by the fact that substantial finds of the Umayyad period are not found in our excavations.

The destruction of the city in the 11th century was total (Gat 2005: 52–65 and the references cited), however it had already begun to decline in the second half of the 10th century. After the earthquake of 1068, the city was not resettled in the areas of our excavations with the exception of the residential neighbourhoods that were located toward the southeastern part the area. Ramla of the Ayyubid, Mamluk and later periods was built between the area of the city market of today and the southeastern margins of our excavations. Its size was reduced considerably from what it was preceding the earthquake.

Note

This is an updated translation of the article printed in Hebrew in *Qadmoniot* 135 (2008), 26–30, though the authorship of this piece included only the names of Ofer Sion and Ron Toueg. Yehudah Rapuano was involved in every aspect of the excavations conducted in the field which lasted for about six months. It was only by an oversight that his name was not included in the *Qadmoniot* article.

Biblography

Ayalon, E., (2000). 'Typology and Chronology of Water-Wheel (*saqiya*) Pottery Pots from Israel', *IEJ* 50: 216–226.

Chehab, M., (1963). 'The Umayyed Palace at Anjar', *Ars Orientalis* 5: 17–25.

Gat, S., (2005). 'The City of Ramla in the Medieval Period' (unpublished Ph. D. thesis, Bar Ilan University, Ramat-Gan).

Gorzalczany, A., (2005). 'Qanat Bint el-Kafir', *Hadashot Arkheologiyot* 117. http://www.hadashot-esi.org.il/report_detail_eng.asp?id=178&mag_id=110

Gorzalczany, A., (2008). 'The Umayyad Aqueduct to Ramla', *Qadmoniot* 135: 11–16.

Glick, D., (1997). 'Ramla', *Excavations and Surveys in Israel* 107: *52–53, 106–107.

Khalilieh, H. S., and Artzy, M., (2007). 'Ramla's Urban Plan as reflected in Primary Arabic Sources'. Pp.1–11 in *Contract Archaeology Reports II: Excavation in Marcus Street, Ramla* (Reports and Studies of the Recanati Institute for Maritime Studies Excavations, University of Haifa; Haifa).

Luz, N., (1997). 'The construction of an Islamic City in Palestine: The Case of Umayyad al-Ramla', *Journal of the Royal Asiatic Society* 7: 27–55.

Shiller, E., (1998). 'The Land and Its Sites', *Ariel* 59 (Hebrew).

le Strange, G., (1890). *Palestine under the Moslems: A Description of Syria and the Holy Land from AD 650 to 1500* (London).

Toueg, R., Arnon, Y. D., Pollak, R., and Amitai-Preiss, N., (2007). 'Excavation in Marcus Street, Ramla,' Pp. 12–142 in *Contract Archaeology Reports II: Excavation in Marcus Street, Ramla* (Reports and Studies of the Recanati Institute for Maritime Studies Excavations, University of Haifa; Haifa).

Whitcomb, D., (2006). 'The Walls of Early Islamic Ayla: Defence or Symbol?'. Pp. 61–74 in H. Kennedy, (ed), *Muslim Military Architecture in Greater Syria* (Boston).

Strata: Bulletin of the Anglo-Israel Archaeological Society 2009 Volume 27

Pots and Ports: Quantifying Trade in Ancient Palestine

SEAN A. KINGSLEY

L. E. Stager, J. D. Schloen and D. M. Master (eds.), *The Leon Levy Expedition to Ashkelon. Ashkelon 1. Introduction and Overview (1985-2006)*, 2008. Pp. 708, 532 figures. Eisenbrauns: Indiana. Price £130. ISBN 1-57506-929-6.

B. L. Johnson, *The Leon Levy Expedition to Ashkelon. Ashkelon 2. Imported Pottery of the Roman and Late Roman Periods*, 2008. Pp. 233, 581 figures. Eisenbrauns: Indiana. Price £50. ISBN 1-57506-930-X.

J. Patrich (ed.), *Archaeological Excavations at Caesarea Maritima. Areas CC, KK and NN. Final Reports. Volume I: the Objects*, 2008. Pp. 480, numerous figures. Israel Exploration Society: Jerusalem. Price $72. ISBN 978-965-221-070-8.

A. Raban, *The Harbour of Sebastos (Caesarea Maritima) in its Roman Mediterranean Context*, 2009. Pp. 222, 209 figures. Archaeopress, BAR Int. S1930: Oxford. Price £49. ISBN 9781407304120.

Just over a hundred years ago George Adam Smith denounced the linear, harbourless coast of Palestine in his *Historical Geography of the Holy Land* (1894: 128) as "merely a shelf for the casting of wreckage and the roosting of sea-birds". Coupled with Josephus' firm misrepresentation of the Holy Land as "not a maritime country, neither commerce nor the intercourse which it promotes with the outside world has any attraction for us" (*Against Apion* 1: 60), studies in long-distance trade were presumed to offer little promise.

All that changed with the underwater exploration of Israel's Mediterranean coast in the early 1960s. Today Israel is one of the leading countries for the study of marine archaeology. Its waters have yielded over 200 wrecks dating between the Late Bronze Age and the Napoleonic invasion. Ships do not sail in a cultural vacuum, and studies of major port sites at Tel Abu Hawam, Tel Nami, Shikmona, Tel Dor, Tel Tanninim, Caesarea, Jaffa, Apollonia and Gaza have created a vivid reconstruction of the changing character of the winds of trade. In line with international standards, the pottery assemblages from several sites have now been subjected to quantitative analyses (eg. Caesarea: Tomber, 1999; Shelomi: Dauphin and Kingsley, 2003; Sumaqa: Kingsley, 1999) to determine the vitality of imports

in relation to domestic produce: the reliance on intra- versus inter-regional exchange.

Into this sophisticated modelling of the ancient economy now stride some impressive new contributions: the first two final reports from the Leon Levy Expedition to Ashkelon; a study of the objects from the warehouse, northern *praetorium* and hippo-stadium gates at Caesarea Maritima; and the final contribution from the late Avner Raban on his life-long underwater fascination with King Herod's port at Caesarea.

Ashkelon 1 falls into the modern trend that makes accessible under one cover a holistic array of papers of divergent theme, a stimulating formula that can prevent publication bottleneck. The concept pays strong dividends, from M. Allen's section on the regional archaeological survey (the ten Palaeolithic sites match the ten for the Iron II and are close to the thirteen for the Persian period; settlement peaked in the Byzantine era with 137 sites) to Avner Raban's pioneering underwater survey off Ashkelon from 1985–87, which mapped the offshore reefs, created a bathymetric profile and recorded the Crusader pier, Roman, Byzantine and Islamic anchors and a cargo of Roman basalt millstones. The *pièce de resistance* was a life-size 8th–7th century BCE Phoenician basalt statue (Egyptianising style) alongside 'stela-like' pillars, probably from a shipwreck. Chapters on 'Early Explorations' and 'British and Israeli Excavations' (J. D. Schloen) concisely contextualise the current fieldwork.

Following a stratigraphic overview of the North Slope (MBIIA/IIB gate and tombs; Persian Buildings; Roman pottery kiln; Late Roman bath-house; medieval fortifications) and South Tell (MBIIB-LBI/II tomb; LBA, Early-Late Iron Age, including a 7th-century BCE winery and market place, Persian, Hellenistic and Fatimid structures, Late Roman bath-house), specialist sections examine a Sumerian cuneiform tablet and some important Phoenician inscriptions referring to oil, wine and brandy (?), flax and grain ownership, tithes and trade (F. Moore Cross).

Other major chapters deal with the Late Bronze Age intramural tomb contexts (A. J. Brody) and the human remains from the Babylonian destruction of 604 BCE (P. Smith). P. Wapnish expertly discusses the innovative manufacture of bone artefacts (spoons, gaming sticks, buttons, decorative handles and hinges, pins) made from dromedary, camel, cattle, donkey and horse in the Byzantine and Islamic periods. Additional reports reproduce verbatim previously published work, including the 5th-century BCE dog burials (P. Wapnish and B. Hesse), 5th- to 4th-century BCE coins and a late Hellenistic coin hoard, the Ashkelon wine trade in the Byzantine period, and an imperial Fatimid inscription.

B. L. Johnson's *Ashkelon 2* examines the Roman and Late Roman site pottery with detailed descriptions of the rich cosmopolitan wares. In the editor's preface, Prof. Stager emphasises that most of this material derives from "secondary or disturbed stratigraphic contexts, and for that reason there is limited scope for a statistical analysis of patterns of local use and spatial distribution of imported vessels..." The strength of this volume is thus neither in the collection's internal chronological range nor its quantitative value, but lies in Johnson's ever-excellent

descriptive typological skills and, ultimately, in the ability to add to the relatively mature knowledge of the distribution of imports in these periods.

Despite the volume's title, the collection continues into the Late Byzantine period, with rims of Cypriot Red Slip form 11 (*c.* 550–650+ CE) and Phocaean Red Slip form 10C (late 6th to early 7th century CE) from western Turkey. Egyptian Aswan tablewares appear in abundant styles at Ashkelon for the first time in Israel, and the amphoras include the usual suspects, including near complete Egyptian jars (Peacock & Williams Class 53), attributed to the Nile Delta but actually with closest parallels to kilns and wineries around Lake Mareotis. The amphoras include narrow-mouthed 6th–7th century CE examples (Late Roman 1), which were widely produced and imitated in Syria, Cyprus and southeastern Turkey.

In light of G. A. Smith's comments about the hostility of the Israeli coastline for shipping, the absence of a formal artificial harbour at Ashkelon is confusing at first sight. Although the near-shore waters are extensively silted, Prof. Raban is undoubtedly correct in emphasising the reliance on natural solutions here "using small craft to load and unload ships anchored offshore in open water." As at Apollonia to the north, vessels of 15–20 m length would have anchored offshore and been served by lighters or have been beached (as argued in Kingsley 2001).

This natural philosophy is a far cry from King Herod's obsession with controlling the elements at Caesarea Maritima, the subject of the late Prof. Raban's final treatment of the port of Sebastos, which examines the development of Hellenistic Straton's Tower into the world's first artificial harbour. Raban compares the facility to Alexandria, Paphos, Ostia and Leptis Magna. Herod's port was a short-lived colossus: the outer basin started to subside through seismic activity in the late 1st century CE, whilst the inner harbour started to silt up at the same time (the latest coins and pottery suggest it was deliberately filled in no later than the early 3rd century CE).

Caesarea reveals that ports were more of a political statement of civic pride than a physical necessity, and Raban concludes that a "year round, large-scale harbour of the imperial style was not necessarily relevant to the economic and commercial thriving of a port city". After over forty years of study, Raban envisages Sebastos to have been "a luxury, and an expensive 'white elephant' for a single city."

The Harbour of Sebastos is not the book Raban intended to serve as his last word on the matter. However, the combination of its Braudelian scope and presence of unpublished data (including an underwater magnetic survey) makes this a collector's item to be cherished. Raban was as much a giant of marine archaeology as Caesarea was to the history of Roman ports.

By a stroke of good timing, the contemporary publication of *Archaeological Excavations at Caesarea Maritima Areas CC, KK and NN. Final Reports* in theory enables the economy of the port to be reviewed through reference to the rich archaeological area immediately south of the Crusader fortifications. Excavated by Prof. Joseph Patrich of Haifa University within the framework of the Caesarea Tourism Development Project, this zone contains the starting gates (*carceres*) of the Herodian hippo-stadium; the Roman procurator's palace (*praetorium*), the Late

Roman/Byzantine warehouse complex, and Late Byzantine/Early Islamic terraced gardens irrigated by re-used wells (not one sherd was found post-dating 700 CE).

In terms of economy and exchange, the *praetorium* complex is of immense importance as the centre of the city's government compound that extended into the eastern side of cardo W1, where a large apsidal structure paved in *opus sectile* was found. To the north stood a square hall with a magnificent mosaic of vine twigs, birds, pairs of animals, ibexes, deer, which included a probable 5th-century CE Greek inscription referring to the accountant (*noumerarios*) of the provincial administration.

