

The Enigmatic Rock-Cut Pans of Mgarr ix-Xini

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In the List of Protected Monuments first compiled in 1946 by Charles Zammit and Hugh Braun (National Museum of Archaeology) there are five laconic entries regarding the presence of troughs, some of them with post holes, in Xewkija, Gozo. Listed with the monuments of Xewkija under the heading "Class X: Unclassified" are the following:

- no. 23 Troughs and post holes, cut in the rock; unknown antiquity; Wied Kissi
- no. 26 Troughs cut in the rock; unknown antiquity; near 'il-Qniepel', Mgarr ix-Xini Valley
- no. 27 Troughs and post holes; unknown antiquity; on the opposite side of no. 26, Mgarr ix-Xini Valley
- no. 28 Troughs and post holes cut in the rock; 'Is-Sabbara', under a boulder; Mgarr ix-Xini Valley
- no. 29 Troughs and post holes; unknown antiquity; Mgarr ix-Xini Valley.

The Valley of Mgarr ix-Xini, Xewkija (Fig. 1).

This dry river valley, dominated on the south-west by the high grounds of Ta' Cenc, is undoubtedly one of the most impressive on the Maltese islands. It forms part of the South Gozo Fault which crosses the island from Ras il-Qala through Ghajnsielem to Mgarr-ix-Xini. This is a particularly interesting area of Gozo because of its geomorphology and its diverse bio-ecological and archaeological features.

The deeply-cleft valley, a continuation of the mildly sloping Wied Hanzira, is situated to the south of the village of Xewkija. It starts beyond an olive grove at an area of rugged rocks known as Tas-Sabbara (or Sabbara) and further down is joined from the south by the small confluence of Wied tas-Sabbara. Inland, the valley of Mgarr ix-Xini is shallow and follows a relatively straight course, cutting eastwards through the region of Tal-Gruwa where, at the far end section, it is joined from the east by a small cleft between the areas of Tal-Knisja and Tas-Salvatur. Becoming progressively deeper, it then curves southwards at a point where there is a large artificial dam, and after meandering into a sharp S-bend between Tal-Gruwa and Tas-Salvatur, continues on a long and slightly-curving south-easterly course till it reaches the sea. At its seaward end the deep valley stretches for a distance beyond a small pebbly beach known as il-Bajja ta' Mgarr ix-Xini, the original mouth of the [p.420] valley having been submerged over aeons of time by changes in the sea level. Like Xlendi, another impressive bay that exudes the same type of strange, quiet, scenic beauty, Mgarr ix-Xini is an excellent example of an inundated river valley which has resulted in the formation of a bay with creek and headlands. These create a fjord like inlet.¹ The headland on the west ends in the promontory jutting out at il-Ponta ta' l-Iskandlu, and on the east in the area of land on which the seventeenth century watch-tower of Mgarr ix-Xini stands opposite the Gebla Fessej, a small crag rising out of the water.

¹ P.J. Schembri, "Natural Heritage," in H. Frendo and O. Friggieri (eds.), *Malta, Culture and Identity*, Malta 1994, p.109. See also J. Busuttil, "Maltese Harbours in Antiquity," *Melita Historica*, Vol.V, no.4, 1971, 305-307.

The north slopes of the valley at Mgarr ix-Xini are punctuated by a number of caves with fanciful names that bear witness to their popular connection with Gozitan folklore.² Of these, the most interesting are Ghar ix-Xih (no. 18, a rock-shelter in the 1946 List), Il-Habs (no. 19, il-Habs ta' Ghar ix-Xieh), and Ghar Halliel (which is not listed).³ Some of these caves are thought to be former dwelling places: one has a sink-like water catchment area hewn into the wall and a similar tank is cut on the side of the cliff below.⁴

Between December 1993 and February 1996 we undertook several field trips to Wied Mgarr ix-Xini in search of the listed rock-cut troughs. In attempting to locate each particular site, we consulted contour maps and studied aerial photographs, but these did not prove helpful. Surprisingly, neither were the vague instructions and hesitant routes suggested by some local farmers and herdsmen. After much scouring of the area and blind tracking, it transpired that the rock-cut pans lay inland, scattered over a wide area of terrain through which the dry river-valley coursed. They were limited to the upper one-third of the valley, on the high rocky sides, except for one that was close to the bottom of the valley. The area itself, a large expanse of rugged karstland, consists of outcrops of lower coralline limestone which form typical garigue high grounds. Here, innumerable pockets of soil scattered between the rocks allow an abundant growth of low shrubs together with a herbaceous undergrowth vegetation, characteristically thyme, erica, sea squill, asphodel and spurge.

Initially, access to the sites during the winter months proved to be particularly difficult because of the wet slippery terrain and the absence of landmarks which [p.421] could guide us to each particular site, but subsequent visits in the warmer months soon proved fruitful. Irrespective of the weather, some walks close to the edge of the rocky slopes where the land drops deeply on both sides of the valley are rather heavy going, and in areas of high ground they are downright hazardous.

Figure 2 shows the upper part of Mgarr ix-Xini valley and the approximate location of each site. Sites I, II and III are found on the north side of the valley and are best approached by driving beyond the Xewkija heliport and then following the road down to the valley. Sites IV, V and VI lie on the opposite side of the valley which can be reached by driving along the road to Mgarr ix-Xini Bay up to Wied tas-Sabbara. The 1946 list of scheduled sites mentions a set of troughs at Wied Kissi and another set close to il-Qniepel. However, these toponyms are now obsolete and it has not been possible to identify which sites correspond with the ones being described here. Four of the five listed sites are reported to have post holes, but we were only able to discover them in two.

Description of the Rock-Cut Pans:

These curious artifacts, here variously designated as pans, troughs, tanks or basins, (Malt. hwat, mejjilli or vaski), consist of multiple shallow surface depressions excavated out of the rock.

2 A. Gauci, *Gozo: A Historical and Tourist Guide to the Island*, Malta 1969, 91.

3 According to Fr. Magri "the inhabitants [of Xewkija] claim for their village the honour of having been the seat of the first settlers in the island of Gozo," and they considered these caves as being the place where the village chief administered justice and culprits were held in custody. M. Magri, *Ruins of a Megalithic Temple at Xeuchia (Shewkijyah) Gozo: First Report*, Malta Govt. Printing Office, 1906, 3.

