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On the cover: an 18th-century map of
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Editorial

The floruit of settlement in the Negev Desert was in the Byzantine period: large villages were established there, bisected by streets and alleys, with churches, public buildings, and numerous dwellings; a few agricultural installations are also known including wine presses and dovecotes. Around the villages were farmsteads and terraced field systems in the wadis. The best known villages are those that at Mamshit (Mampsis), Avdat (Oboda), Shivta (Sobota), Nizzana (Nessana), Metsad Yeruham and Rehoboth-in-the-Negev (Ruheibe). Many of these settlements continued to exist in the Umayyad period, as archaeological finds, notably the well-known Nessana archive of documents, have shown. Professor Yizhar Hirschfeld of the Institute of Archaeology at the Hebrew University, first undertook a major survey at the site of Shivta, and this was followed by another survey in 2002 at the lesser-known site of Horvat Sa'adon, which had previously been investigated in the 1980s by Professors Rehav (Buni) Rubin and Yosef Shereshevsky. The final results of Hirschfeld's survey at Horvat Sa'adon are included within the first research article of this *Bulletin*.

Five other research articles are included in this issue dealing with a variety of different subjects: rock-hewn channels near Tel Hazor which may perhaps be of Middle Bronze Age date (by Yosef Stepansky); the explorer Fritz Frank and his cucumber-growing activities at Ein Gedi (Dr Gideon Hadas); the *Tobyah* inscriptions at Airaq al-Amir in Jordan (Dr Stephen Rosenberg); the character of agrarian landscapes in central Samaria during the Byzantine period (Dr Ofer Sion); and coins produced during Sabbatical years in Second Temple times and a possible city coin of Gamla (Dr Stephen Pfann).

This *Bulletin* concludes with reviews of two excellent books: the first, on ancient shipwrecks written by AIAS Committee member Dr Sean Kingsley; the second, by K.A. Kitchen on the reliability of the Old Testament, reviewed by AIAS Chairman Professor Hugh Williamson. These are followed with six lecture summaries, and four grant reports.

The Editor and Committee gratefully acknowledge the very kind donations towards the publication of the *Bulletin*, made by: The Morris Charitable Trust, Mr and Mrs R. Grutz, The Polonsky Foundation, Mr Joe and Linda (who supported our lecture series in Manchester), and the Sidney & Elizabeth Carob Charitable Trust. My sincere thanks to Ashley Jones, Reviews Editor, Claudine Dauphin, Editorial Advisory Board member, and Mark Merrony UK Editor, for copy-editing this issue and seeing it through to publication.

Shimon Gibson

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Settlement of the Negev in the Byzantine Period in Light of the Survey at Horvat Sa'adon

YIZHAR HIRSCHFELD

Introduction

Archaeological research in recent years indicates that a significant enlargement of the inhabited area in the Negev took place in the Byzantine period (fourth-sixth centuries CE). This included settlement in remote areas which had previously been uninhabited. The clearest expressions of this are the remains of villages and farmsteads from the Byzantine period, which were discovered in the expanses of the Negev. In each of the 13 survey maps of the Negev which have been published to date, a notable numerical increase of Byzantine sites in relation to the quantity of sites from earlier periods became evident.[1] More accurate data from excavations conducted in the large Negev settlements, such as Avdat, Mamshit and Rehovot, also indicate that the Byzantine period witnessed the greatest floruit of settlement in the history of the area.[2]

Byzantine settlement in the Negev is notable for its varied social structure. The large city was Haluza (Elusa) which was a *polis* in the full sense of the word.[3] Next to it there existed in the Negev the following six towns or, using the term of the fourth-century church father Eusebius, 'large villages': Mamshit (*Mampsis*), Avdat (*Eboda*), Shivta (*Sobota*), Nizana (*Nassana*), Metzad Yeruham, and Rehovot (Fig. 1).[4] Each of these towns extended over a considerable area ranging from 80 to 110 dunams (8–11 hectares) and the number of their inhabitants was between 1800 and 2200. Particularly impressive is the site of Shivta because of the good preservation of its remains.[5] In a survey which I conducted at Shivta, we were able to identify 170 dwelling units in addition to three churches, two squares, and a system of streets and alleys. Discovered on the periphery of that site were three winepresses, an oil press, well-developed irrigation systems, columbarium towers (dovecotes) for the production of pigeon droppings, and many sheep pens, indicating that sheep raising was one of the important sources of income in the Negev during the Byzantine period.[6] It is demonstrated below that installations similar to those of Shivta were also found at Sa'adon.

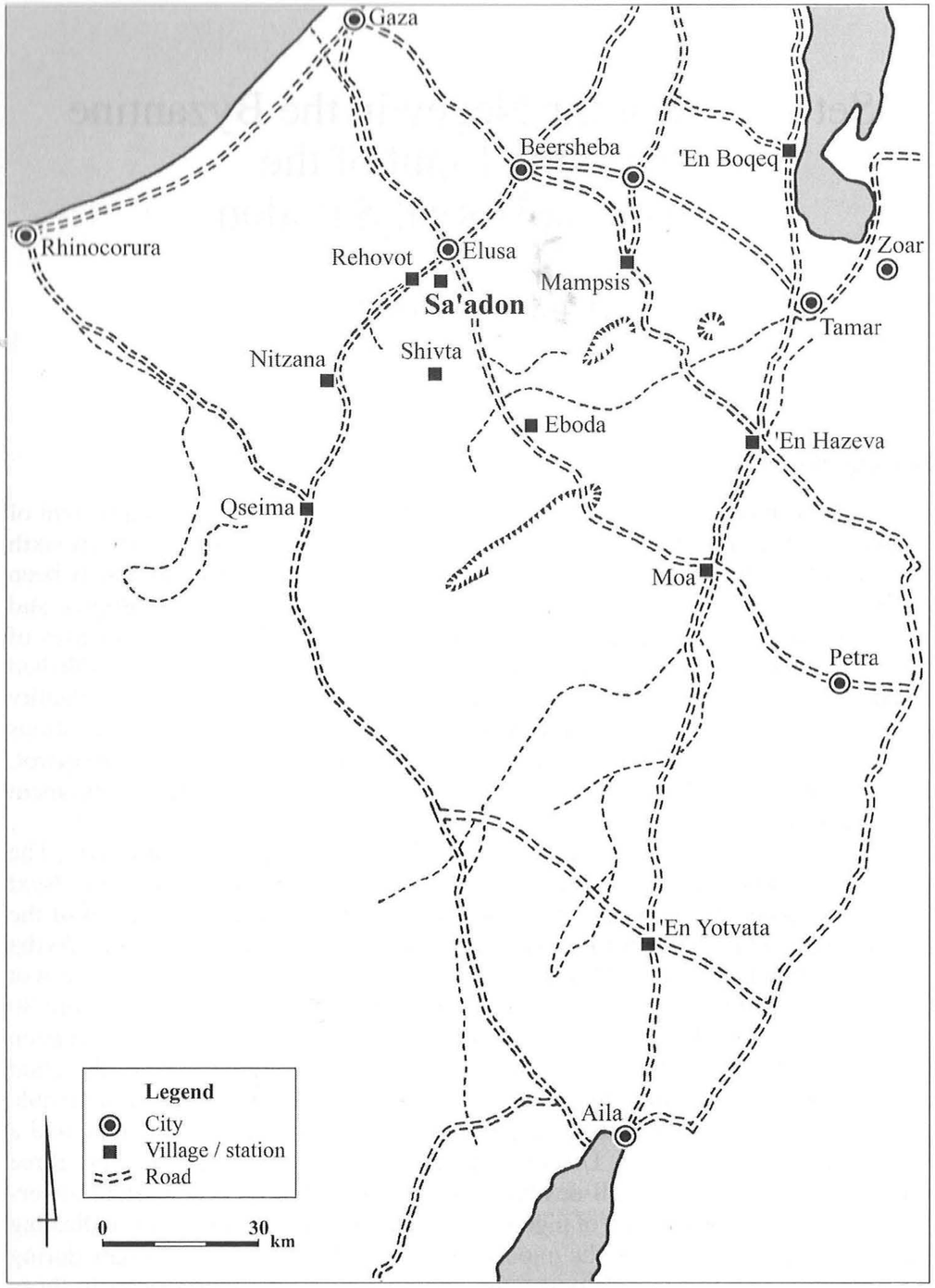


Fig. 1. Map of the roads and sites in the Negev during the Roman-Byzantine period.

During the Byzantine period ordinary villages of the Sa'adon type developed alongside the towns. The area of these villages was smaller (10–25 dunams) and in each of them lived a few hundred people. Hundreds and perhaps thousands of the small and large farmsteads were built next to these villages in the Negev during the course of the Byzantine period.

The farmsteads are usually located in the vicinity of stream beds in which developed the agriculture of desert areas characteristic of the Negev. The farmsteads are to be found in the northern and central Negev, including the Negev Hills up to Makhtesh Ramon.[7]

Seasonal settlements of the local Beduin semi-nomadic population developed next to the villages and farmsteads in the Negev during the Byzantine period.[8] At that time there were positive relations between the sedentary farmers and the nomads. The Bedouin played an important role in the local economy. They supplied the manpower necessary for preparing the soil and processing the agricultural produce, and conveyed by camel the Negev's export products, mainly wine. Indeed, camels bearing wine jars are depicted on various mosaic floors of the Byzantine period.[9]

What Caused the Flourishing of Negev Settlement in the Byzantine Period?

One can list four factors, the *combination* of which brought about the unprecedented flourishing of settlement in the Negev in the Byzantine period.

Security

The tranquillity along the borders and safety on the roads imposed by the emperors of the Illyrian dynasty, Aurelian and Diocletian, at the end of the third century, and by Constantine the Great in the fourth century, was the most important factor which made possible the flourishing of desert areas in the period under consideration.[10] The deployment of the army along the borders of the empire and the erection of hundreds of fortresses (like those of Nizana and Avdat) which were actively manned by thousands of limes soldiers ensured the security conditions which were vital for economic growth.

Christianity

In the fourth century Christianity became established as a central religion in the Negev, churches were built in each settlement, monasteries were founded, and pilgrimage routes were developed. The Constantinian construction in the Land of Israel and its transformation from an ordinary province into the 'Holy Land' to which thronged multitudes of pilgrims was one of the reasons for the economic prosperity during the Byzantine period in general, and in the Negev in particular.[11]

Climate

Studies in the field of palaeo-climatology carried out over the past few years in Israel (such as in the area of the Dead Sea) indicate that the beginning of the Byzantine period (around 300 CE) was a time of greater humidity with an increase in precipitation.[12] In a recently published paper, I enumerated the archaeological evidence from the Dead Sea area and other parts of the country indicating a positive climatic change which occurred around 300 CE.[13] Even if the increase in the amount of precipitation was not as large as claimed by R. Rubin, it was sufficient to cause a significant southward shift of the drought line and make possible the raising of crops in the Negev in places that had previously served only as pastures.[14] The growth of villages such as Sa'adon in the fourth century is in itself proof that there was a positive climatic change – more rainfall and less drought, in the desert areas of the Roman Empire.

Roman Law

Another factor which greatly encouraged settlement in uncultivated areas in general, and in the desert areas in particular, was connected with the land laws promulgated in the days of the fourth-century emperors. These laws, known as *agri deserti*, granted to anyone with initiative throughout the empire the right to be the legal owner of uncultivated crown land (*partimonium*) in return for making the soil fertile.[15] They brought to a peak the process of privatization of land, which characterised the end of antiquity, and they were intended to encourage large-scale private investments.

The combination of these four factors – improved security conditions, the spread of Christianity, the change in climate, and the passing of the laws of *agri deserti* – is in my opinion, what brought about the unprecedented demographic expansion of the Negev in the Byzantine period. At that time, this phenomenon also characterised other desert regions of the empire. In the border areas of the desert in the provinces of North Africa, Cyrenaica (Libya), Africa Consularis (Tunisia) and Tripolitania (Algeria), were found manifestations of settlement very similar to those in the Negev during the Byzantine period.[16] Field studies conducted in the Negev have shown that intensive rural settlement in the area continued uninterrupted for almost 300 years, up to the time of the Muslim conquest. In the seventh century the security situation deteriorated and this was accompanied by a significant worsening of climatic conditions.[17] The Muslim conquest not only marks the end of the Byzantine period but also that of settlement in the Negev. As demonstrated below, Horvat Sa'adon accurately reflects the flourishing of the Negev during the Byzantine period and its rapid decline at the start of the Muslim period.

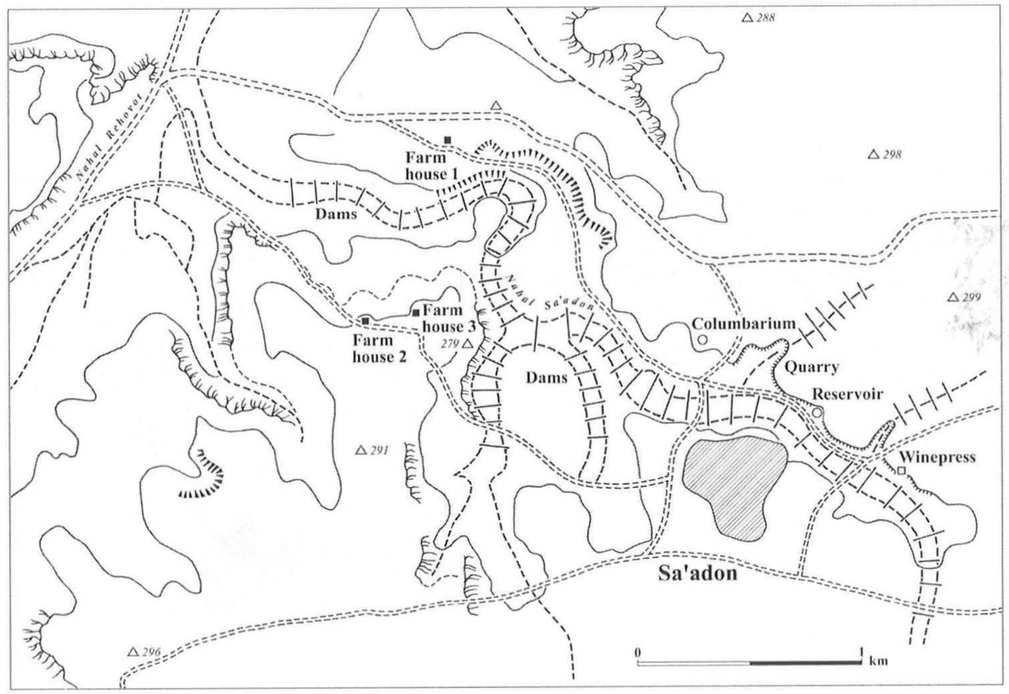


Fig. 2. Map showing the location of Sa'adon and its surroundings

Sa'adon: the General Picture

Horvat Sa'adon is in the northern Negev, *c.* 30 km to the south-west of Be'er Sheva and *c.* 9 km to the south-west of Haluza (ref. 11250188). A dirt track in reasonable condition leads to Sa'adon from the west (Fig. 2). This track branches off from the ancient road that descended from Be'er Sheva, via Haluza and Rehovot, to Nizana and from there to Eilat and southern Sinai.[18] During the Byzantine period this was an important pilgrims' route along which thousands made their way from Jerusalem to Mount Sinai. In Arabic the site is called Khirbet as-Sa'adi. This is an ancient name which is mentioned in its Greek form Σουδανον in the Nizana Papyri from the sixth-seventh century CE.[19]

The site of Sa'adon is quite remote and therefore its masonry was not pillaged over the years. As a result, the contour line of the remains stands out very clearly against the background of the desert landscape (Fig. 3). The site is located on the south bank of Nahal Sa'adon (Wadi es-Sa'adi), at an elevation of 280m above sea level. (All elevations hereafter are above sea level.) The stream flows west to Nahal Rehovot. The area is characterised by loess soil and sand together with soft chalky rock. This combination is suitable for the development of stream-bed agriculture characteristic of the Negev.[20] Layers of hard limestone, 1–2m thick, are exposed on the slopes on either side of the stream. These layers served the inhabitants of the

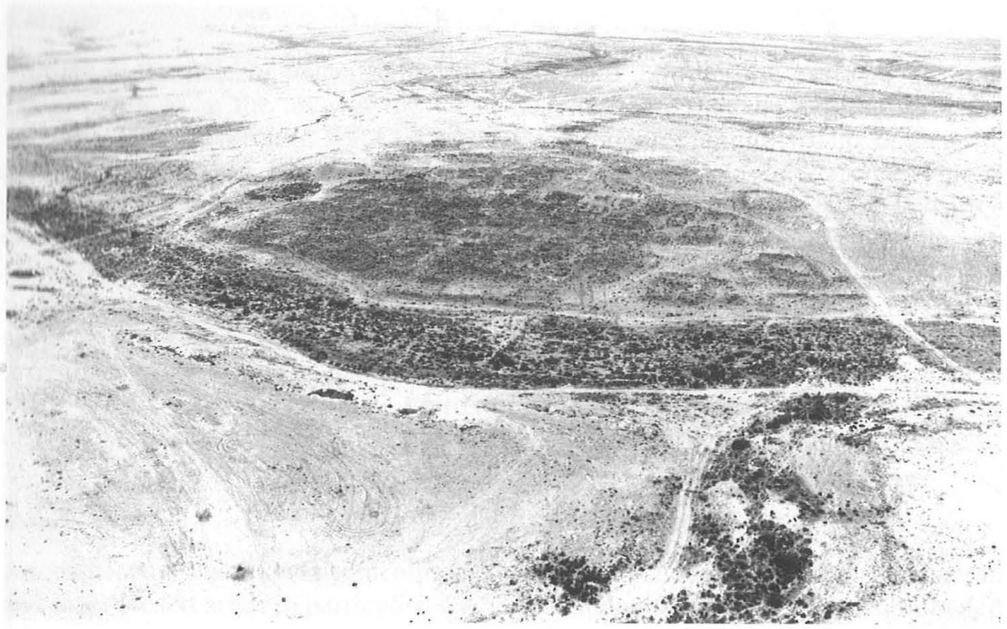


Fig. 3. Aerial photograph of Nahal Sa'adon, view to the south. Horvat Sa'adon is located on the south bank of the stream

site as a quarry for the production of hard building stones. The stratum of hard rock also served as a ceiling for water cisterns and reservoirs hewn below it. The abundantly available soft limestone was used by the builders for cutting light masonry and for the production of lime which was important for both building purposes and agriculture.[21]

Sa'adon is the only large site where no excavations have been conducted. At the end of the 19th century and the beginning of the 20th century, a number of scholars reached Sa'adon, including Palmer in 1870, Musil in 1902, Kuhtreiber in 1912, Woolley and Lawrence in 1912, and Weigand in 1916.[22] Their brief descriptions are of some importance since they sometimes mention remains, some of which did not survive. The main study of Sa'adon was carried out by Rehav Rubin and Yosef Shereshevsky in the mid-1980s.[23] They provide a reasonably detailed description of the remains with a plan of the site's area. The plan is based on an aerial photograph and therefore is not very accurate. The survey of Rubin and Shereshevsky included the collection of potsherds and coins, and on the basis of its results, it was determined that Horvat Sa'adon is a settlement from the Byzantine period.

In 2002 the author carried out a comprehensive survey at Sa'adon and its vicinity. The results confirmed the conclusion reached by the previous surveyors.[24] During the survey we discovered five ancient coins, all of which were identified as those from the Late Roman and Byzantine periods (fourth-sixth century CE). Two of the coins were identifiable – one from the fourth century and the other bearing the

Figs 4a–c. Three coins from Sa'adon: the left coin is from the fourth century; the middle coin from the beginning of the fifth century; the Ottoman coin-pendant

inscription *Gloria Romanum* – and the remaining three are those of emperors from the beginning of the fifth century, from 403–408 CE (Figs 4a–b).[25] Also found was an Ottoman coin that served as a pendant or part of a piece of jewellery (according to the perforation near its rim; Fig. 4c).

Apart from black potsherds of the type known as Gaza Ware from the end of the 19th century and beginning of the 20th century (no. 16), all the diagnostic pottery is from the Byzantine period.[26] The ceramic finds consist of local pottery vessels, mainly pots, cooking pots, and the lid of a cooking pot (Fig. 6; nos 3–7), and jars (nos 8–15).

Prominent among these is a large group of black Gaza Ware, which were produced in the western Negev and the southern coastal plain (nos 19–22).[27] These jars were used for wine in the Byzantine period. In addition to the local pottery vessels at Sa'adon, we collected sherds of imported pottery vessels, such as red-slipped bowls (nos 1–2) and red-slipped jugs (no. 17). Also found were sherds of slipper lamps (nos 23–24), the most widespread type in the country during the Byzantine period.[28]

These finds prove beyond doubt that Sa'adon was a Byzantine settlement. From the absence of Nabatean pottery vessels on the one hand, and of Umayyad ceramics on the other hand, we learn that the site did not exist prior to the fourth century, and was abandoned during the seventh century. These finds fall in line with those of the archaeological excavations at nearby sites. In Yoram Tsafrir's excavations at Rehovot, close to Sa'adon, it became clear that this settlement was abandoned during the seventh century. A similar picture also emerges from my excavations at 'Ein-Gedi and those of David Amit in the southern Hebron Hills.[29] The rapid end of the settlements in the southern part of the Land of Israel was probably also connected with the negative climatic change that occurred in the seventh century

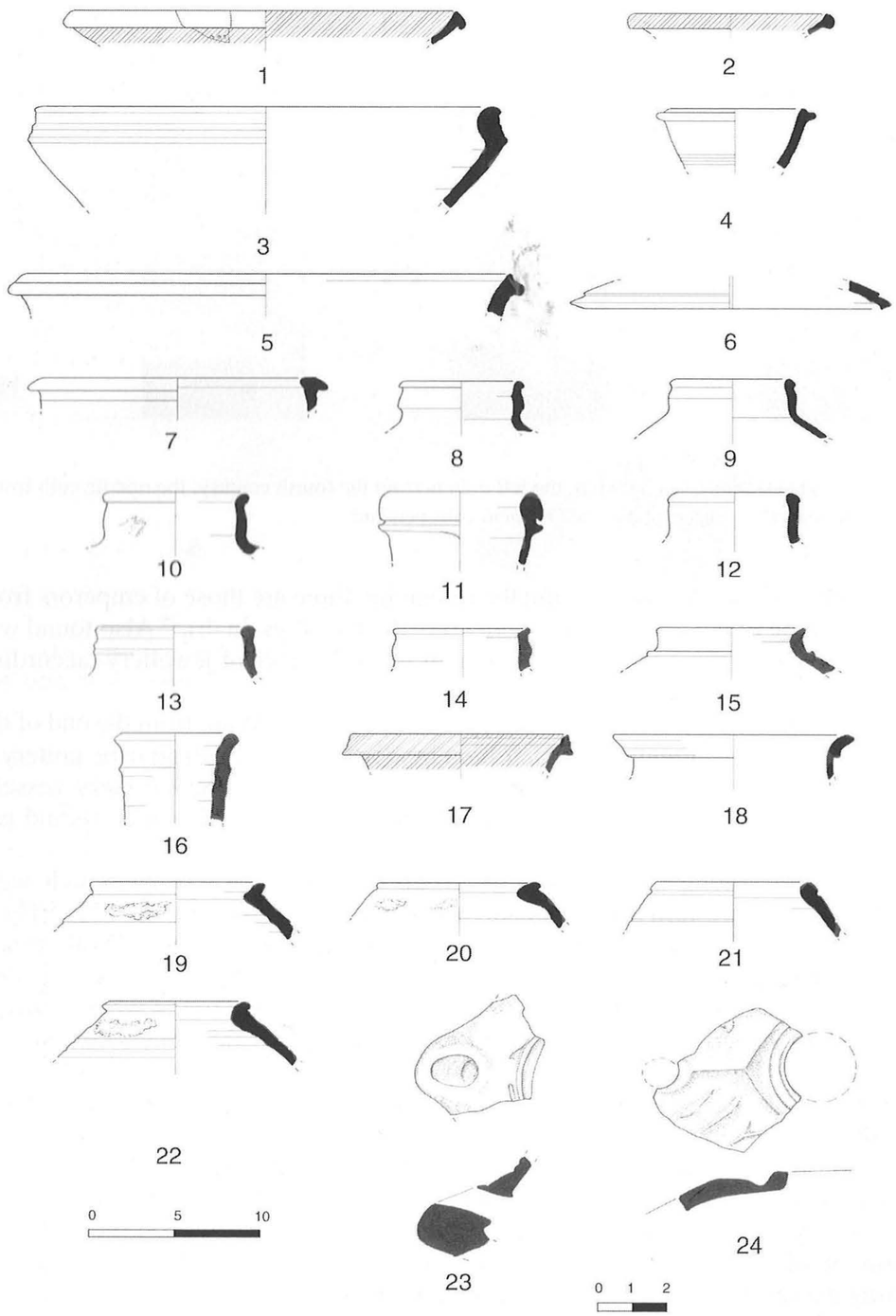


Fig. 6. Pottery vessels from Sa'adon: 1–2, red-slipped bowls; 3–5, 7 cooking pots; 6, lid of cooking pot; 8–15, jars; 16, Gaza Ware jug; 17–18, imported jugs; 19–22, Gaza jars; 23–24, lamps

and the great plague that broke out in the mid-sixth century ('the Justinianic Plague').[30] This plague, which continued intermittently for about 200 years, wiped out roughly a third of the empire's inhabitants and struck mainly in densely settled areas. Funerary inscriptions found at Nizana, Rehovot and Avdat teach us that the plague also reached the Negev area.[31]

Sa'adon – An Introverted Village

Sa'adon, like the large Negev settlements in the Byzantine period, was an introverted village. The building density at Sa'adon, like at Rehovot and Shivta, was very great. The dwelling houses are often found to be integrated, with one house sharing the wall of its neighbour. The north-eastern and south-western churches at Sa'adon are also integrated with dwelling houses. The shape of Sa'adon's outline is irregular and from this it follows that the site was not planned but grew organically along the south bank of Nahal Sa'adon (Fig. 7).

The maximum elevation of the site is 285m and it slopes down to the north to an elevation of 275m along the Wadi. Its maximum length from north to south is 190m, and its width from east to west is *c.* 140m (Fig. 8). The built-up area reaches *c.* 26 dunams.

According to a density coefficient of 25 people per dunam, it can be estimated that the village's population was 650.[32] As demonstrated below, this conclusion concurs with the calculation of Sa'adon's population as calculated by the number of dwelling units.

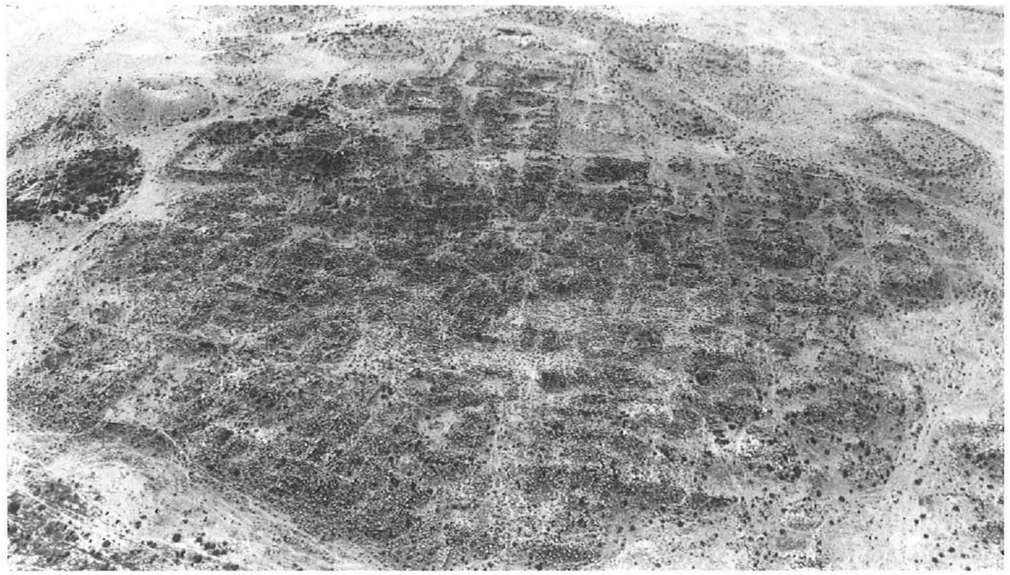


Fig. 7. Aerial photograph of Sa'adon viewed from the south

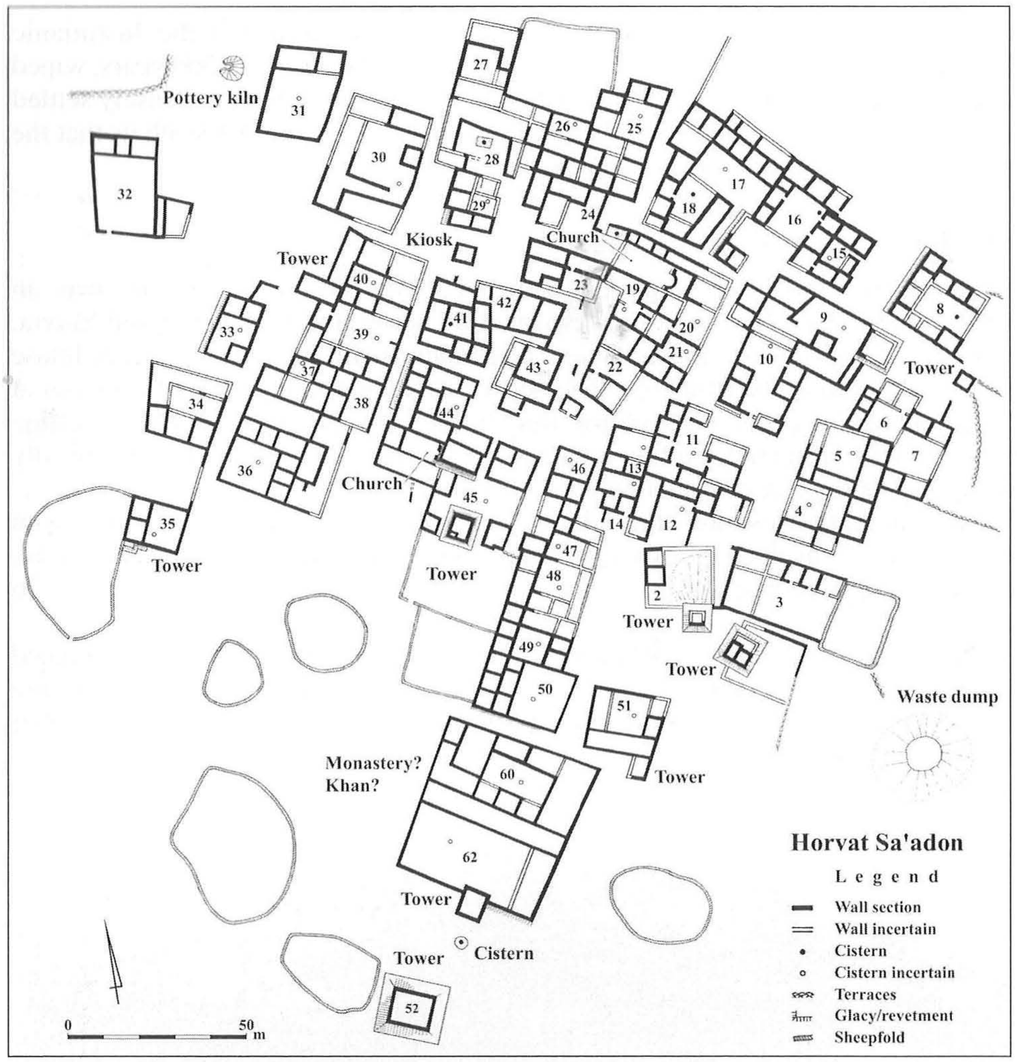


Fig. 8. Plan of Sa'adon with numbered dwelling units (1–51)

In the plan of the site one can discern a division into streets, alleys and open areas. Rubin and Shereshevsky indicate the supposed existence of a street grid made up of parallel streets 35–45m apart.[33] They claim that these streets form blocks of houses similar to urban divisions into *insulae* which characterised Roman towns. However, in the plan drawn up by us on the basis of accurate field measurements, no evidence of this was found. On the contrary, the streets are not straight, their courses being adapted to the spontaneously built houses. The width of the walls is not constant but varies along the course of a street. The absence of a street grid and the irregular course of the streets are characteristic of villages in the Roman-Byzantine period.[34]

At various places around the houses there are small squares with an area ranging between 150 and 250m^2. However, here too, one does not note the hand of an urban planner but merely incidental spaces that came about during the construction of the village's dwelling houses.

In different village locations, mainly in the southern area, we surveyed 12 sheep pens. Some of these were built adjacent to dwelling houses (Fig. 9), and are indicative of the importance of sheep rearing for the local economy during the Byzantine period.[35] Sa'adon was an unwalled settlement, with the outer houses and sheep pens marking the border of the village. At the eastern edge of the site we surveyed an isolated building resembling a tower. This is quite a large structure (12.5 x 11m) surrounded by a glacis (gentle slope) built of hewn stones, which possibly served as a watchtower.[36] However, the absence of a surrounding wall and the numerous access openings to and from the village testify to the sense of security prevailing in the area during the Byzantine period.