Six warehouses were uncovered in Area KK of the Byzantine *praetorium*: courtyard *horrea* (up to 15.5 x 1.9 m) with either simply paved or unpaved storerooms; transverse *dolia* halls with white-plastered walls and basic white mosaics on which large *dolia* stood near another one or two set under the floors; and rectangular underground granaries singly or in groups. Two warehouses, equipped with ovens over polychrome mosaics, specialised in bread baking.

Patrich's introductory chapter presents no interpretation of the nature of the trade controlled within this warehouse zone. Given the site's juxtaposition with the offices of State bureaucracy, it is inconceivable that this area was not associated with the *annona civica* (civic store). Like Old Rome, Constantinople was a consumer of enormous magnitude that relied on taxes procured from the provinces in kind, including Egyptian wheat (31,200 tons per annum), oil and wine. The Caesarea warehouses display all the features necessary for the receipt from the hinterland of agricultural tax produce, some of which would have been shipped to Constantinople, whilst surplus would have been re-packaged and sold for State profit in the markets of Caesarea (cf. Kingsley and Decker 2001).

A major deficiency of the final report on the warehouse district is the failure of the chapter on the pottery by B. L. Johnson, which takes up the lion's share of this volume (pp. 13–206), to quantify the local versus imported wares. Pottery studies are currently at the stage where we can predict the types of tablewares and amphoras that will be present along the coast in 4th–7th century CE contexts (cf. Kingsley 2004: 92–124). The emphasis now must lie on assessing function through context or economic trends via quantification (counting rims, handles, bases or Estimated Vessel Equivalents). The range of wares at Caesarea is similar to that reported from Ashkelon. Again the usual suspects are omnipresent, with the exception of some Nabataean bowls and Sagalassos ware from Pisidia in Turkey.

It is inexplicable why Johnson has not been equipped with data on contexts, associated coins or vessel counts. Exported Palestinian amphoras of 5th- to mid-7th century date account for up to 45% at Carthage and 20% at Marseille. How such wares were packaged and processed should be quantifiable through reference to Caesarea's warehouses. Perhaps future volumes will rectify this oversight, including study of the neglected *dipinti*, which are conspicuous on imported Late Roman 1 Syrian/Cypriot transport jars.

Bibliography

Dauphin, C. and Kingsley, S. (2003). 'Ceramic Evidence for the Rise and Fall of a Late Antique Ecclesiastical Estate at Shelomi, Phoenicia Maritima'. Pp. 61–74 in G. C. Bottini, L. Di Segni, L. D. Chrupca (eds.), *One Land – Many Cultures. Archaeological Studies in Honour of Stanislao Loffreda* (Jerusalem).

Kingsley, S. (1999). 'The Sumaqa Pottery Assemblage: Classification and Quantification'. Pp. 263–330 in S. Dar (ed.) *Sumaqa. A Roman and Byzantine Jewish Village on Mount Carmel, Israel* (BAR Int. Series 815, Oxford).

Kingsley, S. (2001). 'Decline in the Ports of Palestine during Late Antiquity'. Pp. 68–87 in L. Lavan (ed.), *Recent Research in Late Antique Urbanism* (JRA Suppl. 42, Portsmouth).

Kingsley, S. (2004). *Shipwreck Archaeology of the Holy Land. Processes and Parameters* (London).

Kingsley, S. and Decker, M. (2001). 'New Rome, New Theories on Inter-Regional Exchange. An Introduction to the East Mediterranean Economy in Late Antiquity'. Pp. 1–27 in S. A. Kingsley and M. Decker (ed.). *Economy and Exchange in the East Mediterranean during Late Antiquity* (Oxford).

Tomber, R. (1999). 'Pottery from the Sediments of the Inner Harbour (Area I14)'. Pp. 295–322 in K. Holum, A. Raban and J. Patrich (ed.), *Caesarea Papers 2* (JRA Suppl. 35, Rhode Island).

Book Reviews

Romana Harfouche, *Histoire des paysages méditerranéens terrassés: aménagements et agriculture,* BAR International Series 1634, Oxford: Archaeopress, 2007. Pp. vii + 265, 114 figures, maps, plans, drawings and photographs. £37.00. ISBN 9781407300481.

With the exception of the pioneering work conducted in Israel by S. Gibson (2003; see also Gibson and Edelstein 1985; Gibson, Ibbs and Kloner 1991), ancient agricultural terraces, which are glaringly present in 'Mediterranean landscapes', have not received the archaeological attention which they deserve. This book, therefore, is an exciting first. Within an extensive chronological span, from proto-history to the Middle Ages, it encompasses geographically the entire Mediterranean basin, whilst concurrently 'opening vistas of study' on Languedoc (southwestern France), the Greek Cycladic Island of Delos, Mount Lebanon, the Negev Desert, Syria, the Aurès region of Kabylia in Algeria, and Tunisia (Sicily surprisingly lacked terraces, unless they have been obliterated). At the heart of Romana Harfouche's enquiry lies the fundamental question: how can terraces – those witnesses of inordinate human toil and intervention on landscapes – be dated?

Strictly structured in the best Cartesian fashion, framed by an Introduction and a Conclusion, Harfouche's book (based on her 2003 University of Aix-en-Provence doctoral thesis) falls into three parts, each part consisting of three chapters. Part I examines 'The Mediterranean Agrarian Landscapes: Concepts, Problems and Analytical Methods'. Chapter 1 ('Unity and Plurality of Mediterranean Landscapes') raises the question of the Mediterranean identity. Her deconstruction of the 'Mediterranean Landscape' leads her to refute the apparent smooth continuity between society and environment in Mediterranean history which has been taken for granted since F. Braudel (1977) – this is bound to make ripples in the French academic establishment - and to argue convincingly that 'in this constant dialogue between Man and his environment, the imprint left by communities of successive agriculturalists varies constantly in time and space. There are therefore not 'one' but 'many' landscapes constructed within the Mediterranean realm, according to the scale at which they are viewed' (p. 12). Hence, Harfouche's approach which, while embracing the overall unity of the Mediterranean basin, focuses on fragments of landscapes with the same general Mediterranean characteristics, but also with particularities eliciting different responses from agricultural communities in the use of slopes subject to hydric erosion.

Chapter 2 ('How Should Terraced Landscapes be Read ?') reviews the variety of sources for Harfouche's multi-scale and long-range 'archaeo-agronomic' approach: planimetric documentation (maps, cadastres and aerial photographs), the

correlation of data from surveys and excavations, palaeoecology (anthracology, palynology, carpology and especially pedology), ancient textual sources (literary, medical and agronomic) and oral traditions in agricultural societies (such as the villagers of the Lebanese mountains) still practising non-mechanised agriculture. In a systemic reading of landscapes, five parameters must be taken into account for the study of systems of cultivated terraces: slope, exposure (notably to sunshine), type of substratum, soil, and water runoff. Harfouche's fine analytical mind is fully revealed in her discussion of the dating of terraces. Surface sherding is insufficient, since artefacts may have migrated on the slopes, and the floor of a terrace is the result of voluntary mixing, the 'anthropic creation' of a new situation which provokes 'a re-setting of the pedological clock'. The stage reached in the evolution of that 'new soil' is an important dating element. A soil which has evolved discloses the antiquity of remains *in situ* (p. 38). Harfouche likewise demolishes the current argument that a coin, a well-dated sherd or even charcoal found in the sediments at the back of a terrace-retaining wall, may date that terrace. Harfouche emphasises that modifications undergone by that soil in the course of its life and which may explain the chronological variety of associated artefacts at the back of that wall, must be taken into consideration. Thus, only 'the recognition of a palaeosoil and the possibility to date it allow one to propose a *terminus post quem* for the erection of that wall' (p. 39).

A palaeosoil reveals an episode of biostasis (the quasi-stability of a landscape which has suffered a slow chemical erosion, under a stable vegetal cover, in a fragile equilibrium with that soil's fauna, this creating a biostasical environment); its fossilisation – a modification of the environment. A leached soil horizon (A) and a calcified horizon (B) indicate a period of stability over several centuries. Most instructive is her demonstration that, even if it is situated on a steep slope, an outcrop of very evolved soil allows for the hypothesis of the prior existence of a retaining wall which may have disappeared recently, its foundations awaiting unearthing. It is in these sub-soil and soil strata that artefacts, which have been dated elsewhere in settlement dwellings, become of utmost value for the dating of a terrace. Consequently, Harfouche highlights the necessity to associate to the rules of archaeological research those of the natural sciences, insisting that geological identification must be extremely precise, in view of the significance of sequences of colluvial origin (loessial deposits from little-protected surfaces indicate cultivation, whilst gravel deposits due to important erosion point to recent clearances).

Chapter 3 ('To Make Texts and Images Speak') investigates the possible reasons for the absence of terraces in ancient written and iconographic sources: the difficulty of distinguishing in ancient Greek texts between a retaining wall indicating a terrace, and a simple field enclosure wall; and, the selectivity of ancient authors devoid of 'encyclopaedic will' who discussed solely topics of interest to them (nature, shape and delimitation of fields, legal status of land, controversies and various laws). Harfouche suggests that Roman agronomists may have neglected to describe agricultural terraces, because the practice was by their time so well mastered and

current that it did not vouchsafe any explanations (p. 46). Its banality, due to its absolute necessity on steep slopes in order to control erosion and conserve the soil viewed as a 'system of production' - a concept minted by Harfouche (p. 29) - rendered the description of terracing superfluous. To reduce the gap between the reality of terraced agriculture and its non-mention and non-depiction, Harfouche rightly suggests that the ancient sources should be read anew in the light of recent discoveries in the young discipline of landscape archaeology. Perhaps then will 'enclosure wall', as translated until now from the Greek *haimasia*, be replaced by 'terrace wall', and *ophrys* (Greek) or *supercilium* (Latin) for the construction of hillsides for agriculture, be equated with 'terrace' (pp. 48 and 148–50).

Part II ('Regulating topography or building to cultivate, from one shore to the other') neatly splits geographically into three zones: the northwestern Mediterranean (Ch. 1) covering French Provence and Languedoc, Spain and Italy; the eastern Mediterranean (Ch. 2) consisting of Greece and the Near East; and North Africa (Ch. 3), more specifically the Aurès mountainous region of Algeria, southern Tunisia, and western Libya (Tripolitania). Harfouche's archaeo-pedological analysis of the micro-region of the Vaunage (alt. 200 m), 10 km to the west of Nîmes, which she had studied in depth for her 1998 University of Aix-en-Provence Master's degree, is a model of its kind (pp. 52–118), offering a long-range view of shifting settlement patterns expressed graphically by a series of maps. In the Bronze Age (5th–3rd millennium BCE), sites were predominantly situated on heights, mainly plateaux. Between the 2nd millennium BCE and the 2nd century BCE, slopes were preferred to heights. In the Gallo-Roman period, settlements multiplied, positioning themselves all over slopes, except for plateaus, the vast majority of sites being on hillsides (but never on plateaus) in the 4th–6th century CE period. The 7th–13th century period witnessed a decrease in number of settlements, all on the upper slopes of hills, but never on plateaus or plains. Interestingly, agricultural plots were created between rivers and streams ('interfluvial agriculture'), which thereafter were forced to run following the edges of the fields which had previously been drawn by farmers, thus giving rise to an 'anthropic water network'.

In Spain, terrace agriculture was both dry and irrigated. Harfouche has detected, on the limestone hillsides of the northern valley of the village of Xert in the Valencia region, complex hydro-agricultural systems dating back to the Arab occupation of *al-Andalus*: the temporary waters of the valley bed were collected in cisterns underneath hydraulic wheels (*norias*) on terraces. By way of terracotta conduits and channels running on top of the walls of the upper terraces, the *norias* distributed water to fields which were stepped so as to allow gravitational irrigation and protect soils from erosion. The plots were retained by dry stone walls of limestone blocks and were connected together by stairs running parallel to the retaining walls.