4 H. Lewis, *Walks and Drives on Ancient Gozo*, Colin Smythe, Bucks, England 1974, 28-29.

Individually, they vaguely recall the well known rock hewn salt pans or saline, which in contrast are always found in a cluster near the sea. Roughly hewn out, each of these pan systems consists essentially of two main components: a large rectangular reservoir which communicates through a narrow opening with a smaller, usually round, collecting basin lower down the slope. A number of minor side pans of diverse contours are connected to the main pans either by means of superficial channels or grooves, or by holes that tunnel deeply into the rock. Each pan complex is invariably set on sloping ground, but the incline from the upper to the lower pans varies from site to site. None of the pans show any evidence of mortar coating or surface discoloration. The large pan at Site III is the odd one out, for it is single and has no connecting pans. Nevertheless, we feel that its inclusion with the others is justified because it is similarly hewn out of the rock surface and is set at an incline. For easy reference and for purposes of comparison the outlines of the Xewkija pans, each with its own particular configuration, are being shown collectively. (Fig. 3)

[p.422] Site I - Il-Gandotta: (Plate 1, Fig.4)

This complex, situated in the cleft between the areas of tal-Knisja and tas-Salvatur, is excavated on a relatively smooth piece of gently sloping land at the end of the small north-east "extension" of the valley. Consisting of one major trough and three secondary ones, the group is bound on the upper end of the incline by a high, soil-retaining rubble wall and a number of large boulders, and on the lower by the shallow valley cleft which, as it suddenly gets deeper, is choked with an overgrowth of vegetation.

The shallow main component (A) measures approximately 182.9cm square and is 12.7cm deep. At its upper end, two rudimentary steps (B) lead down to the bottom of the pan where an opening on one side communicates with a tiny deeply-dug trough (C) measuring 48.3 x 21.6cm. Lower down on the same side, a much larger shallow circular pan (D), ca. 75cm in diameter, joins pan A obliquely via a straight narrow neck (E) which runs superficially down to its bottom. At its lower end, the main pan communicates through a short and narrow gutter (F) with a deep 'circular' basin (G) (ca. 93cm in diameter). The latter narrows down into a small elongated terminal channel (H) and ends in a surface groove. The whole composite system of pans is hewn into the rock surface at a gradient and the orientation of the long axis is approximately in an E-W direction. Skirting the perimeter of the pans on three sides is a row of twelve deep circular holes, roughly 6cm in diameter and set at unequal intervals as indicated in the figure. Close by, a row of three similar holes runs away from the pans towards the sloping ledge of the valley.

Site II - Tas-Salvatur (a): (Plate 2, Fig.5)

This interesting cluster of inter-communicating pans is not easily accessible. It can be found on the other side of the valley from Tal-Gruwa, adjacent to a few large boulders near the edge of the valley just before it starts meandering into its distinctive S-shaped bend. The long axis is orientated in an approximately NE-SW direction.

The roughly rectangular main tank (A) is hewn at right angles to the line of the valley on a flat area of rock which slopes gently towards the edge of the escarpment. It varies from 54 to 122cm in width and from 139 to 145cm in length, and is the deepest reservoir of the whole series, being 28cm deep at the upper end and 20cm at the lower. A shallow, roughly T-shaped depression in the rock (G) spills into its upper end via a shallow surface gutter, and a large opening at the bottom (B) of the lower end connects it with a smaller rectangular pan (C) lower down, 73cm wide, 52/56cm long and varying in depth between 33cm at its upper end and 25cm at its lower. This

pan is in turn fed by two smaller lateral basins. The first one, a roughly [p.423] lozenge-shaped pan (D) (5 to 10cm deep) situated on slightly higher ground to one side of the main tank, widens out at its lower end and joins a narrow curved gutter (E) that flows into one side of tank C. The second basin is a deep and roughly circular depression (F), ca.20cm in diameter, which connects with tank C through a large opening at the bottom. Besides, the tank is joined at one corner by a 6cm deep groove which runs close to basin F. Unlike the rock-pans at Il-Gandotta and Tal-Gruwa this site shows no post-holes.

Site III - Tas-Salvatur (b): (Plate 3, Fig.6)

This pan lies very close to the precipitous edge of the deep valley, just opposite to a large spur of land that juts out on the other side. Bound on the north-west by a two-tiered 'wall' of massive rocks, a stone's throw away from site II, this single pan is hewn on a smooth patch of rock that inclines slowly towards the edge and the sheer drop of the valley. It is roughly rectangular in shape, 150cm wide with unequal sides; one being 205cm, the other 300cm. It varies in depth from 15 to 33cm at the perimeter to 40cm at the middle part, and its long axis is aligned with the valley in an approximately NE-SW direction. Unlike all the others this is, curiously, a solitary pan. Once again, no post holes are visible here.

Site IV - Tal-Gruwa (a): (Plate 4, Fig.7)

This system of rock-pans is situated on a plateau on the south side of the valley, at a spot proximal to the valley dam nearby. From here, looking in a north-easterly direction towards the Tal-Knisja and Tas-Salvatur areas on the other side of the wied one can see the minor valley cleft (vide supra) as it joins obliquely with Mgarr ix-Xini valley.

The general layout is broadly similar to that of Il-Gandotta, though here it is much simpler. The sizeable main pan (A), which is roughly oblong in contour (142.2cm long, 94 to 106.7cm wide) and varies in depth from about 12cm at the top end to 16cm at the lower, communicates through a narrow canal (B) with a smaller reservoir (C) at a slightly lower level. Being a natural depression in the rock, the latter has irregular margins. A second trough (D), 48.2 x 68.6cm and 5.1cm deep and contiguous with the higher end of the main receptacle, is probably man-made, but unlike the first one this is non-communicating. Close by, a number of holes (ca.30cm deep and between 10.2 and 22.8cm in diameter) are set at irregular intervals in a row which stretches from the top NW corner of pan A to a distance of about 1.5metres. The orientation of the whole complex of pans along the long axis is in an E-W direction.

[p.424] Site V - Tal-Gruwa (b): (Plate 5, Fig.8)

Cut into a sloping ledge above the valley bed, the main pan (A) of this system consists of a roughly-rectangular reservoir (116-119cm long, 114-118cm wide and 8-11cm deep) which is fed at the top end by a short channel (B). This starts as a funnel-opening (14cm long, 22cm deep and 3cm wide) which bores through the rock surface and as it proceeds downwards perforates the upper side of pan A in the middle. Opposite to this, another tunnel at the other end (C) connects it to a much smaller, roughly circular pan (D), 70cms in diameter and ca.43cms deep in its central part. Beyond pan D is a shallow groove extension (28cm long and 4cm. wide), and further down there are two deep, non-communicating 'rectangular' holes (E), one on each side. The long axis of the pan system lies in an approximately NE-SW direction. No post holes are found on this site.