The settlement's supply of water was based mainly on cisterns. In the courtyards of some of the houses we found the openings of cisterns, such as in House no. 16. In other courtyards there were depressions indicating the former existence of cisterns. A survey of cisterns carried out at Shivta revealed that there was a cistern in the courtyard of almost every house.[37] On the southern edge of the village is a cistern which was cleaned by the Beduin at the start of the 20th century. The scholars

Fig. 9. Sheep pen built adjacent to a house (no. 3) in the eastern part of the site, view to the north-west

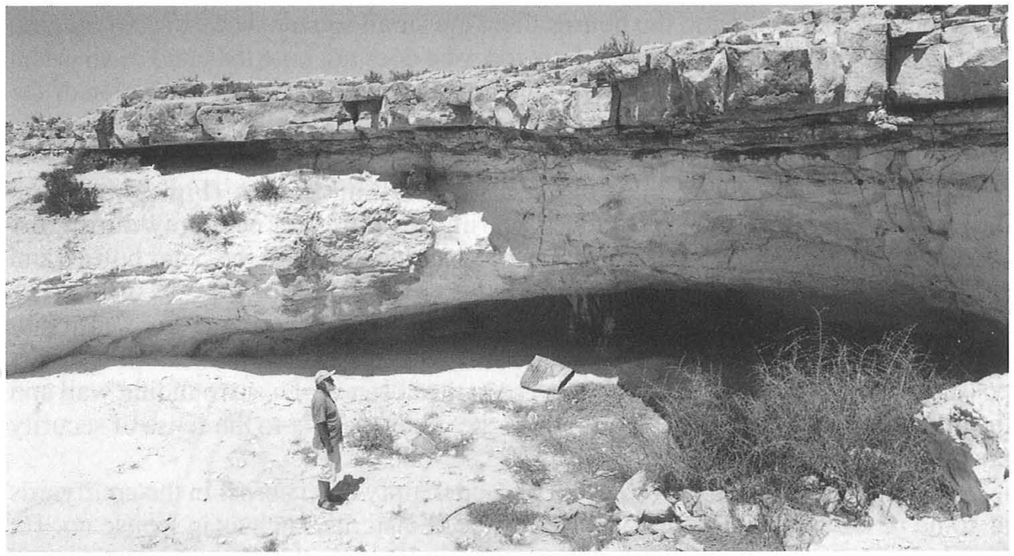


Fig. 10. Reservoir hewn in the north bank of Nahal Sa'adon, view to the north-west

of that time identified an ancient well in Sa'adon, 5m deep containing fresh water.[38] On the north bank of Nahal Sa'adon, opposite the village and some 120m outside it, is a rock-cut water reservoir (Fig. 10). It has a diameter of 16m and an estimated depth of at least 5m, and it can be reasonably assumed that its capacity was *c.* 1000 m^3. The reservoir was hewn in the soft limestone below the layer of hard rock. The natural ceiling above the reservoir reduced losses due to evaporation. At nearby Rehovot, an open reservoir was cut and built, serving as a source of water supply.[39]

On the south-eastern periphery of Sa'adon is a prominent artificial mound with a diameter of 30m, which rises 3–4m above its surroundings. Rubin and Shereshevsky found ash and limestone waste on top of the mound and on its slopes, and they concluded from this that the mound was connected with the production of lime.[40] However, one cannot rule out the possibility that the mound on the edge of the site was nothing but a large heap of settlement refuse. A similar garbage heap was identified by A. Negev on the periphery of Haluza.[41]

Another installation was found on the western edge of Sa'adon. This is a small mound (some 7m in diameter) within which is a round oven walled with stone and measuring 1.5m in diameter (Fig. 12). Around this installation much ash is scattered, and it has the appearance of a pottery kiln. It stands to reason that in a relatively large settlement such as Sa'adon, there would be a pottery for the local supply of ceramic vessels. During the excavations at 'Ein-Gedi we found evidence of the existence of a local pottery kiln. It is thus possible that every village exceeding a certain size had its own pottery.[42]

Fig. 11. Opening of cistern in the courtyard of House no. 16, view to the north-east

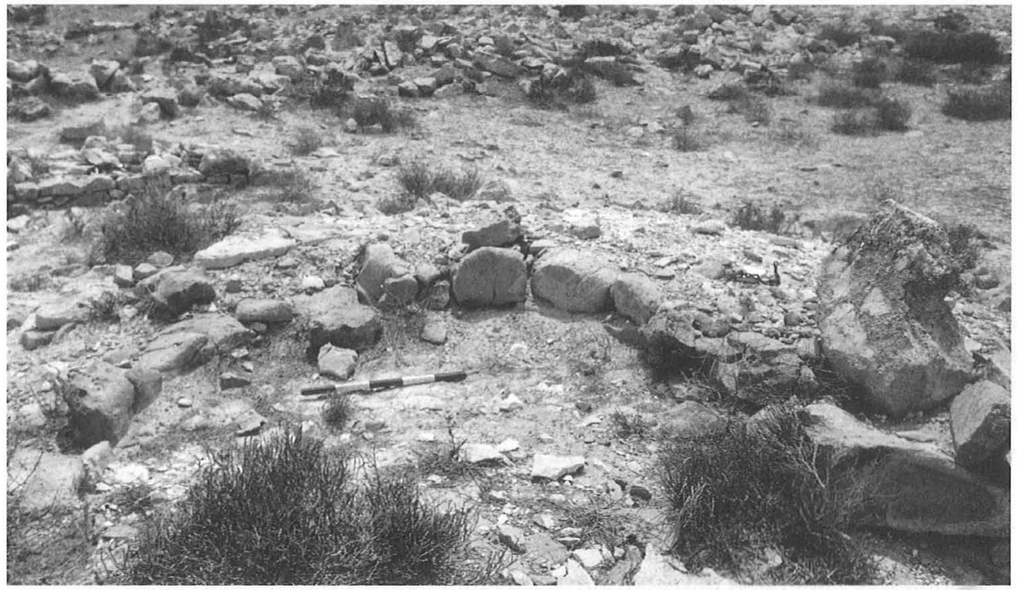


Fig. 12. Pottery kiln (?) at the western end of Sa'adon, view to the east

Public Buildings

The buildings at Sa'adon can be divided into two types: public buildings and dwelling houses. Prominent among the public buildings are two churches: the north-eastern and south-western churches (Figs 13, 14). In addition to these, a fairly large, isolated building is located south of the site, which is 46m long, 43m wide, and has an area of *c.* 1,980 m 2. This is one of the largest buildings in Sa'adon. In its southern part is a spacious courtyard with a roughly square tower (8.8 x 7.5m) which juts out

Fig. 14. The apse of the north-eastern church, view to the east

slightly to the south. Rubin and Shereshevsky suggested that the southern complex may be regarded as another church, or as a monastery (despite the fact that no remains of an apse were revealed during the exploratory excavation they conducted in the building).[43] Another possibility is that the large isolated building with the spacious courtyard served as a caravanserai or hostel for pilgrims and merchants who passed through the vicinity of Sa'adon.[44]

The North-eastern Church

The church is integrated into a group of dwelling houses (nos 19–22) in the northern part of the site. It can be identified by means of the apse, at the top of which the stones of the cornice are still preserved *in situ* (Fig. 13). This church is the larger of the two: its width is 7.5 m, and its length, including the apse, is 17m (internal measurements).

The South-western Church

During a return visit to the site on 19 February 2005, we found that the south-western church had been extensively disturbed by robbers. Such an act is illegal but it enabled us to deal with many previously unknown details. The excavation made it possible to reconstruct the church's plan as a small basilica church, 9.5m wide and 10.2m long, including the apse (Fig. 14). The conjectured entrance doorway

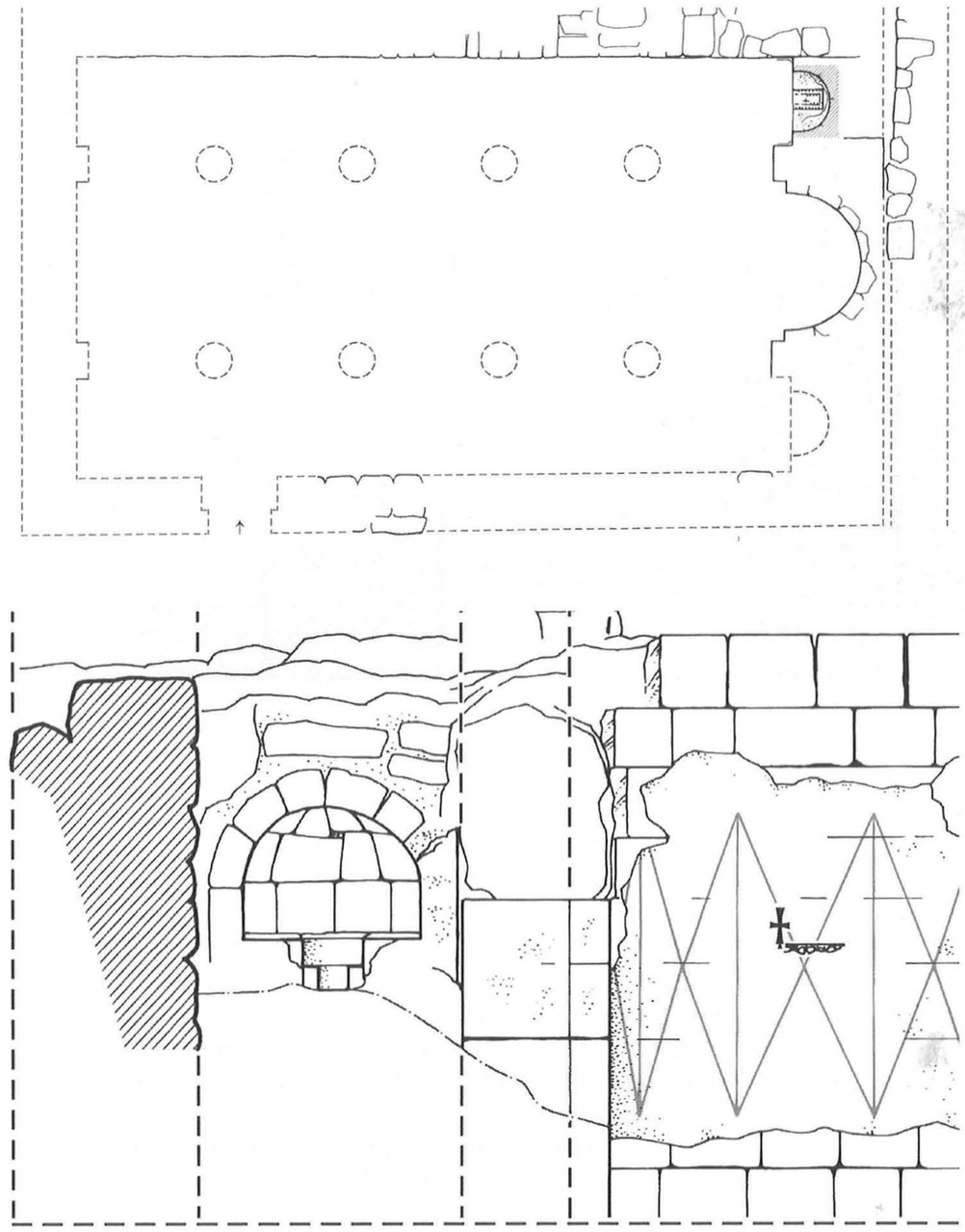


Fig. 14. Plan and cross-section of the south-western church

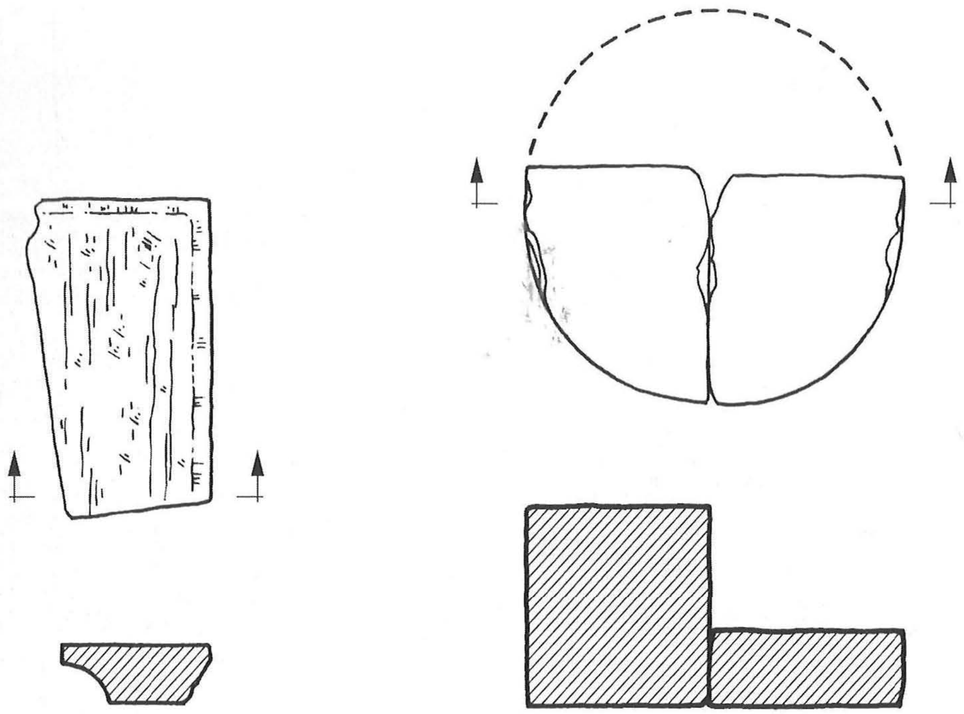


Fig. 15. Artefacts from the south-western church: a cornice stone; fragments of a column drum

was in the southern wall. The interior was apparently divided by two rows of columns with 4–5 in each row. The columns unfortunately are missing but among the stones of the debris dug up by the robbers were found two fragments of a column drum with a diameter of 0.5m (Fig. 15).

The pillage excavation focused mainly on the apse area in the eastern part of the church. This reached the level of the floor plaster (Fig. 16) and it became evident that the wall of the apse is preserved to a height of 2.8m above the floor and has a diameter of 1.8m. The apse is built of cleanly dressed blocks of soft limestone, and is coated with well-preserved, white plaster and discernible on it is a linear red decoration. The diagonal lines form narrow, tall intersecting triangles. In the centre of the apse, at a height of 1.3m above the floor, is a horizontal shelf built of cement, 0.2m long and this projects some 3cm from the face of the apse. One can reasonably assume that this shelf was intended for the placement of icons. On its left side, to

Fig. 16. Prayer niche in the eastern part of the south-western church, view to the east

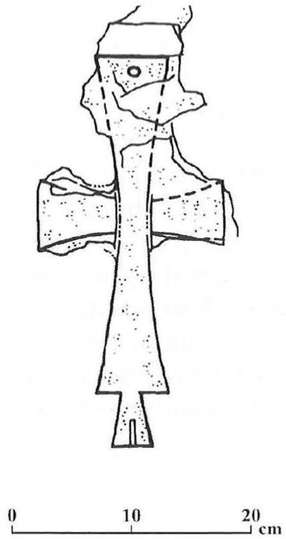


Fig. 17. Imprint of a cross in the apse of the south-western church

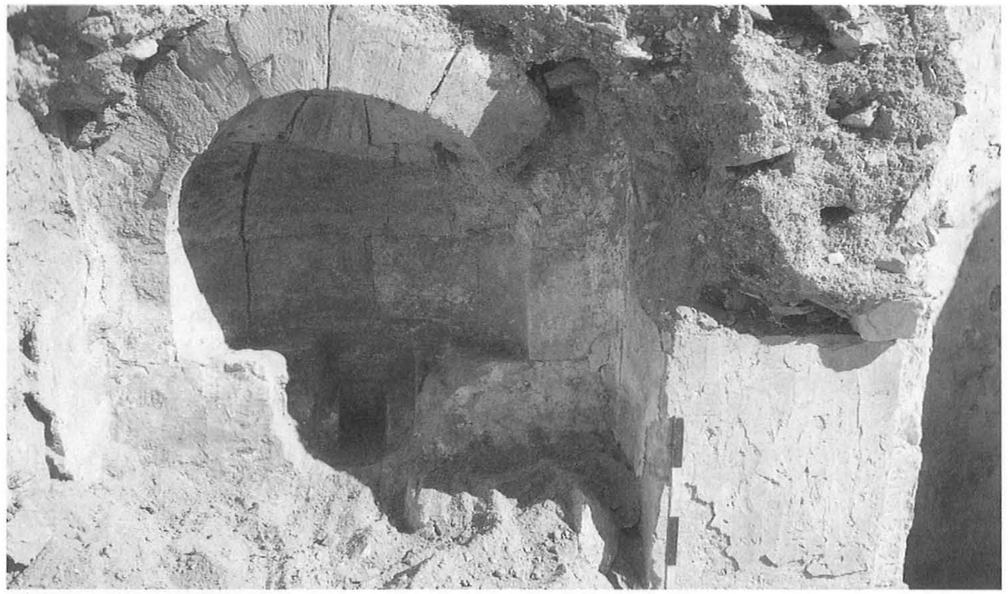


Fig. 18. Prayer niche with place for reliquary casket, view to the east

its north, is a cruciform imprint in the plaster (Fig. 17). The imprint was left by a metal (bronze?) cross that was removed when the place was abandoned. This was a thin, tall cross with a long arm of 28cm and a short arm of 16cm. At the upper end of the imprint is a round hole made by the nail that affixed the cross to the wall of the apse. Discernible at its lower end is a small tongue (4.5cm long and 1.5–3.5cm wide). We assume that this cross was originally attached to the end of a wooden staff (by means of the tongue) and was later installed in the apse next to the shelf for icons. This detail is a rare one unknown to me from other churches in the Negev.

The excavation completely exposed a small prayer niche in the eastern wall of the northern aisle (Fig. 18). The niche is semicircular, with a diameter of 0.8m, and its base is built 1.4m above the floor. A reliquary niche was installed at the bottom of this prayer niche. This is a long, narrow depression (0.4 x 0.25m and 0.45m deep). The depression was probably covered by a stone slab (now missing). Similar parallels are known from various churches in the country, such as the church at Khirbet ed-Deir, a sixth-century Byzantine monastery in the Judean Desert.[45] The area to the south of the apse was not excavated by the robbers but according to the principle of symmetry one can reasonably assume that there too there was a prayer niche.

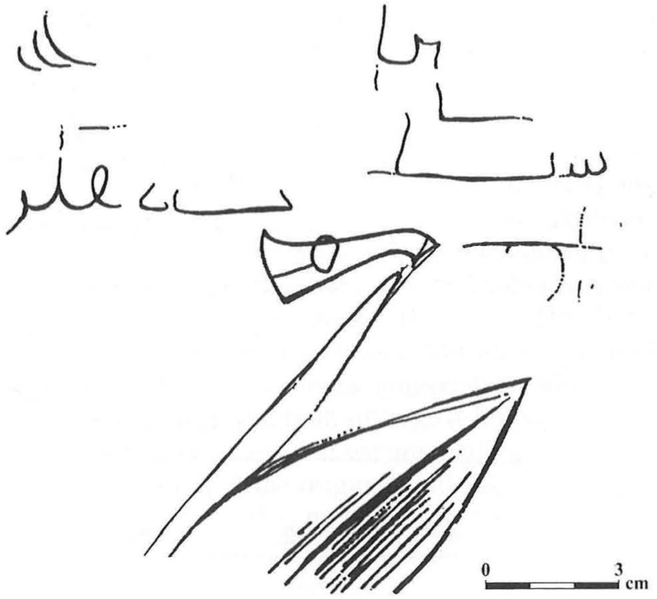


Fig. 19. Photograph and drawing of the black graffito inscription on the plaster of the apse of the south-western church

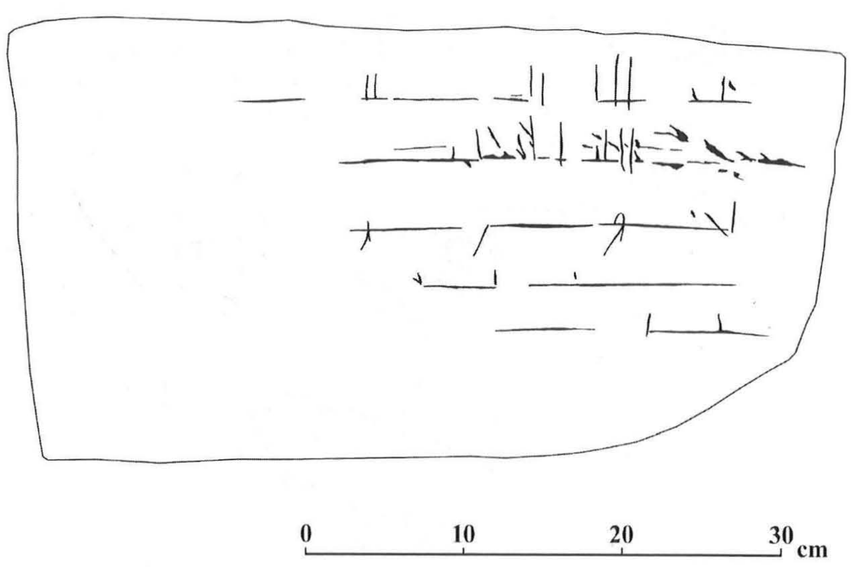


Fig. 20. Drawing and photograph of the graffito inscription engraved on an ashlar of the south-western church

Kufic Inscription

The most important discovery in the south-western church are two graffiti inscriptions in the angular Kufic script which was in use in the seventh-eighth century CE. One of them is on the plaster at the top, right (southern) end of the apse (Fig. 19). The graffito in black consists of three unclear lines in which it is possible to identify the word 'Allah'.[46] This is reminiscent of the well-known forgiveness inscription: 'Allah forgive [a person]', which has been found in several parts of Israel, such as the Northern Church of Rehovot and the church of Horvat Berachot in the Hebron Hills.[47] It was ascertained that the church continued to be regarded as a holy place even after the site was abandoned, at least by the local Beduin population. Below the inscription it is possible to identify decoration in the form of an axe, and below this is leaf-like pattern.

The other graffito is engraved on an ashlar of the church (Fig. 20). This is an ordinary building block (0.5 x 0.5m and 0.25m thick) made of soft limestone. One can identify four lines of the inscription which are lightly engraved. Here the formula 'Bismi Allah' is identifiable. The discovery of the two graffito inscriptions illustrates the process of rapid abandonment of Sa'adon. The Kufic script was widely used in the seventh-eighth century, and hence it follows that the abandonment of the site took place at the time of the Muslim conquest or even slightly before.

Dwelling Houses

The greatest part of the site consists of the dwelling houses of farming families who lived in Sa'adon during the Byzantine period, and are characteristic of the Negev at that time. These are courtyard houses built as closed units around an internal courtyard. Most of them have a regular right-angled plan indicating construction by a skilled team of builders, and it is reasonable to assume that at Sa'adon, as at other sites, a local family of builders operated. Such an assumption could explain the uniformity and homogeneity of the houses. These are quite large houses, averaging 300–400m^2 (including the courtyard). The residential rooms were spacious, averaging 5 x 5m. The houses are built of the two types of stone found in the area: hard limestone for the construction of the lower part of the walls, and softer limestone for the upper part of the walls, the arches and the pillars (Fig. 21). This building method is characteristic of Byzantine sites in the Negev. On the other hand, two building elements – the glacis and towers – are more common in Sa'adon than in other places. The glacis is a sloping retaining wall built of large ashlars or roughly hewn smaller stones (Fig. 22). In this case it seems that we are dealing with a retaining wall that was added after the completion of the original wall. Both types are common in the dwelling houses of Sa'adon, as well as in the nearby farmsteads (see below).

The distribution of Sa'adon's dwelling houses shows no sign of formal planning. On the contrary, the settlement character is indicative of the spontaneous development of the site without any preplanning. The dwelling houses are similar to one another but not identical. The construction was suited to the desert climate: compact building, few windows positioned at the tops of the walls,[48] thick walls

Fig. 21. Typical wall of a dwelling house (no. 22) in Sa'adon

Figs 22 and 23. Two types of retaining walls characterizing construction at Sa'adon

(with a width of at least 0.7m), doorways facing south to receive the light and heat of the sun (mainly in winter), and the creation of shade by means of the walls of the courtyards – the most important element in the house.[49] The courtyard provided the inhabitants with a place protected from noise, wind and dust, a pleasant and useful shelter for all members of the household.

During the survey we measured the course of the walls of the dwelling houses and the locations of the courtyards. A total of 51 dwelling units were counted in Sa'adon. The following descriptions of the houses begins in the eastern part of the site and progresses in a counter-clockwise direction.

Figs 24. Towers of House no. 1 and House no. 2 right

House no. 1

The main component of this house is an almost square tower (8 x 7.5m) surrounded by a high pile (3m) of hewn stones (Fig. 24). On the eastern side of the tower one can identify the stone doorposts of the entrance. The tower was part of a dwelling unit whose estimated area is 440m^2.

House no. 2

This house is also notable as a tower preserved to a height of 3m. On the southern side of the tower, a handsome stone glacis is preserved to a height of 1.9 m (Figs 24, 25). The glacis is well built with corners meticulously dressed. The tower was part of a relatively large dwelling house (460m^2). Preserved in its north-western area are two rooms that were part of the residential area of the house.

House no. 3

This is well preserved, with a rectangular plan with external measurements of 31 x 19m and an area of 590m^2 (including the courtyard). Along the outer face of the southern wall is a sloping retaining wall. The two residential wings of the house were to the north and apparently to the west of the courtyard. On the east the courtyard adjoins a large, well-preserved sheep pen (22 x 17m) (see above; Fig. 9). The pen has a regular shape and was adapted to the walls of the building, indicating that it was used during the Byzantine period.

House no. 4

This building, together with the following three houses (nos 5–7), forms a large cluster measuring 60 x 35m and an area 2100m^2. This cluster, like other clusters of houses at Sa'adon, served as living quarters for an extended family. I encountered a similar phenomenon in the survey of the dwelling houses in Shivta.[50] House no. 4 shares a wall with House no. 5. It is well preserved, measures 24 x 17m, and has an area of 408m^2.

House nos 5–7

This house has similar measurements (23 x 18m, 414m^2). Houses no. 6 and no. 7 were built to the north-east of House no. 5. The measurements of House no. 6 are 16 x 14m and an area of 224m^2; House no. 7 is rectangular in shape (23 x 18m, 414m^2), and it also has a courtyard with two residential wings.

House no. 8

This building is located at the north-eastern edge of the site, bordering on the fields in Nahal Sa'adon. The house is well preserved, roughly square (22 x 20m, 440m^2) and has a courtyard surrounded by residential wings on three sides. Along the outer face of the western wall is a sloping retaining wall (Fig. 26). Prominent in the south-eastern corner of the house is a simple, roughly square tower (5.5 x 4.5m) lacking an outer glacis.

Fig. 25. Tower of House no. 2, view to the north-west

Fig. 26. Sloping retaining wall along House no. 8, view to the north-east

Fig. 27. House no. 10, view to the south-east

House no. 9

This house is larger than the average size (30 x 22m, 660m^2), and it has a tower surrounded by a stone glacis. The tower, measuring 9 x 8m, juts out on the eastern side of the house. The house is adjoined to House no. 10 and together they form a cluster for an extended family.

House no. 10

The courtyard is flanked by two wings, on the east and west. The walls of the house are preserved to a height of 1.2m (Fig. 27). Along the outer face of the southern wall a sloping retaining wall was installed. The house measures 21 x 19m and has an area of 399m^2. In its south-western corner is a small tower (7 x 4m) which juts out slightly.

House nos 11–14

These are joined together and form a large cluster of dwellings (45 x 40m, 1800m^2). House no. 11 (25 x 22m, 550m^2) has three residential wings around a central courtyard; House no. 12 is slightly smaller, has only two wings to the north and west of the courtyard (18 x 21m, 378m^2); House no. 13 is quite small (13 x 12m, 156m^2) but its walls are well preserved (Fig. 28); House no. 14 is of a similar shape and size (14 x 12m, 168m^2) but the preservation of its walls is inferior.

House nos 15–18

The following four houses also form a large cluster of dwellings (60 x 40m, 2400m^2) for an extended family. This cluster was built along the south bank of Nahal Sa'adon and forms part of the site's northern boundary. House no. 15 is well preserved (18 x 17m, 306m^2). In its western wall are two doorways leading to adjacent House no. 16 (21 x 20m, 420 m^2), which has a cistern preserved in the courtyard with an opening and a recess for a wooden door (see above; Fig. 11). House no. 17 is large (31 x 20m, 620m^2) and it contains a central courtyard with wings on two sides. A long, narrow corridor (16 x 3m) leads to the courtyard from the south, connecting the house with the square to its south. At the southern end of the corridor is a single two-room building (7 x 5.5m) that perhaps served as a shop or a small dwelling house. House no. 18 is a typical courtyard house (20 x 18m, 360m^2), and preserved at the centre of its courtyard is an opening of a cistern,

House nos 19–23

The next extended family cluster contains four dwelling units built adjacent to the north-eastern church (Fig. 28). This phenomenon is known also from Shivta where there is a cluster of 3–4 dwelling houses adjacent to each of the three churches.[51] One can reasonably assume that the members of the extended family were involved in the erection of the church. House no. 19 is a typically sized house (18 x 14m, 252m^2); House no. 20 (19 x 10m, 190m^2) includes a courtyard with a residential wing to its north; House no. 21 (15 x 10m , 150m^2), is adjacent to the south; and House no. 22 is larger (22 x 19m, 418m^2) and has a courtyard flanked by wings on the north and south. To the south-west of the church is another dwelling, House no. 23. This is rectangular in shape (22 x 12m, 264m^2).

Fig. 28. House no. 13, view to the north-east

House nos 24–29

The following six dwelling houses form a large cluster on the eastern edge of the site. To the north of the cluster is a large sheep pen (28 x 25m) which was probably jointly owned by the extended family. House no. 24 has an irregular shape, it measures 20 x 19m and has an area of 380m^2; neighbouring House no. 25 is relatively large (23 x 19m, 437m^2) and has a courtyard with a cistern. House no. 26 measures 18 x 11m, 198m^2; House no. 27 (28 x 14m, 392m^2); and House no. 28 (23 x 20m, 460m^2) has a spacious courtyard with a cistern at its centre (Fig. 30). House no. 29 (16 x 15m, 240m^2) is adjacent to the south, and to the south of the cluster of dwellings is a square with a solitary small building (6 x 5m, external measurements) at its centre. It is reminiscent of the solitary building in the northern square of Shivta which I have called 'the kiosk'.[52] This building possibly served as a shop for commercial purposes or as a social meeting place.

Fig. 29. The north-eastern church and dwelling units next to it, view to the east

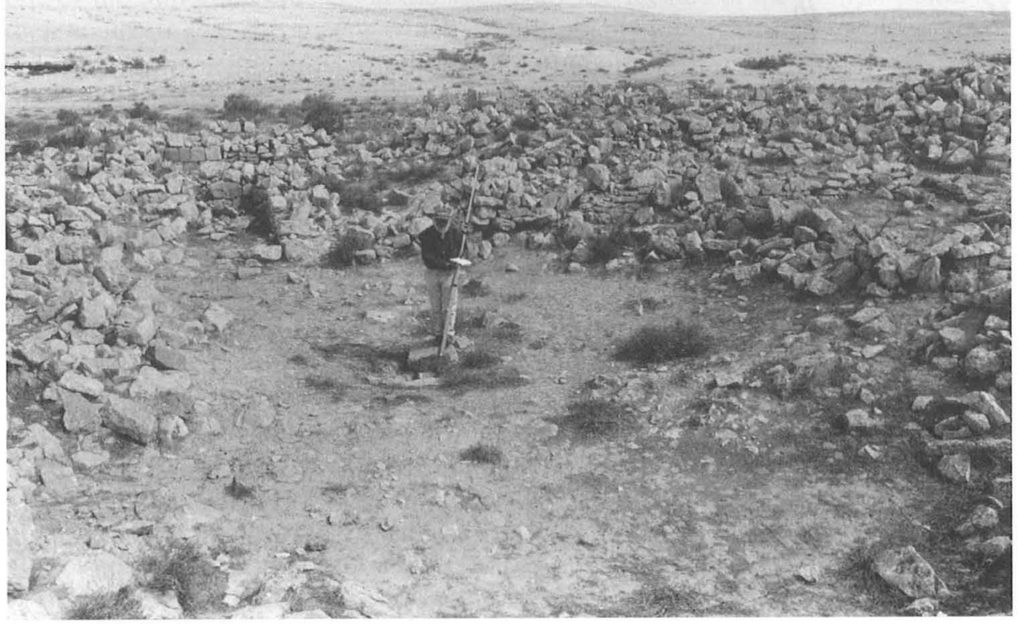


Fig. 30. House no. 28, view to the north

House nos 30–32

Three separately built houses were surveyed in the western part of the site. They possibly represent the last building stage of Sa'adon, when the space between was not filled. House no. 30 is one of the largest houses at Sa'adon. It measures 35 x 25m and its area is *c.* 875m^2. The house has a spacious courtyard (with an area of 272m^2), in which is located a solitary room that perhaps served as a tower. House no. 31 is *c.* 5m to the west. It is rectangular in shape (26 x 20m, 520m^2) and has a particularly large courtyard. The only residential wing is to the north of the courtyard. House no. 32 is 25m to the west of the previous one. It is also quite large (29 x 19m, 551m^2) and has a spacious courtyard (330m^2). These houses possibly reflect the building process at Sa'adon – constructing a large courtyard with a single residential wing, which gradually became filled in the course of time.

House nos 33–35

The houses in the western and southern part of Sa'adon are less crowded together. House no. 33 is a small building (19 x 20m, 228m^2). Along the outer face of its western wall a sloping retaining wall was built. House no. 34 is trapeze-shaped (22 x 20m, 440m^2) and adjoins House no. 35 (16 x 13m, 208m^2). Adjacent to the western wall of the house is a large sheep pen (43 x 27m). Next to this is a small tower (5 x 3m) which served as a watchtower.

House nos 36–40

The following five houses are notably larger and joined together to form a large cluster (78 x 33m, 2574m^2). House no. 36, the southernmost dwelling (30 x 20m, 600m^2), has a spacious courtyard. Adjacent to the north, House no. 37 (21 x 20m, 420m^2), has a small courtyard (25m^2). House no. 38 is similar in shape and size (21 x 15m, 315m^2), and has a large courtyard with a cistern. House no. 39 is quite large (26 x 19m, 494m^2) and has a cistern in its courtyard. House no. 40 is similar in size (25 x 30m, 500m^2) and has a corner tower (11 x 6m) which juts out slightly.

House nos 41–43

To the east of the cluster of dwellings is a straight alley with a north-south course 3m wide. To its north we surveyed another cluster of three houses. House no. 41 is one of the best preserved houses in Sa'adon. It includes a courtyard with a cistern and a corner tower. The house measures 20 x 19m, 380m^2. House no. 42 is smaller (19 x 11m, 209m^2) as is House no. 43 (15 x 15m, 225m^2). There was perhaps a tower in the southern wing of this house.

Fig. 31. House no. 45, view to the north-east

House nos 44–45

The next two houses are integrated with the south-western church, together forming one of the important clusters at the site. They are located at the highest point. To their south are two sheep pens which were probably jointly owned by members of the family. House no. 44 is a well-preserved example adjoining the church to the north. It has three residential wings around its courtyard and has a square plan (20 x 20m, 400m^2). Along the outer face of its western wall is a retaining wall. House no. 45 (Fig. 31) is one of the large houses at Sa'adon (31 x 24m, *c.* 744 m^2). At its centre is a spacious courtyard (180m^2) bounded by a sloping retaining wall. To the south of the courtyard is a roughly square tower (7 x 6m) surrounded by a glacis built of well-dressed stones. On account of the elevated location of the house and the connection between it and the church, it seems as though it served as the nucleus for the growth of the entire village.

House nos 46–50

In the southern part of the site we surveyed another cluster of houses. House no. 46, the northernmost dwelling, is quite small (18 x 11m, 118m^2) and has a spacious courtyard (60 m^2). House no. 47, adjacent to the south, measures 20 x 13m, 260m^2. House no. 48 has similar measurements (22 x 15m, 330m^2), as does House no. 49 (21 x 15m, 315m^2). House no. 50, at the southern end of the cluster, is larger (25 x 17m, 425m^2), and has a particularly large courtyard (224 m^2). House no. 51 is solitary on the south-eastern edge of the site, and is a roughly square building (21 x 18m, 378m^2) with a tower that juts out to the south.

In summary, a total of 51 houses were surveyed in Sa'adon and their average size is 380m^2. These represent large houses intended as dwellings for extended families that included three generations living together. According to scholarly estimates, an extended family in antiquity included 12–13 people.[53] If we multiply the number of members of an extended family in each house by the number of houses (13 people x 51 houses) we arrive at an overall total of 663 people in the village. This figure is very close to the result we reached by calculating the number of inhabitants of the site according to its area (26 dunams x 25 people per dunam = 650 people).[54]

The dwelling houses in Sa'adon reflect a homogeneous society, since the area of most of them is close to average. Only eight houses (16%) have an area exceeding 500m^2. Most of the houses are arranged in clusters of two to five, which are connected to one another. According to assessments, a number of extended families lived in these clusters of dwellings.