The extensive development of hollows (as opposed to hillsides) is generally considered to be characteristic of the Roman period in Italy. Harfouche disproves this by marshalling a variety of sources (the Roman agronomists' discussions of fields on slopes, mentions of retaining walls, and even a 1st-century CE fresco in

the Centenary House in Pompeii which depicts vineyards on the slopes of volcanic Vesuvius) which tip the scales in favour of slope agriculture (pp. 141–3).

For Greece, as for southwestern France, the reader benefits from Harfouche's personal involvement in an inter-disciplinary project associating the classicist M. Brunet and the soil scientist and archaeologist P. Poupet for a landscape archaeology study of the semi-arid, granite island of Delos in the Cyclades and its ten farms, some of which belonged to the sanctuary of Apollo, the others being privately owned. Several agricultural terraces were excavated, as well as an irrigation system with gravitational flow and ancient floor for treading out corn. The morphological traits of the soil retained by excavated terrace walls prove the great antiquity of the terrace systems, the leaching of the soil unfortunately not allowing for greater precision than a Bronze Age to Byzantine span. Thanks to the Harfouche-Poupet approach, rural Delos, described by Harfouche as 'a real conservatory of the history of a Mediterranean rural island landscape' (p. 158) where dry and irrigated agriculture were practised, now projects an image which is a far cry from the rocky, quasi-wasteland with patches of vineyards, orchards and walled gardens, sheep, goats and cattle, derived from the classical sources.

In the Near East, Harfouche and Poupet's analyses of agricultural terraces in the hinterland of Sidon and in the Upper Valley of the Nahr Ibrahim (the Adonis River of Antiquity) in the hinterland of Byblos, have proven the fallacy of the never-challenged claim that 'successive civilisations since the Neolithic period inhabited the coast, turning their backs towards the mountains which were thought to have been covered until the Middle Ages, by a dense forest exploited for cedar wood' (p. 167). Their 2001 geoarchaeological study of the Jarash landscape in Jordan has brought to light ancient agricultural terraces within the city walls, on the edge of housing and grand monuments, and next to cisterns which collected and redistributed water. The important erosion of soils and rocks generated by centuries (albeit millennia) of intensive and unbridled agricultural activity led them to the conclusion that the slopes of rich soils had been cultivated from the Bronze Age, even perhaps from the Neolithic period (pp. 161–2). On the fertile red soils of hilly 'Ajlun (northwestern Jordan) and central Palestine, on the loessial Serozems of the Negev, on the basaltic soils of the Syrian Jabal Druze and Golan, slope agriculture has developed since the 3rd millennium BCE Bronze Age.

Merging with the Roman cadastres, the vast tracts of land divided into parcels and the dry-stone enclosures of North Africa, best exemplified by the stepped agricultural terraces on the slopes of the Aurès mountains, have been attributed to Roman colonisation. Likewise, the Libyan terraced plots in long, parallel strips on the banks of *oued*s (North African *wadi*s), with dry-stone retaining walls and irrigation channels. Smaller fields which belonged to organised systems of land division, but were less rigid – they closely followed the topography – and more compartmented than the Roman cadastral matrices, the most famous of which are the 'Tazbent grids' (covering 1 km2) 15 km west of Tebessa in Algeria, predate Roman colonisation and were presumably indigenous. Only a geoarchaeological study could confirm that these pre-Roman plots date to the reign of the Numid King

Masinissa (*c*.238 BCE – *c*.148 BCE), Rome's client-king from 206 BCE, who put Numidia under extensive agricultural development, or to the Numid independent kingdoms prior to his reign. The southern Tunisian and Libyan Tripolitania counterparts to the retaining walls built across the flood plains of the great *wadi*s in the Negev Desert in order to divert the water and channel it towards the fields, were the *jisûr* (Arabic sing. *jisr*, 'bridge'), the term being also applied to the fields themselves. The top of these walls enabled circulation between slopes. Despite a low annual rainfall of 200 mm per annum, the ingenious *jisr* system increased the amount of humidity to an average of 500 mm per annum, this enabling the growing of wheat, as well as olive and fig trees, and even of water-greedy palm trees. Although the *jisûr* seem to coincide with the aggeres of Roman gromatic texts, few permanent traces of Punic, Roman or Byzantine occupation were detected in some regions where *jisûr* were found, notably the limestone mountain range of southeastern Tunisia which was inhabited by the Berbers until the Muslim conquest in the 8th century. Hence, the probable indigenous origin of the *jesûr*.

Part III ('Which Agrosystems for which Societies ?') shifts the focus of enquiry from observation and description to chronological analysis and the investigation of the reasons underpinning the creation of terraced landscapes. In Ch. 1 ('Sketching an Evolution on the Scale of the Mediterranean basin'), Harfouche examines the genesis of terraced landscapes (a most useful table, Fig. 106, lists the approximate dates of the birth of agriculture and that of agricultural terraces in eastern Asia, southern, southeastern and southwestern Asia, Europe, Africa, the Iberian peninsula and the Americas). She also discusses the technical know-how of Protohistoric societies, the role of agriculture, extending plots of land, building and rebuilding hillsides. She stresses the importance of two factors: topography (every slope was likely to be terraced) and necessity (to the north of the Mediterranean, terraces were built as a protection against hydric saturation, in North Africa against erosion). Ch. 2 is devoted to a quest for the origins of terracing and to tracing the transmission of techniques. Beyond the fact demonstrated by Harfouche's study that Mediterranean terraced landscapes 'were not engendered by modern, nor even Mediaeval, agricultural practices' (p. 198), there remains the fundamental question: 'What is the origin of the knowledge which underpins the vast tracts of terraced fields in the northwestern Mediterranean basin, particularly in Spain? Diffusion or local development?' The Fertile Crescent has long been considered the source of diffusion of agricultural techniques, in particular of irrigated farming, towards the lands on the shores of the Mediterranean. Were the oriental farming communities of the Mediterranean basin the sole inventors of slope terracing for agricultural purposes? If so, by whom and how was this practice transmitted westward? By the Phoenicians, who were not only seafaring traders, but had also settled in the valleys of the Lebanese hinterland, where they practised terrace agriculture? By the Punics in North Africa? By the Phoceans who, from their base in the Greek colony of Marseilles, are supposed to have introduced the vine and olive into southern Gaul? Recent morphometric analyses on olive wood have shown, however, that the European olive tree (*Olea europea L.*) was tended by the agriculturalists of southern

France and Spain since the Neolithic period. The role of the Etruscans is usually reduced to major hydraulic inventions pertaining to drainage, especially the *cuniculi*, the Western counterparts of the Persian *qanat*s, underground conduits channelling water from areas higher than the cultivated fields. The Etruscan countryside, however, is yet to be studied from the point of view of the fields. Heirs of the Etruscans and Greeks, the Romans left an undeniable imprint on the landscapes of the territories which they conquered, in western Europe and north Africa. What of indigenous techniques? The hypothesis of the terracing of the slopes of the pre-Saharian mountain ranges from Morocco to Libya by pre-Roman populations is supported by the fact that these geographical zones were not under the direct control of the Roman colonial system by which the plains of the northern edge of Africa were centuriated. Harfouche argues further that the sedentary populations who lived on heights before the arrival of the Phoenicians, the Greeks and the Romans, were already engaged in cultivating slopes. 'Technical solutions are engendered by the need to protect the soil as the fundamental production tool of the agriculturalists and to fulfil the demand in water necessary for the growth of plants' (p. 205). In the Iberian peninsula, as in southern Gaul, since the Paleolithic, if not the Neolithic period, local populations had mastered the technical know-how which owed nothing to the arrival of the Latin-speaking colonists. Harfouche subtly interprets the adoption, adaptation and transformation of Roman practices by the conquered indigenous societies as reflecting their integration into the Roman cultural and technical sphere, but she stresses that 'no massive technical upheaval brought about by colonisation is detectible in the terracing of slopes for agriculture in Mediterranean lands' (p. 206).

Ch. 3 ('Which techniques? To what ends?') delves further into the technical aspects of terracing. The lack of ancient terraces in Sardinia and the Apennines, inland Sicily and Kabylia, despite favourable geographical conditions, has led Harfouche to ask: 'Why build or not build terraced fields?' Factors other than exclusively technical ones, played their part: quality of soil (clayey soils are not conducive to terracing), local traditions, a large work force (maintaining terraces, including repairing collapsed walls and adding soil, is an exhausting task), and long-term high demographic density. Harfouche's description of terraces and units of landscape is exhaustive, down to the role of hedges as climatic, hydric and biological regulators, as well as for retaining soils on slopes. Types of slopes are reviewed (gentle, piedmont, steep), as are modern and ancient types of agricultural terraces and stepped fields in Mediterranean contexts (also conveniently listed in Fig. 108): 'linear' (elongated) and 'half-moon' (semicircular), as well as terrace-dams in the bottom of valleys (as in the Negev and North Africa). Harfouche observes that paths and ditches enabled the channelling of run-off water in order to evacuate it or irrigate cultivated fields. Yet another 'accepted fact' – that dry-stone walling is traditional and immemorial, whilst grassy embankments, attested only from the 16th century, are 'modern' – collapses thanks to Harfouche's acuity. In some cases, notably Languedoc and Tripolitania, both techniques were used in the same terrace system (pp. 216–17). As in 16th-century China and northern India, wood was occasionally

used for terrace-retaining walls in the Mediterranean basin. In Ch. 3, Harfouche also discusses fundamental issues such as terraces and hydraulics (the Mediterranean shores should be considered separately from the arid marches, such as the Negev) and three types of agriculture distinguished (flood agriculture, dry farming and irrigated cultivation). Characteristically doubting the supposed conflict of interest between farmers and pastoralists, particularly in the arid zones, Harfouche suggests 'a succession in Time and an interaction in Space' (p. 221), which is perfectly illustrated on the island of Delos by sheep and goats grazing the stubble after the harvest and thus contributing organic matter to the fertilisation of fields. Examining the relationship between terraces, olive groves, orchards and vineyards on the basis of the archaeological data, Harfouche shows that terraced fields were not always given up to olive and fruit trees and refutes the theory whereby the building of terraces was the direct result of the expansion of a specialised agriculture, that of the olive and vine, within the context of a speculative economy (pp. 222–3). Populating her terraces (although present in filigree throughout the book, the human element is rarely brought strongly to the fore), Harfouche annuls the old theory which stated that, owing to their poor soils, heights were only fit for grazing, whereas plains were cultivated. She puts forward the novel argument that rather than spatial, the boundary between cultivation and pasturage was temporal. In the Bronze Age, summits were covered by fertile, red, fersiallitic soils (rich in iron, aluminium and silicium). Hence, the abundant evidence for agriculture on presently sterile limestone plaques on the hilltops of French Languedoc: diaclases (fissures in rocky ranges which allow for water to infiltrate inside rock) have retained the remains of very rich, fersiallitic, cultivated soils, prior to their being truncated and eroded away. Similarly, the Tazbent 'fossilised' agricultural plots in Algeria are the eloquent witnesses of terrace agriculture practised by the inhabitants of these heights long before Roman colonisation.

As the book reaches its term, Harfouche's enquiry is enlarged to encompass the relationship between terraces and climate: is the historical evolution of terraced slopes linked to general 'natural' climatic fluctuations, including 'crises' of deterioration of the climate over a large zone, which may have caused the abandonment of terrace systems? Are short-term changes due to anthropic activity? How are climatic fluctuations detectible in archaeological strata? How is it possible in a pedosedimentary cross-section to differentiate between the effects of an annual, or even a seasonal, change, or of a short-term catastrophic event, and those of a long modification over several years, or centuries? Harfouche judiciously advises prudence in any attempt to assess the impact of climate on landscape, erosion and sedimentation being more often than not the visible signs of the impact of societies on their environment, compounded by the weight of the ecosystem (p. 231). Fascinatingly, the relationship between terraces and climate is not a one-way street. Harfouche demonstrates the agricultural advantages of terracing which, for instance, retains humidity in soils on inclines. Table Fig. 113 neatly 'boxes' the various elements of her argument. Retaining walls enable water to infiltrate into the soil, thus bringing the necessary humidity both for the soils and the growing plants.