Site VI- Tas-Sabbora (Is-Sabbara): (Plate 6, Fig.9)

This system of pans lies hidden away inside a dry stone shelter that has been built on two sides underneath an obliquely hanging massive boulder close to the valley floor. The resulting 'hut', which is barely 152cm high, has an open doorway facing east through which one can enter after mounting five rustic hewn steps. The long axis of the principal pan points in a N-S direction. The main rectangular reservoir (A), about 120/130cm wide, 150cm long and 30cm deep, communicates via a very narrow central tunnel (B) at the lower end with a much smaller reservoir (C). The latter, a 27-32cm deep 'oval' pan lying at a slightly lower level, is also connected to the main reservoir on one side by means of a slightly-curved open conduit (D), ca.7cm wide and 44/47cm long. On the other side, a third, roughly rectangular smaller pan (E), 12 x 10 by 10cm deep, connects with reservoir C by means of a 4cm wide overflow gutter (F). On the north side the main pan is bordered by sloping rock and on the west by a shallow poorly-delineated 'catchment area' (G), which is ca.115cm long and 88/92cm wide. This inclined area narrows down to a 25cm wide isthmus (H) and communicates with pan A at its SW corner. No post holes are visible at this site.

Sites VII, VIII and IX:

Besides the troughs described above, we came upon three others which, by comparison, are rudimentary and therefore of lesser significance. Two of these lie close to each other among the bushes at Site VII and Site VIII (Plate 7) in the vicinity of il-Gandotta as one walks in the direction of the main valley. The fact that they are shallow and have vaguely delineated perimeters, suggests that the hewing out process was discontinued and the project abandoned. The third one (Site IX) can be found on a section of high ground at Tal-Gruwa and consists simply of a small, rectangular pan (28 x 44 by about 10cm deep) which, though apparently isolated, could possibly form part of a larger system which lies buried beneath the soil and vegetation.

[p.425] Discussion Unlike the nearby Ta' Marziena Temple on the Munxar-Sannat road and the remains of the Borg ta' l-Imramma temple, the cart-ruts and dolmens on the Ta' Cenc plateau at Ix-Xaghra l-Kbira, Sannat,⁵ the region of Xewkija is not usually associated with any significant archaeological sites. Evidence however exists, albeit fragmentary, which suggests that this part of Gozo may have been an important settlement area since the Bronze Age. Thus, the 18th century Gozitan chronicler Agius De Soldanis⁶ mentions a dolmen (known locally as Maghqad ix-Xih)⁷ which possibly belonged to the Bronze Age and was known to have existed at Xewkija on the site of the present Parish Church.⁸ Abela also notes that a megalithic temple used to exist here,⁹ Reporting on his exploratory dig of this same site at ic-Cens ta' San Gwann Fr Manwel Magri SJ found parts of the temple courts and numerous fragments of decorated pottery, some of which he dated to 1500-1800 B.C.¹⁰

5 A. Bonanno, *An Illustrated Guide to Prehistoric Gozo*, Gaulitana 3, 1986, 39-43 and 45-47.

6 G.P.F. Agius de Soldanis, *Gozo Sacro Illust.*, unpublished manuscript, 1750, 82.

7 This is also known as Maghqad ix-Xejk, ie. the village elder's or headman's seat; hence, the obsolete alternative spelling for the village was said to be Xejkija, ie. the xejk's place; [xejk, cf. Arabic 'sheik']. See also S. Borg et al. (eds.), *Ix-Xewkija Tul iz-Zmenijiet*, Orphans Press, Gozo 1973, 6.

8 A. Bonanno, "The Archaeology of Gozo: from Prehistoric to Arab Times," in C. Cini (ed.), *Gozo: The Roots of an Island*, Said International 1990, 26.

9 G.F. Abela, *Della Descrittione di Malta*, L.I., Not.X, V, Malta 1647.

10 Magri, 5-8. See also S. Mallia, "Fr Manwel Magri's Contribution to the Conservation of Malta's Archaeological Heritage," *Melita Historica*, Vol IX, no.2, 1985, 156-158.

Besides, sections of cart-ruts as well as a quarry are to be found in the localities of Ta' Blonkas and Ta' Lambert (or Misrah Imbert).¹¹ Another significant discovery in this part of Gozo, this time between Xewkija and Sannat, is the well-known Maimunah tombstone inscribed in cufic letters, possibly the only archaeological remnant attributable to the Arab period in Gozo.¹² In 1951 a burial site at Tal-Horob, near Xewkija, yielded a large number of Egyptian amulets dating to the seventh century B.C. - a find which is said to be the earliest archaeological documentation for the Phoenician presence on Gozo.¹³ Moreover, Bonanno believes that a couple of Roman artefacts discovered at Xewkija could have possibly belonged to the typical rustic type of 'villa' that was built for agricultural-industrial purposes, mainly oil pressing.¹⁴ To this interesting list of archaeological sites in the area of Xewkija, one must add the rock-cut pans of the valley of Mgarr ix-Xini which are the subject of this communication.

[p.426] As it now transpires, these troughs are among the most intriguing man-made structures on the Maltese islands and, in this respect, are comparable to the ubiquitous and widely-known ancient cart ruts. However, in contrast to the ruts which are scattered all over Malta and Gozo and have been the subject of several studies,¹⁵ the artefacts at Xewkija are, as far as we know, unique. Moreover, they are limited to a small area in a remote part of Gozo that is not popular for country walks; which is probably why they have been largely overlooked.

Locally designated as hwat or mejjilli mhaffrin fil-blatt, these pans are well-known among the local herdsmen and farmers. The first description of them is said to have been made by Chev. L. Zammit Haber of Xewkija who, in his capacity as a member of the Ancient Monuments Committee, submitted a report to the Archaeological Museum, Valletta, in 1946¹⁶ which we have not been able to trace.

Harrison Lewis, who stumbled upon these pans during one of his walks in Gozo, makes a short reference to them.¹⁷ In a few passing comments on a number of intriguing artefacts he encountered in the area known as Ta' Tingi, he recalls seeing a large bell-shaped silo or cistern which was "typical of those in the Borg in-Nadur phase (1450-300 B.C.)." He then points out that further along towards the main valley, "at the beginning of the small ravine that goes down to the south, (there) are three flat areas in each of which is a rectangular recess.

11 Bonanno, *An Illustrated Guide*, 45, 47. Idem, "Archaeology", in H. Frendo and O. Friggieri (eds), *Malta: Culture and Identity*, 92.