The courtyard was the centre of the house. In most of the courtyards we found cisterns or depressions indicating the former presence of cisterns. Notable at Sa'adon is the great number of towers. Towers, some with and some without a glacis, were found in 14 houses (*c.* 27%). It should be mentioned that no stairways were found, leading to the conclusion that the houses in Sa'adon were generally single-storied. This may be contrasted with Shivta where in roughly a third of the dwelling houses stairways were found.[55]

Agricultural Installations and Farmsteads in the Vicinity of Sa'adon

Along the north bank of Nahal Sa'adon, opposite Horvat Sa'adon, two installations were located – a winepress and a columbarium – testifying to the agricultural character of the site. This was in addition to dozens of cultivated plots in the stream bed. We also surveyed three farmsteads to the west of Sa'adon, which served to complete the archaeological picture.

The Winepress

This is located on the north bank of Nahal Sa'adon, *c.* 400m east of the settlement. The winepress had been surveyed in the past, but no attempt had yet been made to reconstruct it and understand how it operated.[56] The installation was hewn in a terrace of the hard rock which locally attains a thickness of 1.4m (Fig. 32). The builders of the winepress took advantage of the height differences in order to create a perfect installation for the production of wine.

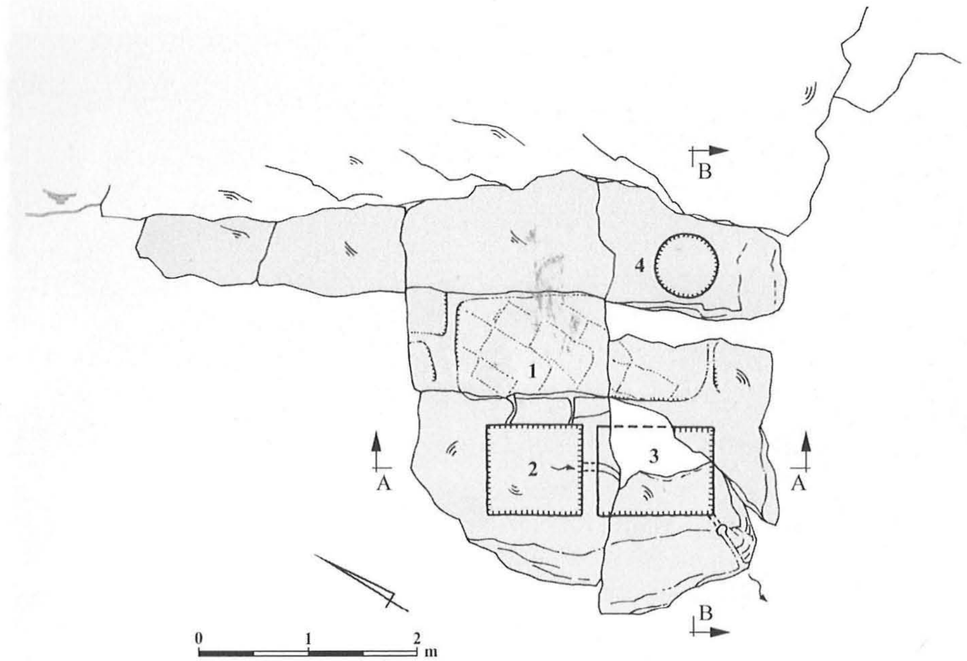
The winepress includes three components: (1) a surface on which the wicker baskets of grapes were placed; (2) a treading floor; (3) a collecting vat, and a nearby basin. The surface for the grape baskets is a shallow, rock-cut recess, measuring 2.4 x 0.9m. On it are grooves sloping towards the treading floor. One can reasonably assume that the baskets of grapes were placed on this surface, the grooves being intended to channel the juice to the nearby treading floor. The treading floor is a square basin (area of 0.8 x 0.8m and a depth of 0.35m). From here the juice flowed

Fig. 32. The winepress, view to the north

through an aperture to the collecting vat. The collecting vat was also hewn in the form of a basin (area 1.1 x 0.8m, depth 0.35m). Its floor slopes southward to a hole cut at the edge of the rock terrace. Below this hole one could place some kind of receptacle to collect the juice. Next to the winepress is a hewn round basin whose function is unclear. Its outer diameter of 0.6m equals its depth. The winepress of Sa'adon may be added to the large number of these installations in Byzantine sites of the Negev, indicating the importance of the wine-producing branch for the local economy.[57]

The Columbarium

The columbarium is located some 300m to the north-west of the site. This is a round structure (6.3m in diameter), which has the appearance of a tall heap (1.8m) of stones above the ground surface (Figs 34, 35). The columbarium structure is identical in its shape and the way in which it was constructed to those of the Byzantine period, which we recently excavated at Shivta.[58] The circular enclosing wall is built of limestone quarried from the edge of the stream. The stones average 0.6 x 0.5m in size. Three courses are preserved *in situ* (the height of each being



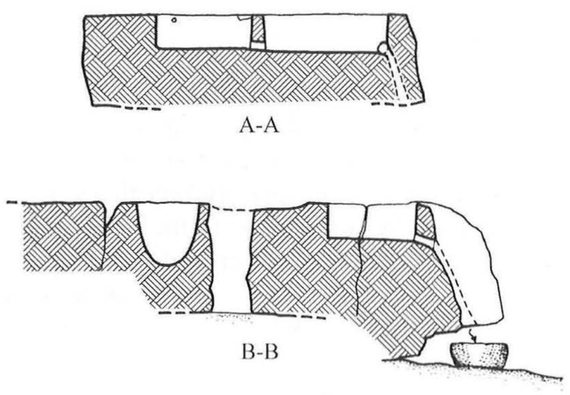


Fig. 33. Plan and cross section of winepress

0.2m). The interior of the columbarium was apparently divided by means of two walls intersecting at right angles. The raising of doves in a columbarium was mainly intended to produce their droppings which were used as a fertilizer (and also to provide a source of food). The local loess soil is poor in organic matter and there was therefore a need to fertilize the cultivated plots nearby, mainly in order to grow fruit trees and beds of vegetables. Four columbarium towers were found at Shivta which is larger than at Sa'adon.

Fig. 34. The columbarium, view to the south-west

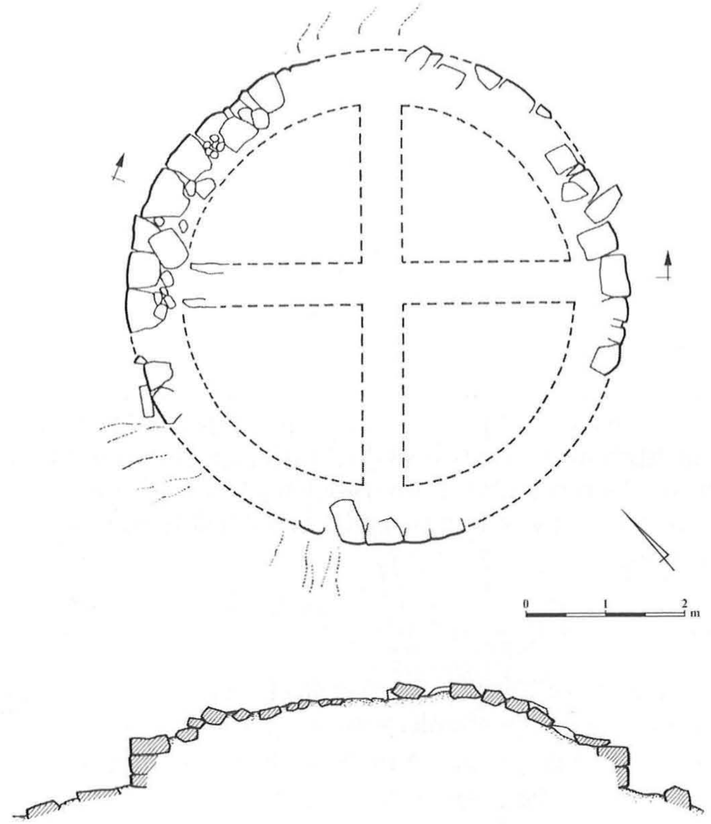


Fig. 35. Plan and cross section of the columbarium

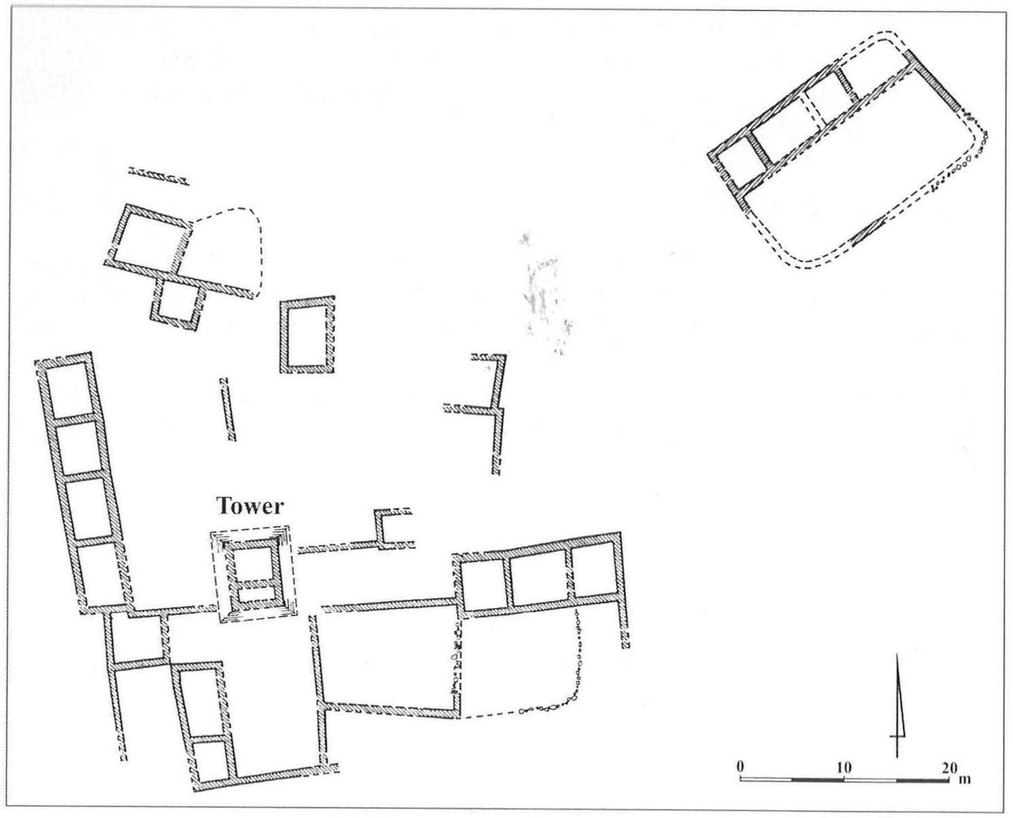


Fig. 36. Plan of Farmstead no. 1

Some 1.2km to the west of Sa'adon we surveyed three farmsteads, the common feature of all is the conspicuous presence of a tower. In all likelihood the towers served as living quarters for the owners of the farmsteads and were intended for the purpose of security. As noted above, towers characterise private construction at Sa'adon and it follows that there was an architectural link between the site and the farmsteads close to it.

Farmstead no. 1

This is situated to the north of Nahal Sa'adon at an elevation of 283m. The farmstead complex is made up of a number of units with a tower at their centre (Fig. 36). The rectangular tower (6.8 x 5m), has quite thick walls (0.8m), and is preserved to a height of two courses above the ground surface. The tower structure is surrounded by a glacis built of ashlars (Fig. 37). Around the tower we surveyed 3–4 dwelling units and a sheep pen with an overall area of *c.* 3000m^2. The construction is the same style as the houses in Sa'adon.

The dwelling units have courtyards and residential wings. Thirty metres to the north-east are remains of a separated dwelling unit with a forecourt and a residential wing (23 x 16m, 368m^2). It can be assumed that Farmstead no. 1 served as a cluster for an extended family like those examples at Sa'adon.

Farmstead no. 2

The second farmstead is on a hilltop to the south of Nahal Sa'adon, at an elevation of 290m. The structure is mentioned by its Arabic name, Sa'adi ar-Ruheibah, in the survey of Woolley and Lawrence,[59] and Rubin surveyed and measured the buildings at the site.[60] This is quite a large complex comprising a central tower and a number of dwelling units. The tower is roughly square (9 x 7m) and preserved to a height of 2.2m. Around it is a glacis built of dressed stones. The overall area of the site is 5,600m^2. Next to the complex are two sheep pens.

Farmstead no. 3

This is located *c.* 150m east of the last example, and is a modest farmstead consisting of a tower without a glacis, and next to it a residential wing and a courtyard. The farmsteads to the west of Sa'adon complete the picture of homogenous and intensive settlement that characterised the area during the Byzantine period.

Fig. 37. The tower of Farmstead no. 1, view to the north-west

Summary

The inhabitants of Sa'adon and its environs took full advantage of the opportunities that became available to them during the Byzantine period. The improvement of the climate, together with the good security conditions and the spread of Christianity, set the local economy in motion. The aim of the emperors of the fourth-fifth century CE to encourage private initiative found expression in the construction of farmsteads with towers, like those next to Sa'adon. It seems that Sa'adon itself developed around the farmsteads with towers of local capitalists. The village, which had several hundred inhabitants, benefited from a period of prosperity that lasted for almost 300 years, from the fourth century to the mid seventh-century. The complete absence of Umayyad potsherds and coins proves that the site was rapidly abandoned. On the basis of comparisons with other sites (Rehovot, Tel Ma'on, 'Ein-Gedi), the abandonment was rapid and took place at the time of the Arab conquest (640 CE) or perhaps even prior to it. Sa'adon is a key site for understanding the flourishing of settlements in the Negev during the Byzantine period.

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Notes

1 For a preliminary summary of the results of the surveys throughout Israel and in the Negev in particular, Tsafrir 1996: 171–272. To date 13 maps of various surveys carried out in the Negev have been published. The last of them is the survey map of the area of Shivta; Baumgarten 2004. In this map, 181 of the 357 sites (more than 50%) are dated to the Byzantine period.

2 On the excavation finds at Avdat and Mamshit, Negev 1993: 1155–1165 (Avdat), 882–893 (Mamshit). For results of the excavations at Rehovot-in-the-Negev, Tsafrir 1988; Tsafrir and Holum 1988.

3 On the scale of the Negev sites during the Byzantine period, Hirschfeld 1993, 50–60. On Haluza's status as the only large city in the Negev, Shereshevsky 1991: 134. Haluza is the only settlement in the Negev which is termed a *polis* in the sources available to us, including the Nizana Papyri. See Mayerson 1983.

4 On the various terms in the *Onomasticon* of the church father Eusebius, Hirschfeld 1997, 37. For additional details relating to the *Onomasticon* and the Madaba Map, Di Segni 1999. In the excavations at Metzad Yeroham it became clearer that this was one of the largest Byzantine sites in the Negev; Cohen 1993: 1136–1137.

5 On the remains at Shivta from the Byzantine period, Hirschfeld 2003.

6 In the survey and excavations we conducted in the vicinity of Shivta, four columbarium towers were discovered and excavated. The excavation results were submitted for publication in the periodical *Tel Aviv*; Hirschfeld and Tepper, in press.

7 On the distributions of farmsteads in the central Negev and the Negev Hills, Haiman 1989; 1995.

8 On the seasonal settlements of the semi-nomadic population in the Negev during the Byzantine period, Rosen and Avni 1993.

9 A camel bearing a wine jug is depicted, for example, in the Kissufim church which was discovered in the western Negev; Cohen 1979 (a photograph of the camel appears on the back cover of the journal *Qadmoniot*). In a Byzantine church excavated in Amman (Philadelphia) was a mosaic floor featuring a camel loaded with dressed building stones, Fitzgerald 1992: 264, Fig. 456.

10 On the establishment of the boundaries in the eastern part of the Empire at the end of antiquity, Issac 1990: 161–218; Kennedy and Riley 1990: 44–45.

11 On the influence of the Christian factor, Avi-Yonah 1958; Mayerson 1982; 1994: 237–242. It should be mentioned that the phenomenon of pilgrimage attained its full scope only in the sixth century CE. See Wilken 1992: 170–172. For example, the archaeological study of Shivta shows that the three churches were built during the fourth century, and at the latest the beginning of the fifth century (Margalit 1987). From this it follows that even at the start of the Byzantine period, Christianity was already exerting a considerable influence on the development of the Negev.

12 Studies carried out in the Dead Sea area indicate that the Byzantine period was one of the most humid in the Levant; see Bookman (Ken-Tor) *et al.* 2003; Enzel *et al.* 2003. The studies of Bookman and Enzel are based on changes in the level of the Dead Sea. A similar study was carried out by A. Frumkin in the caves of Mount Sedom on the south of the Dead Sea; see Frumkin *et al.* 1991. Bar-Matthews, in her study of the cave of Nahal Soreq, arrived at similar results with regard to the Byzantine period; see Bar-Matthews *et al.* 1998: 209, Fig. 95.

13 Hirschfeld 2004. My study is based on finds from excavations conducted at Ein-Gedi and at various sites throughout the country. On the colder climate of the Byzantine period, Koder 1966: 275.

14 Rubin 1989.

15 On the laws of *agri deserti*, Whittaker 1976; Jones 1964: 812–823. T. Lewit in her 1981 study suggested that the fiscal policy of the fourth-century emperors was intended to expand the cultivated area with the aim of enlarging the circle of tax payers; see Lewit 1991: 71–77.

16 On the similarity of settlement in the Negev to that in the desert areas of North Africa at the end of Antiquity, Rubin 1998.

17 The negative climatic change that characterised the Levant began as early as the sixth century; see Koder 1966: 275–276. On the negative climatic change in the sixth-seventh century, Issar 1995: 352–353.

18 On the importance of this road and the sites along it, Woolley and Lawrence 1914–1915: 30; Tsafrir 1988: 3–4.

19 On the identification of Sudanon as Horvat Sa'adon, Negev 1977: 131–132.

20 On the landscape features of the area of Sa'adon, Rubin 1986: 177–178.

21 Some 3km to the south of Sa'adon seven limekilns were found; see Rubin and Shereshevsky 1988: 34. This phenomenon testifies to the production of lime for economic purposes and perhaps even for export. The lime was used in agriculture to provide protection against pests.

22 Palmer (1871: 34) describes the installations in the Sa'adon area, including tower structures located to its west. Musil (1907: 78) briefly mentions Sa'adon. Kuhtreiber (1914: 15) mentions that in Sa'adon there is an ancient well with fresh water. The most significant description of Sa'adon and its surroundings was provided by Woolley and Lawrence (1914–1915: 111–112). They describe the dwelling houses, the wells and the towered farmstead to the west of Sa'adon. Wiegard published the first photographs of the site (Wiegard 1920: 60–61, Pls 59–60).

23 Rubin and Shereshevsky 1988; Rubin 1990: 145–150; Shereshevsky 1991: 90–92.

24 The survey of Sa'adon was carried out on behalf of the Archaeological Institute of the Hebrew University in Jerusalem (licence no. G-6/2002). Participating in the survey were Yisrael Vatkin and Dov Porotzky (surveyors), Zeev Radovan (photography), Ziv Tzur and Moshe Lupin (coins), and the team of guides from the Sede Boqer Field School.

25 The coins were examined by Gabi Bykhovsky from the Antiquities Authority.

26 The potsherds were examined by Anna de Vincenz from the American School of Archaeology in Jerusalem. Ceramic parallels come from Rehovot-in-the-Negev (see

Rosenthal-Heginbottom 1988) and from the excavations conducted by David Amit at Horvat Ma'on (Amit 2003: 102–109) and at Horvat 'Anim (Amit 2003: 132–137) in the southern part of the Hebron Hills.

27 On Gaza Jars and their distribution in the Byzantine period, Calderon 200: 119–127.

28 On the slipper-shaped lamp in the Land of Israel, Rosenthal and Sivan 1978: 112–122.

29 In the excavations at the village of En-Gedi, it became clear from the coins and pottery vessels that the Byzantine village was damaged by a conflagration and abandoned as early as the end of the sixth century; see Hirschfeld 2004b: 67. The village was possibly destroyed during a raid by the local Beduin, which was made possible by the worsening security conditions. On the end of the settlements in the Hebron Hills in the seventh century, Amit 2003: 63, 96–97. On the end of the settlement in Rehovot-in-the-Negev, Tsafrir 1988: 8; Tsafrir and Holum 1988.

30 There is extensive literature on the Justinianic Plague which broke out in 541 and for 200 years struck the population of the Levant intermittently. See for example, McCormick 2003; Allen 1979; Dols 1977: 14–26; Keys 2000: 277–278; and more recently the comprehensive work by Stathokopoulos (2004: 110–151).

31 On the plague at the Negev sites, Di Segni 1997: 775 (Nizana): 753 (Rehovot-in-the-Negev): 861–862 (Avdat).

32 According to Shereshevsky (1991: 91), the area of the site is 25 dunams. A density coefficient of 25 people to a dunam is accepted by many scholars; see Finkelstein 1990.

33 Rubin and Shereshevsky (1988) use various expressions such as 'continuous urban fabric' or 'block of buildings' (Rubin and Shereshevsky 1988: 151). Shereshevsky (1991: 91) also describes 'the street grid' of Sa'adon.

34 On the characteristics of a village during the Byzantine period, Hirschfeld 1997: 60–67.

35 On the sheep pens of Shivta, Hirschfeld 2003: 396. On the importance of sheep in the Byzantine Negev, Rubin 1990: 98–100.

36 Woolley and Lawrence (1914–1915: 113) mention a building next to a reservoir in the southern part of the site. In it was found a lintel and the stone of a gatepost. On the issue of security that characterized Sa'adon, Shereshevsky 1991: 210.

37 In a survey of cisterns carried out in Byzantine Shivta, it became clear that almost every house had a cistern; Tsuk 2002.

38 As mentioned by Kuhtreiber (1920: 15). Woolley and Lawrence (1914–1915: 113–114) also describe a well that was recently cleared at Sa'adon and contained water at a depth of 6.5m.

39 On the reservoir in Rehovot-in-the-Negev, Tsafrir 1988: 3–4. On the methods of storing water in the Byzantine Negev, Rubin 1990: 105–127.

40 Rubin and Shereshevsky 1988: 54.

41 Negev 1993: 380.

42 On the pottery of En-Gedi, Hirschfeld 2004b: 80.

43 Rubin and Shereshevsky (1988: 53) suggest that the southern complex was the main church of Sa'adon. Shereshevsky (1991: 93) suggests that the complex functioned as a monastery. Woolley and Lawrence (1914–1915: 113) mention a column drum that was found in the building.

44 On the periphery of the Shivta site is a large building with a spacious courtyard, which is usually interpreted as a caravanserai; Shereshevsky 1991: 65–66; Hirschfeld 1999: 38–39.

45 On the chapel at Khirbet ad-Deir with a depression and a reliquary casket, Hirschfeld 1999: 38–39.

46 The two inscriptions were examined and deciphered as far as possible by Omar 'Abd Rabbu.

47 On the Kufic inscription in the Northern Church of Rehovot-in-the-Negev, Nevo 1988. On the Kufic forgiveness inscription discovered in the church of Horvat Berachot in the Hebron Hills, Drori 1979. These inscriptions are comparable to other Kufic inscriptions held

to be sacred by the Muslims of the Negev Hills, such as the inscriptions on the map of Sede Boqer (Sharon 1985) and on Har Nafha (Lender 1990: VI).

48 In the dwelling houses of Shivta which are preserved to ceiling height, one can note the location of the windows close to the ceiling and also their small size.

49 On the adaptation of the dwelling houses in the Negev to the climate, Shereshevsky 1991: 164.

50 On the clusters of houses at Shivta, Hirschfeld 2003: 404–405.

51 On the churches, Hirschfeld 2003: 397.

52 On the 'kiosk' at Shivta, Hirschfeld 2003: 401.

53 On the size of an extended family at the end of antiquity, Nathan 2000: 160–168; Dar 1996.

54 At Shivta we arrived at a similar result according to the same methods; Hirschfeld 2003: 403.

55 On the stairways at Shivta, Hirschfeld 2003: 402–403.

56 The winepress was surveyed by Rubin (1990: 94–95). It is apparently mentioned in the brief description by Palmer (1871: 34).

57 On winepresses in the Negev, Mazor 1981. On the columbarium installations of Shivta, Hirschfeld and Tepper, in press.

59 Woolley and Lawrence 1914–1915: 113

60 Rubin 1990, 142–143. To the east of Sa'adon, Rubin (Rubin 1990: 133–135) surveyed another large and sophisticated farmstead.

Bibliography

Abbreviations

BA:	*Biblical Archaeology*
BASOR:	*Bulletin of the American School of Oriental Research*
DOP:	*Dunbarton Oaks Papers*
IEJ:	*Israel Exploration Journal*
JRA:	*Journal of Roman Studies*
NEAEHL:	*The New Encyclopedia of Archaeological Excavations in the Holy Land*
PEQ:	*Palestine Exploration Fund Quarterly*
ZDPV:	*Deutscher Palästina-Verein Zeitschrift*

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Rock-Hewn Channels near Tel Hazor: Evidence of a Middle Bronze Age Long-distance Water-Carrier?

YOSEF STEPANSKY

Introduction and History of Research

In the early 1990s, within the framework of the Rosh Pinna Map Archaeological Survey, and under the auspices of the Israel Antiquities Authority, a rock-hewn open channel, oriented east-west and intermittently exposed over a length of 1.1km, was surveyed along the northern slopes of a soft limestone ridge popularly known as 'Me'arot Ha-Druzim' (the 'Druze Caves') to the west of Tel Hazor in Upper Galilee (Channel A) (Figs 1, 2). Approximately 1.2km to the south, parts of yet another 250 metre long open channel, similar to the one above and oriented south-east-north-west, were discovered and surveyed (Channel B) (Fig. 1). In 1992, in the wake of plans for the construction of a highway bypassing Tel Hazor to its west (completed eventually in 2005), a few probes were conducted by the author along a length of 150 metres of the course of the northern Channel A. This is situated on the eastern part of the 'Me'arot Ha-Druzim' ridge, in an area where no traces of the channel could be seen above ground prior to the excavation. These soundings exposed some further sections of the channel in the form of a one-metre deep unplastered trench hewn in the rock. Although no certain dateable small finds were discovered, it was surmised in the wake of the survey and short excavation that Channel A, and possibly Channel B, form part of an aqueduct towards Hazor (Stepansky 1994: 1996).

In 2003, a more extensive excavation was carried out along the course of Channel A, in the same area as the 1992 soundings, as part of a series of salvage excavations (mainly installations and caves) of sites that were located along the planned Route 90 Tel Hazor bypass route (Stepansky, Heiman and Barda, forthcoming; Amos and Getzov, forthcoming). The excavation exposed 47 metres of the hewn channel and enabled a more in-depth investigation of its style and character, and this time also yielded potsherds. This recent excavation demands a review and summary of the data retrieved so far from the research of the channels; and this is the purpose of this article.[1]

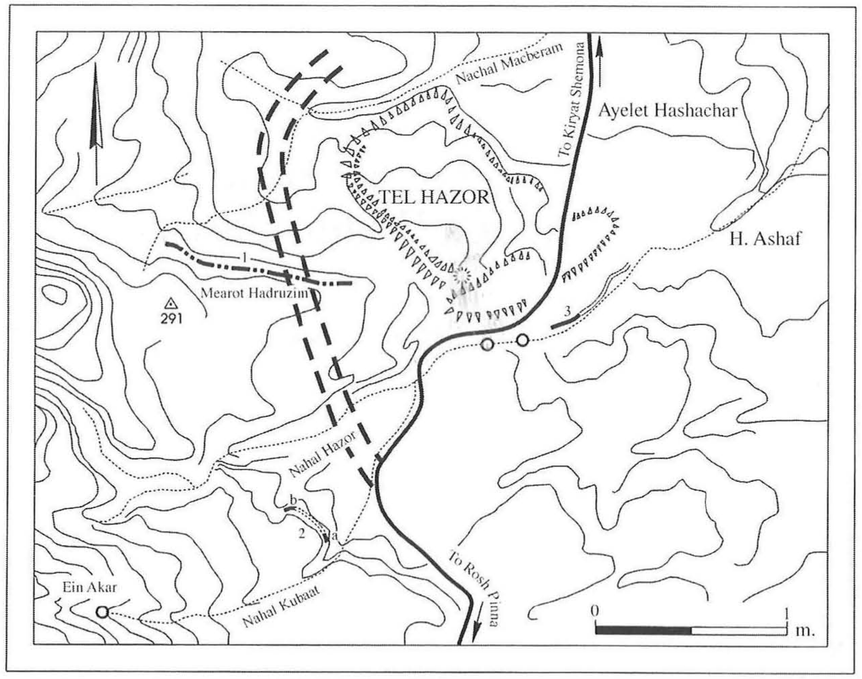

Fig. 1. Tel Hazor and its Surrounding Area

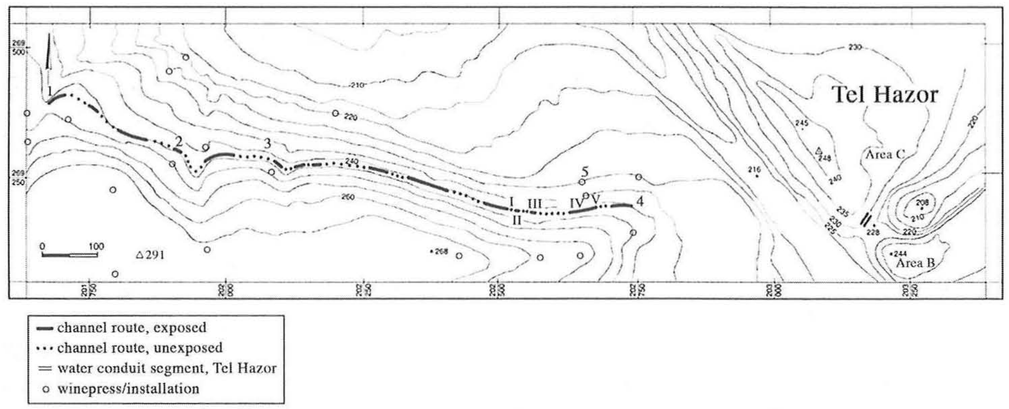

Fig. 2. Tel Hazor area map and course of Channel A

The Northern Channel A

The course of this channel may be traced for a length of 1.1km along the northern midslope of the 'Me'arot Ha-Druzim' ridge (Figs 1–4). The ridge, overlooking the plain of Hazor to its north, at a relative height of 50–70m above it, is formed of chalky soft limestone ('Gadot' geological formation) with a hardened nari coating, in which caves, installations (mainly winepresses) and the channel were hewn in antiquity. It forms a local divide between the Nahal Hazor (flowing north-east bypassing Tel Hazor to its south) and Nahal Macberam (flowing north-east bypassing the Tel on its northern side) drainage basins. Although today the two streams are non-perennial wadi-beds, Nahal Hazor – a relatively deep ravine originating in the Upper Galilee mountains in the west, with several local springs – may have been a perennial stream in antiquity, and winter floods were common in its gorge until recent times (Geva 1984).

The channel's most western exposed point (Fig. 2), approximately 246m above sea level,[2] is on the eastern bank of a short wadi cutting through the northern slope of the ridge towards the north, a tributary of Nahal Macberam (Fig. 3). From here to a point approximately 300m to the west of Tel Hazor (Figs 2, 4), 240.35m, hewn

Fig. 3. Channel A: a typical hewn section (1991, view towards east)

legs of the channel can be observed in most of the rocky outcrops along its route (Fig. 4). In some instances only scant shallow remains of it can be traced on the face of an outcrop, while in other instances no remains can be seen at all. However, the intermittent sections which are visible, especially from the air, strongly hint that these sections belong to one consecutive course (Fig. 5). It would seem that the non-visible sections of the channel were either damaged in antiquity by erosion or concealed by alluvium, although this may be proved only by excavation of the entire 1.1km course. In two locations where the channel is not visible (Figs 2, 3) its course traverses points of late (Ottoman period?) construction activity pertaining to the installation of some caves and terraces. In all of the existing visible legs, including the sections uncovered by excavation (below), no building or structural remains were found beside or relating directly to the channel. Furthermore, no remains of plaster were discovered within the confines of the channel's route. Although the dimensions of the channel differ along the route (its width varies between 0.2–0.6m; its depth, 0.2–1m) its hewn character strengthens the probability that it was constructed by human agency in one consecutive effort. Most important is the probability that the channel, where it can be observed and its floor-elevation measured, seems to have a constant and fixed gradient, sloping gradually along its route from west to east. The difference between the elevation levels of the western-most (246m) and easternmost points (240.35m) – slightly less than six metres over

Fig. 4. Channel A: the westernmost exposed leg (1991, view towards the east)

Fig. 5. Channel A from the air (1992; view towards the east)

a length of approximately 1.1km – creates an average gradient of about 0.5% towards the east, sloping an average of one metre for every 200m along its course.[3] Despite the lack of direct evidence of the source and destination of the conduit, these facts are sufficient to strongly suggest that the channel was installed to carry water, most probably perennial spring water, along the ridge in an easterly direction.[4]

The exploratory probes conducted in 1992 (Figs 2–4) were dug along a distance of 150m where the channel was not exposed above ground. In four of the five probes (II-V) sections of the channel were exposed under a shallow covering of topsoil (the westernmost probe did not yield any construction remains). In probes II-III the channel was found to be shallow and curving, not more than 0.4m deep and 0.2–0.4m wide In probes IV-V the channel was V-shaped and hewn to a depth of one metre, 0.5m wide at its top and 0.1–0.15m wide at its base. Section IV was carved with a slit along the channel's base (Figs 6–7).