Protected from the destructive effects of run-off erosion, terraced soils evolve and slowly gain in quality. Terraced slope agriculture has, moreover, a direct effect on climate by the creation of micro-climates conducive to the growing of olive, vine and fruit trees: greater length of time of sunshine owing to the angle made by the sun rays as they reach the terraced slope; successive platforms creating turbulences in winds, this preventing cold air from hitting the vegetation; and if the retaining walls are of stones, stronger heat from the sun rays reflected on the crops.

A major result of Harfouche's analysis is the demonstration, by associating archaeology and soil sciences, of the existence of terraced terrains in the 3rd–2nd millennia BCE, particularly on mountain ranges. Many problems, however, remain unsolved: the role of indigenous populations, as in North Africa; the part played by 'foreigners', Phoenicians, Etruscans, Greeks and Romans in the diffusion of techniques. The book closes with an impassioned plea to record and study the fast-disappearing terraced landscapes of the Mediterranean basin threatened by a productivist industrial agriculture (around Mount Lebanon and in North Africa) and rapid urbanisation (in the Jerusalem hills).

By integrating – but always with a critical mind – the results of pluridisciplinary research by archaeologists, historians, philologists, geographers, sociologists, economists, and especially botanists, geologists and pedologists, Romana Harfouche has broken new ground in the extensive field of terraced Mediterranean landscapes. Her pioneering approach is firmly rooted in geology and pedology. Since the publication of her innovative work, which is of the highest scientific standard and value, the European Alpter Project (http://www.alpter.net/) has contributed to the study of agricultural terraces – at least in the Alps (valley of River Roya in the French Alpes-Maritimes, valley of River Brenta, S. Ilario of Nervi near Genoa, Valtellina and Valchiavenna, and the lower Aosta valley in Italy, Val Bregaglia in Switzerland, Ulrichsberg in upper Austria, and Goriska Brda in Slovenia) – a similarly new method based on Geographical Information Systems (GIS), with a wide range of analytical resources (Ben Jeddou, Castex, Dagorne and Davtian 2007; 2008). Romana Harfouche may not have been aware that the imbrication of variables such as altitude, slope, vegetation, soil and lithological outcrop recorded on all agricultural terraces in one or several specific regions and constituting a Database within a GIS project, could shed much light on her enquiry. The way forward, therefore, would now be to combine the two approaches in order to reach a global view of population dynamics over an extensive but single spatial entity, *Provincia Palaestina*, for instance, whose landscapes included large tracts of terraced slopes. Such a project has already been launched for *Palaestina Tertia* on both sides of the River Jordan from the Byzantine period to Saladin (Dauphin and Ben Jeddou in press).

Bibliography

Ben Jeddou, M., Castex, J.-M., Dagorne, A. and Davtian, G., (2007). 'The Antierosive Role of Field Terraces above the Roads of the Gorges of Roya and Cians (06-F)', in Fontanari,

E. and Patassini, D., eds, *Terraced Landscapes of the Alpine Arc, Handbook/Project Alpter Experience*, I (Milan).
Ben Jeddou, M., Castex, J.-M., Dagorne, A. and Davtian, G., (2008). 'Maps andComments concerning Some Terraced Sites of the Alpes-Maritimes (06-F): Granile (Tende), Roquebillière, Auribeau', in Scaramellini, G., and Varotto, M., eds, *Terraced Landscapes of the Alpine Arc, Atlas/Interpretations, Project Alpter* (Milan), 76–9.
Braudel, F., (1977) (ed.). *La Méditerranée*, Flammarion, Paris, 2nd ed. (1985).
Dauphin, C. and Ben Jeddou, M., (in press). 'D'une *Provincia* byzantine à un *Jund* abbasside: la dynamique du peuplement de la Palestine à la lumière de nouveaux outils de recherche (Système d'Information Géographique)', in *Continuités de l'Occupation entre les périodes byzantine et abbasside au Proche-Orient (VIIe–IXe siècles), Actes du Colloque International, 18–20 octobre 2007, Paris, L'Antiquité Tardive*.
Gibson, S., (2003). 'From Wildscape to Landscape: Landscape Archaeology in the Southern Levant. Methods and Practices'. Pp. 11–25 in Maeir, A.M., Dar, S. and Safrai, S., eds., *The Rural Landscape of Ancient Israel*. BAR International Series 1121 (Oxford).
Gibson, S. and Edelstein, G., (1985). 'Investigating Jerusalem's Rural Landscape', *Levant* 17: 139–55.
Gibson, S., Ibbs, B. and Kloner, A., (1991). 'The Sataf Project of Landscape Archaeology in the Judaean Hills. A Preliminary Report on Four Seasons of Survey and Excavation (1987–89)', *Levant* 23: 29–54.

Dr Mohamed Ben Jeddou
Associate Researcher, Cépam du CNRS-Université de Nice, Sophia Antipolis

Miriam C. Davis, *Dame Kathleen Kenyon: Digging Up the Holy Land*. Walnut Creek, CA: Left Coast Press, 2008. Pp. 279. ISBN 978-1-59874-325-8 (hardcover); 978-1-59874-326-5 (paperback)

The name of Dame Kathleen Kenyon will be well known to most readers of this journal as the great excavator of Samaria in the 1930s, of Jericho in the 1950s and of Jerusalem in the 1960s. Those who have delved a little deeper into the archaeology of the Holy Land will also be aware that she introduced there the Wheeler-Kenyon method of excavation and that she wrote extensively and authoritatively on many other aspects of the subject. She trained, moreover, a generation of archaeologists, some of whom are happily still with us, though most have now retired and are elderly. Although academically the scene looks rather different today, nobody can doubt the great influence she had on the subject throughout the second half of the twentieth century or the respect and affection in which her memory is still held.

A biography is therefore likely to be of immediate appeal to any with an interest in the subject of the archaeology of Israel and Palestine, and we should be grateful to Miriam Davis for the extensive work which she has done to produce so entertaining as well as reliable an account. She did not know Kenyon herself, though she has spoken at length with many who did, and this gives her the advantage of some critical distance from her subject—necessary for any historian as she is by

profession. Moreover, she had the historian's good fortune during her research of coming across a large number of previously unpublished letters to and from Kenyon, many in particular between members of her family, so shedding much human light on events which were sometimes also in the public domain.

While full attention is rightly given to the (to us) better known aspects of Kenyon's work, including both an outline of the important results she achieved and some insight, whether amusing or painful, into the human side of the work, readers will perhaps be more astonished to learn of significant other work which she undertook which is not so well known outside of specialist archaeological circles. I certainly had no idea, for instance, that, after graduating from Somerville College, Oxford (where she read history without great distinction), one of her first experiences in archaeology was her participation in 1929 in Gertrude Caton-Thompson's expedition to what was then known as 'the Great Zimbabwe', about 200 miles east of Bulawayo in what is now the country of Zimbabwe (then Rhodesia). From the sound of things, this will have been a challenging initiation, but it nevertheless led to her determination to pursue archaeology as a career.

More significant from a professional point of view, of course, was the period of her close association with Sir Mortimer (Rik) Wheeler. In terms of practice it was with him that she developed the distinctive style of stratigraphically controlled excavation that she brought to her later work in the Holy Land, and professionally it was through him that she was introduced to her long association, in various capacities, with what eventually became the Institute of Archaeology of the University of London. In association with Wheeler's dig at St Albans she first developed projects of her own, and on the strength of that she then led other important excavations on sites from Roman Britain, not least the Jewry Wall site in Leicester in the late 1930s. What emerges as characteristic of this woman of extraordinary energy is that at this time she was simultaneously involved with the work at Samaria as well as at the Institute, and we read more than once of the fact that late at night at one site, when most others were relaxing if not, indeed in bed, she was working on the written reports of some quite other site. 'Multi-tasking' was not officially recognised in those days, but its reality is all too apparent here.

Another secret element in her success concerns her long-term supportive friendship with Vivienne Catleugh. Kenyon's father, Sir Frederic, was often away from home in Godstone, Surrey, on account of his work as Director of the British Museum. With both daughters also now away in 1938, Kenyon's mother responded to an advertisement by Catleugh as a 'Companion-Chauffeuse with domestic science training' to be a means of support and companionship. Within months, however, Lady Kenyon suffered more than one stroke and died soon after. At Sir Frederic's request, Catleugh stayed on to manage the family household, and before long she was accompanying Kathleen sometimes to London and by the following year she was directing the excavation camp at the Wrekin, where Kathleen was then working. In what Davis insists on good grounds was a platonic friendship, she became a companion of Kenyon's for the next forty years or so, taking care of all her domestic needs whether in London, Jordan or Oxford. In one of the many

attractive photographs included in this volume, there is a charming one of the two of them, together with Kathleen's sister Nora, on the day when she became Dame Kathleen.

Given her less than distinguished undergraduate performance in Oxford, Kenyon's return to Oxford as Principal of St. Hugh's College in 1961 must have brought particular satisfaction, and she seems to have thrived in both College and University life for the next twelve years. What it is again extraordinary to realise is that the first half of this period coincided with her excavations in Jerusalem, which alone would have been more than a full-time job for most people. The intertwining of these different spheres of demanding activity for a woman already in middle age is a story that deserves to have been told.

Other aspects of her varied life have not been touched on in this brief review. Not all her archaeological results have withstood the test of time, and there are elements of her character which would not have been to everybody's liking. She died too young (aged just 72) before she had managed to complete the publication of her excavations, though she was evidently working hard on that until the end. Davis is to be commended, however, for having laid out the evidence as fully and dispassionately as can currently be managed, and she has done so in a manner which is readable and absorbing. Nobody with an interest in the archaeology of the Holy Land will want to miss the opportunity to set one of its great characters in a wider human context.

H.G.M. Williamson
The Oriental Institute, Oxford

Summaries of Lectures

A Numismatic Biography of Tel Jezreel

T.S.N. MOORHEAD

Tel Jezreel was excavated over seven seasons from 1990 to 1997 by a joint British and Israeli team. The site itself is not well preserved, having suffered from the ravages of human activity on several occasions. This meant that stratigraphic and contextual evidence had been lost in many parts of the site. It also meant that the ceramic record consisted of mostly small abraded sherds. However, when the pottery is considered alongside the almost 300 coins found, on and around the tel, a picture of human activity emerges which is both plausible and intriguing. Furthermore, the coin record throws up some interesting questions for further consideration by historians and archaeologists.

Fakes, Forgeries and Looted Artefacts in the Archaeology of the Holy Land

SHIMON GIBSON

A number of major artefacts, thought to be ancient and exhibited in respectable museums, were recently exposed as fakes, causing discomfort among archaeologists and museum curators who had previously identified them as *bona fide* ancient objects. The recent case of the 'James Brother of Jesus' ossuary was discussed in some detail, as well as the amusing story of the famous Shapira scroll that was offered to the British Museum for a million pounds in the late 19th century. The lecture also dealt with the terrible looting of archaeological sites in the Levant (Israel, Palestine and Jordan), with important artefacts being sold on the antiquities market and ending up in private collections. Should scholarship deal with these unprovenanced artefacts or ignore them?

A Modern History of the Ancient Synagogue: 150 Years of Research

DAVID MILSON

The institution known as the synagogue has been the bedrock of Jewish communities from a time even before the destruction of the Temple in Jerusalem, 2,000 years ago. With its many functions, including, but not limited to: reading and teaching of the Law, civil administration, communal meals and hostels for visitors, it became a central place to Jews the world over, as it still remains today.

Our modern understanding of its early development, though, has been coloured with pre-conceived ideas and a less-than-hoped-for appreciation of archaeological evidence. The scholars involved in bringing this material to light – such as the American Edward Robinson, the Frenchman Ernest Renan, the Englishmen who made the first survey of Palestine, such as Claude Conder and Horatio Kitchener, or the Israelis too many to mention – have all put their special mark on modern research.

This lecture traced that path, to demonstrate how our present 'ecumenical' view of the ancient synagogue has been shaped by both historical ideas and modern politics.