12 Ibid, 4. Together with other scholars, Mario Buhagiar casts doubt as to the local provenance of the Maimuna stone, in which case the only secure archaeological evidence for the whole Arab period would be the prismatic stele discovered at Piazza Sabina, Gozo in 1901. M. Buhagiar, "Gozo in Late Roman, Byzantine and Muslim Times," *Melita Historica*, Vol. XII, no.2, 1997, 123-124.

13 Bonanno, "The Archaeology of Gozo etc.," 31.

14 Ibid, 34, 39.

15 See, for example, T. Zammit, "Prehistoric cart-tracks in Malta," *Antiquity*, II, 1928, 18-25. H.S. Gracie, "The ancient carttracks of Malta," *Antiquity*, XXVIII Cambridge 1954, 91-98. J.D. Evans, *The prehistoric antiquities of the Maltese Islands*, London 1971, 202-204. D. Trump, *Malta: An Archaeological Guide*, Progress Press, Malta 1988, 31-35. R. Parker and M. Rubinstein, *The Cart-ruts on Malta and Gozo*, Gozo Press, Gozo 1984. F. Ventura and T. Tanti, "The Cart Tracks at San Pawl tat-Targa, Naxxar," *Melita Historica*, vol XI, no.3, 1994, 219-240.

16 Personal communication from Mr. Francis Zammit Haber of Xewkija. Also, S. Borg, *Ix-Xewkija fi Grajjiet il-Kappillani u l-Arciprieti Taghha*, Progress Press, Malta 1978, 96. It may well be that Chev Zammit Haber's contribution was merely the compilation of a comprehensive list of antiquities for each of the localities of Gozo for inclusion in the 1946 Protected Monuments List.

17 Lewis, 29.

At one end, is a deep, round silo, and near it at one side is another. In addition there is a small rectangular hole at the centre on either side of the large recess with small channels leading into it.” His only remark about these artefacts is that, it was said, they were “used by the Romans (but possibly Punics) for processing olives,” but unfortunately he gives no reference to support this remarkable statement. This sketchy account fits in with the description of the rock-cut pans at il-Gandotta (Site I), but Lewis does not seem to have encountered any other pans further down the valley.

[p.427] The rock-cut pans at Xewkija seem to present a similar riddle to Malta’s famous cart ruts which have remained enigmatic regarding their age and function and how they were made.¹⁸ Notwithstanding this, in an effort to unravel some of the mystery that surrounds the Xewkija artefacts, we thought it would be a worthwhile exercise to record them in detail and to pose a few relevant questions about them.

It seems to us that the three fundamental questions one should ask are the following:

- i) Are there any similar rock-cut pans on the Maltese islands or elsewhere?
- ii) What is the age of the Xewkija pans?
- iii) What were they used for?

i) As far as we can ascertain, no reports have been published to date on clusters of rock-cut surface troughs (ie: a number concentrated in one locality) which show this particular configuration. Neither could we find any illustration in the archaeological literature of anything that is even remotely similar to these artefacts. Therefore, in this sense the Xewkija pans are indeed unique. We know of an isolated pan system at Id-Dwejra, San Lawrenz, Gozo,¹⁹ which is likewise hewn on inclined rock and resembles them closely (Plate 8). We are also aware of the presence at tal-Misqa of a similar pan system (Plate 9) which seems to form part of a nearby cluster of troughs, culverts and cisterns overlooking the Neolithic temples of Mnajdra near Qrendi. These could have been hewn by the temple people for the drainage and storage of rain water,²⁰ but, as far as we know, the pan system is the only one of its kind in the whole area around Hagar Qim and Mnajdra.

ii) In relation to the antiquity of the Xewkija pans we can merely remark that we are faced with the one basic difficulty which applies to all rock-cut artefacts - there is no scientific method which can reliably determine their age. Of course, tests using well-established methods (eg. radioactive carbon dating) on traces of wood and other organic material that may have existed originally could have given positive results, but unfortunately we could find no traces of such materials. Another possible clue, albeit a less direct one, would have been the presence of any datable archaeological features in the vicinity with which one could associate the pans directly, but the pan systems do not seem to have any connection with either the stretches of cart ruts at Ta’ Lambert (attributed by many archaeologists on rather flimsy and indirect evidence [p.428] to the Bronze Age) or the silos at Ta’ Tingi mentioned by Lewis and tentatively dated to the Bronze Age (which we were unable to trace).

18 Ventura and Tanti, 219.

19 M.N. Cauchi and C.J. Jaccarini, “The Mysterious Pans of Gozo,” in *The Gozo Observer: the Journal of The University of Malta-Gozo Centre*, Vol. II, no 3, 2000, 7, 9.

20 This was the view of Temi Zammit. See K. Mayrhofer, *The Prehistoric Temples of Malta and Gozo, A Description* by Prof. Sir Themistocles Zammit, (with introduction, additions etc.), Malta 1995, 63-66. Also, Trump, 105.

Interestingly, the pan system at Tal-Misqa, Malta, may possibly have a rather tenuous connection with those at Xewkija and Dwejra in Gozo, and by reason of their particular typology a case can perhaps be made for dating them all to the same period of time. However, as already mentioned, it is generally believed that the system of troughs and cisterns at Tal-Misqa was hewn by the Mnajdra Temple people themselves. As for the non-communicating pan, it could have been excavated separately in a different, as yet unspecified, period; and, as far as we can ascertain, no one has ever connected this pan with the whole complex of water tanks.

iii) The question regarding the use of the Xewkija pans in antiquity presents considerable difficulties. Because of their particular location on high valley grounds and their lack of proximity to the sea,²¹ we can outrightly dismiss any activities which exploited marine resources. These include fish curing,²² the production of purple dye from Murex shellfish,²³ retting of esparto grass (*Lygeum spartum*; Malt. *halfa* or *spartu*) in sea water for the production of rope, cord matting and baskets,²⁴ as well as salt manufacture. Moreover, studies of Mediterranean littoral sites that were pre-sumably used for fish curing²⁵ or purple dyeing,²⁶ describe vats or tanks which [p.429] have a completely different typology from those of Xewkija. The main difference is that instead of multiple inter-communicating shallow pans forming one system, here we have a large number of individual vats grouped together in sets. Besides being much deeper, the latter have a square, rectangular, or circular opening which is often lined with mortar. They are also invariably situated on flat rock rather than on an incline. Salt pans are, of course, altogether different in their layout.