Only a few non-diagnostic pottery sherds (vessels) were found in the fill of the channel, although we could ascertain that these were pre-Roman in character. The excavation proved the continuity of the channel's route and showed that a good deal of effort was invested in its construction. Above it was suggested that its function was to convey rainwater (or possibly springwater from long distances) to Hazor, probably during its heyday in the MBII-LB periods,[5] and suggested that the 20m deep depression separating the upper and lower mounds of Hazor on its south-western side

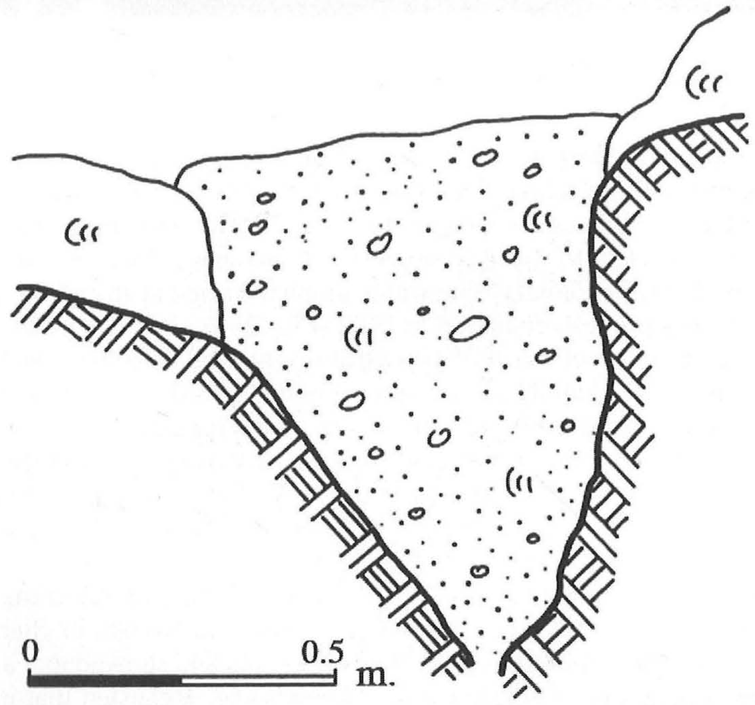

Fig. 6. Photograph and drawing of Channel A, section IV 1992 excavation (view towards the east)

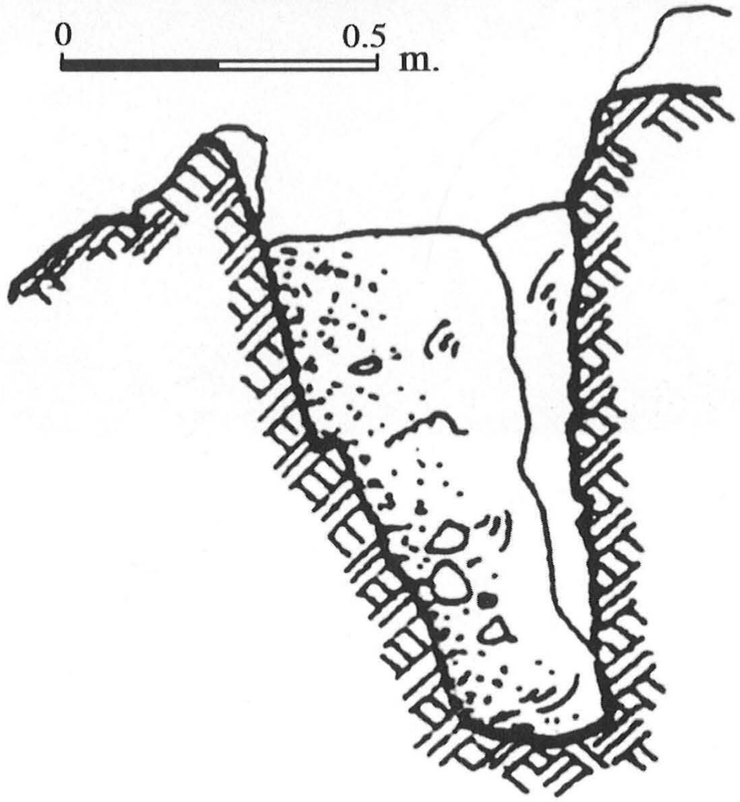

Fig. 7. Photograph and drawing of Channel A, section V, 1992 excavation (view towards the east)

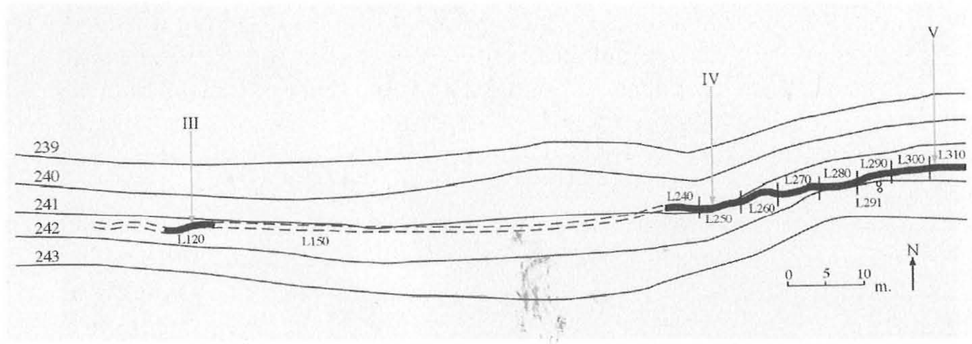

Fig. 8. Channel A, 2003 excavation plan

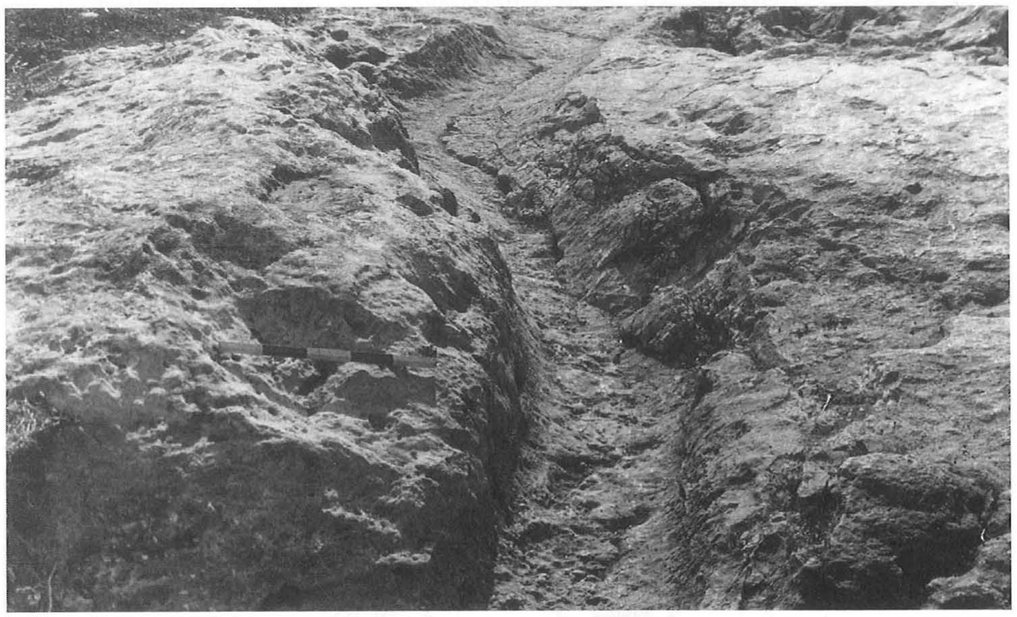

Fig. 9. Channel A: 2003 excavation, western leg

(elevation point 208 between areas B and C) (Fig. 2) was in fact the channel's destination, serving as a reservoir for the people of the city (Stepansky 1996).

The 2003 excavation, undertaken along a 110m corridor encompassed the three easterly probes of the 1992 soundings (Fig. 2, III-V; Fig. 8, L120 – L310) (Stepansky, forthcoming). Of the 110m that were cleaned and excavated, 47m of the channel were found and exposed in two legs: in the west, a seven metre long section (L120; Fig. 8), (enclosing probe III), and in the east, a 40m long leg of the channel (Fig. 8, L240 – L310) (including probes IV and V). The western leg revealed a shallow 0.3–0.4m deep section (Fig. 9), curving slightly along its seven

metre course at a consistent level of 241.22–241m (measured along the channel's floor). Its eastern end tapers out gradually into the natural bedrock, where it disappears for 67m and reappears at point L240. From there to L310 it is intact and well preserved for 40m (Fig. 10). The channel was cut here as a narrow hewn trench one metre deep on average (0.5–0.6m width at its top, 0.1–0.3m wide at its basin base), cutting through the Nari rock in a slightly winding west-east course (Fig. 11). In the middle of this leg, for a length of 15m, the channel narrows and reaches a depth of up to 1.7m, appearing as a large and deep fissure cut into the rock. Here the engineers may have utilised an existing natural crevice, enhancing it and incorporating it into the channel route (L270, L275, L280; Fig. 12). At one point on the southern side of the channel's ridge (L 291), two shallow cupmarks (30cm in diameter, 15–20cm deep) were hewn on the upper face of the rock (Fig. 13), however no stratigraphic connection between the cupmarks and the channel itself could be discerned. The elevation levels measured along this 40m leg of the channel are 240.84–241.03m, 0.2–0.4m lower than the western leg, indicating a gradient of about 0.2% for this 110m section, which is slightly less than the average gradient (0.5%) estimated for the channel along its full 1.1km length. To the east of this excavated leg, along the 80m course of the channel before its final disappearance (Figs 2, 4), elevation levels of exposed points along the weathered channel floor were measured from west to east as 241.02, 240.87, 240.70 and finally 240.35m at its eastern end, indicating a relatively steep gradient of about 1% along this portion of the channel's path. The channel disappears 300m away from the MB rampart of Tel Hazor, while the ridge slopes and tapers off into a field of alluvium soil today planted with fruit trees.

At different points along the eastern excavated leg (L270, L280 and L290) 63 pottery sherds were gathered from the earthen fill removed from the channel, most found at a level of about ten centimetres above the channel floor. Of these, only four date to the Roman-Byzantine and Medieval periods, while the rest are all of a Pre-Roman character, probably dating to Middle Bronze II (phase a or b, or possibly both), and a few possibly to the Late Bronze. In L270 14 sherds were found together on the bedrock bottom of the channel (basket 2702); although all were body pieces with no rims, they were all of coarse ware material typical of MB age pottery. Among the other sherds a few rims were found, most probably MBII (although possibly also Late Bronze, but almost certainly not later (Fig. 14). In 2003, two winepresses that were excavated slightly further down the slope of the ridge to the north of the excavated eastern section of the channel (Figs 2, 5) were also dated to MBII, on the basis of MB pottery retrieved and their simple irregular plan. This installation was one of several excavated along the planned highway route and related to MBII peripheral activity west of Hazor (Amos and Getzov, forthcoming).

Along the 67m of the channel's supposed route between the western and eastern excavated legs, only bedrock did not exhibit any evidence of cutting. The bedrock's upper face seemed to be quite weathered and lacked protruding rocky high points (Fig. 15), and its relative elevation does not exceed the level of the exposed channel

Fig. 10. Channel A, 2003 excavation, eastern section (view towards the west)

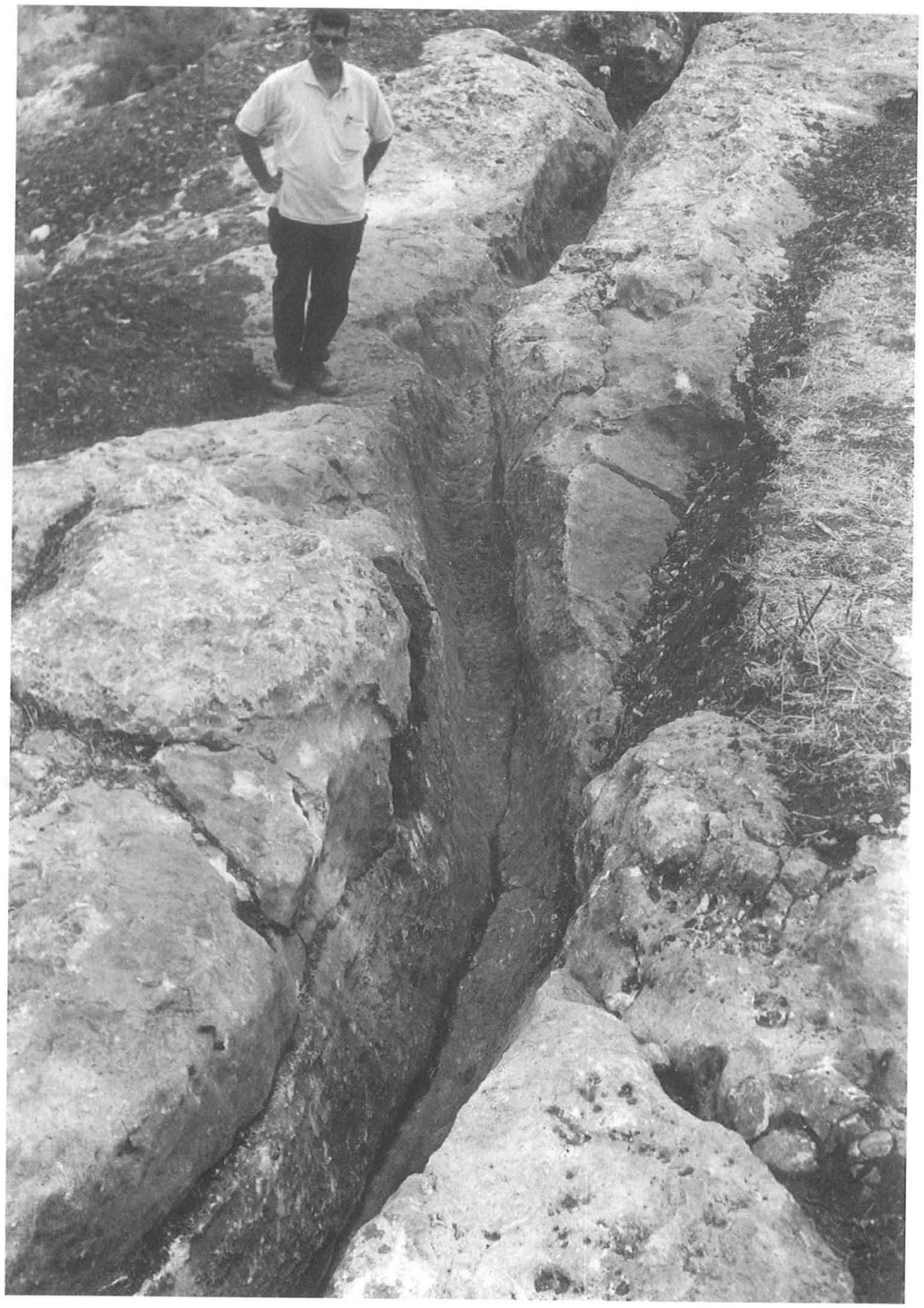

Fig. 11. Channel A, 2003 excavation, eastern winding section (view towards the west)

Fig. 12. The Northern Channel, 2003 excavation, eastern leg, channel 'fissure' (view towards the east)

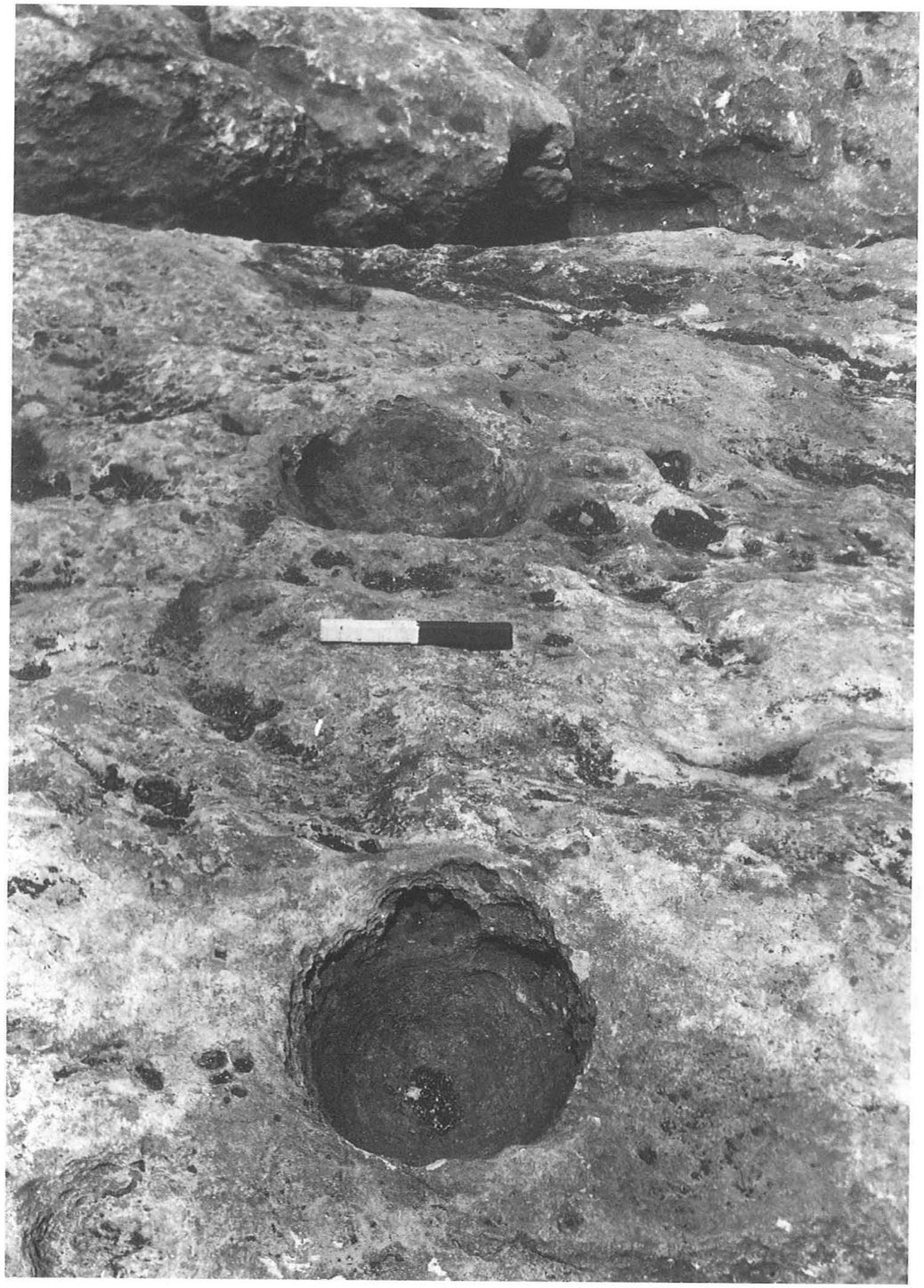

Fig. 13. Cupmarks near the ridge of channel A (L291), (view towards the north)

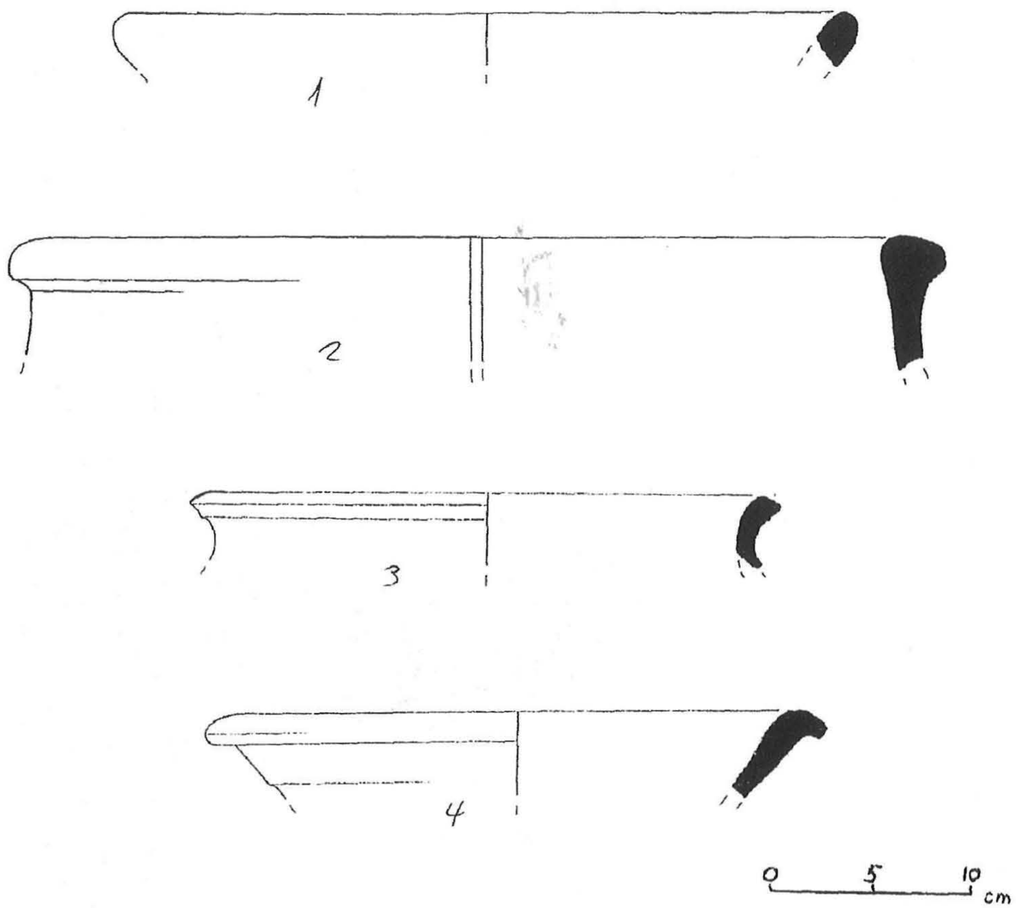

Fig. 14: MBII pottery rims found in the 2003 excavation of channel A, eastern leg (Locii 270, 280, 290).

14.1. L280 B2801/1 bowl, red-brownish coarse ware, few white grits, badly fired. Parallels: Yadin *et al.* 1959, pl. CIX: 1, 2, 7 (MBII); Yadin *et al.* 1961, pl. CCLXI: 1, 2, 7, 8 (LBI).

14.2. L270 B2701/1 large krater, light brown-yellowish coarse ware, few white and brown grits. Parallels: Yadin *et al.* 1961, pls CCLIX: 19 (MBII), CCLXIV: 14 (LBI)

14.3. L290 B2901 krater, brown-reddish ware, smoothed surface, few white and brown grits. Parallels: Yadin *et al.*1958, pl. CXI: 1 (MBII); Yadin *et al.* 1961, pls. CCLIX: 20, 28 (MBII), CCLXXXVI:10 (MBII).

14.4. L280 B2801/2 jar, red-brownish ware, smoothed surface, very few small grey grits. Parallels: Yadin *et al.* 1958, pls XCIII: 20 (MBII), XCVIII:11 (MBII); Yadin *et al.* 1959, pl. CXIV: 14 (MBII); Yadin *et al.* 1961, pls CCLX: 5 (MBII), CLIV: 17 (MB).

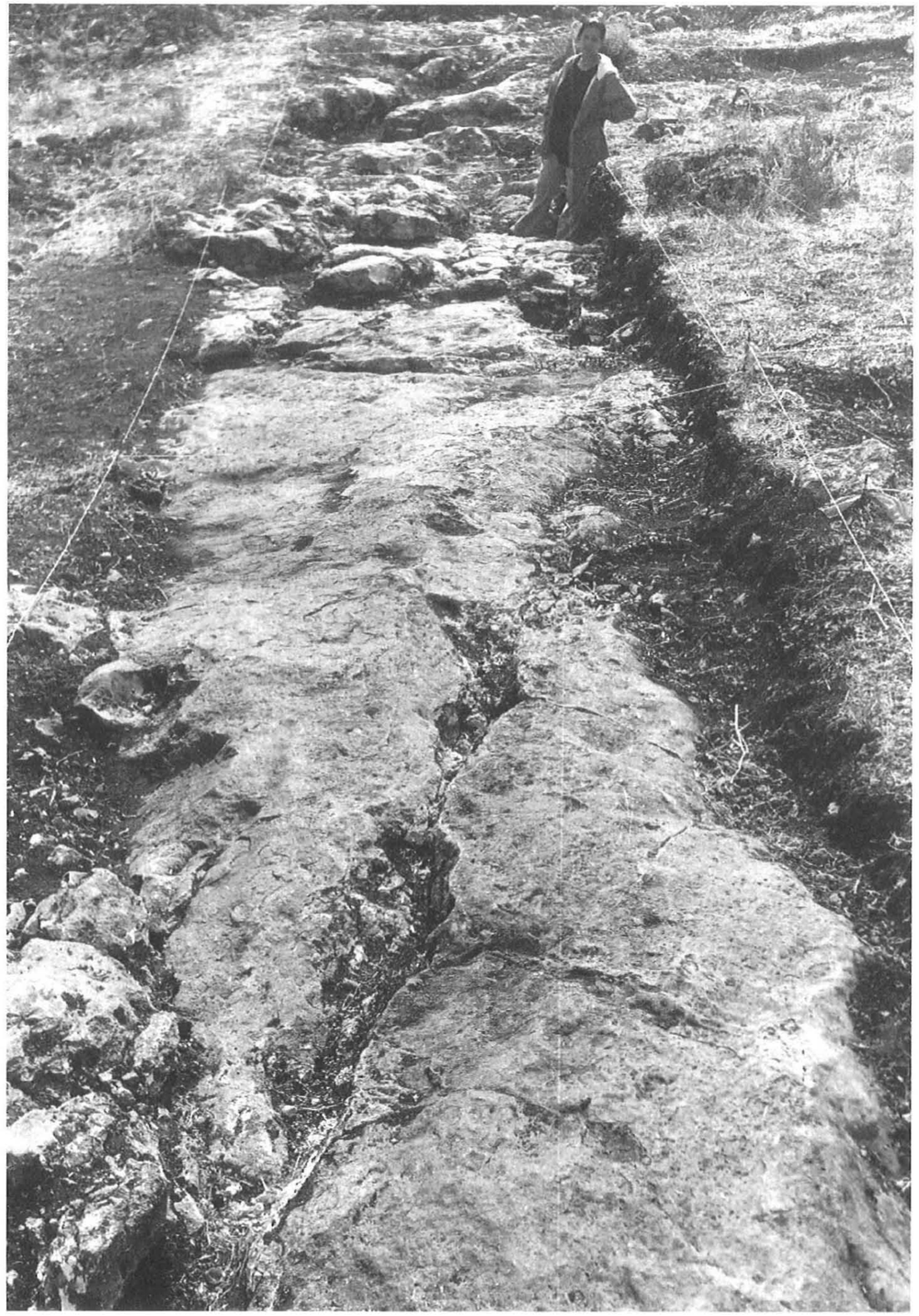

Fig. 15. Channel A, 2003 excavation, weathered bedrock between the western and eastern legs (view towards the east)

to its west and east. This may indicate that in this area the channel had been damaged by natural weathering and/or erosion leaving only a face of natural-looking smoothed bedrock. However, we cannot disprove the possibility that this interruption is from the original phase of the channel installation, and that the whole project should be seen as an *attempt* to convey water in this area, but the aqueduct was not completed. If no water actually flowed through the channel, this would explain the lack of plaster and other definite signs of running water,[6] including the fact that no cover stones were found along any of the surveyed or excavated sections, while also elucidating other difficulties with the channel's route towards the east, as clarified below.

The Southern Channel B

Located 1.2km south of the northern channel remains of another hewn channel (shorter and for the most part shallower than Channel A), were surveyed in the early 1990s along the mid-slope of a small hill between the Nahal Hazor (to the north) and Nahal Kubaat (to the south) tributaries (Figs 1, 2). No soundings or excavations were carried out along this channel's route, as it is outside the range of the planned highway, so data was gathered from surveying only.

The remains of Channel B were traced in two visible legs, a south-eastern portion 30m long and a north-western portion 70m long (Figs 1, 2), both similar in character and dimensions: an average width of 0.25–0.3m, a depth of 0.25–0.5m, and a flat floor (Fig. 16). The presumed course of the channel between these legs is today

Fig. 16. Channel B (1991, view towards the east)

covered over by a recent fill of debris for 150m, the foundation for the dirt road leading west towards the Yanai Farm. Although the Channel B legs contrast markedly to the V-shaped legs of the well preserved and deeply hewn portions of Channel A, they are similar to some of the surveyed portions of Channel A on its western side (for example, Fig. 4). Channel B's gradient – as measured along its visible parts – seemingly slopes slightly towards the north-west (267.4m measured in leg 2a, 266.3m in leg 2b), and is about the same as the gradient of the northern channel at approximately 0.5% or slightly less. On the rock surface in the area of leg 2b, other hewn installations are located nearby and below the channel's course. A group of seven small installations, most probably parts of a winepress, are in close proximity, and a few more are located 50m down the slope to the north. However, these installations are seemingly of Roman-Byzantine date and *no* stratigraphic connection can be established between them and the channel itself.

Discussion: the Channel's function, purpose and chronology

Agricultural Installation ?

Within the range of plausible speculations which could define this system other than for carrying water long distances are some other possibilities which should be taken into account before putting forward our determined view on its function. Both channels could theoretically be linked with relatively late Roman-Byzantine local agricultural activity in the area, or even MB-LB peripheral activity outside of Hazor's borders, possibly for irrigation purposes or somehow related to some of the winepresses that are located in their vicinities. Hewn channels tapping stream or spring waters or rainwater run-off for agricultural purposes are a common feature in the rocky interior of Israel (for instance, rock-cut channels in Western Galilee; Frankel, Getzov and Sion 2002, Frankel 2002) and we may speculate that our channels were also installed for that purpose, possibly for watering the plots of land in the low area to the west of Hazor, east of the channel's eastern endpoint.

However, the agricultural environment of Hazor itself (today used to grow dry cereals such as wheat) and of the area to its west is suitable for growing non-irrigated crops, witnessed by the agricultural installations (mostly winepresses) themselves on the Me'arot Ha-Druzim ridge (Fig. 2), a reminder that grape cultivation was common in this area in the past. Irrigation was used in the past to cultivate the lowland fields in the El-Heit plain to the north-east of Hazor, utilizing the water of the springs of Einot Hazor and transmitting them via a stone-built and plastered water conduit, whose remains may be traced along the banks of Nahal Hazor at an elevation level of 190m (Figs 1, 3).[7] This canal, as yet unexcavated, probably dates not earlier than the Byzantine-Early Arab periods, when Horvat Ashaf to the east of Tel Hazor existed as a medium sized settlement long after Hazor's demise. The hewn and abrasive unplastered channels to the west of Hazor are of a completely different character, as are the rocky surroundings of its vicinity. We can not imagine a physical connection between these two water systems, nor conceive an irrigational

Fig. 17. Tel Hazor, parts of a water conduit on the slopes of the MB rampart, to the west of the deep depression (1992, view towards the east)

function for the hewn channels under discussion. Another possibility is that the channels were commissioned as part of agricultural industrial activity which took place in their vicinities. In the instance of wine production, we may conjecture the use of flowing water for winepress-floor cleaning. If they were used for olive-oil production (although quite unlikely since there are no definite signs of that activity in the vicinity of the channels) – it is possible that (hot?) water was used in the process of separating the oil from the olive pulp (Eitam 1987: 22; 1996: 174). These are, however, unlikely explanations, with no known parallels (although we should admit our knowledge of all aspects of ancient agricultural industrial activity is still quite limited). In any case, although in proximity to some agricultural installations, no stratigraphic connection or association can be observed between them and the channels, while the installations themselves are only a small part of a much larger group encompassing more than 100 (mainly winepresses of different type date) dispersed on the rocky outcrops surrounding Hazor (Stepansky 1994; 1999: 67–68).

It is possible that the channels functioned as drainage trenches, diverting damaging floodwater from the installations or from other sensitive sites in the vicinity (caves?).[8] However, the great length and moderately-sloped gradient of the channels, especially of the shallow legs, suggest that their purpose was for carrying

a constant and non-torrential body of water, and not for the diversion of floodwater. Moreover, some of the installations on the Channel A ridge are above the route of the channel itself and they would not have benefited from that system. In sum, there is no pattern or link that can be observed relating the sporadic installations along the Me'arot Ha-Druzim ridge to Channel A in any capacity. As for Channel B, although part of it is in close proximity to a cluster of small winepresses, it is also more suitable as a water carrier than a water-diversion or flushing installation.

The Channels and Tel Hazor

Taking into account the similarities between Channels A and B, and the difference in elevation-levels (~266m for Channel B, and ~245m for Channel A), we may conjecture a gravitational connection between them. Could both be part of a grand attempt to carry water long distances towards Tel Hazor during its peak in the Middle Bronze Age II? Could the Ein Akar spring (today dry) 1–1.5km to the west of the southern channel have been the destined source of water for this project? Or maybe even springs further upstream, such as those flowing in the Nahal Kubaat wadi bed west of Ein Akar, or even the Nahal Mahanaim springs (Israel Map ref. 2040/2665)? If so, this would designate the system on the whole as the earliest long-distance municipal water carrier in the land of Canaan, and perhaps – one of the earliest of its kind in the ancient Near East, a rare engineering effort paying tribute to the ingenuity of the Canaanite urban society epitomized in the metropolis of Hazor.

Can we be sure that Middle Bronze II Canaanite Hazor was the destination of these aqueducts in such an early period when hydraulic gravitational engineering was relatively unsophisticated?

Although sophisticated long-distance municipal aqueducts are not known in the Near East before the Iron Age and become widespread only during the Classical Age which followed,[9] local water supply systems based on catching rainwater and conveying them over distances of thousands of metres in some cases existed as early as the third millennium BC, while more modest local examples may be found even earlier during the sixth-fourth millenniums BC. Irrigation canals and earthen dams were used in Mesopotamia already in the sixth millennium BC (Oates 1976: 64). In the third millennium BC, after the establishment of the first cities in Sumer, the technical terms describing large irrigation projects including dams and water reservoirs were already a part of the Sumerian language (Adams 1981: 54–63, 245–246). The complex but chronologically enigmatic water supply system of Jawa based on gravity canals and earth and stone-lined dams in the eastern Black Desert is dated by Helms to the fourth millennium BC (EBIa) when the site first prospered (Betts 1991:10–18) and reused during the MB period (Helms 1989: 151), but many scholars are skeptical of such an early date and prefer a later, even Roman date (Kempinsky 1986; Tsuk 2000: 62). Other EBI water systems are rare (for example, Kh. El Umbashi, Braemer 1993: 428) but we should note that at Tel Teo, in the Hula Valley 11km north of Hazor, a conspicuous 0.2m deep stone-lined drainage channel was discovered dating from this period ('Channel 518'; Eisenberg, Gopher

and Greenberg 2001: 42–43, plan 3.9, fig. 3.39). Municipal water-collecting and drainage-systems become common in the third millennium EBII-III (such as, Arad, E-Tel, Beit Yerah and Zerakun;[10] Tsuk 2000: 51–68), although still lacking hydraulic gravitational engineering that utilized perennial sources.

In the second millennium MBII city-states of the near east, the exploitation of water resources was enhanced, and there are quite a few examples of water systems, some quite sophisticated, although usually these are located within the borders of the ramparts/walls of the city or in its immediate environs (Tsuk 2000: 69–93), and do not carry water over long distances.[11] A particularly complex water-supply system of rock-hewn tunnels, pools and channels utilizing the waters of the Gihon spring, and dating to MBII, has recently been (re)discovered in Jerusalem. In the wake of the discovery of monumental MBII fortifications in the vicinity of the spring, 'Warren's' Tunnel and other accompanying channels and pools have been chronologically realigned to this period (Reich and Shukron 1999, 2000, 2004: 211–216; Tsuk 2000: 72–77). Included in this MBII system is the 190m long northern part of 'Channel II', a gravitational open rock-cut channel up to five metres deep which runs from north to south along the lower eastern slope of the city of David, covered mainly with large boulders (Reich and Shukron 2002), and possibly also 'Channel I' which runs parallel to channel II further down the slope to the east (Tsuk 2000: 74). Other monumental MBII rock-hewn water systems cut into the ground leading to the underground water table have been discovered and excavated at Tel Gerisa dating to MBIIA (the only one of its kind from this early MBII period: Tsuk and Herzog 1992; Tsuk 2000: 78–79), and at Gezer, including a 40m sloping and vaulted tunnel, which has also recently been realigned to MBII, as originally proposed by Macalister, the site's first excavator in the early 20th century (Vincent 1908; Tsuk 2000: 82; Reich and Shukron 2003). At Megiddo, phase 1 of the complex water system, including a hewn 1km tunnel has also been recently re-dated to the Bronze Age (possibly even Early Bronze Age), overturning the long accepted view of its Iron Age date (Franklin 2000). These recent (re)discoveries have led to a better appreciation of Canaanite skills: '... creating monumental constructions and rock-cuttings was standard practice for the MBII people' (Reich and Shukron 2003: 28).