Jewish Tombs of Jerusalem in the Second Temple Period: Survey and Controversies

JOHN KANE

As well as presenting a survey of the excavated and monumental evidence which is very rich, Dr Kane commented on the work of Rahmani, Kloner and others and presented some controversial ossuary inscriptions. He related this body of material to theories about the Holy Sepulchre, Garden Tomb and recent 'tomb of Jesus' statements, with original analysis.

Some monumental tombs have survived above ground and been commented on through the ages, and, of course, comprehensively robbed. These are best analysed in terms of forms and ornament (with a few helpful *sarcophagi*); even, in a few instances, by links to Josephus or other literature of the time. Most, however, and these usually somewhat smaller but still rock-cut, were lost and have been excavated. Thus, though there is no stratigraphy in a rock-cut floor, they may be understood with the aid of pottery, coins, ossuaries and inscriptions (and sometimes *sarcophagi*). An extensive array of tombs was presented in order to provide the necessary background of forms and content for analysis relating to particular controversies. The movement in general has been from 'theological' to 'socio-economic' explanations.

Arguments for the 'Garden Tomb' are shown by the surveyed material to be easily refuted on formal grounds, and there is almost nothing to be said for the (recently controversial) 'tomb of Jesus', though something more for the 'James' inscription. But formal analysis and ancient texts suggest that the traditional 'Holy Sepulchre' is archaeologically plausible.

Prehistoric Jewellery and the Development of Craft Specialization in the Levant

KAREN WRIGHT

What social groups were involved in Neolithic craft production in the Levant? What was the nature of early forms of craft specialisation, long before urban economies evolved? One way to look at this is to investigate the manufacture of Neolithic prestige goods. Seasonal camps in eastern Jordan revealed unusually detailed evidence for manufacture of stone beads: debris, blanks, finished beads, and tools for drilling, sawing and abrasion. This lecture described the lapidary technology at these sites, which date to the late Pre-Pottery Neolithic era. These sites raise issues about early craft specialisation. These beadmakers seem to have been master craftsmen/women, not casual artisans. It is suggested that these sites illustrate a particular form of 'site specialisation', namely sites located in remote territories and focused on special materials and intensive production of prestige goods. However, these craft activities were also embedded in hunting, herding, and perhaps ritual. Comparisons with other data on early stone beadmaking and craft specialisation were also discussed.

The Qumran Caves: A Re-evaluation of the Evidence

DENNIS MIZZI

This paper reassessed the archaeological evidence from the limestone and marl caves in the Qumran area. There are two main assumptions current among many scholars, in regard to the Qumran caves. The first is that many of the marl caves were used for dwelling purposes by members of a sectarian community inhabiting the site of Khirbet Qumran. The

second is that at one point or another hundreds of manuscripts (the so-called Dead Sea Scrolls) were taken out of Khirbet Qumran and deposited within ceramic cylindrical vessels in these caves, and since these cylindrical jars are virtually unique to Khirbet Qumran and the caves in its environs, they provide an archaeological link between the two entities, and consequently between the Dead Sea Scrolls and the site of Khirbet Qumran. This paper challenged both the aforementioned assumptions, and it discussed the possible implications that the new proposed hypothesis might have on our understanding of Khirbet Qumran and of how and when the scrolls came to be deposited within the Qumran caves.

Henry Timberlake – Merchant Adventurer and Traveller: A Journey to Jerusalem in 1601

JOAN E. TAYLOR

Henry Timberlake set sail from London early in 1601 to trade in the eastern Mediterranean with stock from the Levant Company. En route he stopped at Algiers – where he picked up Muslim pilgrims. At Alexandria he took his cargo overland and down the Nile to Cairo. Finding a sale difficult, he decided to travel to Jerusalem – a very hazardous journey few Englishman had dared. Attacked by Bedouin in the Sinai, the huge Syrian caravan he joined managed to get through to Palestine. Near Hebron, Timberlake was joined by a generous Moor from Morocco, on the *hajj*, whom he had taken on board ship at Algiers, a man who now vowed to look after him as he journeyed as a stranger in a strange land, away from the caravan (bound for Damascus), onwards to Jerusalem. Soon Timberlake had need of his assistance, since he was arrested at Jaffa Gate as a spy by guards who had not heard of England, and thrown into prison. The Moor gained his release, after pleading with the Ottoman Pasha. Timberlake, a fervent Protestant, was then put under the care of the Catholic Franciscans, and under their guidance he followed a whirlwind pilgrim tour. He was also one of the few Europeans of the time to visit the Dead Sea. Timberlake's account of his extraordinary and dangerous journey is full of information about Ottoman Jerusalem, and provides a vivid insight into a bygone era. Joan Taylor has published a retelling of Timberlake's journey in her book, *The Englishman, the Moor and the Holy City* (2006), and summarised it here.

Jews and Christians in Palestine in Late Antiquity: The Case of Capernaum

FERGUS MILLAR

Late Roman Palestine was inhabited by several different ethnic, social, religious and linguistic groups: Jews, Samaritans, Christians, some surviving gentile pagans, and 'Saracens', both in Sinai and immigrating across the Imperial frontier. This lecture concerns the co-existence of Jews and Christians, in various different senses. Firstly, while they inhabited the same general area, did they co-exist peacefully, or conflict with each other, or exchange ideas and beliefs? Our most vivid witness is Jerome, settled in Bethlehem from the mid 380s to his death in 420; but there are several other vivid accounts of mutual contacts. Secondly, did they literally co-exist, side by side, in the same communities, or were there separate Christian and Jewish towns and villages? How far did Late Antique synagogues imitate the architecture and decoration of churches? One theme which clearly distinguishes them from churches is the repeated reminiscence, on synagogue mosaics, of The Temple. Does Capernaum offer an example of a church and a synagogue in close proximity? This lecture concluded by examining the suggestion by an Israeli archaeologist that this apparent example of co-existence is an illusion.

The First Nabataean Palace in Petra

PIOTR BIENKOWSKI

The well-known Iron Age II village on the mountain of Umm al-Biyara in Petra was excavated in 1960–65 by Crystal M. Bennett, and the final report is currently being completed by the speaker. As part of her fieldwork on Umm al-Biyara, Bennett surveyed some Nabataean remains on the very edge of the mountain, which she interpreted as a `Graeco-Nabataean sanctuary'. This lecture re-appraises Bennett's preliminary publication on those remains, reports on more extensive remains revealed by recent illicit digging, and plans for renewed fieldwork. It concludes that this was a major Nabataean public building, almost certainly a palace, with luxury elements, in a strategic location on the highest part of Petra. Several elements related to the architecture and the location of the structure make it likely that it can be considered as part of a kind of building rivalry between the Nabataean realm and Herod the Great and his descendants. This would make this building the first Nabataean palace to be identified within Petra.

Reports from Jerusalem 2008–2009

REPORT 4 – SEPTEMBER 2008

As the main dig season is now over, newspaper and anecdotal reports are coming in from everywhere, and it is clear that some sensational finds have taken place.

Three plastered skulls found at Yiftahel in the Lower Galilee have already received press coverage; pictures and more information have now appeared. These new examples date from the Pre-Pottery Neolithic B period of 7000–6000 BCE and the excavator, Hamudi Haleila of the IAA (Israel Antiquities Authority), reports that they were found in a pit near a mudbrick building. The graves were under the building and the skulls were later removed and set in the house on benches, a form of 'ancestor worship' set up as an example to the youth. Haleila points out that similar cults were observed as far away as Syria, and 15 similar skulls are known from Jericho.

There is ongoing work repairing and cleaning the present walls of Jerusalem and a start has been made at the Zion Gate, where the scaffolding has just been removed to show a pristine stone face. The bullet holes of the 1948 period have, however, been left *in situ*, and the original dedicatory inscription to Suleiman the Great has been restored.

At Megiddo, in the dig headed by Israel Finkelstein, David Ussishkin and Baruch Halpern, a temple of the EB1 period (*c*.3000 BCE) has been uncovered. It is about 30 m long and has a row of central pillar bases, each side of which are smooth rectangular and circular basalt slabs of unknown purpose. There is a central altar on the back wall opposite the presumed entrance. Nearby were found masses of animal bones, mainly sheep/goat and gazelle. Finkelstein calls it 'the mother of all temples' and says that publication can be expected by next year. This is a major and intriguing find, situated not far from the later famous central altar of Megiddo.

More small finds are turning up at Eilat Mazar's dig in the City of David. The latest is a bulla (seal impression) engraved in palaeo-Hebrew, mentioning Gedalyahu ben Pashur (Jeremiah 38:1), a minister of King Zedekiah, the last king of Judah, who was captured and murdered by the Babylonians in 586 BCE.

At Moshav Ahihud in western Galilee, 7 km east of Acre, a large olive-production plant of the 6th or 7th century CE has been found in an IAA excavation directed by Michael Cohen. The plant includes a huge olive press and two large oil storage containers lined in mosaic and plaster. The complex may have been part of a monastery as there is evidence (from small finds) of a church nearby. The site was destroyed by fire in about 700 CE.

A study of tuberculosis, undertaken by Israeli, Palestinian and German scientists, will be examining the ancient bones excavated by Kathleen Kenyon at Jericho, to try and discover the origin of the disease, which is still a killer in many parts of the world. It is felt that the tombs of Jericho, perhaps the oldest city known, may be able to reveal how the disease developed in the early crowded conditions 10,000 years ago. The research will be conducted at the Hebrew University (HU), al-Quds University and the University of Munich, under a grant from the German Science Foundation.

The recent dig at Zippori (Sepphoris), under Ze'ev Weiss of the Hebrew University, has uncovered a Roman temple of the 3rd century CE. The temple was located in the centre of the city and shows that pagan worship took place there alongside Jewish practice. The temple measured about 24 x 12 m and was probably dedicated to Zeus and Tyche, judging from depictions of a temple facade on Zippori coins of Antoninus Pius. Only the foundations of the temple remain and it appears that a Christian church was built over them at a later date, thus preserving the location of cult in the city centre. Another large Roman building, of unknown purpose, was found adjoining the temple.

The date for the domestication of cows, sheep and goats has been pushed back 2,000 years to the 6th millennium BCE. The evidence comes from the examination of thousands of pottery vessels showing the remains of milk deposits, including vessels from Sha'ar Hagolan, in the Jordan Valley, excavated and examined by Yossi Garfinkel of the Hebrew University, working with colleagues from the United Kingdom, United States, Netherlands, Greece, Turkey and Romania. The work was published in a recent issue of *Nature*.

Daniella Bar-Josef of Haifa University has recently claimed that the large cache of green-coloured jewellery from the Upper Paleolithic period of 12,000 years ago, collected by the Geological Survey of Israel from at least eight sites throughout Israel, were beaded amulets for human and agricultural fertility cults. She claims that their use came about at the transition from hunter-gathering to sedentary farming, when all forms of fertility were at a premium. The colour green was used to promote the aspect of growth, related to plants and trees, even at the expense of bringing material for the beads from sites 100 km distant.

The IAA have recently announced that all 15,000 to 20,000 fragments of the Dead Sea Scrolls will be available for viewing on the internet within the next five years, together with a translation and interpretation of each fragment. At the same time, the project for their preservation is continuing apace.

REPORT 5 – 23 SEPTEMBER 2008

A large walled enclosure of about 9 x 18 m has been uncovered in the Galilee, in the Nazareth Hills, at Kfar HaHoresh. It dates to the Neolithic Pre-Pottery B Era (8th millennium BCE) and is being dug under the direction of Nigel Goring-Morris, a British archaeologist at the Hebrew University's Institute of Archaeology. He considers it to be a funerary precinct which acted as a regional centre for nearby villages, probably the first in this area. The site has yielded up 65 skeletons, mostly

of young adult males, and an entire herd of cattle was also buried nearby. In addition there is a large number of small finds such as shell pendants, a symbolic serpentine axe, engraved tokens and phallic figurines. The variety of stone materials indicates exchange with areas such as Anatolia, Cyprus and Syria. Goring-Morris will be lecturing about the site at the Kenyon Institute in Jerusalem in November.