In order to arrive at an educated guess regarding their likely function in antiquity, we shall consider first the features which are common to most of the sites, and then try and give an explanation that takes into account as an essential characteristic as many of these features as possible. The common features can be summarised as follows:

a) The site: They are found on the sides of the valley, with nearby arable land and within a short distance from the harbour of Mgarr ix-Xini.

21 The latter feature may lead to further speculation as to whether the sea, because of land mass movement, could have extended much further inland in former times than it does now. This is, of course, a well-known phenomenon, but when one considers the immense depth of the valley as we know it today, together with the fact that it is a partly submerged valley, such a possibility will be readily dismissed.

22 Studies on clustered rectangular or square rock-pans and round vats found on the south-east coastal region of Sicily suggest that they were probably used in antiquity in a fish processing industry that dealt with the preservation of fish by salting and drying, and the production of fish sauce or garum. See G. Purpura, "Pesca e stabilimenti antichi per la lavorazione del pesce in Sicilia III - Torre Vindicari (Noto), Capo Ognina (Siracusa)," in *Sicilia Archaeologica*, 69-70, Anno XXII, 1989, 25-37. Similar sets of grouped deep rectangular or square tanks have been located near the sea at ancient Sabratha, Libya and at other establishments in the littoral regions of Tunisia, Morocco and Spain. See also, A. Wilson, "Commerce and Industry in Roman Sabratha," in *Libyan Studies*, The Society for Libyan Studies, vol.30, 1999, 29-52.

23 For details on this old dyeing method of the Phoenicians, first described by Pliny the Elder in his *Natural History*, see J.B. Pritchard, *Recovering Sarepta, A Phoenician City*, Princeton, Univ. Press, New Jersey 1978, 126-127. Also, C. Sagona, "Silo or Vat? Observations on the Ancient Textile Industry in Malta and Early Phoenician Interests in the Island," in *Oxford Journal of Archaeology*, Vol. 18, no.1, Feb. 1999, 37-51.

24 Sagona, 58. fn.13.

25 On the fish processing systems cut in the rock or earth deposits in nearby Sicily, see Purpura, 29-52. Surprisingly, no evidence of trade in this commodity has been identified in Malta. Also, Wilson, 29-52.

26 Wilson, loc. cit.

- b) The incline: They are hewn on gently sloping rock, presumably to allow gravitational flow of fluid from the larger pan to the smaller one.
- c) The layout: The system consists of a large square or rectangular pan (A) which leads to a rounded, smaller collecting pan (G) lower down.(see fig 1). Besides there are smaller and shallower side-pans (D, E) which connect to one of the main pans.

(The one notable exception to this typology is the pan at Site V, the significance of which remains speculative.)

Considering all these features together one could conclude the following:

- a) The proximity to agricultural land probably indicates that this was the likely source of the primary produce, for if the latter were obtained from the sea itself or from the sea-shore, it would make no sense to have it carried all the way up to the valley side. Besides, processing of the material would have been more economical if it took place somewhere near the sea. The presence of a nearby inlet was convenient in that the final produce could be readily shipped away to Malta or beyond.
- b) The presence of the incline of the rock indicates that an essential function was the drainage of fluid from the main pan to the lowest collecting pan. Similarly, the connection joining the side pans to the larger pans indicates a gravitational flow in that direction.
- c) The presence of the lowest pan indicates that the fluid which gravitated therein was collected and possibly stored, otherwise a simple drainage outlet would have sufficed. In the course of this process, the final produce may also have been separated from any unwanted residue.

[p.430] Trying to accommodate all these features, one can now postulate the following scenario. We envisage how prior to settlement in Gozo itinerant vessels would have passed through at the right time of the year, dropping anchor at the creek of Mgarr ix-Xini.²⁷ Walking up the steep valley until they found a reasonable place to clamber up, (the sea voyage and subsequent rock-climbing exploits would have preferably taken place during the dry season rather than in the more hazardous wintertime), seafarers would first harvest the natural produce which would be maturing towards the end of summer or early autumn. The crop would then be carried to the sites of the pans which could be readily utilised year in year out.

Those activities which required siting close to the sea have already been dismissed. Other activities like ritual animal slaughter and the tanning of animal hide for the production of leather, are also unlikely and can be disregarded. This leaves us with the following possibilities for further consideration:

- i) grape crushing for the production of wine
- ii) olive pressing for the extraction of oil
- iii) drying followed by retting of flax in fresh water to produce linen
- iv) dyeing of fabrics using plant and other sources of dye;

²⁷ Diodorus Siculus writes that the Maltese and Gozitan harbours were suited to give shelter to ships wintering there; and that Malta was used as a place of refuge by the Phoenicians and Carthaginians. It is also well known that in antiquity "navigation started in spring and ended in October: which means that ships stopped at the island for about six months." Busuttil, "Maltese Harbours," 305-306

In the final analysis, given the dearth of reliable information about the early manufacturing 'industries' on the Maltese islands, we can only surmise as to the most likely function of these enigmatic pans. Keeping in mind that what follows is pure speculation, we present the following tentative proposal.

The production of wine from grapes is as old as man, and we envisage that the process of extracting grape juice utilising these shallow open pans could have been carried out in the following manner. After harvesting, the fruit would first be put into the main pan, (Pan A in figure 1), and the initial squashing would be done by foot. The presence of steps in the pan system at Site I (Il-Gandotta) would seem to indicate that this required walking down onto the produce in the main reservoir. After treading, further crushing and pressing would take place, perhaps utilising a hand-held quern, a wooden rammer or some other primitive device. The fluid effluent would then drain into the lowest placed pan (G) and the residue in pan A, a mixture of grape skins, pips and juice, could have been transferred back to the side pans (D and E) for further pounding, perhaps using a pestle. The final juice would then be collected (?ladled) from the lowest pan and transferred into vats.

[p.431] Here, one must remark that it must have been obviously much more economical to carry a few containers of liquid for loading on to a waiting ship than to carry tons of grapes or other agricultural produce to be processed elsewhere.

The olive (*Olea europaea*) is one of the oldest cultivated crops, and records of its cultivation dates back in Crete and Asia Minor to 3500 BC. The olive tree grows abundantly throughout the Mediterranean region, but the only piece of evidence for olive oil processing and other agricultural activities in ancient Malta and Gozo is provided by the remains of a considerable number of Roman country houses with adjoining areas equipped with grain crushers (trapeta) and other apparatus.²⁸ Place names like Zejtun, Zebbug, Birzebbugia, and perhaps Ghasri, all of Arab origin, are probably also indicative of the extensive cultivation of olives on these islands.