As for rock-cutting ability and project management, MBII Hazor, a true international metropolis (Maeir 2000) which certainly excelled in urban development, is also notable with more than one 100m of hewn drainage tunnels in Area F alone dated to the eighteenth-seventeenth centuries BC (Yadin 1972: 41–42; 1975: 71–77, Ben-Tor 1989: 135–137) and well-built drainage canals in other parts of the site (as in Areas P and N: Yadin 1969: 8, 1972: 65–66; 1975: 74–75; Ben-Tor and Bunfil 1997: 11–12, 360), some equipped with clay pipes (as in Area G; Yadin 1975: 268). Nevertheless, a public reservoir of the kinds found in Area A of Hazor from the LB period (Yadin 1975: 264–265; Ben-Tor 1989:18–21) and in Area L from Iron Age II (Yadin 1975: 233–247; Garfinkel and Greenberg 1997: 239–246), has yet to be discovered in MBII Hazor.

Thus, it is logical to suggest that the 20m deep and very wide (90m in diameter at its upper ridge) depression at the south-western corner of Hazor between the upper and lower mounds, served as the main MBII water reservoir, as proposed in

the past.[12] After many generations of abandonment and neglect, the depression (as yet unexcavated) is still impressive enough to ponder and reflect on its past grandeur. A glance at the map showing the route of the northern Channel A (Figs 1–2), directly oriented towards the depression, supports the suggestion that the channel's (planned?) destination was this depression, and that it functioned as a reservoir. Moreover, this would explain the 'gap' in the MBII rampart between the lower mound and the upper mound at this south-western corner of Hazor, which would have enabled the channel to exit into the reservoir. Attention should also be drawn to a hitherto unnoticed seven metre leg of a stone-built water conduit on the surface of the lower, inner face of the MB rampart (just west of the depression), oriented in a general north-east-south-west direction (Fig. 17).[13] Could the 'trough-style' stones of this conduit have been connected in the past with our hewn channel to the west, and/or to the depression to its east?[14]

On the face of it this reconstruction of the channel's function seems logical, but there is still a problem. Between the eastern end of the exposed channel (Fig. 2:4, 240.35 m. asl) and the depression on Tel Hazor (228m on its western upper ridge) is a gap of 300m – a topographical 'saddle' reaching a low of 220m in the MB moat at the foot of the MB rampart to the west of the depression. For a gravity water conduit to reach the upper ridge of the 228m depression without using a pipe siphon apparatus[15] would have necessitated the building of a viaduct to overcome the eight metre difference. However, as indicated above, the earliest bridged aqueducts known date to the Iron Age, a 1000 or more years later than our proposed MB date for the Hazor system. It is therefore unlikely that this solution was reached, notwithstanding the Canaanite engineering ingenuity exemplified at Urban Hazor.

There are two possible solutions: either the system should be dated to MBIIA or early MBIIB *prior* to the building of the MBII rampart,[16] or the whole system (as stressed above) was only an *attempt* to haul in water from a distant source, which in the end was abandoned. Nevertheless, in both cases the unusual 'gap' in the rampart in the south-west corner of the tel is still problematic, since if the channel was broken by the rampart, or if it never actually supplied the reservoir, then why was the gap in the rampart not filled in?[17]

Conclusions and Summary

As demonstrated above, the function of the northern Channel A could only have been to convey water in an easterly direction. Coupled with the feasible assumption that southern Channel B was also part of this extended water conducting system, it seems reasonable to conclude that the channels were part of an early long-distance water carrier system to Hazor that was commenced under the auspices of a centralized municipal authority, probably with the royal support of the Canaanite king of Hazor at the time of this city-state's apex in the MBII (A or B?) or LB periods. We prefer to view this as an attempted grand project, which in the end was abandoned, plausibly as a result of engineering difficulties. This explains the lack of perceptible water-flow in the channels, the lack of conduit remains between Channels A and B (which

may have never actually been connected), and also the intermittent character of Channel A's route. We propose an MBII date for this project, on the basis of the sherds found in the excavation,[18] and by the MBII-dated winepress and other installations excavated along the Hazor bypass (Amos and Getzov, forthcoming). This fits well into the intensively exploited peripheral environment surrounding Hazor during that period (Stepansky 1996; 1999: 66–73, 109–113). Even if the scheme did not reach completion, it should be hailed at least as an attempted pioneering undertaking to enhance a relatively advanced municipal society.

Seemingly the answers to the questions left unresolved (like the existence of the gap in the MB rampart if the project was uncompleted), and maybe the solution to understanding the system as a whole, may lie crucially in the unexcavated area of the south-west corner of Tel Hazor. We propose that this area, including the rampart gap and nearby depression, should be explored and excavated, enabling a better understanding of what may be one of Canaan's most innovative projects.

Notes

1 In the research of the channels on behalf of the Israel Antiquities Authority many participated. Special thanks go to the Eastern Galilee survey crew from Kibbutz Kfar Hanassi: T. Amit, J. Cina, Z. Nitzan and L. Markisson with whom the channel was surveyed and constantly discussed over the years. The 1992 soundings (IAA license no. 1952/1992) were conducted 8–11.12.1992 by the author, assisted by Y. Vatkin, P. Gratovsky, N. Masika and J. Cina (surveying and drawings). The 2003 excavation (IAA license no. 3904/2003) was conducted in May 2003 by Matanes Abu-Ayub (field supervisor) and the author. Thanks are due to The Public Works Department (funding), V. Asman, V. Pirsky, T. Cornfeld and R. Lowenthal (surveying and plan drawings), H. Tahan-Rosen and A. de Vincenz (pottery drawing and setting) and Y. Yaakobi (technical assistance). The field photographs in both excavations were taken by the author. I am also in debt to Dr. Tzvi Tsuk and my IAA colleague N. Getzov for their valuable suggestions and review of the channel research, and to the anonymous reviewers of the article (as to the editors Shimon Gibson and Mark Merrony) for their helpful comments and critical remarks. In any case, the conclusions presented in this article are solely mine. For the survey and 1992 excavation reports, Stepansky 1992, 1994, 1996 (1992 excavation report), 1999: 68–70.

2 All heights hereafter are above sea level.

3 The elevation levels quoted here are based on the Israeli Government Public Works Department levels given for the construction of the road by-pass, and on level measurements taken by the author on the eastern side of the channel during the 2003 excavation (below). These levels are slightly different to the levels retained in 1992 and quoted in our 1996 publication (Stepansky 1996), which were based on relatively distant elevation points on Tel Hazor and on the western peak of the ridge on which the channel was surveyed. The 1992 levels (248m asl for the westernmost point, and 242.50m asl for the easternmost) should be lowered about two metres, and the channel's route slightly changed relative to the contour elevation lines depicted on the topographical map in Fig. 2. However, this new information does not change the overall picture concerning the relative elevation levels along the course of the channel, or its average 0.5% gradient. In any case no part of the channel that was observed or measured along the whole length of its course in survey or in excavation showed an elevation deviation that could contradict or challenge the gravitational conception nature of the channel.

4 The runoff-rainwater surface catchment area of channel A is an approximate 250–300 dunams. However, the relatively small and diverse dimensions of the channel (whose width does not exceed ~ 0.60m) hints that it probably carried – or intended to carry – a stable non-

torrential flow of water deriving from a perennial source. Although there are perennial springs in the two main streams higher up and to the west of the channel – Nahal Dishon and Nahal Hazor – we know of no evidence connecting the channel with these springs or of any other artificial hydraulic activity that would hint of channel A's extension westwards into the Upper Galilee Mountain Foothills. For the possibility of its connection to channel B and utilizing the Nahal Kubaat spring to its south-west, see below.

5 The outline chronology relevant to this article are as follows: Early Bronze Age I (3150–2900 BCE), Early Bronze Age II (2900–2600 BCE), Early Bronze Age III (2600–2300 BCE); Middle Bronze Age I (2200–1950 BCE), Middle Bronze Age II (1950–1550 BCE); Late Bronze Age I (1550–1400 BCE), Late Bronze Age II (1400–1200 BCE); Iron Age I (1200–1000 BCE), Iron Age II (1000–586 BCE).

6 At two points along the channel's length in the eastern excavated section (L240, at the western end of the section and L300, near the eastern end of this section) fragmentary pieces of travertine were found at the bottom of the channel basin, on the rock face of its floor. However, this is not necessarily proof of water flow in the channel, for it may also derive after it was abandoned from local moist conditions perpetuating underground sedimentation activity after the channel was filled in with soil.

7 Layers of travertine covering some parts of the conduit suggest a constant flow of water in the past, as do remains of at least one Ottoman-period water-mill located downstream on its northern bank.

8 Geva even proposed that the former flooding potential of the Nahal Hazor stream was the main reason for the eventual abandonment of the population of Early Iron Age Layer XII at Hazor in the twelfth century BCE, while in other periods of more efficient governmental central rule the municipal authorities probably took measures 'to build dams that would hinder the flooding and impede erosion... and proper channeling that would divert flooding ...' (Geva 1984: 160).

9 Amit, Patrich and Hirschfeld 2002. The most well-known Iron Age Conduits were in Urartu and Assyria (see for example: Garbrecht 1980; Oates 1968: 42–47, pls II-III; Jacobsen and Lloyd 1935: 6–18, 42–43; Dalley 2001–2002). The Iron Age municipal water-supply systems in Israel, although sophisticated and monumental, were not based on conveying water by aqueducts long distances (Shilo 1992; Tsuk 2000: 191).

10 At Zerakun, a large EB II-III fortified site, there is an extensive underground water system consisting of tunnels and natural caves cut by human agency under the plateau on which the site is located (Ibrahim and Mittman 1997; Tsuk 2000: 52–53). Although the system and its chronology have not as yet been explored and established (it may be even of Roman date, a period of intensive activity in the environs; Mittman 1999), if it does prove to belong to the EB city above it then this project should be hailed as one of the first that utilized an underground water table with a hewn tunnel system, a forerunner of the later MB systems.

11 Among the documents from early 2nd millennium BCE Mari on the Middle Euphrates is a tablet recording the extraordinary feats of king Yahdunlim, who boasts of 'canal development' and of 'removing the need for water buckets in my country' (Malamat 1968: 81). Although archaeological evidence of water conduits in the Mari countryside which could relate to these canals has yet to come to light (Tsuk 2000: 90), this recording may in fact allude to an early forerunner of long-distance aqueducts.

12 Already Garstang (1927: 37) suggested it was a rainwater reservoir. Aharoni and Amiran (1953:29) proposed a connection between it and the springs in Nahal Hazor to the south of the Tel; Yadin (1969:12; 1972:12) saw in it a system that utilized the underground water table (also Tsuk [2000: 83]), while Shilo (1992: 275) returned to Garstang's proposal of a rain-collecting overground reservoir.

13 This conduit was noticed and mentioned by Aharoni and Amiran (1953:130) but never investigated, despite the nearby intensive excavations of Area C.

14 It is hard to conjecture its use as an MB conduit at its present location, *overlying* the

inner slope of the MB-LB rampart. However we can certainly surmise the use of the same stones in a similar context during the MB in the same (or nearby) location, while in later periods these stones may have survived above ground and were reused – possibly once again for transporting water.

15 The use of a 'siphon' in such an early period must be ruled out, as this invention dates only from later classical periods (Hodge 2000: 77–87), although we should note that already in eighth century BC Assyria the terraced gardens of Nineveh were watered by a sophisticated raising system, possibly through the use of a water screw (Dalley 2001–2002: 451–460).

16 Also suggested by Tsuk (2000: 111) as a possible solution. This would also explain the 'dip' in the topographical saddle as an area from which soil was dug out and taken to build the rampart. Before its construction, the elevation level of the area of the saddle (and certainly the moat area closer to the tel) was probably higher, thus enabling a more moderate sloping environment for the channel on its way to pre-rampart Hazor. Another possibility could be that the channel in its last lap entered (or intended to enter) the depression/reservoir via a tunnel that was intentionally covered by the rampart. However, we feel this option is far-fetched, if so, why was a gap left in the rampart?

17 Another possibility could be that the channel was built and functioned as a water carrier *after* the rampart went out of use, and that the gap is not an original part of the rampart's constructional phase; or that the channel's destination was not the depression at all (which may have been another independent water system utilizing the water table underneath it, as Yadin surmised), but somewhere else in the vicinity of Hazor. The channel could then be dated to the Iron Age, maybe before the Iron Age II system was created (such as Iron Age I as Tsuk has proposed in the past [Tsuk 2000:110–111]), or even post-Iron Age. However, this would mean that the system dated to periods of sparse settlement at Hazor. We prefer dating the system to the times of Hazor's municipal peak, as clarified hereafter.

18 As all parts of the channel were discovered open from above, the sherds cannot be used as a *post quem* or *ante quem* means of dating for the channel's installation, because they are rarely found in a sealed and stratified locus. Some or all of the sherds may have entered the channel from the slopes above with the earthen soil that filled its cavity soon or long after the channel's abandonment. However, we believe it is more feasible to assume that the sherds were deposited not long after its abandonment, when the channel's inner space was first being filled in. This may account for the relatively high concentration of MB sherds and dearth of sherds from later periods within the channel, which is in contrast to the relatively high field-frequency of later-period field sherds found sporadically on the surface along the ridge as a whole.

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Fritz Frank, a Templar, Surveyor of the 'Arava Valley and Cucumber Grower in 'Ein Gedi, Israel

GIDEON HADAS

While working on my PhD about the Ancient Irrigation Agriculture in the Oasis of 'Ein Gedi and some other oases around the Dead Sea (Hadas 2003), I looked for descriptions and photographs of 'Ein Gedi also at Fritz Frank's report about the 'Arava Valley (Frank 1934). Frank's report started with 'Ain Bokek Oasis, about 30km south of 'Ein Gedi, via 'Arava valley to the Coral Island, in Eilat Gulf, in the south. The survey took place in the winters of 1932 and 1933, and this was the first accurate survey undertaken in this region which included a detailed description, along with photographs and plans of each site. Earlier scholarly work in the region included the work by Jules de Bertou and Edward Robinson.

A short time before Frank conducted his survey, Masada was investigated by Schulten who implied that Frank lived in 'Ein Gedi at that time (Schulten 1933: 3). Surprisingly, Frank's report contained no information about 'Ein Gedi. Frank's survey included a detailed description of every site in the 'Arava, including 'Ein Bokek, but the omission of 'Ein Gedi, the large oasis with drinking water on the western shore of the Dead Sea – a place where he lived for a considerable time – seemed bizarre and inspired me to learn more about Fritz Frank.

Frank in 'Ein Gedi

'I was in 'Ein Gedi (*Ain Dschiddi*) during the years 1929–1932, and grew vegetables: tomatoes, eggplants and cucumbers; and also fruits: almonds and vines. Pests ate the ripened tomatoes, the eggplants were stolen and only cucumbers were sent to Jerusalem where I got a high price. In the second winter all my cultivations, 20 dunams, froze in one night by northern freezing wind. Against the Bedouins I could do nothing. So, I gave up and all my investment cost me 600 pound. I lived there two whole winters including the summer in between; during that period I was the only man there' (Frank, undated letter).

In a letter to me his daughter wrote: 'I do not know if the land in 'Ein Gedi belonged to my father or was leased by him' (Fondel 2003). She was also kind enough to send me a few copies of her father's photographs. Among these pictures only one was taken in 'Ein Gedi. This showed her father sitting in his vegetable garden wearing a hat (Fig. 1).

Fig. 1. Fritz Frank sitting in his vegetable garden in 'Ein Gedi

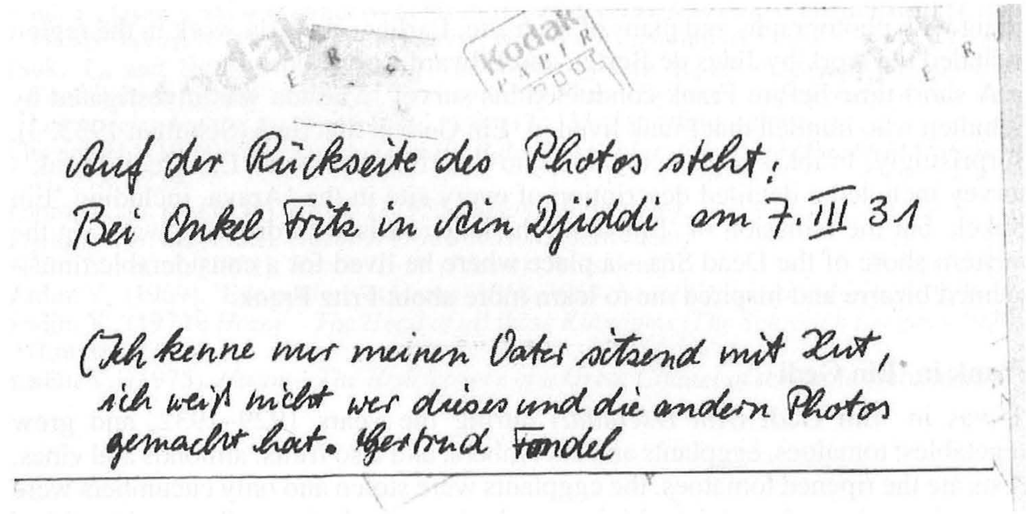

Fig. 2. Letter sent to the author from Gertrude Fondel (Frank's daughter) describing the photograph

While Frank was in 'Ein Gedi, he had a sailing boat with an engine, although he brought the cucumbers to Jerusalem by car, according to Frank's wife, Ottilie (Frank 1971: 2). He was sometimes accompanied in this boat with Adolf Schulen, the investigator of Masada's siege system. In one instance, they sailed from the Jordan River estuary at the northern end of the Dead Sea to Masada, a journey which took more than eight hours (Schulten 1933: 5, 57).

At that time (late 1920s and early 1930s) Frank was the only European to work on the agricultural renewal of 'Ein Gedi (Schulten 1933: 58). A few years later Frank was described by a German Nazi reporter as a man of medium height, with red cheeks, a white beard, tough worker's hands, a wrinkled brow with two clear blue eyes like a hunter, aged about 65 (*Der Fuhrer* 1938). Zeev Vilnai, a well known Jewish geographer, provided an additional description of Frank: 'Fritz Frank was known as a Jew hater, stayed away from them, and was interested that they should not arrive in the Dead Sea region and 'Ein Gedi. Frank was a simple man, agriculturer, used to go with two pistols and a dog, and worked with his Bedouin workers, growing tomatoes and cucumbers. He liked to wander and was suspected as a spy who collects information about the area, by photographing, collecting pottery shards, surveying and taking climate observations... the Bedouins refused to talk about him. He was a single man, walked in European dress' (Ben Ezer 2002: 340).

His life resume

Fritz (Friedrich) Frank was born in 1873 at Wilhelma, a Templers[1] colony in Palestine, to an honourable family (Ben Ezer 2002: 338), where he learned carpentry and masonry. In his 40s he tried to enlist in the German Army in the First World War, but was rejected because of his age, although he was later accepted for civilian missions, such as finding water sources in the Sinai desert for the planned attack on the Suez Canal (Kressenstein 1938).

The local Bedouins and the British did not ignore his long wanderings in Northern Sinai. Stories about him spread through the desert and he became known as a daring German spy who disguised himself as a British or Australian officer who crossed enemy lines, and there were some who nicknamed him 'The German Lawrence' (Krumholtz 1946: 93; Fig. 3). Even in the war summary, he was mentioned as a daring spy (Wavell 1928). Later on it was revealed that this daring figure was not his real persona, and in fact Colonel Meinertzhagen, General Allenby's intelligence officer, invented this portrayal of him. The colonel in fact painted this picture to raise the vigilance of the British troops (Cocker 1989: 101). Meinertzhagen succeeded also in deceiving the Turkish-German army about the point of Allenby's attack. In the event they concentrated near Gaza while Alenby attacked Beer-Sheva (Wavell 1928). It was clear that the Germans knew the truth about Frank, since von Kresenstein wrote in 1938, that Frank brought him good topographical data about the desert, but was never a spy (Kressenstein 1938). A detailed article published later also insisted that Frank was not a spy (Sheffy 1999).

After Jerusalem surrendered to Allenby in December 1917, Frank was in Jericho where he allegedly operated agents to collect information from Jerusalem (Frank 1955: 187), but there is no confirmation in the German Army archive of this activity (letter from the Bundesarchive in Berlin, 2002).

In September 1918, the Turkish Army retreated from Palestine and Frank arrived in Germany. After the war he was blocked from returning to Palestine because of a British intelligence veto. In 1927, after many petitions, he was granted permission from the High Commissioner to return to Palestine (Sheffy 1999: 137).

Fig. 3. Fritz Frank 'The German Lawrence' (centre) in the Sinai desert in the 1920s

The Wagner family from Jaffa gave him his first job, among other technical works, to plan and build a bridge east of Sarona (then a Templers colony in the area of modern Tel Aviv). He acquired bridge engineering skills during his stay in Germany in the 1920s (Frank 1960). His last job was the reinforcement of the roof of the Evangelic Institute in Augusta Victoria Compound on the Mount of Olives, Jerusalem, after an earthquake had damaged the building in 1927 (Frank 1971: 3). He was also involved with building the flour mills and railways stations in Semach and Haifa (Frank 1960).

Frank was about 60 when he surveyed the 'Arava valley. Professor Alt, Director of the Biblical Evangelic Institute, supported his research. Frank as a native,

engineer, hunter (Alt 1934: 193) and a man who had spent two years in the Sinai desert, was regarded as the best candidate for this job (Fig. 4).

Frank married Ottilie in 1936 at the age of 62, and their daughter Gertrude was born in 1939. The family lived on the Mount of Olives until the Second World War, when he was exiled with other Germans to a camp of war internees on 3rd September 1939. A document of the Central Intelligence Department of the Palestine Police, dated 24th August 1948, records Frank's family as: 'Fritz Frank, German, born in 1873, engineer; Ottilie Frank, German, born in 1898, housewife; and Gertrude Frank, born in 1939' (Ha-Hagana Archive, file 112/22).

Two years later, he was described as an old man, water technician and father of a child, but his name was not included among the Germans that were members of the Nazi party (Ha-Hagana Archive, file 112/23, 17th July 1947). In 1948, all Germans citizens were forced to leave the country for Cyprus. Shortly after, the Franks moved to Germany where Fritz Frank died on the 8th September 1968, aged 95.

During his research of the 'Arava Frank he also worked with Professor Beno Rothenberg, who also investigated the copper mines north of Eilat, in the 'Arava Valley. In the 1960s they met in Germany, to exchange opinions and information about their research in 'Arava. Frank also told Rothenberg that in 1948, the Jews confiscated all of his papers which survived from the 'Arava survey (Beno Rothenberg (Pers. comm. 9th May 2002). Later, after Frank's death, Ottilie sent some of Frank's pictures to Rothenberg (Fig. 5).

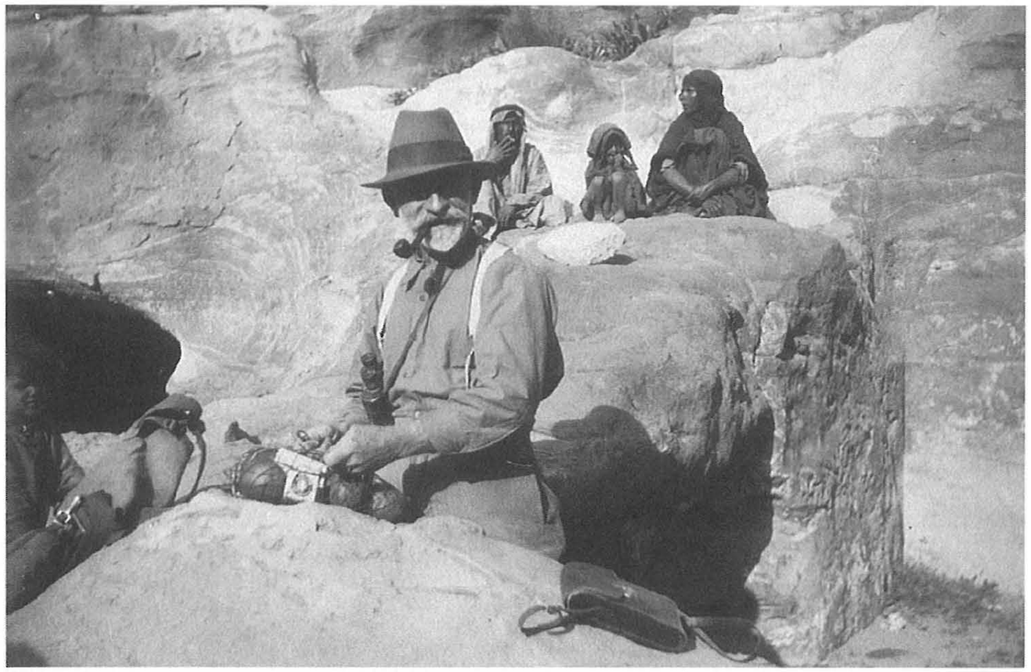

Fig. 4. Fritz Frank surveying in the 'Arava Valley in 1934

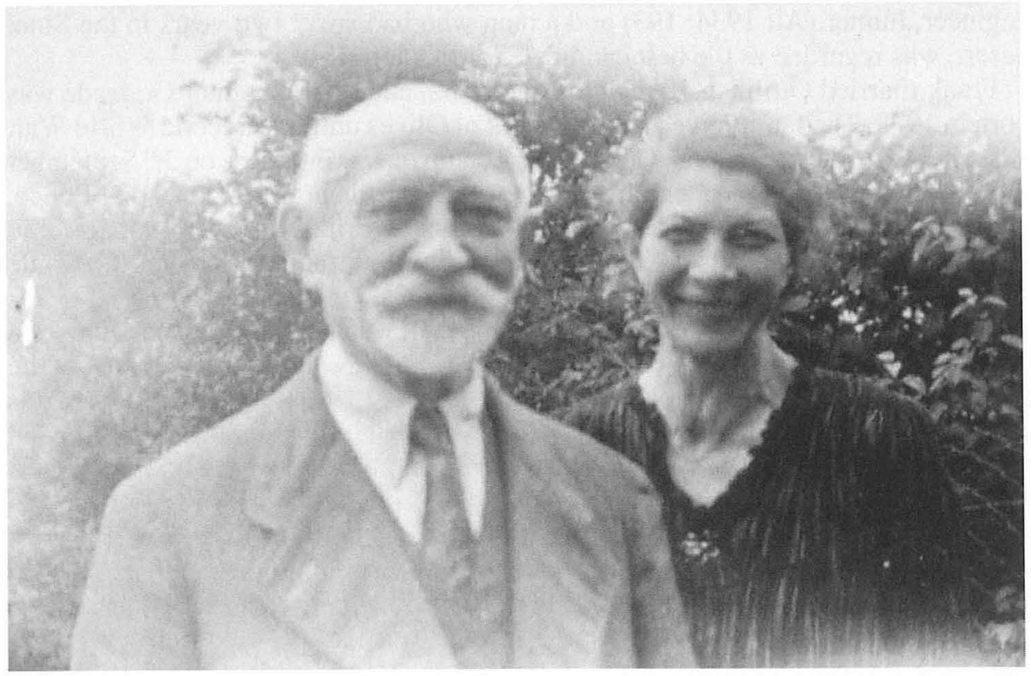

Fig. 5. Fitz Frank with his wife Ottilie shortly after their marriage in 1936

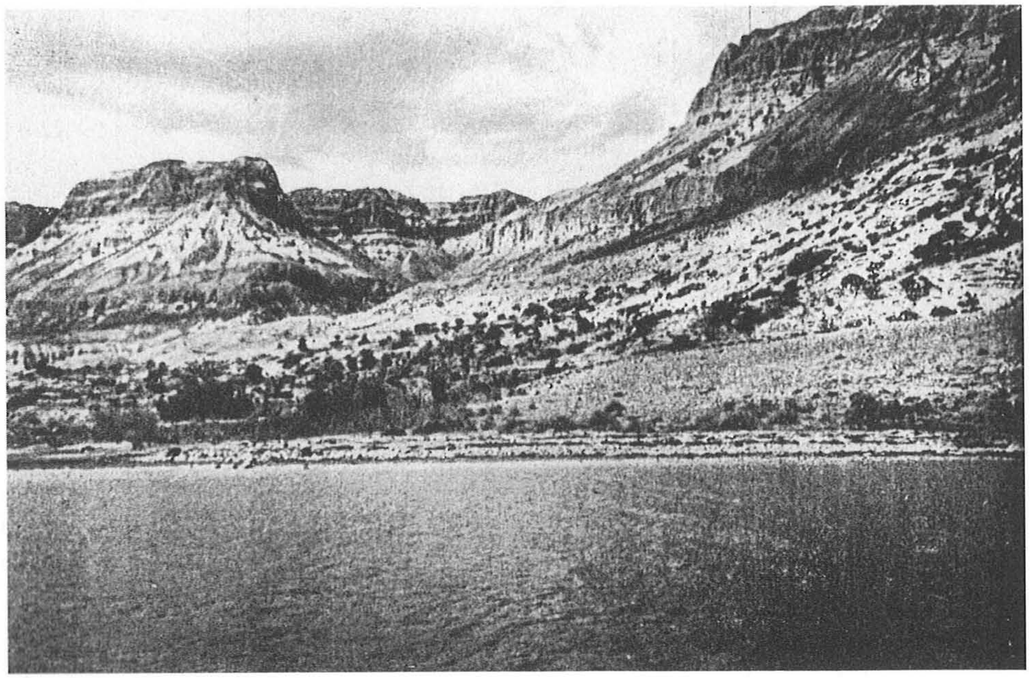

Fig. 6. The Oasis of 'Ein Gedi photographed by Fritz Frank from his boat in the Dead Sea

One question still remains: where are Frank's confiscated documents? I think that among his papers were reports, photographs, and plans of 'Ein Gedi in the 1930s. This conclusion is derived from Frank's description of the 'Arava report where, among other photographs one shows 'Ein Gedi from the Dead Sea. This photograph was probably taken from Frank's boat (Fig. 6).

Dr Gideon Hadas lives in 'Ein Gedi.

This article would not have been written without the help of many whom I would like to thank: Miss Gertrude Fondel, Frank's daughter; Andreas Pfeffer, Berlin; Brigitte Kneher, Tempelgesellschaft arciv, Stuttgart; Professor Beno Ruthenberg, Tel Aviv; Ha-Hagana Archive, Tel Aviv; Yoske Ereli, 'Ein Gedi; and Gundi Shachal, 'Ein Gedi.

Notes

1 A religious sect of farmers from southern Germany that were persecuted there by the State and Church, and immigrated to Palestine in the second half of the 19th century. They brought with them new agricultural methods and tools.

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A New Element in the Dating of The Tobyah Inscriptions at Airaq al-Amir in Jordan

STEPHEN G ROSENBERG

On two of the 15 caves cut into the cliffs north of the village of modern Airaq al-Amir (also spelt 'Iraq el-Emir) is the single-word inscription now read as *TOBYAH*. The two inscriptions are virtually identical, except that the more easterly one is very clear, carved on a prepared stone surface and protected by an overhang (Fig. 1) while the westerly one is eroded and carved on an uneven stone surface (Fig. 2). Both are placed on the outside of a cave and to the right of the entrance, and the lettering is bold and nearly 40cm high.

Airaq al-Amir is a village in Jordan, 20km west of Amman, which was the estate of the Tobiad family during the sixth to second centuries BCE. It was originally called *Tyros* and is described in some detail by Josephus (*Ant.* XII: 230–234), who credits its Hellenistic development to Hyrcanus the last of the Tobiads. Hyrcanus built a grand monument on the site, the *Qasr al-Abd*, long considered to be a temple, but more recently designated as a château (Will & Larché 1991), though in all probability it was a mausoleum to his patrician family (Rosenberg 2001–2002, 2006). Hyrcanus used the adjoining caves for habitation and banqueting, according to Josephus, though he was careful, Josephus adds, to make their entrances narrow, in case of an attack by his enemies. The two caves with the inscription have been artificially squared out internally and may well have been used as *triclinia* or for some other form of feasting and entertainment. Their function is unclear, but what is particularly in doubt is the date of the two inscriptions.

The easterly inscription was first recorded by William Bankes, an eccentric English aristocrat, who traveled to the site in 1818 with two British naval officers, C. L. Irby and J. Mangles, who published an account of their visit five years later (Irby and Mangles, 1823). They did not publish the inscription, but a sketch of it (Fig. 3) appears in Bankes's own private papers held at the Dorset County Records (D/BKL: HJ IV H). None of the three travelers deciphered the inscription as far as we know.

Subsequent explorers, such as Melchior de Vogüé and Félicien de Saulcy, saw both inscriptions (de Vogüé 1864; de Saulcy 1865) but misread them. De Vogüé has a sketch of the whole eastern entranceway, showing the doorway and the inscription, which he reads as '*Arabiah ('ayin-resh-bet-yod- heh),* thinking this to be '*le nom semitique d'Hyrcan... car a partir des Seleucides, l'usage de porter deux*

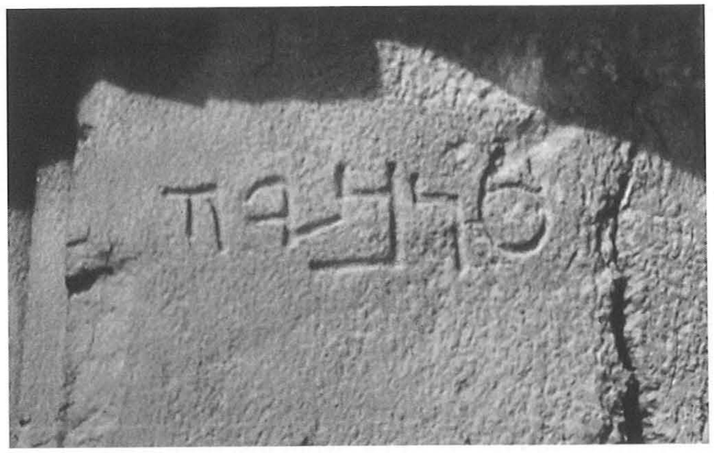

Fig. 1. The eastern inscription at Airaq al-Amir (photo: S. Rosenberg, 1999)

Fig. 2. The western inscription at Airaq al-Amir (photo: S. Rosenberg, 1999)

noms, l'un grec, l'autre juif, était très répandu'. De Vogüé suggested that the lettering was a transitional Aramaean alphabet of the second century BCE (1864: 42, Fig. 27). De Saulcy shows a sketch of the lettering, which he reads as '*Araquiah ('ayin-resh-kuf-yad-heh)*, which he sees as *'Aaraq-Yah* or *'la roche de Jehovah'*, perhaps an early form of the later place name that he spells as Aaraq-el-Emir (1865: 215). It is clear that the first letter misled both explorers into reading it as an *'ayin*.