Reports have come in from Damascus that the jawbone of an early diminutive camel has been discovered at Khown, a desert site near Palmyra, Syria. One of the leaders of the Syrian-Swiss expedition, Heba al-Sakhel, has claimed that the bone of this desert-cruising species could be one million years old.

Early this September, the press was shown the extensive work that has been conducted by the Israel Antiquities Authority under Yehiel Zelinger on the southern slopes of Mount Zion, Jerusalem. This work, now being continued under Yoav Arbel of the IAA, has uncovered large sections of the southern wall of the city from the Second Temple period, and another section in front of it built in the Hasmonaean period, with fine bossed ashlars typical of the period of the 1st century BCE. After the destruction by the Roman conquest of Jerusalem in 70 CE, a Byzantine wall was built above the ruins, though it appears that the later builders did not know of the first walls. The present excavators were helped by earlier discoveries made by Bliss and Dickie, working for the PEF in the 1890s. At that time, they did not have permission to excavate from ground level, so Bliss and Dickie had to work from tunnels that they cut alongside the walls. The press was most interested in the souvenirs that were recovered from the 19th-century dig, such as beer and wine bottles, part of a gaslight and workmen's shoes. The site overlooks the Ben Hinnom Valley, which is scheduled to be landscaped as a national park.

Regrettably, on 16 September, Avraham Biran died, aged 98. Biran started his career in the British civil service during the Mandate period and became the long-time excavator of Tel Dan in the north of Israel. He had been Director of the Nelson Glueck School of Archaeology. In 1984, Biran was awarded the Schimmel Prize for Archaeology and the Yakir Yerushalayim (Worthy Citizen of Jerusalem) prize in 1996. He was awarded the Israel Prize for Archaeology in 2002.

REPORT 6 – OCTOBER 2008

On 23 October, Ehud Netzer lectured at the Albright Institute, speculating on the exact function of the mountain palace of Herodion: was it a summer palace, a fortress, Herod's burial place? Netzer was convinced that it was all three.

Hanan Eshel launched his new book on the Hasmonaeans and the Dead Sea Scrolls at the Yad Ben-Zvi Institute a little later on the same night. On 28 October at the Givat Ram campus of the Hebrew University there will be a seminar on 'Urbanisation in the South Levant in the Early Bronze Age' with Israel Finkelstein, Pierre de Miroschedji and Rafi Greenberg. And on 30 October at the Hebrew University the annual seminar to review the year's work in Jerusalem and its environs will be held with talks by Zvi Greenhut, Dan Barag, Yossi Garfinkel, Oded Lipschitz, Shimon Gibson, Ronnie Reich and others.

A sensational find was announced earlier this month when a sarcophagus cover was found with the inscription '*ben ha-kohen ha-gadol*' (son of the High Priest). The discovery was made *in situ* on an extensive dig by the IAA, probably at Bet Hanina, just north of Jerusalem. However the IAA are not giving out further details except to say that the site is in the tribal area of Benjamin, where it is known that many of the *kohanim* (priests) of the last Temple period (30–70 CE) lived. We can expect further details of this interesting find and the site in due course.

The National Maritime Museum in Haifa is showing archaeological work, the results of 17 seasons of excavation at the site of Tel Shiqmona, at the foot of the northern tip of the Carmel mountain. The early settlement was sustained by rainwater run-off from the mountain that fed into the adjacent fields. The site dates back to the Late Bronze Age when it was an Egyptian outpost connected to Beth Shean, and one of the most interesting exhibits is the famous scarab that alludes, in hieroglyphs, to a local Hyksos ruler, reading, 'Son of Ra, Ya'qob-her, grant life', a reading that some scholars have related to the patriarch Jacob.

Another famous item is a terracotta figure of a girl with a drum, from the 8th century BCE. There are many other early artefacts, and a considerable number of a much later date from the Byzantine period, including a fine mosaic floor with animal roundels. Early excavations took place at Tel Shiqmona in 1895 by G. Schumacher and later by Moshe Dothan in 1951 but the main work was conducted by Joseph Elgavish on behalf of the Haifa Museum of History from 1963 to 1979.

Finally, it is reported that scientists from Tel Aviv and the Hebrew University Medical schools, together with researchers from the universities of Birmingham and Salford, have found the DNA of an early strain of tuberculosis in the bones of a mother and child at Athlit-Yam, just south of Haifa, that were buried in the Neolithic Pre-Pottery Age of 9,000 years ago. Although this is 3,000 years earlier than previous evidence of the disease, it is shown to be the human strain of tuberculosis and not one evolved from bovine TB as previously thought. The community from which it evolved was settled at a period when animals were domesticated but not yet used for their milk. The find will enable researchers to work out how the bacteria have evolved over the centuries to the present day, when TB is still infecting millions around the world.

REPORT 7 – NOVEMBER 2008

Immediately after sending off Report 6, a number of important finds were announced, particularly at the seminar on 28 October at the Hebrew University.

Eilat Mazar continues to make new discoveries at the City of David site. The latest is an underground water tunnel (partly plastered) that ran under the building, which she calls the 'Large Stone Structure', which appears to have fed a nearby pool. It debouched onto the hillside and was deliberately blocked (and still is) at a later date. From pottery and two broken lamps, Mazar dates it to the Early Iron Age, and speculated that it may have served to help Joab, David's general, to penetrate into and conquer Jebus, pre-Israelite Jerusalem, by way of the *tsinnor* (2

Sam. 5:8), but that is not yet by any means established. At a later date the tunnel may have served as an escape route for those fleeing from the Babylonian destruction of 586 BCE.

The find of a sherd from the site of a walled, hilltop town unearthed at Khirbet Qeiyafa in the Elah Valley, southwest of Jerusalem, has raised enormous interest. It is inscribed with five lines of proto-Canaanite script. The excavator, Yossi Garfinkel of the Hebrew University, claims this to be the earliest Hebrew inscription yet found as he thinks that the first line contains at least two Hebrew words, '*al ta'aseh* (do not make...)', but no full reading has yet been made of the sherd. The find was made in the cooking area of a house alongside the six-chambered gate of this 23-dunam (6-acre, 2.3-hectare) town, on a hilltop site overlooking the Elah Valley, where - according to the Bible - conflicts were fought between the Philistines and the kingdoms of Saul and David. It was built in the early Iron Age but occupation ceased shortly afterwards, judging by the pottery. After a long interval it was re-occupied in the early Hellenistic period, during the Ptolemaic occupation of Palestine. The evidence for the latter comes from coins found on site. The find of the sherd was made in the second season of the dig.

Yossi Garfinkel has identified a second gate to the city, which was not obvious as it had been built over in Hellenistic times. For an Iron Age town to have had two gates was most unusual; it is a unique feature. He points out that the site lies between the better known towns of Azekah and Socoh and in Joshua 15: 36 there is a town called Sha'arayim (which means 'two gates'), mentioned together with the two sites of Azekah and Socoh. It is referred to again in the account of the battle with the Philistines. After David's combat with Goliath in the Valley of Elah, the Philistines flee, 'and the wounded of the Philistines fell down by the Way to Sha'arayim....'(1 Sam. 17:52).

The third dramatic find this month has been that of an oval black seal in the dig opposite the Western Wall of the Old City, conducted by Shlomit Wexler-Bdolah for the IAA. It shows a typical Assyrian archer, as on the Lachish reliefs in the British Museum, with the letters *LHGB*, 'to Hagab' (as in Ezra 2: 46), and can be dated by the script to the 8th or 7th century BCE. The seal is so curious, combining a Hebrew name with an Assyrian motif, that it has already been pronounced a fake by one expert, but this is unlikely, as it was found in a controlled scientific excavation and is so unusual that a forger would neither know nor be tempted to make the connection. One possibility is that it belonged to an Israelite mercenary working for the Assyrian army that besieged Jerusalem in the time of Sennacherib and Hezekiah, but nothing is definite so far.

On the subject of fakes, the trial in Jerusalem District Court of Oded Golan and three accomplices, accused of faking the Yehoash Tablet and the inscription on the James, brother of Jesus, Ossuary, has been halted for several months until January 2009. The trial has been going on for nearly three years. The court only meets once a week and the judge has advised the police and the IAA to reconsider their case as they have so far been unable to pin down the charges on Golan and his co-defendants, in spite of the fact that most experts consider the two artefacts to have

been faked, something which the defendants continue to deny. The judge's opinion is a setback for the IAA but it is thought that they will continue to prosecute.

Another dramatic find, reported from southern Jordan by Thomas Levy of the University of California, was of a large copper-smelting plant in the area of the Biblical kingdom of Edom, dated by radiocarbon analysis to the 10th century BCE. The plant is a 10-hectare site called Khirbet en-Naḥas ('Ruins of Copper') about 50 km north of Petra, and contains over a hundred buildings and a fortress. It is littered with large black slag heaps and the remains of burnt charcoal that have enabled radiocarbon dating to be made. Although people are quick to associate copper mines of this period with Solomon (1 Kings 7: 47), it is more likely that it was the Egyptians, as at Timna, who worked the mines, as an Egyptian amulet of the goddess Mut and a scarab from Tanis in Egypt were found *in situ*.

There was sad news of the death of the Franciscan archaeologist Michele Piccirillo on 26 October at the age of 63. Piccirillo was Professor of Biblical History and Geography at the Studium Biblicum Franciscanum in Jerusalem and an expert on the Byzantine mosaics of Jordan, on which he published at least four major volumes.

REPORT 8 – DECEMBER 2008

A 'new' pyramid has recently been discovered at Saqqara in Egypt. This was announced by the Chief of Egyptian Antiquities, Zehi Hawass, in November. It was found next to the pyramid of Pharaoh Teti (*c.* 2345–2333 BCE) and those of his two wives, which were discovered some years ago, and is thought to be that of his mother, Queen Shesheshet. The find is basically a 5 m high stump that was the base of a pyramid three times as high. It was buried under 25 m of sand and the fact that it was found with pieces of the original white limestone casing alongside suggested that it would have been a royal pyramid. The Queen Mother always played a strong role in the kingdom and Queen Shesheshet is thought to have helped to establish her son as the founder of the 6th Dynasty of Egypt.

Last month, Zachi Zweig of the IAA announced some finds that he had made in digging into the survey records left by R. W. Hamilton of the British Mandate's Palestine Department of Antiquities in the 1930s. After earthquakes in 1927 and 1937, Hamilton had worked with the Waqf Islamic Authority in restoring damage to al Aqsa Mosque on the Temple Mount (Haram es-Sharif). He found a Byzantine mosaic floor and under that a *miqveh* (Jewish ritual bath) from the Second Temple period. The mosaic is similar to one at the Church of the Nativity in Bethlehem and Zweig is of the opinion that it is comes from a public building, even a church, that stood there, though there is no literary record of that. Zweig and Gabriel Barkay have uncovered over the last few years several pieces of white marble chancel screen in the rubble that they have been systematically sifting. The details of the *miqveh* were not published by Hamilton in his official report but were filed in his records for the Palestine Department of Antiquities. Barkay is reported as saying this find, even if not a church but some other public building, completely alters our picture

of the Temple Mount during the Byzantine period, and the presence of a *miqveh* raises further unsolved questions.

In further excavation at the site of the presumed tomb of Herod, on the slopes of Herodion, Ehud Netzer recently announced that he had found remains of two further sarcophagi, that he said would have been buried with the previously announced more lavish pink-stone one, in a two-storey mausoleum 25m high. It is presumed that these additional sarcophagi were for members of Herod's family. Who they were and whether they died a natural death or were murdered cannot be ascertained, as they were found empty and shattered. The continuing excavations have also uncovered a 'small' theatre (seating an audience of about 700) just below and to the west of the mausoleum. The theatre had remarkable wall paintings, with some of the original figures and colours intact, and plaster mouldings dated to about 15–10 BCE (Herod died in 4 BCE). It is not clear if the theatre was part of the original Herodion complex or was partly destroyed to make way for it.