One can imagine that the olive crushing process in the Xewkija pans involved a series of steps similar to that described for grapes. This time, however, the raw material could have initially been placed inside the shallow adjoining connecting pans (D and E) where the crop would be crushed by means of some primitive mechanism like a lever press. The extruded olive stones could also have been thrown into one of the minor pans.

The pan features which militate against this possibility are their lack of depth, their unusual typology (which has no reported parallels in the literature), as well as the absence of any smoothening of the rock surface, or of friction marks resulting from the repetitive rubbing against the ground, say, by a hand-driven quern or grinding stone.

An alternative primitive method was that of 'rendering'. This simply consists in heaping the olives in piles, exposing them to the sun, and collecting the oil that exudes from them. The first two steps could have taken place in the side troughs of the Xewkija pan systems, after which the main component would receive the oozing oil for collection in the terminal pan.

28 Bonanno, Roman Malta: The Archaeological Heritage of the Maltese Islands, World Confederation of Salesian Past Pupils of Don Bosco, Rome 1992, 26-27.

A very crude method of collecting oil, still used in some countries, consists of dipping pieces of cloth in the fluid-containing pan, letting them soak, and then wringing them out over a deep receptacle. Unlike most of the vegetable oils the oil produced from the first crushing of the fruit can be used for cooking purposes without further processing.

[p.432] Another possibility to be considered is the retting of flax (*Linum*; Malt. *kittien*). Flax was probably the first plant fibre to be used by man for making textiles. There is some archaeological evidence that flax may have been used in Malta for the production of linen since prehistoric times.²⁹ Moreover the local textile industry, which had a deservedly good reputation and was praised by classical Greek and Latin writers, is known to have produced linen rather than cotton.³⁰ Busuttill holds that flax must have been imported from abroad since this needed an abundant supply of water.³¹ However, documentary evidence from the Middle Ages exists which shows that the plant was grown locally and produced in relatively small amounts right down to the early 16th century. Interestingly, retting places are also recorded in place-names.³² The flax fibre is processed by a long process which involves cultivation, harvesting, removal of seed (ripping), retting, drying, removal of impurities, separation of the stem fibres from the woody element and bark by breaking and beating the bundles (scutching), spinning into linen yarn and finally weaving of the fabric to produce linen. Although the technology has changed considerably over the centuries, the basic principles of weaving have not changed since linen was first invented.³³

At harvest time the stem of the flax is not cut but pulled in order to preserve the full length of the fibres (80/120cm). This pulling was formerly done by hands, one bundle after another, and the stems are then dried by spreading them out in the open to form swathes of flax "straw". The seeds, which can be used for next year's crop or for the production of linseed oil (Malt. *zejt tal-kittien*) are removed.

During the retting process the adhesive pectins which bind the fibres and the rest of the plant are partially decomposed ("rotted") with the help of micro-organisms. In dew retting, a natural enzymatic process created by the interaction of sun, rain and dew, bundles of the uprooted plant are left outdoors for 3 to 5 weeks, while water retting takes place in a tank containing warm fresh water, nowadays for 4 to 6 days.

After spinning and weaving, the fabric is bleached and dyed. In days gone by, bleaching was carried out in the open where pieces of fabric were spread out and [p.433] exposed to the direct action of sunlight and dew. The Xewkija pans could have conceivably been utilised in some of the stages of the retting process. Among these one can envisage the old method (described by Pliny the Elder) for the easy collection of the precious seeds. This consisted of lining the stalks in a circle with their flower heads towards the centre so that as the plants dried the seeds fell in a heap in the middle. Dew retting may also have been practised by simply letting the exposed plant to rot slowly inside the pans, and water retting by submerging the flax in pans of fresh water.

29 T. Zammit, *Prehistoric Malta, The Tarxien Temples*, Oxford University Press 1930, 55-56.

30 J. Busuttill, "The Maltese Textile Industry in Antiquity," *Melita Historica*, Vol.4, no.3, 1966, 215-219.

31 *Ibid.*, 217.

32 These place-names include words such as *ghadir* or *ghadira*, denoting "a pool of stagnant water," and *menqa*, "a water enclosure or pool" and its diminutive singular and plural forms, *mnejqa* and *mnejqiet* respectively. G. Wettinger, "Agriculture in Malta in the Late Middle Ages", in M. Buhagiar (ed.), *Proceedings of History Week 1981*, Historical Society, Malta 1982, 29-30.

33 E.J.W. Barber, *Prehistoric Textiles*, Princeton 1991, 239.

Another method involved the immersion of flax stems in streams and ponds where they were left to rot.³⁴

Besides shellfish, the process of dyeing in antiquity also involved the use of dyes derived from several different sources, including plants. Among these, the most interesting in a Maltese context is the unusual flowering medicinal plant *Cynomorium coccineum* (popularly known as *Gherq il-General*) from which a red dye was extracted.³⁵ The fact that this plant is limited to inaccessible coastal rocky areas may explain the particular location of the pan system near Fungus Rock at Dwejra, Gozo. Barber also refers to other red dyes obtained from certain lichens which grow on rocks near the sea, for example the archil, sea orseille, and litmus, as well as other plants like madder, henna and alkanet. Sources of yellow dyes included saffron (*Crocus sativa*), turmeric, pomegranate rind,³⁶ and onion skins; and of blue dyes, the indigo plant (*Indigofera tinctoria*) and a number of berries.³⁷ The majority of dyes require a mordant to facilitate both their absorption into the fabric, as well as their fixing. Common ancient mordants include wood, ash, leaves, roots (eg: madder root), tannin and urine.³⁸

Conceivably, the material to be dyed - which could have been either yarns before weaving or woven fabric - would have been placed in the main pan which contained a solution of the dye, while mordants (placed in the side pans) would have been added to the solution as necessary. Such a hypothesis would make more sense if one were to postulate the use of a temporary channel-blocking device or a simple stone plug. This could have been used to separate one pan from another as, for example, in the dilution or concentration of a dye, or in the “rinsing out” of unwanted [p.434] impurities from a semi-liquid or from solid material. A similar arrangement could also have been employed to mix the fluid contents of one pan with those of another. Any residue of dye would have been collected for further re-use.

From what has been said above, it is clear that the retting of flax as well as the subsequent dyeing process involved the use of fresh water. At Mgarr ix-Xini this could have easily been collected from the natural rock pools that abound in the area or from the valley stream which existed there in the past. This was known, according to Agius De Soldanis,³⁹ as *Il-Qattara* - a word that denotes a dripping stream of water or a spring.