This was also the case with C. R. Conder, whose brother officer, Lieutenant Mantell, made the most complete survey of the caves up to the present, in 1881. Conder numbered the caves, and the two with the inscriptions are no.11 (the western) and no.13 (the eastern). Conder reads the inscription as '*Adniah*, related

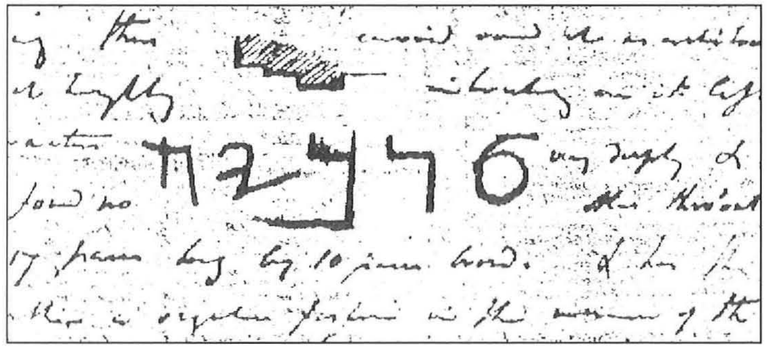

Fig. 3. The eastern inscription at Airaq al-Amir as recorded by William Bankes in 1818

to the Hebrew '*eden* ('delight'), again taking the first letter to be an *'ayin* (1885: 170). In a later work, Conder gives an accurate drawing of the inscription and a fuller analysis of the letters, which he considers to be of the Hasmonean period, like the archaizing typeface of their coinage. After some discussion, he plumps for the reading '*Auriah*, related to '*ur*, to 'bore' a cave, or '*ur,* to be 'awake' or 'watchful' (1889: 77).

It is surprising that Conder, even in 1889, considered the inscription to start with an *'ayin,* seeing that T. Noeldeke had published what is clearly the right reading, *TOBYAH* in 1865. Noeldeke wrote:

> *Höchst interessant ist nun schliesslich die ganz kurze Inschrift Nr. 2, welche von einem 176 v. Chr. Geb. Errichteten Gebäude stammt und sicher aus der Zeit des Baues ist. De Vogüé liest 'ARVYAH; ich lese TOBYAH und zweifle nicht dass meine Lesart allgemeine Billigung finden wird, obgleich sich über den ersten Buchstaben wegen der Beschädigung desselben streiten liesse. Hier haben wir also Quadratschrift aus der vormakkabäischen Zeit*" (1865: 640–41).

His reading was obviously not widely circulated as Conder did not know of it by 1889, although Clermont-Ganneau did in 1873–74, and identified it as the Jewish name of Hyrcanus-Tobias. He therefore dated it to the early second century BCE as Conder had done (1896: 263). Noeldeke also linked it to the main building on the site (the *Qasr*) dated 176 BCE, though he had been a little more cautious in consigning it to an unspecified pre-Maccabean period.

In 1913, S. R. Driver set out his views on the early history of the Hebrew alphabet in the introduction to his Commentary on the Books of Samuel (1960: I-XXVI). He has a section on the *TOBYAH* inscription and points out that it must be read as such, but credits the correct reading to Clermont-Ganneau and de Vogüé (XX, n. 2). It appears that the latter had corrected his reading, following Noeldeke who, after all, had based his correct reading on a sketch by de Vogüé in 1865, but Driver makes no mention of Noeldeke. On dating, Driver says that the inscription cannot be earlier

than the caves and could well be later. He goes no further, saying only that the alphabet is of a transitional type leading to the later square Hebrew script.

The first full discussion of the inscriptions and their dating was published by E. Littman, the epigrapher of the Princeton expedition to Syria of 1904–1905 led by H. C. Butler. Littmann made a full study of the rather curious lettering and concentrated on two factors, the paleographic evidence and correlation with the history of the site. On the first count, his analysis is convincing and he rightly relates the lettering to inscriptions of the fourth and fifth centuries BCE in Egypt and elsewhere (1907: 4). However, he then changes tack and abandons the paleography to relate the inscriptions to the historical circumstances of Hyrcanus, saying:

> 'there is no cogent reason why the letters under discussion needs to be of the 5th or 4th century BC and there is no serious objection to their being dated in the early 2nd century' (1907: 4).

Littmann was clearly mesmerized by the ruins of the *Qasr*, which he insists was a temple (1907, 5) and feels that he can legitimately relate the cave inscriptions to the time of its builder, Hyrcanus. A similar attitude is taken by L.H. Vincent in his excellent review of the inscriptions (1923: 55–68). He shows parallels with other inscriptions and compares the originals with those of eight other scripts, on the basis of which Vincent would date ours to a range between the 6th and 4th centuries BCE (1923: 61). But he then abandons this sensible conclusion by claiming that the Aramaic forms of the letters developed further in Palestine and that:

> *'il paraît s'imposer de conclure ici que les textes d'Araq el Emir représentait beaucoup mieux les formes de l'écriture araméenne usitée em Palestine au cours du IIIe siècle que vers le milieu du second avant notre ère'* (1923: 65).

Vincent is veering away from his own well-founded comparisons, and also from the Hyrcanus date, so that he can correlate the inscriptions with the 1915 discovery of the Zenon papyri, which concern a certain Tobiad, by name *Toubias*, who resided in *Tyros* in 259 BCE (Tcherikover and Fuks 1957: 115), and relate them to that Tobiad of the 3rd century BCE.

Benjamin Mazar, in his important study 'The Tobiads', goes in the opposite direction, suggesting an early date at 'the end of the sixth or the beginning of the fifth century BC' (1957: 229). His basis for this is on paleographic grounds, saying the inscription is one of 'the earliest examples of the official Aramaic script', predating most of the other known examples. He refers to inscriptions of the Persian Empire, and particularly to 'the monumental inscription from Cilicia (fifth century BC)' which he does not define. Mazar's conclusion is that 'the *TOBYAH* inscriptions must be dated at the latest to the beginning of the fifth century BC' (1957: 142). This would place them fair and square in the period of the earliest known, biblical Tobiad, '*Tobiah,* the servant, the Ammonite' of Nehemiah 2:10.

Mazar's opinion is convincing when our lettering is compared to the 'Cilicia inscription', which must be the 'Inschrift von Kesegek Kojn' listed by F. Rosenthal.

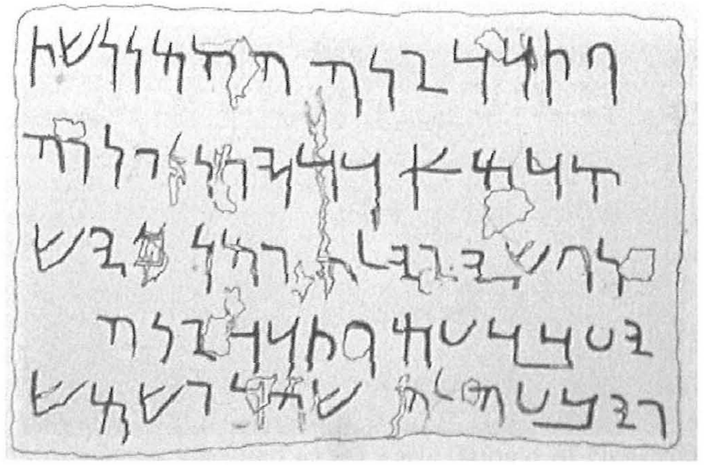

Fig. 4. The Cilicia Inscription (from C.C. Torrey 1915–17, 370–71)

It is shown in his chart of the Aramaic scripts as no. 11, and only briefly described by him (1939: 33 and Table 2). But it is fully annotated by C.C. Torrey, who published it in 1915, including photographs (Torrey 1915–17: 370–74). The stone was cut out of a cliff near the village of Kesejek Keoyew (Torrey's spelling, we shall refer to it as KK) about 15 miles north-east of Tarsus in Cilicia, and it is now in the Yale Museum at New Haven, Connecticut. Though weathered, the letters are clear as the stone is of flint (our Fig. 4) and they match well with our inscription, but unfortunately there is no example at KK of the *tet*, the first and most controversial letter of our two inscriptions.

Torrey dates the KK inscription to the fifth century on paleographic grounds, which, he says, are 'always somewhat precarious'. As with Littmann and Vincent, he finds comparisons with other early inscriptions (some from Egypt), and above all points out that the coins issued by the Persians in Cilicia in the first quarter of the fourth century, and another inscription of Cilicia, show an alphabet of a later type, so he has little hesitation in placing the KK inscription 'as early as the fifth century BC' (1915–17: 371). The fact that our orthography is linked to inscriptions as far away as Egypt and Cilicia need not surprise us, as these locations were all part of the great Persian Empire with Aramaic-speaking governors heading satrapies throughout its far-flung territories. Part of one such satrapy was the province of Ammon and one of its leading figures, even if not himself governor, was 'Tobiah, the servant, the Ammonite' of the fifth century BCE, contemporary and enemy of Nehemiah, the king's cupbearer and *Tirshata* (Neh. 1:11, 2.10 and 8:9).

Having reached this reasonable conclusion, we must however look at some later opinions. J. Naveh discusses the *TOBYAH* inscriptions in relation to both the archaeological and paleographic data. He dismisses the early date of the '*heh* having a perfectly horizontal bar' (although this does appear in the same form at KK) and

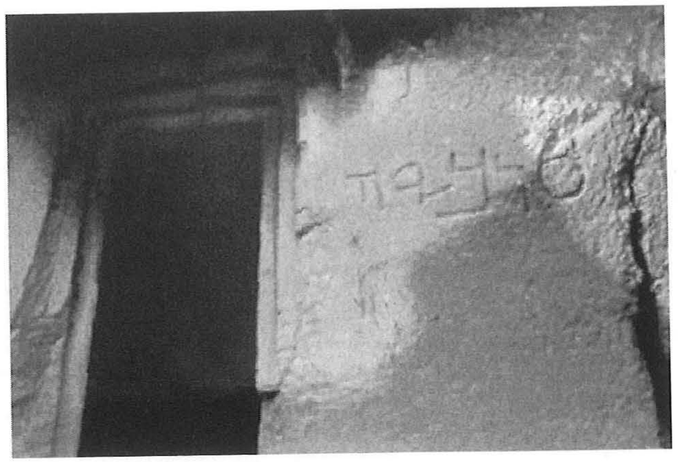

Fig. 5. The eastern inscription and doorway (photo: S. Rosenberg, 1999)

Fig. 6. Limyra Tombs (from Brewster H. 1993, fig. 21)

says that it appears to be of the fourth century BCE and that there is no reason to ascribe the two inscriptions to any particular personality of the name Tobiah, but 'rather to the family as a whole', and Naveh concludes that it was prepared as a family emblem that was fixed in the fourth century BCE (1976: 63, 64). Frank Cross also dates the inscriptions to the late fourth or early third century BCE (Cross 1961: 191, n. 3).

No discussion of the inscriptions so far has taken into account the fact that the eastern one is cut on a prepared surface of the rock that incorporates a rather individual doorway (Fig. 5). Though poorly preserved, the door opening is framed by a double rebated architrave to the head and the jambs; the threshold is no longer extant. This form of plain framing was later developed into more decorative forms, but in this early primitive state it is rare. It is seen mainly at Limyra, in the region

of Lycia, southern Turkey, where it appears on a substantial number of rock-cut tombs of the fourth century BCE (Bean 1978: 26, 30, 143; Figs 81, 82, 83) as shown on one set of such tombs (our Fig. 6). The same doorway motif is used at other rock-cut tombs, all in the area of Lycia and dated to the fourth century BCE.

There is little doubt that the tombs of Lycia and their architectural expression had an influence on the work of the Tobiads at Tyros. The territory of Tyros and Ammon first came under the hegemony of the Ptolemies from 320 BCE onwards (Modrzejewski 1995: 235), when Lycia, in southern Turkey, was part of the Ptolemaic Empire (Schalit 1976: 20, map). We would then have to abandon our confident parallel with the KK inscription of the fifth century, seeing that ours was carved on a surface that is unlikely to have been cut before the mid-fourth century at the earliest. If it is indeed to be dated to the fourth century, the early date of Mazar becomes impossible and the late dates of Vincent and Littmann unnecessary. In that case the inscriptions cannot be tied to the early Tobiad of Nehemiah or the later *Toubias* of the Zenon papyri or to Hyrcanus, builder of the *Qasr*.

In fact our architectural parallels lead us to a conclusion similar to the of J. Naveh, who has said that the inscriptions were prepared as a family emblem; they refer to the Tobiad family as a whole, they were not tied to any particular known event, and were fixed at some time in the fourth century BCE. This rather suggests that the two caves in question were some kind of memorial to the Tobiad family and may even have been family tombs. Investigations by Conder however showed them to be artificially-recut chambers, with no sign of any tomb furniture. They look more like the places of feasting mentioned by Josephus and it is likely that they were *triclinia*, or places of banqueting in memory of the dead. In that case it is just possible that the earlier tomb caves were converted to *triclinia* by Hyrcanus during his Hellenisation of the family estate, and that the ancestors were to be commemorated elsewhere. This in turn would correlate with our designation of the *Qasr al-Abd*, built by Hyrcanus, the last of the Tobiads, as the Mausoleum to house the remains of his prominent family.

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The Agrarian Reality in the Central Samaritan Hill-Country and its Influence on the Samaritan Revolts during the Byzantine Period

OFER SION

Introduction

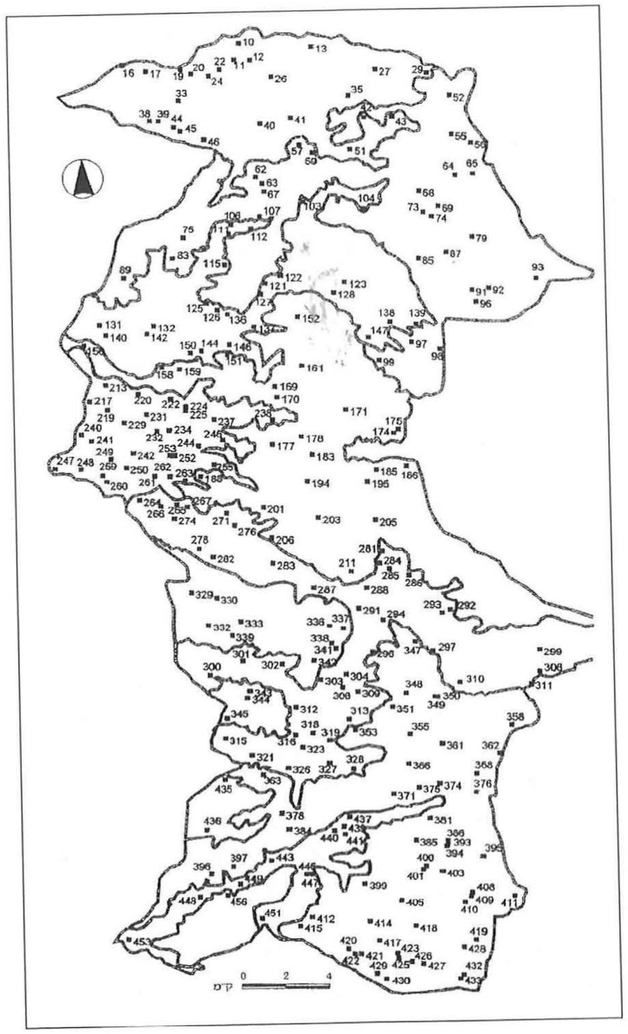
The testimonies of the institution of the *coloni* (land tenant) law in the Land of Israel in the late fourth century, and its consequences for the class of Samaritan land tenants: enslavement to the land, increased dependence upon their masters, and the enhanced standing of the large landowners, is clearly reflected in the agrarian settlement reality in the central Samaritan hill-country. Plots of land encompassing thousands of acres were discovered in proximity to farm houses, estate houses, satellite villages, and small villages (Sion 2001: 251–253; Rabello 2002: 494).

The large number of fatalities in the Samaritan revolt of 529 CE severely harmed agriculture in Samaria, and the consequences of the revolt were calamitous for the Christian landowners. The exclusion of Samaritan farmers from the law prohibiting the bequest or inheritance of property (*Justiniani Novellae* from 572 CE; see below) was meant to reduce the loss to the imperial treasury. This supports the scholarly assumption that many of the Samaritan farmers were the land tenants of Christian landowners, a situation that we believe was prevalent in the central Samaria hill-country (Rabello 2002: 491–493; Di Segni 2002: 467–479).

The large landowners, who lived in Neapolis, collected the imperial taxes. Although the Samaritans were motivated to revolt primarily for religious reasons, it is not inconceivable that economic and social factors also were at work. The brunt of the revolt was conducted by the farmers. The authorities, the foe of the Samaritan religion, identified with the Christian landowners, and they acted in conjunction with them to repress the Samaritans. This article will present the agrarian reality in the central Samaria hill-country (Map 1) and attempt to confirm the above assumption.

Land Regime

The importance of agriculture during antiquity, and especially in the Byzantine period, imparted land with a special standing: that of an important type of property in which the wealthy invested their assets. Harsh struggles were waged over land,



Map 1. The central Samaritan hill country – distribution of the Byzantine sites

it was the subject of legislation, and a significant factor in determining the status of the individual (Safrai 1998: 37).

During the Roman-Byzantine period the Roman agrarian method dominated, with local customs exerting some influence. The land tenant (*Colonatus*) system that was widespread throughout the Empire took hold in the Land of Israel.

The land tenants, who were bound to the agricultural unit, remained even when the landowners themselves changed, and enjoyed protection and tax concessions denied to hired agrarian workers. The authorities encouraged the formation of large agrarian units, to prevent the transferal of land to fugitive land tenants. Simple farmers were pressured by the strong landowners, and entire villages fell under the control of the latter.

The laws of the preceding regime were abrogated during the Early Islamic period, and the right to collect taxes was granted in exchange for the payment of a certain fixed sum to the authorities. The maintenance of army garrisons was based on land taxes, as local rule passed into the hands of military governors (Halperin 1970: 395–396).

In the Byzantine period, land ownership was divided into several categories: (1) lands belonging to the emperor; (2) church lands; (3) private landowners who were not farmers; (4) farmers owning private lands (Dan 1976: 173–203).

1. Lands Belonging to the Emperor

The possession of land regarded as the property of the emperor, which passed from one regime to the next, was a well-known phenomenon in Eretz Israel beginning in the Roman period and continuing in the Byzantine period. Political transitions led to corresponding changes in the ownership of the land, and former owners became land tenants who continued to work the lands that had previously been their property (Dan 1976: 173–175).

Historical testimonies regarding imperial lands in Eretz Israel appear in a number of sources. The book *Vita Petri Iberi* speaks of royal custodians who apparently were responsible for the lands belonging to the emperor (*Petrus der Iberer* 123). Such a custodian of Samaritan origin controlled the lands of the emperor in *Palestina* and in Phoenicia during the reign of Justinian (Procopius 27: 31), who compelled a private landowner from Caesarea to forego his village, Porphyrion, for a payment lower than the true market value of the property (Procopius: 30 18–19). Johannes Rufus and Procopius attest to entire villages owned by the emperor in the Eleutheropolis region, on the Carmel coast, and to the north of Jerusalem (Rufus 39: 20; Procopius 30: 18–19).

The chapter devoted to landowners in the study by Y. Dan of the social reality in Eretz Israel in the Byzantine period contains numerous testimonies concerning estates under imperial ownership throughout the land (Dan 1976: 178–182), and evidence of estates of this type have been uncovered in Zoar, Beersheba, and Maon.

The confiscation by the emperor of lands, whether owned by cities or private individuals, significantly expanded the scope of the lands possessed by the crown (such as Procopius 24: 24). The imperial rulers did not lack opportunities to take possession of lands, and the Samaritan revolts may very well have resulted in such seizures. *Chronicon Paschale* offers explicit testimony to the expropriation of lands by Zenon from wealthy Samaritans following the Samaritan revolt in 484 CE (*Chronicon Paschale* 604: 95–96).

Leasing for an unlimited period of time was the most common method of utilizing imperial and church lands. Leased land could be passed down to one's heirs and was subject to a fixed tax, while the law viewed such renters as the owner (Dan 1976: 215, 452).

2. Church Lands

The important churches in the central Samaria hill-country were situated in Neapolis and on Mount Gerizim. The properties that the church amassed during the Byzantine period also included land. Unfortunately, and in contrast with the wealth of testimonies to church lands in Gaza, Jerusalem, Emmaus, Jericho, and the Judean Desert (Dan 1976: 183–188), we possess no express testimonies regarding lands under ecclesiastical ownership in the central Samaria hill-country. Cyril of Scythopolis and the monks of the Gaza region, some of them native to the area, are the primary source for our knowledge of church lands, while most of the ecclesiastics in Eretz Israel were of foreign origin, thus explaining our ignorance regarding the central Samaria hill-country (Safrai 1992).

Possible archaeological testimony regarding the delineation of church lands on Mount Gerizim is, in our opinion, provided by three structures (Map 1, sites 337, 338, 342) situated to the east of the church. The ceramic finds in the three sites establish the chronological congruence of their activity with that of the church. The structures share a number of characteristic features: their location (Map 1: sites 337, 338) at the tops of cliffs affords them a vantage point over areas otherwise out of sight, and control of the roads; their equidistant deployment from one another, along the entire breadth of the sector, was meant to mark territorial boundaries; and their location at the edge of the agricultural area provided a base for working the land and a refuge in time of need.

3. Private Landowners Who Were Not Farmers

Some of the private landowners possessed entire villages. Procopius relates that Evangelus purchased the entire village of Porphyrion, on the Carmel coast, for the astounding sum of 3 gold *centenaria* (21,060 *solidi*) (Procopius 30: 18–19), and Peter the Iberian speaks of one Dionysus Scholasticus, the owner of a large village near Gaza (*Petrus der Iberer* 100: 10). Entire villages owned by a single master are not a Byzantine innovation: Josephus already mentions the owners of whole villages in Samaria during the time of Herod, along with village owners in northern Transjordan (*War* 2:69, 349). The individual farm or agricultural unit was another form of agrarian property. The existence of farms worked by land tenants during the Roman period is known from the Talmudic literature (Gulak 1939: 26).

Despite the paucity of reports, it would seem that many members of the urban government owned real estate. They lived in the cites, far from their property, thus raising the question of their connection with these lands. Some lands were probably no more than a few kilometers from their place of residence, thus enabling them to visit the property and return to the city the same day. If the property was distant from the owner's residence, he might have spent some time at his estate (for testimonies from outside Eretz Israel, see Dan 1976: 441). The confining of land tenants to the land – one of the fundamental principles of the Colonatus law, and its imposition in the Land of Israel in the late fourth century (*Theodosianus Code* 5: 17:1), strengthened the economic standing of the large landowners (Dan 1976: 199–203).

4. Landowning Farmers

This category included small landowners who also worked lands as land tenants. Most of the sources from the Byzantine period do not draw this distinction, which would enable us to determine the relationship of these farmers to the land, but a class of farmers owning private lands undoubtedly existed at the time (Dan 1976: 222; Safrai 1992: 25).

Few historical sources attest to the existence of such a class. Cyril of Scythopolis mentions a landed farmer in a village next to Gaza (*Life of Euthymius* 76, 78–79). The *Leimonarion* by Joannes Moschus contains an additional report, of one of the monks of Choziba in Wadi Kelt who aided a poor farmer, apparently the owner of the land, with his plowing (*Leimonarion* 2869: l. 24). Yet another testimony, albeit indirect, relates to the large villages, in which, Libanius pointedly notes, there were many landowners (Libanius 126–129).

The relevant historical and archaeological testimonies from the Samaria hill-country apparently indicate the limited scope of this class; a landscape of large villages and independent communities, which were among the distinctive features of this class (Safrai 1992), is hardly noticeable in the area under study.

The Agrarian Situation in the Central Samaria Hill-Country

The real estate belonging to the large landowners in Eretz Israel included expansive areas in the Negev, the Judean Shephelah, and Samaria. The outstanding characteristic of these lands was the village or large estate in which the owner was non-resident (Dan 1976: 220–221).

Land tenancy and rental occupied an important place in the agrarian reality of the Byzantine period, and was common in major holdings by non-resident landowners of considerable wealth.

The scholars who examined the subject (A. Gulak, D. Sperber, Y. Dan and Z. Safrai), each from a different perspective, noted the increase in the number of large estates and the growth of land tenancy that began in the third-fourth centuries CE (Gulak 1939; Dan 1976; Safrai 1992; Sperber 1972).

The first Samaritan revolt in the time of Zenon, the draconian anti-Samaritan legislation during Justinian's reign, and the great Samaritan revolt in 529 CE resulted in the seizure of lands (*Chronicon Paschale* 604: 96–97) and a decrease in the properties owned by the members of this group.

The main change in the agrarian structure of Byzantine Eretz Israel was effected by the application of the *Colonatus* legislation in 386 CE, 80 years after it had been enacted and put into effect throughout the Empire (Safrai 1998: 40). The basic intent of the law was to forbid the *colonus* (the private land tenant) from leaving the land he worked and moving about as he pleased. The application of the law in Eretz Israel suggests the following factors. First, the presence of a large land tenant population (Safrai 1997: 44–47). Second, the increasing dependency of the land tenants upon their masters, in a relationship which also provided benefits, such as

legal protection against arbitrary actions by the masters as regards the monies due them (Dan 1976: 243). Third, the strengthened economic standing of the large landowners (Jones 1971: 236).

The prevalence of land tenancy in Samaria is clearly indicated by the plethora of historical testimonies. Factors, detailed below, are direct testimonies to this reality.

First, the Samaritan uprising of 529 CE had severe agricultural repercussions. Procopius emphasises the role of the Samaritan farmers in the rebellion (Procopius: 11:22–23), and attests that 'the land became in consequence [of the large number of casualties] destitute of farmers' (Procopius 11: 29). Justinian disregarded the difficult situation of the Christian landowners, who were required to pay the same heavy taxes that were imposed in normal times (Procopius 23:19–20).

Second, according to Cyril of Scythopolis (*Life of Sabas* 175, 184), Justinian appointed two episcopes to investigate the extent of the damage to the buildings burned by the Samaritans following the revolt of 529–530 CE. Dan asserts that these were not Christian religious structures that suffered, but rather farms and estates of Christian masters (Dan 1976: 194).

Finally, in his description of this revolt, Procopius divides the Samaritans into two categories: the converts to Christianity in Caesarea and other cities (Procopius 11:25); and the Samaritan farmers who participated in the rebellion, (Procopius 11:27), describing the defeat of the latter and explaining the serious consequences for the Christian landowners (idem, 28:30). The account by Procopius teaches that numerous lands in Samaria belonged to Christian owners and were worked by Samaritan land tenants.

There are also indirect testimonies to the phenomenon of land tenancy.

First, Cyril of Scythopolis (*Life of Sabas* 175, 184) states that Justinian waived a fixed amount of the taxes to enable the rehabilitation of the buildings, farms, and estates that had been put to the torch by the Samaritans. Second, Malalas describes the burning of many estates (*ktemata*) (Malalas 18: 260–262, 446–447), such as agricultural property: fields, estates, and possibly also villages.

Second, the *novella* issued by Justinian II in 572 CE sheds additional light on land tenancy among the Samaritan farmers (Montgomery 1968: 122). The Roman emperor renewed an old decree, which had been cancelled in 551 CE (see *Novella* 129: 1, in Dan 1976: 205, 234) that forbade the transmission by inheritance of property in any form for all the Samaritans. Justinian now granted an exemption to the Samaritan farmers, so as not to cause harm to the imperial treasury. He accordingly stipulated that Samaritan farmers could bequeath or inherit, regardless of whether this was effected by means of a will. He also decreed that in the absence of a Samaritan farmer to inherit the property of the deceased, the property would be transferred to the landowner. The intent of the legislation was to prevent lands from becoming ownerless, with responsibility for them now passing to the Christian landowner. Procopius' division referred to the private landowners who resided in the large cities close to the concentrations of the agricultural Samaritan settlements at Neapolis, Scythopolis, and Caesarea.

Summary

Two main elements predominated in the agrarian reality of Samaria: the large landowners, on the one hand, and on the other, the resident land tenants who worked the lands belonging to the former. These were joined by small landowners. Procopius' testimonies to the distribution of land tenancy in Samaria, which are also based on the *novella* of Justinian II, seem convincing in light of the archaeological finds.

This conclusion raises a number of questions: did the phenomenon of land tenancy in Samaria exist prior to the Byzantine period? Was it present during the Byzantine period prior to Justinian's assumption of the throne? The phenomenon of lands belonging to the emperor predated the Byzantine period. An interesting question in this context is the quantitative ratio between imperial lands, on the one hand, and on the other, those belonging to estate owners and private landowners. Church lands were relatively rare, due to the dearth of churches, in contrast with the situation in other parts of Eretz Israel.

The large landowners probably resided in Neapolis, and were among the city's distinguished citizens. The application of the law of the *Colonatus* enhanced the standing of the landowners, especially that of the estate owners, and increased the dependence of the farmers on their masters. The Samaritan revolts may possibly have been provoked by the tension connected with tax collection. Although the uprisings erupted on a religious background – the struggle between Samaritans and Christians – it is not inconceivable that the Samaritan farmers, who were land tenants, struck out against the (Christian) landowners and the Byzantine authorities, who were allied with the landowners.

This article is based on a chapter from the author's Ph.D thesis, which examines the settlement deployment in the central Samaritan hill-country in the Byzantine period.

Ofer Sion

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Dated Bronze Coinage of the Sabbatical Years of Release and the First Jewish City Coin

STEPHEN PFANN

Leviticus 25 and Deuteronomy 15 provide the instructions that one year in seven שנה שביעית, known also as a Sabbatical Year, will be set aside as a fallow year when the land will not be worked and the fields will remain unsown and unharvested. It is also instructed that in this same year debtors should be released from their debts, and indentured slaves from their oath.

This cycle of years, known from Deut. 15 as years of release שמטה, continued to be observed during both the first and second temple periods, as amply illustrated by several scholars from the Bible and various historical sources. Although this is generally agreed upon by most researchers, where the actual years of the שמטה fell within the Julian calendar has been hotly debated, but with no more than a year separating the sides of the debate. Fortunately, numerous events of the past have been recorded by the historical sources[1] as being linked to sabbatical years. The following list enumerates some of these events:

702/1 BCE	2 Kgs 19:29/Isa 37: 30	Assyrian siege of Jerusalem
457/456	Neh. 10:32 (31)	Nehemiah's reading of the Law
331/330	Josephus *AJ* 11: 347	Alexander exempts Jews on *Shmitta*
163/162	I Macc. 6:49, 53	Judas Maccabeus defeated due to *Shmitta*
135/134	Josephus *AJ* 13: 234	Seleucid siege of Jerusalem
37/6	Josephus *AJ* 14: 475	Herod's siege of Jerusalem
41/2 CE	mSotah 7: 8	Agrippa I recites Deut 7: 15 after *Shmitta*
55/6	Mur 18	personal document citing the *Shmitta*
69/70	Seder Olam Rabbah 30	Year before the Temple's destruction
132/3	Mur 24	Land Leases during *Shmitta*

It is the suggestion of the author that numerous issues of coins were produced by Jewish leaders to coincide with Sabbatical years. Aside from those issued during the first and second revolts, these issues often bore dates. These tended to be small bronze coins, *prutot* and *lepta* (half *prutot*) and were produced in unusually large numbers. The emblems upon the coins tend to be connected with grains and fruits which were scarce or lacking during those years due to prohibitions on harvesting. During the early years from the reign of John Hyrcanus I until the early part of the reign of Archelaus, the double cornucopia was used almost exclusively for the

smaller bronze issues. From the last years of Archelaus' reign onwards, grains and fruits connected with the various feasts, especially the feast of booths, were used.

Here, the ethnarch/king is flooding money into the economy to alleviate the financial crisis induced by shortages of produce during the *Shmitta* when bartering in kind proved difficult. To a certain extent the king was improving his image as a redeemer before his people by paying a debt to society during a year of severe hardships and potential financial reversals.

During the revolts, when messianic expectation was a key rallying point, the coins bore the more unusual term (גאלה instead of שמיטה) for the sabbatical year which was used to bolster the messianic expectation of the period. The Messiah as the גואל Redeemer would arrive during a sabbatical year or in a Jubilee year to redeem his people from debt, slavery and oppression and to atone for their sins before God. During other years the term 'freedom of Zion/Jerusalem' was used instead. During the first year of the second revolt the term גאל was not limited to bronze denominations but was added to silver coins as well.

There is evidence from dated coins that this practice of flooding the economy with small bronzes took place during the reigns of Alexander Jannaeus, Herod the Great, Agrippa I and during both Jewish Revolts against Rome, which suggests that the case may be the same for undated issues as well.[2] The following list enumerates some of these coins whose dates (or dates with significant inscriptions) coincide with sabbatical years:

79/78 CE	year 25	Alexander Jannaeus
37/6	year 3	Herod the Great
41/42	year 6	Agrippa I
69/70	year 4	First Revolt, *'geulat Tsion'*
132/133	year 1	Second Revolt, *'geulat Yisrael'*

It seems likely that at least some of the undated bronze issues during the reigns of these rulers and perhaps others (especially Archelaus year 10: 6/7 CE) were minted to cover the needs of other sabbatical years. This is not to say that all dated Jewish coins were necessarily minted during sabbatical years. In fact there are cases where dated coins were issued in non-sabbatical years, but with non–Jewish symbols including military paraphernalia, eagles or busts of the emperor (and in one case that of Agrippa I). It may follow that other coins with non-Jewish and military symbols were not minted during sabbatical years, especially since bloodshed and revenge were to be avoided during those years.[3] The exception seems to be that during the third year of Herod the Great, the king was still celebrating his extraordinary capture of Jerusalem during a sabbatical year, for which he was criticized by Josephus. Coins with non-Jewish symbols may have been avoided during sabbatical years when the religious sympathies were running high.

Herod Antipas and Herod Philip, Tetrarchs

Herod Antipas produced coins with stock Jewish agricultural symbols however the

dates are not aligned with the sabbatical years of his reign. Philip used non-Jewish symbols to decorate his coins including human busts and temples with dates which do not coincide with those of the sabbatical cycle. Herod Agrippa II likewise used non Jewish symbols on his coins with dates which do not coincide with the sabbatical cycle.

Alexander Jannaeus (103–76 BCE) Sabbatical Years: 100/101, 93/92, 86/85, 79/78

After six years of civil war (93–87 BCE) between Alexander Jannaeus with the

Fig. 1. *Prutah* of Alexander Jannaeus

Sadducees against the Pharisees, he finally asserted himself as king. This was signified by the minting of coins with the title King Alexander in Greek and Yehohanan the King in Hebrew.

Fig. 2. Dated *lepton* of Alexander Jannaeus

On the twenty fifth anniversary of his rule, he minted dated coins in the Sabbatical Year. 79/78 BCE: Year 25 *prutot* and *leptas* known as widow's mites', by far the most abundant Jewish coins in antiquity, were minted during sabbatical year 79/78 BCE.

Herod the Great (40–4 BCE) Sabbatical Years: 37/36, 30/29, 23/22, 16/15, 9/8

LΓ, Year three = Sabbatical Year 37/36.