A large excavation by the IAA has been progressing on the Givati car park site opposite the City of David visitors centre in Jerusalem, under the direction of Doron Ben-Ami. There a discovery has been made of an ornate luxurious jewelled earring of gold, set with pearls. The jewel was found within a Byzantine structure but is thought to have been made in the Roman period, several hundred years earlier, and perhaps preserved as a family heirloom. Jewellery from the Roman period is very rare in Jerusalem, thanks to the Roman and later destructions, but the excavators expect to make further discoveries of elite items from the period at this site of a presumed palace. The earring is of a late Roman model found elsewhere in Europe and similar in manufacture to examples known from Egypt.

At Hilazon Tachtit (literally, 'Lower Snail') in western Galilee near Carmiel, Leore Grossman of the Institute of Archaeology of the Hebrew University and her team have uncovered a tomb that they consider to have been that of a Natufian witch, of 12,000 years ago. The tomb contained a large number of strange grave goods, including 50 tortoise shells, the pelvis of a leopard, the wing-tip of a golden eagle, the tail of a cow, two marten skulls, the foreleg of a wild boar and a human foot. The unusual relics point to the grave of a female shaman, who was in touch with the spirits of nature and animals. It is the first time such a burial has been found in this area. The grave was oval-shaped and the body was laid on its side, resting against the wall of the tomb, as the witch was petite and had a decided spinal deformity that would have made her limp. Her age was about 45 years at death. The remains were covered with ten large stones, probably to protect the body from ravaging animals. Another less generous theory is that the community laid the heavy stones on the body to prevent the powerful shaman from ever rising again.

REPORT 9 – JANUARY 2009

Just in time for the Hanukkah holiday (at the end of December last year), when it is traditional for children to receive gifts of 'Hanukkah gelt', a young British volunteer, Nadine Ross of Birmingham, unearthed a cache of 264 gold coins at the

dig on the car-park site opposite the City of David visitors' centre, Jerusalem, which is being directed by Doron Ben-Ami for the IAA. The coins were minted at the time of the Byzantine Emperor Heraclius (610–641 CE) and are in good condition. It looks as if the coins were hidden in a chink in one of the walls at the time of the Muslim conquest of Jerusalem; the owner obviously hoped to recover them at a later date.

Another case of a coin find by a young volunteer was made in the debris from the Waqf underground work on the Temple Mount. In the sifting of this material, which is being directed by Gaby Barkay, two coins were recovered recently (out of over 3,000 found to date). One is a half-shekel, minted in Jerusalem at the time of the Great Revolt (66–70 CE), which depicts a branch of three pomegranates and the inscription 'Sacred Jerusalem'. This is a relatively common coin; the second one, however, is much rarer. It is a Seleucid one depicting Antiochus IV Epiphanes (175–163 BCE) who looted the Temple and aroused the enmity of the Maccabees.

In Egypt, two more tombs have been found in the necropolis of Saqqara, 12 miles south of Cairo. The tombs are rock cut and date to about 2300 BCE, the time of the 6th Dynasty, and housed the remains of two senior officials, a man and a woman, according to the excavator Saleh Suleiman. The tombs are to the southwest of the known burial plots and indicate that the cemetery was much larger than previously thought.

In mid-December UNESCO and the Egyptian Government announced that the world's first underwater archaeological museum was being planned at the Bay of Alexandria, which contains many underwater remains of the Roman period and earlier. The museum will be built half underwater and half above water, presenting plenty of challenges to the designers and much that will be of interest and novelty to future visitors.

In what has become an urgent debate, the new underground facilities of the Barzilai Hospital in Ashkelon have been held up for many months due to the presence of graves and skeletons of the Byzantine period. Work on the facility, to provide an underground emergency room and operating theatre, started a year ago, but was halted when the preliminary excavations revealed the presence of human bones. The hospital, which has catered for Israeli and Palestinian wounded, needs the facility urgently. Hopefully work can now proceed as the Ashkenazi Chief Rabbi, Metzger, has pronounced that the graves can be moved if the excavation is done with the necessary reverence.

Finally, the newspaper *Ha'aretz* has just illustrated two remarkable finds made by Ronnie Reich and Eli Shukron in the debris fill of the hewn cistern by the Gihon Spring in Jerusalem. One is of a tiny (2 cm high) red ivory pomegranate figure surmounted by a sitting dove, the other a clay bulla (seal impression) of a ship being navigated by sailors using three oars. These finds were made together with dozens of fish bones and more than 170 bullae, all from the hewn cistern, and dating to the 9th century BCE, which shows, according to Reich and Shukron, that the City of David was then an important administrative centre.

REPORT 10 – FEBRUARY 2009

The large, former car-park site in Jerusalem opposite the City of David visitors' centre continues to yield interesting finds. The latest is a small red marble figurine of a male head and neck, only 5 cm high, that may have been a weight used by a merchant. It has a flat base and is not broken off from a larger statue. It is of a man with a curly beard and little, if no, hair, and a broken nose, and is thought to be of an athlete or boxer. It was found at the IAA dig directed by Doron Ben-Ami and dates from the Roman period, about 200 CE. The IAA claims nothing similar has yet been found in Israel.

Two years ago the Israel Museum exhibited a large stone inscription, on loan from the Steinhardt family of New York, called the Heliodorus Stele. It was a Greek text announcing that the king Seleucus IV (son of Antiochus III) had appointed his minister, Heliodorus, to oversee the temples of his empire, and it seemed to confirm the story in 2 Maccabees 3 of Chief Minister Heliodorus being instructed by the Emperor to go and rob the Jerusalem Temple of its treasures. In this story, he was not successful, being attacked by a divine golden figure on a golden horse and the High Priest, Honia (Onias) had to pray for his recovery. Such details are not indicated on the stele, but it does look as if this Heliodorus was the same man. The stele was deciphered by Hannah Cotton-Paltiel and Michael Woerrle and dated to 178 BCE.

One problem is that the stele was damaged and the lower section is missing. Also, having been acquired on the market, the provenance was suspect. Now, three missing sections of the stele have been found in a dig at Maresha, in the national park of Bet Guvrin. The IAA have announced that, in a dig supervised by Ian Stern of the IAA and Barny Alpert, three broken fragments were found in an underground storage vessel. Dov Gera (a specialist in the Hellenistic period) saw that they looked like the base of the Steinhardt piece and, indeed, they fitted it perfectly, though one further piece of the base is still missing. The new pieces have not yet been deciphered but they clearly continue the edict of Seleucus IV appointing Heliodorus, who, in his turn, appointed further officials to carry out the necessary inspections. The stele is written in truly diplomatic language, implying that it was in the locals' interest to have their temples inspected, whereas – if 2 Maccabees is to be believed - the purpose was to provide the King with the necessary plunder and cash to keep the empire going.

The fact that three missing pieces were found in the 'Dig for a Day' project indicates the authenticity of the stele and shows that this edict was erected in the Hellenistic city of Maresha. Presumably further copies were erected at other centres to indicate that the inspections being carried out by Heliodorus and his men were carried out on the orders of the King himself.

REPORT 11 – MARCH 2009

At the end of February the IAA announced spectacular finds at Umm Tuba, southeast of Jerusalem, in a rescue dig directed by Zubair Adawi. Two seal

impressions in palaeo-Hebrew were found with the names of two senior officials, possibly of the government of Hezekiah (726–696 BCE). One of the seals was stamped on a wine-jar handle next to a '*lemelekh*' stamp, indicating that this official was approving the contents of the jar as to purpose, content or tax compliance. The seal names were Aḥimelekh ben Amadyahu and Yehoḥail ben Shaḥar. In addition an inscribed pottery fragment of the Hellenistic (Maccabean) period of the 2nd century BCE was also uncovered. The lettering looks like the first ten letters of the alphabet as written by an apprentice scribe.

These finds were made within a large building of the First and Second Temple period, a building of many rooms around a courtyard containing a pottery kiln of the Iron Age. It was partly destroyed by the Babylonians and then reused in the Hellenistic period until it was ruined again by the Romans, when Jerusalem was sacked in 70 CE. However, it was re-used again in Byzantine times, probably by pilgrims travelling between Jerusalem and Bethlehem. It may be that the building was originally a kind of government storage depot, or local distribution centre. Three years ago fragments of a monastery building found by the site carried the name 'Metupha', which relates to the present Arabic town name of Umm Tuba or Tupha, which is also related to the Biblical place name of Netupha, the recorded birthplace of two of King David's warriors ('Hanetuphati', 2 Sam. 23:28–29).

The Moshav of Ness-Harim, 20 km west of Jerusalem, near to Bet Shemesh, had to allow the IAA to excavate their site at Horvat a-Diri, surrounded by oaks and terraces, before they could extend their buildings onto it. The rescue dig, directed by Daniel Ein-Mor, uncovered the beautiful mosaic floor of a Byzantine period church with a sacred inscription in early Greek, which was deciphered by Leah de Signi of the Hebrew University, to read,

> '*Holy Lord of St Theodorus, guard over the noble Antonius and Theodosia, and Theophylactus and the priest Johannes, remember the donors Maria and Johannes, in the sixth year of indiktus (?), have mercy on Stephanos*'

The first season in November 2008 uncovered the narthex of the church, which seemed to be the centre of a larger complex extending over nearly 4 acres. It included an impressive winepress, with two tiers of presses and vats, indicating the production of wine that was typical of a church complex of the 6th and 7th centuries CE. This building was clearly one of a string of similar Byzantine churches found at Emmaus, Bet-Guvrin and Jerusalem. It appears that the building was re-used for some kind of industrial purpose in the later Islamic period.

A most unusual find was made in a rescue dig directed by Rina Avner for the IAA in the Old City of Jerusalem. It was a broken piece of a blue-coloured jar of the medieval period, 12th or 13th century CE. The design was in a naturalistic Turkish style and hailed from Iran with an inscription in Persian painted in black on the neck of the jar. It was identified by Rivka Cohen-Amir as part of a love poem or quatrain by Amar-Ḥiyam, one of the most famous of the Persian poets of the 11th and 12th centuries, who was also an astronomer and mathematician. The text was

translated by Julia Rabinowicz of the Hebrew University, to read, '*..(his) hand was on the neck of his beloved...*' This is a unique find in Jerusalem.

REPORT 12 – APRIL 2009

The Ancient Canaanite gate at Tel Dan has been extensively restored by the National Parks Authority of Israel. It was reopened to the public at the end of March and presented as 'Abraham's Gate', a name that was chosen against the advice of the archaeologists.

The 7 m high gate was first uncovered in 1979 as part of the excavations at Tel Dan directed by the late Avraham Biran, so in that sense it is Avraham's Gate, but the publicists are trying to link it to the Biblical patriarch, who rode as far as Dan to rescue his nephew Lot (Gen. 14: 14). Be that as it may, the gate consists of a triple mudbrick arch, the earliest known arch in Israel, and is dated to about 1750 BCE, though some claim that the parabolic entry arch at Ashkelon, also of mudbrick, may be earlier.

The view of the gate and the steps leading up to it is most impressive and the whole complex is covered by a huge, fan-shaped structure of steel and transparent sheeting, very necessary to give protection from the weather, but which rather overshadows the object it has been built to protect.

Preceding work on the new railway line from Ashkelon to Netivot, in southern Israel, a massive (20 x 20 m) Byzantine bath-house was uncovered in a rescue dig by the IAA, directed by Gregory Serai, at Kibbutz Gevim, near to Sderot. The bathing complex consisted of six rooms, including a *frigidarium* and *caldarium*, with changing rooms, heated by an underground hypocaust system on the Roman model. It served an ancient village on the road from Beersheba to Gaza, which was a busy trade route in the Roman and Byzantine period. It seems that the bath-house suffered from subsidence, fell out of use and became an easy target for stone robbers. The excavation started in January and is still ongoing.