A closer look into the toponym of Mgarr ix-Xini will not be amiss here, especially as the etymology of the word ‘mgarr’ has been given different interpretations. For Aquilina the term ‘garr’ denotes a “place of transport where merchandise is loaded or unloaded” or a “wharf, landing place.”

34 Ibid, 13.

35 G.F.P. De Soldanis, *Gozo: Ancient and Modern, Religious and Profane* (1746), Media Centre Publications, Malta 1999, Book I, 179-184.

36 A traditional practice of Gozitan villagers consisted in collecting the peel of pomegranate and utilizing its dye to convert items of clothing into a black colour in times of mourning, see V.J. Galea, *Qwiel u Qaddisin, Folklor u Twemmin f Ghajdut il-Maltin u l-Ghawdxin*, Calypso Island Publications, Gozo-Malta 1999, 183.

37 Barber, 232-235. Also, Sagona, 52-53.

38 Ibid., 50.

39 De Soldanis writes that “in mezzo del vallone [del Sannat e Sceuchia] vicino al mare dove scaturisce l’acqua detta el Kattarat, v’ha un stagno spazioso d’acqua dolce da noi chiamato ghadira tal vjet tal migiar scini.” Cited in G. Wettinger, *The Place Names of Malta and Gozo ca.1300 - 1800*, PEG Publications, Malta 2000, s.v. Ghadira tal-Wied ta’ Mgarr ix-Xini, 179.

Therefore 'mgarr' is a "place to which merchandise and other commodities are carried."⁴⁰ An alternative explanation is given by Godfrey Wettinger in his latest monumental study on local place names. He documents Mgarr ix-Xini (from 1498 onwards) as denoting "Xeni's watercourses" and opines that the usual rendering "the 'carrying place' for the galley" is merely the result of (1) the incorrect understanding of mgarr as a mimated noun from garr, instead of the plural of migra, a watercourse, and (2) the assimilation of the original Xeni, a person's name, to xini, a galley."⁴¹ In support of Wettinger's explanation, we have incontrovertible written evidence that a fresh water spring which formed a pond could be found in this valley as recently as the eighteenth century.

iv) Our final comment regards the so called post holes. Surprisingly, we did not find these in all the sites, though it is likely that at some places there are holes buried beneath the top soil. One other possible explanation is that the project may have been abandoned or left unfinished. Another odd feature is that, while at Site I multiple holes are set in a row around the border of the main pan, at Site II there is a hole at two of the corners of the main pan which forms a row with several others on one side way beyond the pan system.

These holes are puzzling and, once again, we can only be speculative about their real purpose. We agree with the designation of post holes given to them in the [p.435] scheduled list. They must have served as holes into which the trimmed stems of trees or cane rods could be inserted. In an arrangement of this sort, one can easily imagine how surrounding and covering the site with an awning of cloth, or pitching it up like a tent, would have provided some shelter from the wind and rain. More simply, propping up a large piece of cloth across a line of posts, would have served as a sunshade. Alternatively, makeshift wind-breakers could have been improvised by wrapping lengths of cloth round the perimeter posts. Finally, pieces of wet material (eg. flax, linen or cotton) could have been slung on lengths of rope and left to dry out as on a clothesline.

Conclusion: In this communication we have taken a close look at the scheduled but little known rock-cut pan systems which are limited to one small area of Mgarr ix-Xini, Gozo. Taking into consideration certain observations and measurements, we have given brief descriptions of each pan system and asked basic questions relating to their age and their significance. These questions, as in the case of the widely scattered cart ruts, have eluded a definite answer. Grape crushing, olive pressing, drying out and retting of flax, and dyeing with non-marine sources of dye and fresh water are considered as possible activities, but the dearth of reliable information makes certainty very difficult, and in the absence of more solid evidence, it is quite impossible to support or refute any of these hypotheses. Hopefully, studies on similar sites which may be discovered elsewhere in the future may shed some light on the antiquity and significance of these intriguing artefacts. Until that time, the rock-cut pans of Xewkija will remain deeply shrouded in mystery.

Acknowledgements: We would like to thank our respective wives Grace and Agnes for their unfailing support, and all those individuals who have helped us in many different ways, especially Professor Godfrey Wettinger, Mr. George V. Borg, Librarian at the Gozo Library, and Brigadier Rupert Montanaro, Commander AFM. Our deepest gratitude goes to Professor Anthony Bonanno, Department of Classics and Archaeology, University of Malta, who carefully read the script and made many valuable suggestions and criticisms.

40 J. Aquilina, *Maltese-English Dictionary*, vol. i, Midsea, Malta 1987, 379-380. Hence, he describes Mgarr ix-Xini as “an inlet in the south of Gozo meaning “the wharf of the galley.” Ibid., vol. ii, 1990, p. 1573. However, the plural of migra is given by Aquilina as migriet and not mgar. Ibid., vol.ii, 1990, 828. 41 Wettinger, *The Place Names of Malta and Gozo etc.*, s.v. Mgarr ix-Xini, 377.

[p.436]



Plate 1. Pan system hewn into gently sloping rock at Il-Gandotta. *Plate 2.* The deeply cut pan system at Tas-Salvatur.

[p.437]



Plate 3. Single rock-cut pan situated at the acute valley bend in the area of Tas-Salvatur.



Plate 4. Site IV which lies on the high grounds of Tal-Gruwa.

[p.438]

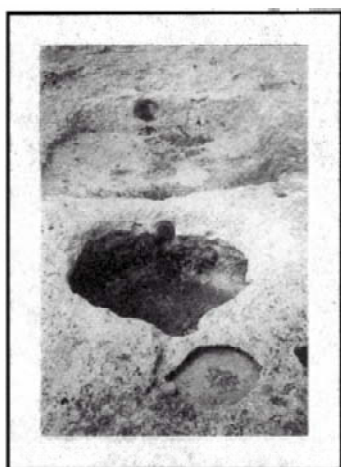


Plate 5. The pan system at Site V on the valley slope in the area of Tal-Gruwa.



Plate 6. Site VI at Tas-Sabbora showing pan C (top of picture) and main pan A.

[p.439]



Plate 7. One of the rudimentary pans found at Site VIII near il-Gandotta.



Plate 8. Rock-cut pan system at Id-Dwejra, San Lawrenz, Gozo.