Herod the Great was appointed King over Judea by Octavian (later Augustus) in 40

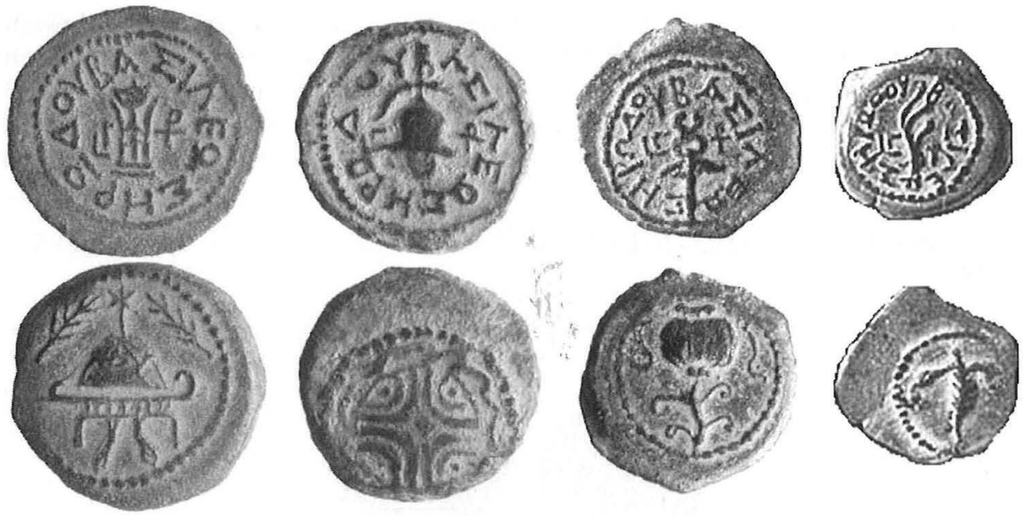

Fig. 3. Dated coins of Herod the Great

BCE. However, it was not until 37/6 BCE that he managed to take Jerusalem by siege and oust Antigonus from his throne. According to Josephus plight of the people during a Sabbatical year, utilising the city's foodstuffs for his troops added

Fig. 4. *Prutah* of Herod Archelaus

to the of Jerusalem. His bronze coinage no doubt signified his victory but also would have been intended to alleviate the financial crisis that prevailed in the city.

The most abundant coinage of Herod's reign, likely numbering in the many thousands, was the light *prutah* bearing, an anchor and double cornucopia with *caduceus*, continues the motifs common on Hasmonean coins and, though undated, are likely candidates for *Shmitta* year coinage.[4]

Herod Archelaus (6–4 BCE) Sabbatical Years: 2/1 BCE, 6/7 CE

Only year 2/1 BCE and year 6 could have produced sabbatical year coins. Most coin designs featured galley ships (or their prows) and cornucopia. Two coins, each bearing a *caduceus,* were particularly abundant and were most probably minted as sabbatical coins. One coin, a light Hellenistic *prutah,* featured an anchor and

cornucopiae, like that of his father, while the other, was a heavier Roman *prutot,* minted with a grape cluster and a helmet. These forms, though undated, would be likely candidates for the two issues connected with the sabbatical years. The light *prutah* would have been produced during the *shmitta* of 2/1 BCE. The heavy *prutah* during the *shmitta* 6/7 when the heavier Roman *prutah* started being used.[5] It is also at this point that more simple presentations of the tithed fruits are featured instead of the more Hellenistic double cornucopia.[6]

Fig. 5 *Prutah* of Agrippa I

Herod Agrippa I (37–44 CE) Sabbatical Year: 41/40

Herod Agrippa I minted several issues of coins in his reign at the Paneas mint (year 2), the Tiberias mint (year 5) and at Caesarea (years 7 and 8) all of which were minted with non-Jewish symbols (including images of himself and the emperor, and pagan images of gods and temples) and not during the sabbatical year. However during the sixth year of his reign, a sabbatical year, he minted myriads of bronze

Fig. 6. Year of Release coins of the First Revolt

prutas with the parasol and ears of grain – non offensive symbols to Jews – at the Jerusalem mint.

First Revolt (66–70 CE) Sabbatical Year: 69/70

Bronze coins during years two and three of the first revolt were inscribed חרו(ו)ת ציון 'the freedom of Zion' which changed during year four to שנת ארבע לגאלת ציון 'Year four of the redemption of Zion with the minting of several new bronze issues. The

Fig. 7. Year of Release coins of the Second Revolt

term 'Redemption' carries more messianic connotations than '*HERUT*'/Freedom since the Messiah is to appear as '*GOEL*'/Messiah.[7]

Anchoring Points for the Sabbatical and Jubilee Year Cycles, (132–135 CE) Sabbatical Year: 132/133

Exclusively during year one of the second revolt is לגאלת ישו(ר)אל 'For the redemption of Zion' inscribed upon both silver and bronze coins. During year two, the coins proceed to make exclusive use of the phrase ש ב לחרו(ות) ישראל 'year 2 of the liberation of Israel' on silver issues and on all but one rare bronze issue (which maintained the phrase from the first year). During years three and four of the revolt issues are undated and change to read ירושלם לחרו(ות) 'for the freedom of Jerusalem'.[8] If this enumeration of the *geulah/shmittah* years is correct, we now have:

1. We now have a historical anchoring point for the *shmitta* cycle which existed during the late Second Temple period and during the early *Tannaitic* period.
2. It is perhaps not an accident that the sabbatical cycle which begins with the traditional Jewish/Rabbinic *Anno Mundi* 'creation day' (at Qumran בריאה ; 4Q319 Otot IV 11, 17; 4Q320 Calendrical Document/Mishmarot A 1i3, 10),

actually synchronizes with the dates of the Geulah coins of the first and second revolt. The year 69 CE is year 3829 (= 547 sabbatical years x 7); 132 CE is year 3892 (= 556 sabbatical years x 7).

3. The Jubilee is more difficult, if not impossible to track in the historical sources. In fact certain Rabbinic sources state that it was not commemorated at all during the Second Temple Period. However, certain exegetes, both ancient and modern, have used the book of Daniel, chapter 9, to predict the Jubilee year in which the Messiah will come (e.g., cf. 11Q Melchizedek). Assuming that a single Jubilee year fell somewhere within the 63 year span between 132 and 69 CE, the Jubilee year which followed immediately after the seventh *shmittah* year was not actually inserted (intercalated) at the end of the 49 year cycle, but it merely coincided with the first year of the next seven year cycle. If not, the *geulah/shmittah* year that fell within the Bar Kokhba rebellion would have been commemorated on the second year of the rebellion, and not the first.
4. The 49 year Jubilee cycle, and not an actual 50 year cycle (debated in Rabbinic sources), is followed both in the Book of Jubilees and in the Jubilee/*Shmittah*

Fig. 8. First Revolt coins from Gamla

calendar of the Qumran Community (4Q319 Otot IV–VI). In this system, the 50 day cycle of Leviticus 25 is observed only as the fiftieth year of the Jubilee cycle, 'the year of Jubilee' coincides with, and is identical to, the first year of the next Jubilee cycle. In this way the first and last year of the Jubilee cycle overlap from one 50 year cycle to the next, the major festal year, 'the year of Jubilee' being commemorated on אחר השמטה or ראש השביעית, the first year following the last sabbatical year of the cycle. In a similar way the first and last days of the

pentacontad yearly festal calendar (observed in the Temple Scroll and in the Festal Calendar of 4Q326, 4Q324 d-g, 4Q394 1–2 MMT) overlaps from one 50 day cycle to the next, the major feast day being commemorated on אחר השבת, the first day of the week following the last Sabbath of the cycle.

5. In a similar manner it would follow that the counting of the Jubilee started on the traditional date of the *Anno Mundi* as the sabbatical year, then the last Jubilee year before the Revolt should fall on 3823 (49 x 78 = 3822 (+ 1 for the Jubilee year) = 3823 or 63 CE). This may have been the catalyst which caused the *Sicarii* to burn the archives of Jerusalem in order ensure that the debts would be

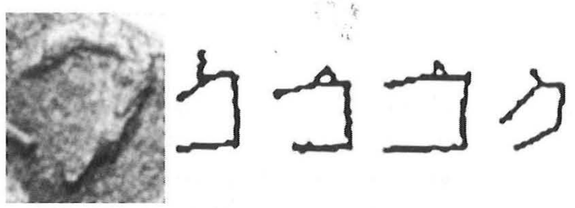

Fig. 9. The first letter *mem* in the Gamla coins and in the Copper Scroll

cancelled. The next Jubilee would take place on 3872 or 112 CE which might reasonably have added momentum to the diaspora wars in Alexandria, to where many of the *Sicarii* had fled in the aftermath of the First Revolt.

Fig. 10. The letter *gimmel* in the Gamla coins and in the Copper Scroll

Appendix A: The First Revolt Coins from Gamla: The First Jewish City Coins

Geulat Yerushalayim was erroneously recorded on the roughly inscribed bronze issues found at Gamla which was destroyed well before the fourth year of the revolt. There, atypically utilizing both sides of the coin to read the full inscription, S. Guttman read as follows: לגאלת ירשלם הק(דשה) 'to the redemption of Jerusalem the holy'.[9] However I would suggest another reading based upon the following observations:

1. The inscription is unique in style since it is written, for the most part, in the contemporary Jewish lapidary script, similar in style and date to that of the

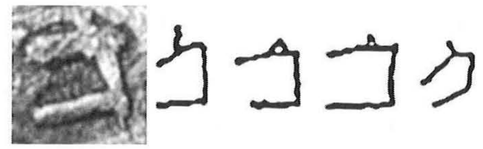

Fig. 11. The second letter *mem* in the Gamla coins and in the Copper Scroll

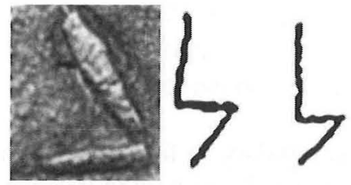

Fig. 12. The letter *lamed* in the Gamla coins and in the Copper Scroll

Copper Scroll, and not in the paleo-Hebrew script utilized in other coins of the First and Second Revolts.

2. None of the Jewish Revolt coins read from one side of the coin to the other.

Fig. 13. The letter *alef* in the Gamla coins and in the Copper Scroll

3. In no case, during either revolt, was the term 'for the redemption of Jerusalem' ever found.
4. Based upon the contemporary lapidary script I would suggest מגמלא to read on the obverse side.

Mem, clearest on coin 1, is similar to the *mem* on the other side of the coin in ירשלם. As in the confusions of letter forms in the Copper Scroll, the letter may also be read as *beth* or *kaph*, however are unlikely since the inscription makes more sense as 'from...' as other contemporary city coins written in Greek which use the genitive/ablative case ending meaning, 'of...' or 'from...' as in the case of TUROU 'of/from Tyre' and RVWMHS 'of/from Rome' on other coins found at Gamla.

Gimmel, again clearest on coin 1, is unambiguous in its form, since there is little difference between the written and lapidary forms of the letter. However it was horizontally flipped, evidently since the engraver of the dies seems to have been inexperienced and should have engraved each letter in mirror image, as he did the

order of the letters, so that the letters on the struck coin would face the correct direction.

Mem, clearest on coin 2, this second *mem* reflects the lapidary style of the engraver most clearly. The square appearance of the letter, with the added small stroke intersecting with the upper line resembles those of the Copper Scroll and the lapidary hand found on ossuaries. This is not an *alef,* as proposed since it does not resemble the *alefs* of this period (see *alef* below).

Lamed, clearest on coin 2, suggests that the engraver mixed a paleo–Hebrew letter form into the inscription. This is similar to the *lameds* that are found on other First Revolt coins excepting that our *lamed* was engraved backwards as in the case of other letters in this inscription.

'Alef, clearest on coin 2, is lapidary in form and again is written backwards. The inverted V-shaped stroke as normally expected was carelessly inscribed where the intersection of the two lines are not clean.

Until now the only coins that were known as a Jewish city coin were the *shekels* and half *shekels* of the first revolt against Rome. The inscription 'Jerusalem the holy' (ירשלם קדשה during year one, and ירושלים הקדושה during years 2 through 5 all in paleo-Hebrew script) was almost certainly a response to the previous *shekels* and half *shekels* which were only legal tender at the temple in Jerusalem which reads 'Tyre the holy'. On the opposite side, the inscription reads '*shekel* of Israel' שקל ישראל 'half *shekel* of Israel' חצי שקל ישראל.

APPENDIX B: Combined List of Documented Sabbatical Years

702/1	2 Kgs 19:29//Isa 37:30	Assyrian siege of Jerusalem
457/456	Neh. 10:32(31)	Nehemiah's reading of the Law
331/330	Josephus AJ 11:347	Alexander exempts Jews of tax on Sabbatical year
163/162	I Macc. 6:49, 53	Judas Maccabeus defeated due to Sabbatical year
135/134	Josephus AJ 13:234	Seleucid siege of Jerusalem
128f, 121f, 114f, 107f		Sabbatical years during Hyrcanus reign
100f, 93f, 86f		Sabbatical years during Jannaeus reign
79/78	Dated *prutah* year 25	Alexander Jannaeus
72f		Sabbatical year during Shelomtsions reign
65f		Sabbatical year during Aristobulus II reign
58f, 51f,		Sabbatical years during Hyrcanus II reign

44/43	Josephus AJ 14:10:5	Julius Caesar decrees relief for Jews in Sabbatical year
37f		Sabbatical year during Mattathias Antigonus' reign
37/6	Josephus AJ 14:475	Herod's siege of Jerusalem
37/6	Dated bronzes, year 3	Herod the Great
30f		Sabbatical years during Herod's reign
23/2	Josephus AJ 15:9:1	Sabbatical year during Herod's reign
16f, 9f		Sabbatical years during Herod's reign
2f BCE, 6f CE		Sabbatical years during Archelaus' reign
(13f, 20f)		Sabbatical years during early procurators
27f	Luke 4:17-21	Jesus preaches in Nazareth on Sabbatical year
(34f)		Sabbatical year during early procurators
41/2	mSotah 7:8	Agrippa I recites Deut 7:15 after Sabbatical year
41/42	Dated large *prutah*, Year 6	Agrippa I
(48f)		Sabbatical year during later procurators
55/6	Mur 18	Personal document citing the Sabbatical year
(62f)		Sabbatical year during later procurators
69/70	Seder Olam Rabbah 30	Year before the Temples destruction
69/70	Dated bronzes, year 4	First Revolt, *geulat Tsion*
(76f, 83f, 90f, 97f, 104f, 111f, 118f, 125f)		Sabbatical years during and between Wars
132/3	Mur 24	Land Leases during Sabbatical year
132/133	Dated coins, year 1	Second Revolt, *geulat Yisrael*

Notes

1 Wacholder, B.Z. (1973). 'The Calendar of Sabbatical Cycles During the Second Temple and Early Rabbinic Period' *Hebrew Union College Annual* 44: 153-196. Wacholder, B.Z. (1975). 'Chronomessianism: The Timing of Messianic Movements and the Calendar of Sabbatical Cycles', *Hebrew Union College Annual* 46: 201-218. Stern S., *Calendar and Community: A History of the Jewish Calendar Second Century BCE - Tenth Century CE* (Oxford, 2001), 87-97, 143-54. Clover, R., *The Sabbath and Jubilee Cycle* (2nd ed.; Garden Grove, CA, 1995,) 33 n. 36, 37, 159-68, 222, 321.

2 The Greek 'A' is found on the obverse or reverse of approximately one third of all bronze coins of John Hyrcanus I. If not the mark of a mint, but actually a date denoting year 1 of his reign then this would be the earliest example of abundant bronze coins being minted during a sabbatical year, 135/4 BCE.

3 A notable example of this prohibition is exemplified by the fact that Hyrcanus I refrained from taking revenge for the murders of his father and brothers during the sabbatical year.

4 It has been suggested by Donald Ariel that the common 'table coins' with an 'X' might have been intended to celebrate the 10th year of his kingdom. If that be the case these would also have been minted during a Sabbatical Year. Concerning the coins of Herod's son Archelaus (46 BCE) Sabbatical Years: 2/1 BCE, 6/7 CE, only year 2/1 BCE and year 6 could have produced sabbatical year coins. Most coin designs featured galley ships (or their prows) and cornucopiae. Two coins, each bearing a *caduceus,* were particularly abundant and are likely candidates for sabbatical year coins. One coin, a light Hellenistic *prutah,* featured an anchor and cornucopiae, like that of his father, while the other was a heavier Roman *prutah*, minted with grape cluster and helmet. These forms, though undated, would be likely candidates for the two issues connected with the sabbatical years. Accordingly, the light *prutah* would have been produced during the *shmitta*/sabbatical of 2/1 BCE. The heavy *prutah* would then be produced during the *shmitta* 6/7 when after the heavier Roman *prutah* was introduced sometime between 3 and 6 BCE. It is also at this point that more simple presentations of the tithed fruits are featured on minor bronze coinage instead of the more Hellenistic double cornucopia. Cf. Meshorer, Y. (2001) *A Treasury the Persian Period to Bar Kokhba*. (Jerusalem) p. 80.

5 This would be immediately after Caligula had added Judea (and Samaria) to his realm in 41 CE. The fact that these were minted in Jerusalem where where religious sensitivities were high and may well have been viewed as a shrewd move toward presenting his image as a caring monarch and fellow Jew over his new subjects. The story of Agrippa in Sota 7:8 where he reads from the Torah at the temple (in fulfilment of the rules of Shemitta in Deut 31:9-14) underscores his fear of rejection by his fellow Jews. 'Agrippa the King stood up and received it and read it standing up, and sages praised him on that account. And when he came to the verse, You may not put a foreigner over you, who is not your brother (Dt. 17:15), his tears ran down from his eyes. They said to him, Do not be afraid, Agrippa, you are our brother, you are our brother, you are our brother! (Neusner trans.)

6 The reasons for connecting that the Redemption of Zion or the Redemption of Israeli with the sabbatical year cycle needs some clarification. One possible explanation comes by comparing the texts which discuss the rules of the Sabbatical cycle found in Lev. 25 and Deut. 15. Of the 13 times geulah redemption appears in the Bible, eight of those are in the Leviticus 25, used specifically in the context where the rules for sabbatical years and jubilees are being described. Rules for the right to the redemption of land by the original owner or his kin, discussed in Leviticus 25:18-28, can only be connected with the years contained within the sabbatical year cycle. (During the jubilee year the same lands are not redeemed but are returned to their original owners free of charge). The subsequent practice of limiting the redemption of property to the actual sabbatical years themselves, apparent from these coins, may have derived from reading Leviticus 25:18-28 together with the rules of the shmitta of Deuteronomy 25.

Another connected source of the then current popular belief that the Messiah/Redeemer would appear during a sabbatical year. See in the Jerusalem Talmud yBerakhot II, 4, 4d-5a, where the seventh of the 18 benedictions is called *Geulat Yisrael* and is used to illustrate that Israel would not be redeemed except in the sabbath years. Similar assertions are made in the Babylonian Talmud concerning the seventh of the forteen psalms of ascent in bMegillah 17b. See these and other examples in Wacholder, B.Z. (1975) 'Chronomessianism: The Timing of Messianic Movements and the Calendar of Sabbatical Cycles'. *Hebrew Union College Annual* 46: 201218.

The expectation of a time of redemption revolving around seven year cycles is also found from the 1st cent. CE in the New Testament Gospel of Luke 2:36-38. And there was a prophetess, Anna, the daughter of Phanu-el, of the tribe of Asher; she was of a great age, having lived with her husband seven years from her virginity, and as a widow till she was eighty-four. She did not depart from the temple, worshiping with fasting and prayer night and day. And coming up at that very hour she gave thanks to God, and spoke of him to all who were looking for the redemption of Jerusalem.

7 לגאלת ישראל is used in documents from Wadi Murrabaat from years one, two and four of the Second Revolt, while the contemporary contracts from Nahal Hever does not acknowledge the years of the revolt being connected with Simon Bar Koseba, Nasi of Israel and the coins change the phrase to לחרות ישראל. In the years that follow, it could be that the Murrabaat manuscripts utilized the term for the first year of the revolt with לגאלת ישראל since it was a Sabbath year, and the second year with the same formula since it was believed to be a Jubilee year. However, this does not explain the use of the term from the same archive in the fourth year of the revolt. Also, the coins of the revolt limit the use of the term to the first year. It may be that, in the case of the Murrabaat archive, there was an alternative view that the Redemption still continued since the beginning of the Messianic age.

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Book Reviews

K.A. Kitchen, *On the Reliability of the Old Testament*. Grand Rapids and Cambridge: Eerdmans, 2003. xxii + 662pp. $45.00. ISBN 0–8028–4960–1

The nature of the relationship between the historical books of the Hebrew Bible/Old Testament and 'real' history tends to move through cycles of scholarly fashion. In the 1950s and 1960s, under the dominant influence of W.F. Albright and his school, the mood was generally upbeat, and although there was then, as always, a variety of critical opinion, many believed that archaeological discoveries of all sorts could be used to bolster the essential historicity of the patriarchal period, of the Exodus and Conquest narratives and of accounts of the monarchical period, both united and divided, which followed.

The position today could hardly be more different. The loudest voices now belong to the so-called minimalists, who insist that virtually nothing in the Bible can have been written before the Persian period at the earliest and that it therefore contains nothing of historical value from the period of the monarchy at all, let alone what went before it. David and Solomon, if they existed at all (which is far from certain) bore no resemblance to the biblical accounts, there were no patriarchs, no Exodus, no entry into the land, and so on. Archaeology is said to show that the origins of Israel are to be traced to the settlement of groups of the indigenous 'Canaanite' population in the central hill country at the start of the Iron Age (from about 1200 BCE onwards), that a state of Israel was first formed in the northern part of the country under the Omride dynasty, and that Jerusalem (and hence Judah as a country) rose to prominence only in the Assyrian period, no earlier than the eighth century BCE.

Kenneth Kitchen, distinguished Egyptologist and polymathic student of all matters relating to the ancient Near East, has long been known as a doughty defender of the opposite point of view, whether we call it maximalist or conservative. A steady stream of books and articles over at least the past 40 years are here brought together in a major work of synthesis with much fresh material as well. His knowledge of the field and its secondary literature, only hinted at in the 100 pages of bibliographical notes included in this volume (why could they not have been far more conveniently printed as footnotes?), is unrivalled, and nobody will read any part of this book without learning 'facts' of which they were previously unaware, regardless of how those facts are to be interpreted.

The plan of the book is relatively straightforward, if slightly bizarre. After a brief introduction to the problem, we start with the period of the divided monarchy, where, to give only the most obvious and well-known 'fact', every king of Israel or Judah who is mentioned in any source outside the Bible (Moabite, Assyrian, Babylonian, Aramaic, and so on) comes with the right name in the right order and

at the expected time. Clearly, that much at least must be based on sound historical memory (or better, record). So it is a good place for Kitchen to start: clear, straightforward, and on firm ground which only a lunatic fringe would deny.

Having started in the middle, so to speak, he then moves initially forward to cover the post-exilic period, where again the historical problems, though real, are less challenging than for earlier periods. It is true that he is unaware, for instance, of recent challenges to the authenticity of the Aramaic letters included in the book of Ezra and relies on scholarship of many decades ago without further analysis. (Ironically, these recent challenges have come precisely from applying the method that he will later trumpet of laying out the sources against their ancient Near Eastern counterparts to see where they fit into the chronological sequence.) But again, the general picture is clear and most would accept that the scholarly disagreements are at a level of detail to which all historical research is subject. So, after reading some 80 pages with the ready nodding head of agreement, the reader is lulled into confidence as Kitchen now begins to move backwards into more controversial territory.

On the United Monarchy he goes further than even what passes nowadays as moderate opinion (as represented, for instance, by W.G. Dever) in defending not just the basic notion of a United Monarchy under Saul, David and Solomon, but even the portrayal of what he calls a 'mini-empire', for which he adduces analogies in the wider region during this period when none of the super-powers (Egypt, Assyria, Babylon) were in any position to exert their influence.

For the 'conquest' and Judges periods he begins to go right out on a limb in the full defence of the Biblical picture. Here, it should be said, he does us all a very real service in stressing quite correctly that the Biblical portrayal is not what it has often said to have been. The book of Joshua may indeed portray a pretty decisive conquest, but not a consequent destruction and settlement throughout the territory of what later became Israel. Many of those who have argued against the Joshua account have done so by attacking positions which that book does not, in fact, uphold, but which were developed in well-meaning but mistaken fashion by the Albright school. Even if that deflects some of the arguments, however, other problems remain, such as the apparent non-existence of Jericho and Ai at the time when they are said to have been defeated, and not all will be convinced that Kitchen has dealt with these adequately.

From the conquest, we are taken back again, to Egypt and the Sinai. Here, of course, Kitchen is able to deploy his Egyptological expertise to good effect to show, for instance, that in the naming of the store cities where the Israelite slaves are said to have laboured (Exod. 1:11) there must be good early memory because the facts which fit that period changed over the course of time and so would not have been known to later writers. Not all the suggested analogies and illustrations fit that pattern, however, and his handling of the so-called covenant materials in Exodus-Leviticus and in Deuteronomy, for instance, on which he has written before and on which his tone becomes ever more strident, will not attract widespread support – not because other scholars are denying the sequence of extra-biblical treaties which he repeats interminably, but because that pattern is being imposed upon a selection

of the Biblical material in a way which many believe does not do justice to the texts themselves. When evidence has to be made to fit, it loses its strength as evidence.

The next chapter moves back again, to the patriarchs, but then at this point, the book takes a most peculiar turn, for we suddenly find ourselves reading a chapter on the prophets, which is neither in chronological nor even reverse chronological sequence, and which in addition is not really related to the main argument of the book, with its concern for the reliability of the historical material. This is not to deny that the prophets may be used for historical purposes, but that is not Kitchen's purpose here. Rather, he seems more concerned to defend various literary positions, such as the authorial unity of the book of Isaiah. This is mostly work of a decidedly inferior nature by comparison with the rest of the book, and the whole would have been better off without it. Clearly, his expertise does not run to this corpus.

Finally, we move to the first 11 chapters of Genesis, the so-called primeval history, where his concern is not to defend the text as history, one is relieved to note, but to make the point that the structure and style of writing best suits a cultural context in the first half of the second millennium BCE. This material must, then, in his view, have had its origins at that time, and could not have been invented in the later Persian or Hellenistic periods, where some others have put it.

The concluding chapter gets a bit personal, as Kitchen sums up by going through the writings of some of those to whom he is most bitterly opposed and refutes their statements. For the most part, the targets he selects by way of extreme quotations are easy pickings for him, and the result is to leave a sensation of rather cheap and unnecessary polemic that adds nothing to the substantive case. The endless repetition of words like 'absolute bunkum... utter poppycock... (anti)academic lunacy... claptrap' (pp. 470–72), which Kitchen has always seemed to think strengthens his case, in fact has the opposite effect. It is a pity (since he vaunts his ability to read texts better than most) that he does not realize that this is precisely how to alienate readers and that this is so often why his undoubted scholarship has not been given the attention it deserves.

Clearly, it is not possible even to begin to evaluate this mass of material here, not least since it ranges from the secure, with which the overwhelming majority of scholars agree without hesitation, to the very speculative, where only the most committed conservatives will even contemplate following. But this is itself, perhaps, the one point that really has to be made: that is in his presentation Kitchen makes very little distinction between the two, and some readers may therefore be lulled into a false sense of security. Of course, he is aware and makes clear that for the earlier periods we do not have the *direct* attestation that comes with the written extra-biblical sources of the monarchic period, but nonetheless with very few exceptions, we are led to believe that the case is as firm for the early as for the later periods, and yet this is manifestly not the case. How does this come about?

The answer, I think, is that there is an unacknowledged shift in the argument as we proceed. To start with, there is good evidence brought from a variety of sources to support the historical claims of the biblical texts. Few will quarrel with that. It does not get us very far with understanding what the Bible is about, and Kitchen

seems to think that he has more enemies here than is actually the case, but no matter; so far the method is acceptable. Along the line, however, the argument shifts: the biblical record can no longer be shown to represent accurate history, so instead all sorts of ingenious arguments are deployed to show why it is not impossible. I give two examples, and shudder to think what he would have said had a 'minimalist' used the same sort of argument.

He affirms that 'special pleading cannot be allowed' (p. 377), but within a couple of pages he proceeds to the most breathtaking form of special pleading I have seen in a long time, namely that (in order to defend an eighth century date for the whole of the book of Isaiah) the Cyrus of Isa. 44:28 and 45:1 is not the well-known Cyrus of Persia who actually did the things ascribed to him in this passage (authorizing the rebuilding of Jerusalem and of the temple). Rather, on the basis that there was a Kurash (Cyrus?) who reigned in Parsua in 646, 'other Cyrus's (Kurashes) may have reigned there before 646... There is nothing untoward in an Isaiah being moved to proclaim that a 'Cyrus' (identity of his kingdom not stated) would reach power and free Hebrew captives in Babylon' (p. 380). So: an otherwise unknown and unattested king from an unstated kingdom will free Babylonian captives at a time for which we have no evidence that there were such captives. The difference from, for instance, the mention of Omri on the Moabite Stone is as stark as it could be, and it is astonishing that Kitchen can write like that with a straight face. He has supplied us with a number of adjectives that might be used but which would not strengthen the case one iota. (His speculations a couple of pages further on about how the book of Jeremiah grew to its present shape, I might add, are based on a good deal less plausible arguments than many theories about the growth of the biblical literature which he elsewhere cavalierly dismisses as lacking in solid, external evidence; clearly, different standards apply to different scholars.)

A second example: the presence of Philistines in the patriarchal narratives, has long been considered an unhistorical anachronism, given that the Philistines are known from good Egyptian sources not to have settled in the Levant until much later. No problem. The biblical term is simply a later updating for what in reality were 'Caphtorians', since there were no doubt contacts with Crete (?) as early as the early second millennium. Now of course, such a thing is possible; we all use 'anachronistic' names and titles without realizing what we are doing, as Kitchen has no difficulty in showing. However, that would only be even a possible explanation if we knew first that Genesis 26 was describing an actual event in which Caphtorians were involved. But the only *evidence* that we have for that is the biblical story in the first place, for which we are then asked to take on trust that it concerns not Philistines but Caphtorians. And if that is so, how come that their king has a good Semitic name (Abimelek) rather than one that might at least have some sort of Greek connection (like Phicol)? Kitchen does not even hint at this anomaly (though he must be aware of it), and no doubt one could think of some explanation (perhaps his father married a nice local girl and named his son after her father). But this is not the real point. What matters is that the basis for the argument is quite different from that of the earlier chapters. On the one hand, evidence is adduced to

support the Bible's claims to be historical. On the other, its historical nature is assumed and arguments of a blatantly apologetic nature are brought to bear in its defence. Readers are free to agree with the one without being made to feel guilty if they express caution about the other.

This book will not halt minimalism in its tracks; frankly, some of minimalism's more absurd claims are better ignored than given the oxygen of publicity. But there is much information here which can be deployed to bring a better balance to the discussion about the history of ancient Israel than has been apparent in the recent past. Some seem innately to enjoy living on the polemical extremes; I suspect the majority of us prefer the centre ground – less exciting, perhaps, but not necessarily wrong as a result.

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Sean A. Kingsley, *Shipwreck Archaeology of the Holy Land: Processes and Parameters*. Duckworth Debates in Archaeology Series. 2004. Pp. 159 with 29 figs. Price: £ 11.99. ISBN 0 7156 3277 9

This monograph brings together an enormous amount of material (including a bibliography of 317 references). Two particularly important sources that the author draws upon are his own 1999 unpublished University of Oxford Ph.D. thesis, *Specialized Production and Long-Distance Trade in Byzantine Palestine;* and his more recent study entitled *A Sixth-Century A.D. Shipwreck off the Carmel Coast, Israel: Dor D and Holy Land Wine Trade* (BAR International Series 1065, Oxford 2002). What he offers in *Shipwreck Archaeology of the Holy Land* is a new social and economic history of the Byzantine Mediterranean world, focused on Palestine.

The first four chapters of the book concern shipwrecks along the coast of Palestine from the fourth century AD until the Islamic conquest of 640, when Mediterranean maritime trade largely ended. Kingsley discusses ships' hull construction techniques, masts, sails, anchors, ballasts, galleys, and cargoes. He continues with a description of the gradually sloping eastern shoreline of the Mediterranean, in contrast to its plunging northern and north-western shorelines. Nile sands are annually deposited along the eastern shoreline, and annual winter storms uncover ancient shipwrecks there. I found it interesting that the place of origin of a ship and its crew can be determined by examining the contents of its galley, that is, its kitchen, especially the cooking utensils. Kingsley also presents evidence for the recycling of Palestinian amphorae, which were brought back empty from distant ports.

Comprehension of the vast scale of the Palestinian wine export business over some 350 years, extending virtually around the entire Mediterranean, has been enabled only by careful stratigraphic excavation and complete ceramic retrieval. As the author states, 'Quantification – the objective assessment of a vessel type's relative frequency amongst a pottery deposit – offers the optimum insight into the actual rhythms of export between the fourth and seventh centuries by enabling

[quantities] deposited in different centuries to be compared' (p. 96). Kingsley gives us glimpses of this vast Palestinian trade by referring to excavations at ports of call that have quantified their results: Alexandria, Carthage, Beirut, Constantinople, Argos, Naples, Rome, Marseille, Porto Torres (Sardinia), Tarragona, and Calle Soledad (the last two in Spain).

In chapters five to seven, the author ties urban and rural Palestinian sites to the growing of grapes, the production of wine by means of several kinds of wine presses, and the amphorae in which the wine was shipped. The probable export of Palestinian textiles and glass is also discussed, although evidence for it is no longer extant.

Kingsley's valuable work illustrates how the use of quantitative methodology, which archaeologists studying the biblical and earlier ceramic periods in Palestine have until now resisted, yields results that would be otherwise unattainable. Strangely, what used to be an era that few archaeologists were interested in – Palestine's Byzantine period – is now in the forefront of Near Eastern archaeology, and those engaged with its quantitative aspects are methodologically far ahead of their counterparts engaged in the study of earlier periods. One misgiving I do have about this volume is that, as with so many other archaeological works that refer to sites in modern Israel, the current place names are often used to the exclusion of their Arabic predecessors. One example would be the place name Shelomi; until it was destroyed in 1948, the Palestinian village of el Bassa existed on this site. If the Modern Hebrew place-name is used, then at least the Arabic name should be added in parentheses.

Shortly before or after the Islamic conquest, the vast maritime trade network facing west broke down, to be gradually replaced by a new trade network facing east (see John Hobson, *The Eastern Origins of Western Civilization*, Cambridge 2004, p 149). Both Kingsley and Hobson assert that, although Palestine exported large amounts of its agricultural production (and probably textiles and glass) to other regions of the Mediterranean, relatively little was imported into Palestine. However, this trade deficit was balanced by the import of precious metals, mainly silver.

On page 127, Kingsley calls the impact of the great Justinianic plague of AD 541 the subject of 'one of the most intellectually stimulating debates of late antiquity.' This plague was spread from port to port by rat-infected ships. The bubonic plague bacillus is transmitted by the rat flea, which lives on the common rat (*Ratus ratus*). It should be emphasized that there were cyclic recurrences of the plague of 541 until 750 (for references, see *Tell Keisan*, Gabalda 1980, pp. 65–66). The crew members themselves would probably be the first persons to be infected, and later the inhabitants of the port cities they visited. Gradually the plague worked its way inland.