The 'Jesus Ossuary Forgery Trial', which started in the Jerusalem District Court in September 2005, has recommenced after a recess of several months. The IAA and police case has been presented and is now being refuted by the chief defendants, Robert Deutsch and Oded Golan, against charges of forging, among other items, the inscriptions on the James (the brother of Jesus) Ossuary and the Jehoash Tablet. The prosecution has alleged that some of the forgeries were perpetrated by an expert Egyptian craftsman, but he has refused to come to Israel to attend the court and the prosecution are having difficulty proving their case to the judge.

REPORT 13 – MAY 2009

The excavators of Beth Shemesh (25 km west of Jerusalem) claim that the Canaanite city may have been ruled by a female monarch and that they may have found a depiction of her. Some of the El-Amarna letters of the 14th century BCE speak of a 'Mistress of the Lionesses' appealing to Egypt for help against bandits and

invaders. The title implies a female ruler but neither her name nor that of the city is mentioned in the tablets. Nadav Na'aman, of Tel Aviv University, thinks the city in question is Beth Shemesh and the excavators, Shlomo Bunomovitz and Zvi Lederman, have uncovered a ceramic plaque that they think might represent the ruler. It shows an Egyptian-type figure, purportedly male, but with both arms bent and holding lotus plants, which are considered to be female characteristics. The headdress and skirt appear to be female but some scholars consider them to be applicable to male as well as female figures. If this is really a female figure, then Bunomovitz and Lederman may have found a representation of the 'Mistress of the Lionesses' and they will be looking for more clues in the coming season.

The Speaker of the Knesset, Rueven Rivlin, has recently opened an archaeological garden adjoining the Parliament building in Jerusalem. It bears the name, 'Tranquillity within thy Palaces' (Psalms 122:7), and shows original artefacts from the Second Temple period to Ottoman times, mainly from Jerusalem sites. It includes an olive press, mosaics and ancient inscriptions. It was organised by the IAA and is open to the public.

On a less happy note, the police have recently arrested two Palestinians who were trying to sell a papyrus document that is nearly 2,000 years old. It is (surprisingly) written in Palaeo-Hebrew script and dated to the fourth year of the 'Destruction of Israel' which implies the year 74 CE, four years after the destruction of Jerusalem by the Romans, or it could be 139 CE, four years after the end of the Bar Kokhba war. The document was a roll with 15 lines of text, some of it missing, and relates to a widow, 'Miriam barat Ya'akov' and the possessions that she is transferring to her late husband's brother, according to Amir Ganor of the IAA anti-theft department. It is an important, unpublished social document and it is not yet clear where it was originally found.

During the construction of a girls' school in Ras al-Amud, East Jerusalem, a jar handle with the name Menahem, was found at a rescue dig directed by Ron Beeri of the IAA, who said that this is the first time that this name has been found on a handle in Jerusalem, although the name is common on seals found in Israel and elsewhere. The script is in clear Palaeo-Hebrew of the 8th century BCE, the time of king Menahem ben Gadi (749–738 BCE) one of the last rulers of the Northern Kingdom of Israel.

Finally, another ancient synagogue is being excavated in the Galilee, home to dozens of synagogues of the Roman and Byzantine periods. This one is at Wadi Hammam, a Jewish village near Migdal, a few km northwest of Tiberias. The excavations are now in their third season and are directed by Uzi Leibner of the Hebrew University, Jerusalem.

The synagogue is in three phases and went out of use in the later 4th century CE, as dated by coins found within the structure. The middle phase, of the early 4th century, had a mosaic and an inscription that were plastered over in the last phase. The first phase has not yet been uncovered.

The synagogue plan resembles the standard configuration with a central hall or nave separated by columns from two side aisles, with an ark niche in the south wall

facing Jerusalem and a store room on the west side. Entry was from the north, though it is not yet clear whether there was one doorway or the more normal three. The stonework is in white limestone as well as the standard black basalt. The synagogue was an integral part of the village, with houses and an olivepress adjacent to it. Further excavations are in progress.

REPORT 14 – JUNE 2009

On the road from Jerusalem to Jericho stands the site of the traditional Inn of the Good Samaritan relating to a parable which Jesus told, in which a Samaritan helped a robbed and wounded Judaean wayfarer from Jerusalem to Jericho and took him to an inn (Luke 10: 29–37). After extensive archaeological work, uncovering remains from the Second Temple period, a new indoor and outdoor museum has been opened on the site in a building that was a guard house in the Ottoman period. The museum houses a wonderful collection of mosaics from Jewish and Samaritan synagogues and early churches from the West Bank and Gaza. The inspiration for the mix of exhibits comes from the parable of the Samaritan. The museum is open free of charge every day except Saturday.

On the subject of mosaics, 13 years ago a large and colourful mosaic was discovered in Lod, 25 km west of Jerusalem. It was one of the finest early Byzantine mosaics in the country, showing a mass of land and sea animals, and had been left covered up to protect it. It is now being reopened and will be exhibited by IAA in the new Lod Museum Archaeological Centre, thanks to funds donated by the Leon Levy and Shelby White Foundation.

At the ancient cemetery of Sepphoris, in the Galilee, a recent find has been a tomb lintel with the inscription in Aramaic, 'This is the tomb of Rabbi Tanhuma and Rabbi Shimeon the Priest, Huna, Shalom'. It dates to the 3rd or 4th century CE according to Mordechai Aviam of Kinneret College in the Galilee.

The Sultan's Pool in Jerusalem is now a venue for outdoor pop concerts but originally was one of the main water reservoirs for the city. Part of the lower aqueduct supplying it has recently been found in a rescue dig directed by Ron Beeri for the IAA, before the building of a new Montefiore Museum at the site. The section uncovered is from the Ottoman period. It is 3 m high and incorporates a small tower and ceramic pipework that fed into the pool and also into a fountain for use by pilgrims. The remains will be incorporated into the museum.

Adam Zertal had uncovered several outdoor ritual enclosures in the course of his extensive (in time and place) survey of the tribal area of Manasseh. He has now disclosed that he has discovered the largest known underground cave in the region, some 4 km north of Jericho. It extends over 4 acres and lies 10 m below the desert surface. It was used as a vast quarry in the Roman period and, after that, possibly as a Byzantine monastery and a hiding place for many years. The roof is supported by 20 integral pillars on which are many carvings, including crosses and a wheel-like diagram that Zertal thinks may have been a representation of the 12-month zodiac.

The northern city of Tiberias on the Sea of Galilee is now becoming of great interest to archaeologists. The city dates to the early Roman period when it was built by Herod Antipas and named as a tribute to the Emperor Tiberius. Extensive excavations south of the present town have revealed the southern gate, the market place and a whole urban complex and harbour of great sophistication. Much of the exploratory work was directed by the late Yizhar Hirschfeld of the Hebrew University, who died recently at the early age of 56 and did not live to see the completion of his work.

At present under excavation is a large theatre that may have seated 5,000–7,000 spectators. It is by the hillside but built at right angles to it, so as to avoid the spectators having the sun in their eyes. The fine stonework of the proscenium and stage have been uncovered and work is continuing on the auditorium, under the direction of Walid Atrash of the IAA, who estimates that it will be at least another year before the whole theatre is uncovered. When that is complete, the town will be as interesting to visit as Bet Shean is today.

REPORT 15 – JULY 2009

Another stone quarry used for the Temple Mount works by Herod the Great has been uncovered in an inner suburb of Jerusalem recently. This is the third quarry of that period uncovered in recent months. It is situated in Shmuel Hanavi street and was excavated by the IAA in a rescue dig directed by Ofer Sion, before the building of residential flats on the 1/4-acre site. The size and colour of the remaining white limestone blocks indicate that they were being prepared for the massive retaining walls built by Herod's engineers to support the Temple platform. The excavation revealed datable coins and shaped metal plates that were used to wrench the blocks from their base. The site lies approx 2 km from the Temple Mount, but the multi-tonne blocks still had to be transported over hills, which is a problem that has not yet been completely understood by the experts.

The Israel Defence Forces often run across and over ancient remains during their exercises in desert, and deserted, areas. At a recent joint conference held with the IAA, the army has now agreed to co-operate with the IAA, who prepare site maps of the areas the army are going to train over and make them aware of any possible antiquities they may encounter. The army for their part have agreed to notify the IAA immediately they come across remains that may be of archaeological interest. The IAA has started to initiate training courses to make the soldiers aware of possible antiquities and is training them to be on the lookout for sites of possible interest to the archaeologists. These joint efforts are particularly important in the Negev, where the majority of archaeological sites remain uncovered, and where the army have their primary training grounds.

Ashdod has started to expand its Corinne Maman Archaeological Museum to be perhaps the foremost museum of the Philistines in the world, with an associated research centre, interactive display of statues and burial remains, and an 'Ashdod Album' of the city's history.

Shimon Gibson is joint director at the Mount Zion Gate excavations which have been running for several weeks this month, which have turned up remains from the First Temple period to the Islamic era. They have recently uncovered a rare ten-line inscription, probably in Aramaic, on a stone cup, of the type used by priests and others in the first century CE to avoid ritual impurity contamination. The script is clear but is cryptic and will take specialists some weeks to decipher.

Stephen Rosenberg,
The W. F. Albright Institute, Jerusalem

Notes for Contributors

Strata requires all articles to be presented in line with the typographical conventions of the publication, which follows the basic form of the Harvard reference system. Within the text, references are made in brackets in the form of the author and date of publication, followed by page numbers, e.g. (Aharoni 1979: 44–52). The full reference is to be given in the bibliography at the end of the article, with the following forms:

Book:
Aharoni, Y., (1979). *The Land of the Bible, A Historical Geography* (London).
Article:
Naveh, J., (1989). 'The Aramaic and Hebrew Inscriptions from Ancient Synagogues', *Eretz-Israel* 20: 302–310 (Hebrew).
Chapter in book:
Gibson, S., (2001). 'Agricultural Terraces and Settlement Expansion in the Highlands of Early Iron Age Palestine: Is There a Correlation Between the Two?' Pp. 113–146 in A. Mazar (ed.), *Studies in the Archaeology of the Iron Age in Israel and Jordan* (Sheffield).

An article should be submitted in British English spelling, not American.

The article can be divided between headings and sub-headings, with no capitalization. The headings are in bold while the sub-headings are in italics. There is a space between the heading and the text.

Please note additionally:
- there are end-notes rather than foot-notes.
- please do not format your work with indentations, hanging paragraphs and so on, but type it up without justified margins, one and a half spaced, in Times New Roman font.
- transliterate Hebrew, Greek or Arabic and other languages into English letters unless it is essential to have the original characters (e.g. in an inscription).
- Greek, Latin, Aramaic, Hebrew or Arabic terms are to be italicized: *in situ, tesserae, miqveh.*
- if original foreign lettering is used please employ the Times New Roman unicode font.
- BCE and CE, not BC and AD.
- artefacts, not artifacts.
- Roman period, Byzantine period with a lower-case 'p'.
- abbreviations to be followed by full stops: St. Dr.
- figure numbers to be preceded by full stop and space: Fig. 5.
- single quotes to be used: 'Gaza School'.
- extensive quotes: these should be set as a separate paragraph without quote marks and not indented at 1 pt lower font size than main body text.
- Biblical quotes: use fuller form of abbreviation, e.g. Isa. 11: 2–3; Mark 5: 5.

- Dates: e.g. 1990–96; 15 June 2007 (no commas).
- use numerals for centuries, e.g. 'the 12th century'.
- measurements: largest digit first with space after number: 90 x 20 cm.
- measures are metric: m, cm, mm without full-stops.
- numbers at the beginning of a sentence should be written out in full, e.g. Twenty men went off to war not: 20 men went off to war.
- do not hyphenate 'southwest', 'northeast' etc.
- please follow Loeb editions in citations of Josephus.

Articles not adhering to the conventions of *Strata* will be returned for the author to make necessary revisions.

Authors will receive a PDF file of the article in proof form ahead of publication to make final corrections and it is the responsibility of the authors at this stage to ensure that there are no errors.

Please note that it is the responsibility of authors to obtain copyright permission for all illustrations and no responsibility is taken by *Strata* for any copyright infringements.

CONTENTS

Typeset, printed and bound by 4word Ltd, Bristol