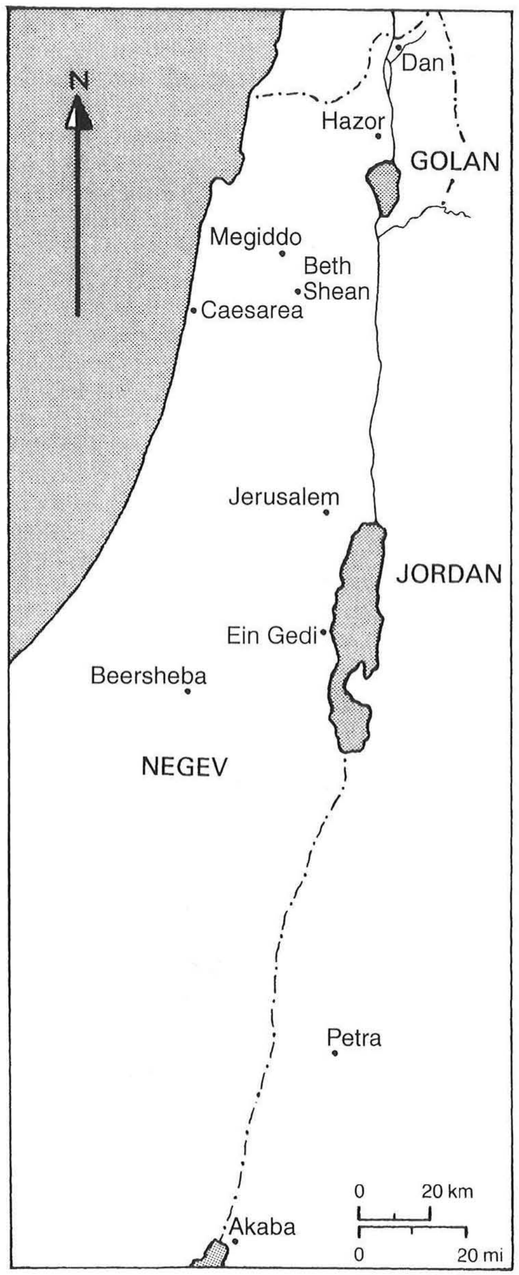
In the late 1970s I visited the Wooster excavations at Pella (Fihl) in Jordan, directed by R.H. Smith. In conversation with a staff person, I. Köhler-Rollefson, I learned of a very unusual Byzantine pit on this site that was filled with the skeletons of a single species of small rodent (not the common rat), whose genus and species had been identified at the Smithsonian Museum. To the best of my knowledge, this pit has not yet been published, but it could have a direct bearing on the bubonic

plague of 541. To be an effective carrier, the common rat itself had to be resistant to the plague bacillus; was this also the case for other small rodents such as the one represented in the contents of this pit? If the latter were not resistant to the bacillus, then they would have died and the unpublished Pella pit would contain the first archaeological evidence for the Justinianic plague, or one of its cyclic recurrences.

Shipwreck Archaeology of the Holy Land should be required reading in undergraduate and graduate courses on Middle Eastern archaeology, because it illustrates methods and goals valid for any period within that geographic context. It is concise, well written, inexpensive, and up to date. The excellence of the book lies in its commitment to the full investigation of the archaeological material at hand, and to making connections that truly bring the past to life.

John E. Landgraf

Summaries of Lectures



Lachish, Megiddo and the Philistine Settlement in the Coastal Plain

David Ussishkin

The lecture dealt with the settlement of the Philistines in the Coastal Plain of Canaan during the 12th century BCE. The Philistines were part of the 'Sea Peoples' which tried to invade Egypt by sea and land during the reign of Ramesses III, as portrayed in the Egyptian reliefs. The Philistines settled in the five main central cities, and used characteristic painted pottery with Mycenaean affinities. Analysis of the excavations in two of the central Philistine cities, Ashdod and Tel Miqne (Ekron), and data uncovered in Lachish and Megiddo, two of the most important Canaanite cities, enable us to review afresh the nature of the Philistine invasion, to lower the date of the Philistine settlement to after 1130 BCE, and to consider afresh the question of early Philistine fortifications.

The Crisis Years, 12th century BCE, Canaanites, Israelites, Egyptians and Philistines

Trude Dothan

The arrival and settlement of the Sea Peoples is one of the most fascinating episodes of the transition from the Bronze Age to the Iron Age in the Levant. The best known of these peoples are the Philistines and the paucity of written sources makes the archaeological evidence of prime importance. For much of that we have to thank Prof Trude Dothan.

The building of the early Philistine city at Tel Miqne-Ekron shows that its inhabitants had a concept of a planned, fortified city from the start. The ability to build this large new city shows a well-organized society with a firm economic structure, fitting our picture of the Sea Peoples' military supremacy and technological abilities. The material culture of the city was based on elements new to Canaan and reflects the Aegean background of the newcomers. It is clear that a new age had begun in what was to become the Philistine heartland. The situation reflected in the archaeological evidence, however, is not one of uniform change. At the same time as the Philistines were establishing their distinctive settlements, an Egyptian provincial administration maintained its own presence separate from the Philistine communities. This part of a broader picture of the co-existence of diverse cultures – Canaanite, Israelite, Egyptian and Philistine – was itself an element in an even larger panorama of far-reaching social change, population movements and cultural transformation. Such factors characterized the transition from the Bronze to the Iron Age, from Canaan to Cyprus and the Aegean, and to the western regions of the Mediterranean world.

Dangerous Liaisons: How Fictitious Sanballists are Skewing the Dating of Samarian and Sidonian Coinage

Diana Edelman

In this illustrated lecture Dr Diana Edelman discusses Persian-era coinage from Samaria and Sidon, the Wadi Daliyeh papyri, and bullae and the Elephantine papyri against a background of the history of Samaria. She examines the theories of leading numismatists, such as F.M. Cross, which she believes are based on tenuous evidence, and which has resulted in younger dates of the early sequences of Sidonian coins upon which the 'Sanballat' coins are modelled.

A Byzantine Synagogue Identified: Recent Excavations in Southern Albania

Gideon Foerster and Ehud Netzer

Some 25 years ago a basilical structure and its dependencies were excavated in the centre of the town of Saranda, a small coastal resort in southern Albania opposite the island of Corfu. The site was identified and published by its Albanian excavators as a Christian establishment. The full significance of the structure escaped notice until recently, when a young Albanian archaeologist identified a *menorah* on one of the mosaics of the building. Following this discovery, in August 2002 the Albanian Institute of Archaeology and the Albanian Academy of Sciences proposed a joint study of the synagogue and its renewed excavations with the Hebrew University's Institute of Archaeology. During two seasons of excavations in 2003 and 2004, most of the structure with its lavish mosaic floors has been exposed, with the exception of the basilica's southern aisle, which lies under one of the main streets of the modern town. Five stages were identified in the history of the site. In the two early stages fine mosaic pavements (second to fourth century), probably part of a private home, preceded the synagogue and later the church. In the third stage several rooms were added, the largest of these containing a mosaic pavement representing in its centre a *menorah* flanked by a *shofar* (ram's horn) and an *ethrog* (citron), all symbols associated with Jewish art. Mosaic pavements also decorated the other rooms. A large basilical hall added in the last two stages in the history of the site (fifth to sixth century), represents the heyday of the Jewish community of Anchiasmon (*Onchesmos*), the ancient name of Saranda. The head of the Jewish community is mentioned in a burial inscription dated to 521 CE found at Venosa in southern Italy. In the sixth century the synagogue was converted into a church which can be deduced from two dedicatory inscriptions in the mosaic pavement of the basilica.

Nelson in Egypt: Excavations in Aboukir Bay

Nick Slope

In 2005 the nation commemorated the Battle of Trafalgar and the death of Nelson. Led by the National Maritime Museum, 2005 was the year of events, exhibitions and celebrations of Britain's maritime heritage under the banner of Sea Britain 2005. To help start these commemorations the Anglo Israel Archaeological Society (AIAS) and The Nelson Society arranged a joint lecture at the British Museum.

Whilst excavating Pharaonic and Hellenistic structures on a small island in Aboukir Bay, Egypt, Italian Egyptologist Dr Paolo Gallo discovered a lost British cemetery dating from Nelson's time. British archaeologist Nick Slope became involved in rescuing the remains of Nelson's men that are under threat from erosion and illegal excavation. Not only have Nelson's sailors been recovered but also British soldiers, marines, women and children. The excavation has given us new insights into life onboard Nelson's ships and Nick has even managed to identify individuals and trace some of their descendants. Nick gave a fascinating illustrated talk about the excavation and the findings. The excavation was the subject of a recent BBC2 documentary *Ancestors: Nelson's Forgotten Heroes.*

Tin, Pots and Donkeys: A New Look at Late Bronze Age Trade in the Levant

Carol Bell

Advances in the study of ancient trade, together with new archaeological and textual evidence from the Levant, make a review of Late Bronze Age trade in this region timely. During the Late Bronze Age, international trade grew to unprecedented levels in the Eastern Mediterranean region and port cities of the Levant, especially Ugarit, played a crucial role in the long-distance overland trade routes and maritime circuits in the East Mediterranean. Tin, an essential component of bronze, was one of the strategic commodities that arrived by donkey caravan at Ugarit for shipment west to the foundries of cities such as Enkomi in Cyprus and to other Levantine harbours. Meanwhile, Mycenaean and Cypriot pots arrived in large quantities along the length of the Levant coast. This lecture presented a picture of the nature of this trade by comparing evidence from different ports along the length of the Levant littoral. A picture emerges of regional variation, rather than uniformity, in relationships with Cyprus and the Aegean in cities on different parts of the coast of Syro-Palestine. The possibility was raised that this variation may have influenced what happened next, in the early decades of the Iron Age, as a new order began to emerge from the ashes of the destructive events which marked the end of the Late Bronze Age from the Anatolian Plateau to Gaza, and from the Argolid to the Euphrates.

Gods of Second Millennium BCE Syria: Texts and Art

W.G. Lambert

A big disappointment from archaeology in Israel and the surrounding nations has been the lack of finds directly bearing on the Bible. No archives from the kings of Jerusalem or Samaria, no stone inscriptions from the same area, and very little pictorial material from any Biblical context. The surrounding nations have provided more, though precious little, in particular the Moabite stone and the recently found pieces of the Tel Dan inscription. The Assyrians and Babylonians have left us with by far the largest quantity of written material about ancient Israel. The Israelite taboo on art may partly explain the lack of pictures, but not fully. In this respect the surrounding nations have less to offer than with written material, and the Assyrians have provided most, the relief of Sennacherib's siege of Lachish being the best-known. However, the oft-repeated claim that Jehu is shown on the so-called Black Obelisk of Shalmaneser

III is almost certainly wrong. The prostrating figure is no doubt the envoy of Jehu and in view of the absurd depictions of animals on other panels of that monument, it is clear that the sculptor did not himself go on the expeditions, but worked in Assyria, so there is no guarantee that Jehu's envoy is correctly shown. Confronted with this lack of art, popular and even learned books on the Bible and biblical archaeology often print pictures of, for example, Mesopotamian objects with highly speculative captions.

There is one source for relevant ancient art freely available and little used so far. Names of gods of surrounding nations occur often in the text of the Bible but none of the background information is usually provided. The area north of Israel, which we can call Syria, has provided both written and iconographic material bearing on their gods but not from the period of the Israelite monarchy. Phoenician inscriptions are not helpful and later sources in Greek, professing to be dependent on Phoenician religion, require more critical handling than our knowledge allows. But from the second millennium BCE there is much more. The Ugaritic mythological and religious texts allow the reconstruction of their pantheon with a fair amount of detail, from the second half of the second millennium, and Syrian cylinder seals from the first half in their hundreds, show clearly differentiated gods and goddesses. No one familiar with this material will doubt that Baal is very commonly shown and easily identified. But what about the rest? The speaker has previously argued that the Biblical Leviathan can be identified and will pursue other deities known from the Bible in this material.

Tel Yarmuth and the Emergence of Proto-State Organizations in the Southern Levant

Pierre de Miroschedji

In operation since 1980, the Tel Yarmuth excavations have yielded considerable information for monitoring and understanding the gradual development of political organizations in the south-western Levant during the third millennium BCE.

The lecture presents a summary of the latest discoveries at the site, especially a succession of three palaces dated to the EB III (*c.* 2600–2300 BCE). The latest palace, Palace B1, covering 6000 square meters, is a unique building complex in the contemporary Levant. It testifies to the existence of an elaborate palatial architecture and to the functioning of what may be called a palatial economy. It was part of a larger complex of public buildings, which implies a remarkable concentration of power on this site. These developments took place against the background of a remarkable settlement expansion in south-western Canaan, which suggests that towards the end of the EB III, political organization may have appeared that exceeded the territorial extension of a single city-state.

Ancient Egypt, Israel and the Bible: Faith and the Archaeological Evidence

Peter Clayton

In homes that have an old illustrated Bible, the illustrations generally fall into one of two categories: those taken from Old Master paintings, or from ancient Egyptian tomb paintings and reliefs. This lecture looks at the Old and New Testaments, at many of the stories therein and the archaeological and background evidence there is for them. For example, when Joseph interpreted Pharaoh's dream, what is the evidence for the famine, what was the importance of dreams and why did Joseph hide a silver cup and not a gold one in Benjamin's sack to incriminate him? Did Moses exist? What evidence is there for an Exodus and who was the pharaoh involved? Where did the Holy Family find sanctuary in Egypt and what coins was Judas paid in for his betrayal? Near Eastern archaeology was very much Biblical led in the nineteenth century and painters such as Edwin Long and David Roberts all catered

for that taste, interpreting the events to suit the age. All these aspects and more are looked at by Peter Clayton, FSA, an Egyptologist and archaeologist who has travelled and lectured around the Near East for over 30 years. This lecture includes illustrations of fine archaeological objects and paintings as well as many startling facts.

The Jerusalem Shroud: A Second Temple Burial Answers Modern Medical Questions

Mark Spigelman

In the summer of 2000, a group of students on an archaeological tour of the Hinnom Valley in Jerusalem, led by Shimon Gibson and James Tabor, stumbled upon a burial tomb marked by a number of broken ossuaries. Although the grave had been visited by robbers, there was a single untouched *loculus*. On the floor of this *loculus* a nondescript black mass of material was found along with some assorted bone fragments. The mass itself appeared to be made up of fabric and hair, and provided a unique and exciting possibility that it was a Second Temple burial shroud. It was subsequently radiocarbon-dated to the 1st Century CE. The archaeological investigation of the tomb was undertaken by Gibson, Tabor and Boaz Zissu. The medical research on the burial shroud was undertaken by a team led by Chuck Greenblatt.

A number of other notable observations were also made at the site. Most importantly, this niche was sealed and the bones had not been gathered for secondary burial as was the custom. Why, in an obviously important and possibly highly religious family were the normal rituals and burial practices not carried out on the shrouded body? It is possible that there was civil unrest at the time and the family was unable to come back and perform the ritual. Alternatively the family may have realised that the mode of death was such that re-opening the tomb posed a personal danger to them. It is difficult to understand the first aspect, however the second suggestion does open some possibilities using the technology of ancient DNA. Two diseases come to mind instantly: leprosy and tuberculosis. Both were likely to have given deaths which may have caused significant fear and suffering. This may have been enough to have made the family too afraid to collect the bones and place them in an ossuary.

Leprosy ravaged The Middle East and Europe from biblical times until the late Medieval period. One of the effects is that patients became isolated, cast out from society and often suffered from poor nutrition. This may have lead to a weakening of the immune system, paving the way for opportunistic infection. In antiquity this was well documented in one of the Dead Sea Scrolls, the Temple Scroll, where the section dealing with the laws of uncleanness and purity expressly state that those suffering from 'tsarat' (leprosy) must not enter the Temple City of Jerusalem or all the cities. The study of this body led to an extended study of other individuals with leprosy in antiquity. Also discussed were several other cases from Israeli excavations, where the use of microbiological techniques has led to significant information being made available to archaeologists, was also discussed: a suspected rape murder of a woman by the Assyrians at Tel Rehov almost 3000 years ago; a rich burial from Tel Bet Shean from the Middle Bronze Age; and a piece of calcified pleura from Kakur in the Negev.

The Site of Qumran: What is all the Fuss About?

George Brooke

In this lecture George Brooke explored the long-standing and more recent theories about the site of Qumran. The ongoing interest in the archaeology of the Qumran site and the range of opinions about it amongst professionals and amateurs alike is highly distinctive: no other small site from antiquity has received quite such extended and diverse description. Why

should this be? What is at stake? Do the famous scrolls from the 11 caves at and near the site hinder or help in providing answers to some of the questions about Qumran? How distinctive is the site? These are some of the questions addressed in the lecture which provided a fresh overview of one of the most famous archaeological discoveries of the twentieth century, which still engenders fascination and stimulates the imagination of the twenty-first century onlooker.

Grants Given by the Society

MATTHEW PONTING

In 1967, following the Six-day War, substantial excavations were undertaken in the Old City of Jerusalem. However, it is only now that a concerted study and publication programme is underway. As part of this programme, chemical analysis was conducted on 31 objects made of copper-alloys from within a house closely dateable to the second half of the 1st century BC (Geva, forthcoming). The objects include finger-rings and other personal items as well as utilitarian pieces. The analyses were generously funded by the Anglo-Israel Archaeological Society.

The results of the analysis (by inductively coupled plasma atomic emission spectroscopy) show that nearly half of the objects analysed are made of bronze (14 objects or 45.2% of the total assemblage), while under a quarter (seven objects or 22.6%) are made of unalloyed copper. Surprisingly for the date, nearly one third (nine objects or 29.0%) are made of brass, while only one piece (accounting for 3% of the assemblage) is made of the mixed alloy called gunmetal. The bronzes, while extremely varied in their tin contents (2% up to nearly 15%), contain almost no measurable zinc (<0.06%). The brasses have zinc contents ranging from 15.8% up to over 25%, while the gunmetal contains levels of zinc (8%) and tin (5%) that strongly suggest an alloy made by mixing approximately equal amounts of brass and bronze together. Brass is not common at this time, being found only as a coinage alloy, and used sporadically for jewellery in the Hellenised east with which it is clearly associated (Craddock and Eckstein 2003: 217).

Minor and trace elements in the metal come from the original ores used for the alloying components and from the fluxes and other sources associated with the smelting process (Tylecote *et al.* 1977; Merkel 1990: 113–118). The cobalt and nickel contents in the unalloyed copper and bronze objects are generally significantly higher than in the brass items. This suggests that the copper used to make the brass has a different origin than that used to make bronze or that used unalloyed. The amounts of manganese and iron are similar to the contemporary brass coins from Bithynia and Phrygia (Craddock *et al.* 1980) suggesting that the brass objects were made by the same process using prepared zinc oxide. This process differs from that used by the Romans in Europe in that prepared zinc oxide rather than calcined zinc carbonate ore was mixed with copper metal (Craddock and Eckstein 2003).

The bronzes contain almost no measurable levels of zinc (mean: 0.02%), a fact that would be surprising for any copper-alloy recycling system where brass was

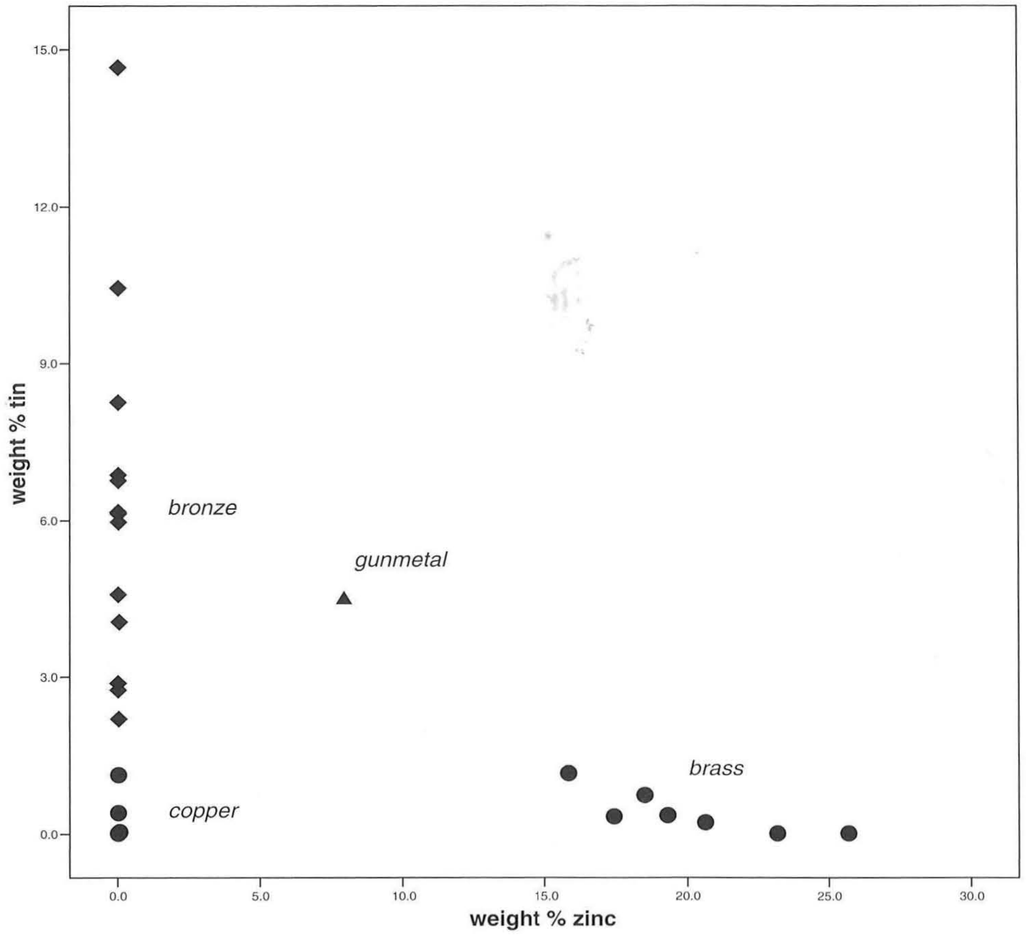


Fig. 1. Scatterplot showing the alloy types represented

being worked and reused. Zinc is a volatile metal and therefore traces of zinc will readily find their way into other copper-alloys through the use of contaminated crucibles and the unintentional mixing of workshop waste. Indeed, zinc contamination of bronzes is common in Late Iron Age copper-alloys in Britain (Dungworth 1996: 408), clearly pointing to workshops where both bronze and brass were being worked. The absence of this feature here must indicate that, although brass objects were clearly being used, brass was not being worked to any great extent in local coppersmith workshops; finished brass objects were either being imported or the workshops were completely separate.

One of the characteristics of copper extracted from sources in the Near East is that it tends to contain relatively high levels of cobalt and arsenic (Ponting 2002a) and it is therefore interesting to note that the levels of both these elements are significantly lower in brass objects than in the unalloyed copper and bronze objects (Fig. 2). It is

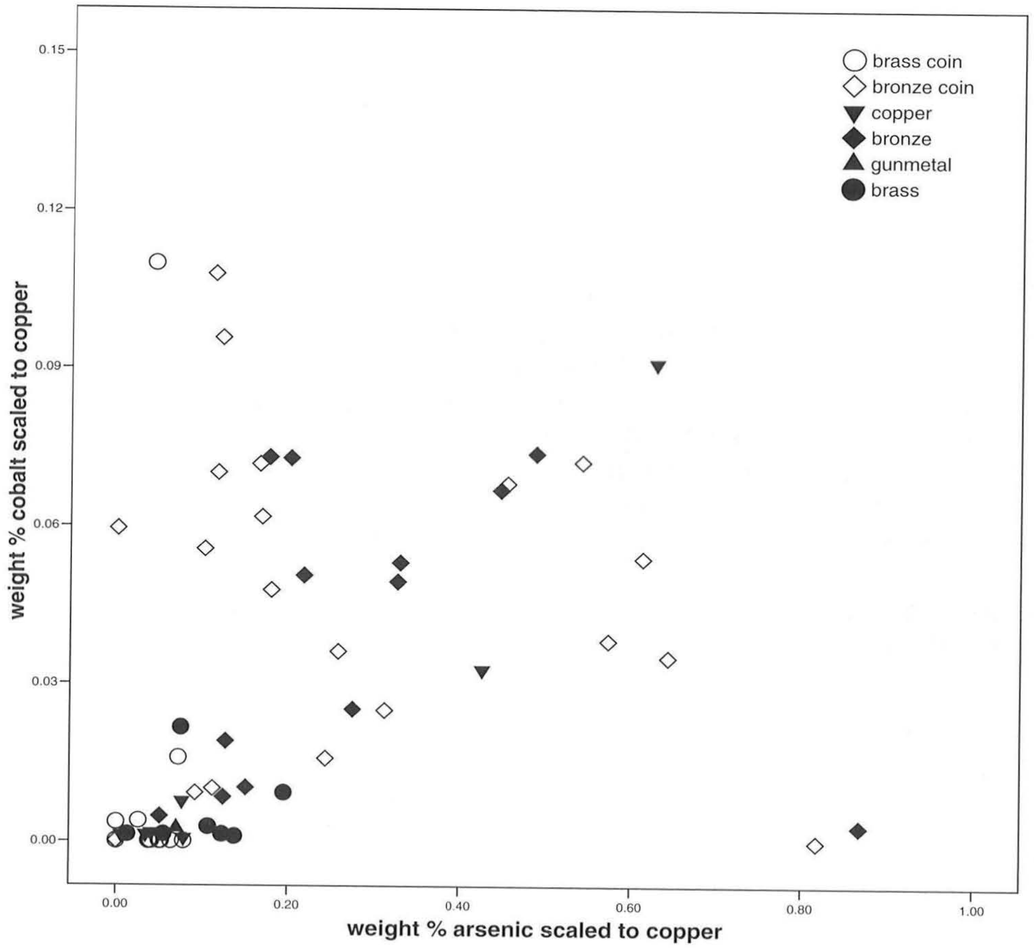


Fig. 2. Scatterplot showing the arsenic and cobalt concentrations in the Jerusalem alloys compared with contemporary Hellenistic coins

also clear that the pattern of low arsenic and low cobalt in the brasses is the same for both the coins and the Jerusalem objects, with the exception of one coin.

The evidence therefore suggests that the brass objects from this house in Jerusalem were made of brass that is chemically similar to that used for the contemporary coinage of Anatolia, the closest region that possesses zinc deposits likely to have been used in the 1st century BC. This supports the idea that the coin production is the visible crest of a growing wave of brass production in the Near East, more visible because of the nature of coinage and because of the scale of production. The Jerusalem brasses show that brass was available for other uses: for finger-rings, spoons, fibulae and other decorative objects, but that its use was limited when compared to the use of bronze and unalloyed copper. This may well be due to availability and/or expense. If the main source of brass in the 1st century BC was in Bithynia or Phrygia, or through recycling certain coins from these places, then

the metal would obviously command a premium. This is certainly consistent with the emerging picture of the history of brass production, wherein brass is regarded to have been exotic and valuable.

The use of brass by the inhabitants of Hasmonean and Herodian Jerusalem also presents some interesting questions. Clearly, the use by the Jewish community of such a readily identifiable golden-coloured metal bearing obvious associations with Hellenised life suggests a familiarity with, and an acceptance of, certain Hellenistic gentile fashions, and a willingness to go to the expense and effort of obtaining them. This is perhaps best expressed in a brass finger-ring bearing an intaglio of a lily, a popular Jewish symbol during this period. The fact that nearly one third of the copper-alloy objects excavated from this site are made of brass contrasts spectacularly with the evidence from Jewish sites in the first half of the 1st century AD, where brasses are notably absent; it is only on pagan sites that brass continues to be used (Ponting 2002b). Clearly there was a significant and important change in the perception of imported Graeco-Roman fashions in the years immediately before the First Revolt, as documented for the ceramic record in the Galilee by Berlin (2002). We can not say yet what was happening in Jerusalem during the same half-century or so, but it is clear that during the 1st century BC Hellenistic fashion in metalwork was well accepted and even aspirational.

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CLAIRE CAVALERI

Due largely to a generous grant from the Anglo-Israel Archaeological Society, in June 2006 I was able to spend several weeks excavating the Late Bronze Age and Early Iron Age strata of Tel Megiddo under the direction of Israel Finkelstein and David Ussishkin of Tel Aviv University and Eric Cline of George Washington University. The site of Megiddo is directly relevant to the completion of my Master's thesis for University College London on the possibility of re-categorising the Neo-Assyrian 'Palace Ware' ceramic vessels found along the Levantine coast during the late second and early first millennia BC. I hope to show, after completing my research, that Palace Ware has been so frequently found outside the palatial context that its name is completely incorrect. As a key site of Late Assyrian domination along the Levant, Megiddo is a prime excavation location for the study of the distribution patterns of specific types of ceramic wares.

At Megiddo I was assigned the duty of working in Square N-10 of Area K, a domestic area of some kind that was possibly a neighbourhood or manufacturing area for the common social class, under the supervision of Mario Martin. Unfortunately, previous seasons at the site had already completed excavations of the Iron Age strata, which were the most directly related to my dissertation. However, I had the pleasure of taking part in the opening of the Late Bronze Age strata and getting a chance to observe the continuity between the architecture and material culture of the different chronological layers, and of examining the Bronze Age influences on the Levantine cultures and the imperial powers who ruled them during the Iron Age. The progression of pre-existing pottery types into the specific wares we have from the Iron Age is clear from the remains from each stratum.

I was lucky enough to unearth several significant finds during the three weeks I worked as part of the excavation team at Tel Megiddo. The first was a pit of approximately 50cm deep which contained, among copious amounts of pottery sherds and extraneous bones, two complete horned skulls, possibly of goats or a species of deer. The context and manner in which both were found support the idea that the pit was a rubbish container from some sort of cooking or manufacturing area, or possibly a centre for animal husbandry in that particular community. The ceramic sherds that my colleague Christine Johnston and I found in Square N-10 were mostly from storage and cooking vessels, generally Canaanite with few Assyrian or Aegean characteristics, and almost entirely utilitarian in style with little decoration. I also had the good fortune to discover, albeit in several pieces, an entire bronze circlet, possibly a bracelet. Although it is difficult to use a single piece of jewellery to unravel any broader social contexts of the area, bronze remains are invaluable because of the ease with which they can be placed in a chronology using the most up-to-date technological equipment.

While I was not able to find the direct evidence of Neo-Assyrian Palace Ware ceramic vessels outside a palatial context that I was hoping for, due largely to the

fact that the time period I am examining had already been excavated by the Megiddo Expedition, I was able to gain a more direct and personal understanding of the progression taken by Levantine ceramics during the hazy transition from the Late Bronze to Early Iron Age. The opportunity to excavate at such an important multi-period site as Megiddo was an invaluable experience to my current and future research, and I am grateful to the Anglo-Israel Archaeological Society for helping to make this possible.

CORISANDE FENWICK

In June 2006, the fourth season of fieldwork took place at the Roman fort at Yotvata, Israel. Thanks to the generous support of the Anglo-Israel Archaeological Society, I was able to return to take part in the excavations.

The site of Yotvata is located in the southern Negev, immediately west of the main highway to Eilat. A stone police station dating to the British Mandate period sits on top of the remains of the fort. In plan, the fort is a typical Roman *castellum*: a square enclosure measuring approximately 40 x 40m. The site was first investigated in the 1970s by an expedition led by Zeev Meshel of Tel Aviv University. Through a series of soundings, the expedition identified two occupation phases which they dated to the fourth century AD. In the mid 1980s, a monumental inscription was accidentally uncovered which revealed that the fort was built by Priscus, probably a governor of Syria-Palestina during the reign of Diocletian and the tetrarchs (AD 293–305). The fort guarded the oasis of Yotvata and the caravan route that runs through the valley.

Since 2003, excavations have been carried out at the site by Professor Gwyn Davies of Florida International University and Professor Jodi Magness of the University of North Carolina at Chapel Hill. The recent excavations have already revealed a more complex occupational sequence than that suggested by Meshel. There is good evidence for several occupation phases in the early Islamic period (seventh-early eighth centuries) as well as a series of Roman phases, the earliest of which equates to the Tetrarchic foundation. In the 2006 season, excavations continued in the fort itself and, for the first time, in the bath-house north of the fort. Areas 5000 and 6000, opened in 2004 and 2005 respectively, were under my supervision.

Area 5000, a 7 x 5m trench on the eastern side of the fort, was reopened in 2006 in order to determine the phases of construction and occupation in the fort entrance and an adjoining interior room. There was no evidence of Islamic period occupation in either the fort entrance or the interior room. Work then concentrated in the interior room where four Roman occupational phases were identified. A niche, cut into the exterior wall and connected to a projecting rectangular stone platform, was also exposed; its construction is dated to the latest phase of Roman occupation. Inside the fill of this niche, an ostracon with Greek writing was discovered. It is suggested

that this room may have been used as a military chapel in the latest phase of Roman occupation. In earlier phases, the use of the room is uncertain – there are a series of hearths but limited finds. The proximity of the British Mandate police station to the western limit of the trench, means that further investigations in this part of Area 5000 are unlikely.

Excavations continued in Area 6000, a 6 x 5m trench immediately north of Area 5000, in order to determine the Roman phases of occupation. The trench contains three mud-brick walls, which together with the exterior fort wall form an almost square interior room. Internal features included storage bins dating to the later Roman phases and a probable drain covered by flag stones dating to the earliest Roman construction phase. In all but the earliest Roman phase, a series of large hearths were uncovered along with considerable amounts of bone and cookware, suggesting a domestic function for this room.

JONATHAN STÖKL

The excavations at Hazor were planned to last from 28 June until 8 August. I was assigned to Area A in the centre of the tel. After helping with a number of tasks, like straightening a section in one square and sorting and moving stones that were needed for the reconstruction of a floor, I was assigned work in 'Bryan's Pit'. There I stayed until the end of the excavations. Our objective in 'Bryan's Pit' was to excavate down to bedrock in order to check on a problem that had arisen in the previous year's excavations: close to where we were digging they had found a floor-level, which was dated to the Early Bronze Age (EB, *c.* 3500–2350 BCE) on the basis that all the pottery found on top of the floor was exclusively EB. This floor was connected to the massive stone walls around it. These walls had previously been dated to the Middle Bronze Age (MB, *c.* 2000–1550 BCE). By going down to bed-rock in our square we were to test, whether the floor-level could indeed have been EB as opposed to MB: If we found a level at the same height or lower which contained MB-pottery, last years results could be ascribed to coincidence and the current chronology could be kept.

In the afternoons we had pottery analysis classes, in which one of the team, in our case, Dr Ben-Ami, a pottery specialist explained to us how to date pottery from Hazor. In the evenings there were often lectures by other members of staff, including Dr Zuckerman and Professor Ben-Tor.

The end of the season this year was considerably earlier than expected due to the rising tensions at the northern border, and the decision was taken to transfer all volunteers and staff to Jerusalem. There we were given lectures by Dr Horowitz (on the cuneiform tablets found at Hazor), Dr Zuckerman (on the finds from previous seasons at Hazor), and tours through the various museums containing archaeological finds. When the decision had to be taken to abandon Hazor for this

year, we were given the opportunity to either join a French excavation at Tel Yarmouth or to volunteer in the Israel Museum. As my brother lives in Jerusalem, I chose the latter option and spent some wonderful days at the museum. I hope to return to Tel Hazor in the coming year.

I would like to thank the Anglo-Israel Archaeological Society whose support made this remarkable experience possible for me.

Notes for Contributors

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