[p.440]

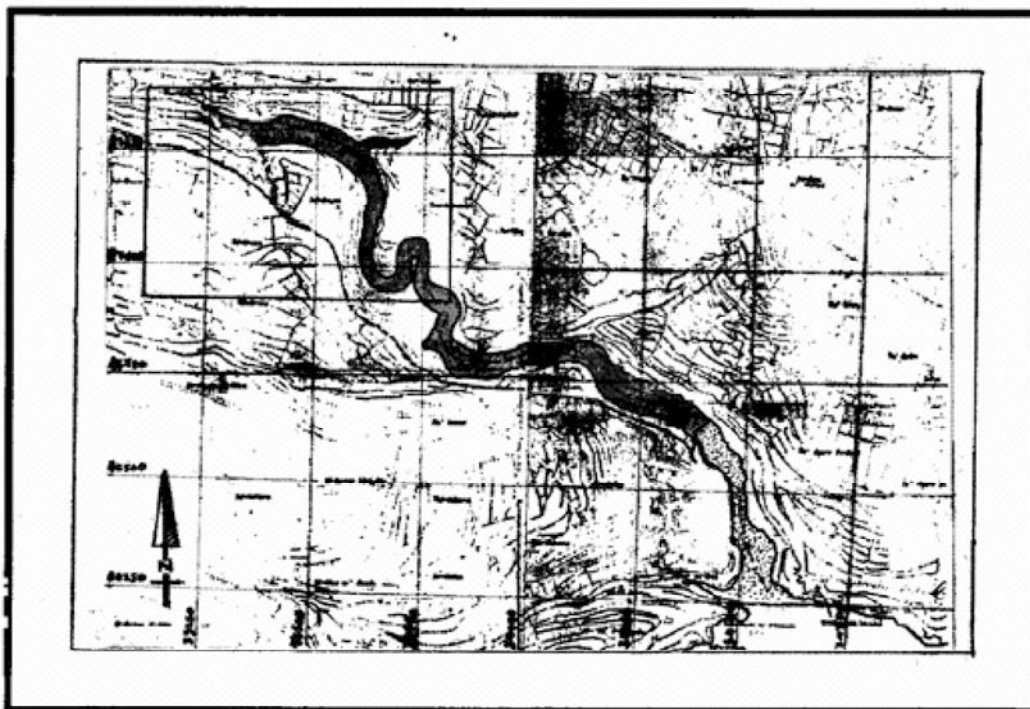


Fig. 1. Survey map of Mgarr ix-Xini, Gozo. The boxed area shows the locality of the rock-cut pans.
Scale 1/2500. (Planning Authority, 1988).

[p.441]

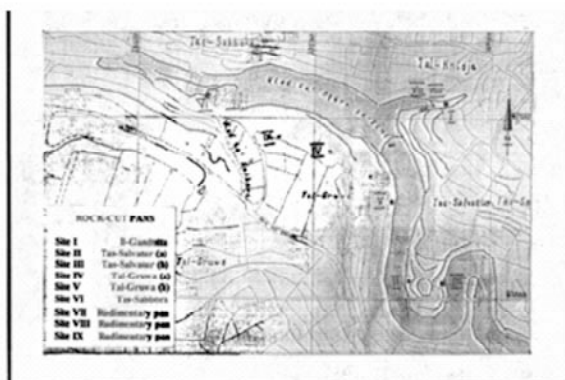


Fig. 2. Map showing the sites of the rock-cut pans. Scale 1/2500. (Planning Authority, 1988).

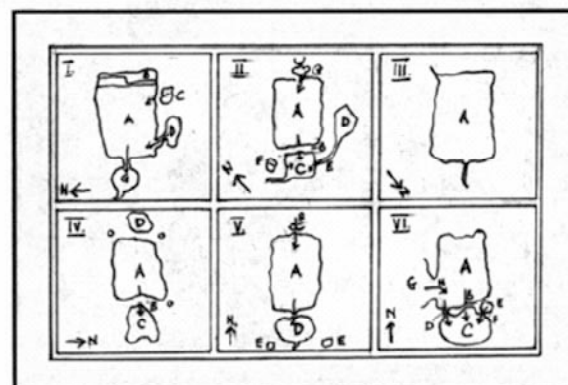


Fig. 3. Outline sketches of the pan-systems.

[p.442]

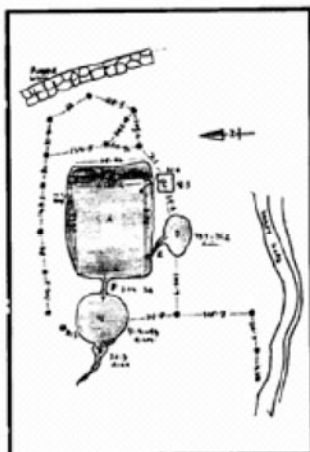


Fig. 4. Sketch with measurements (cm) of Site I - Il-Gardotta. (Not to Scale)

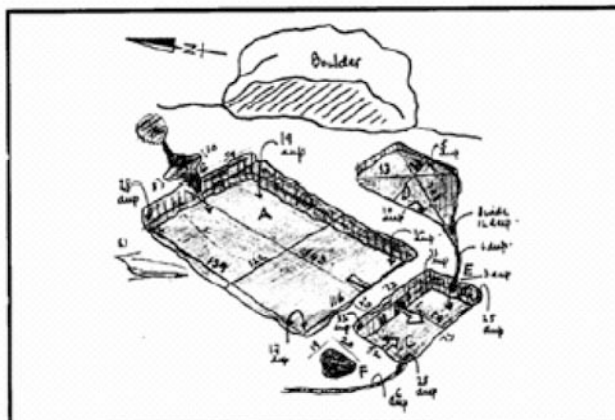


Fig. 5. Site II - Tas-Salvatur (a). Sketch with measurements (cm). (Drawing not to Scale)

[p.443]

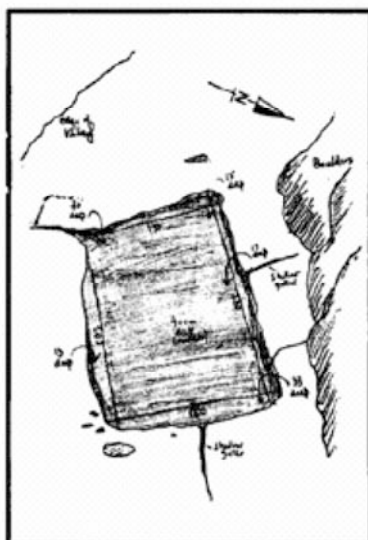


Fig. 6. Sketch of Site III - Tas-Salvat (Not to scale; measurements in cm)

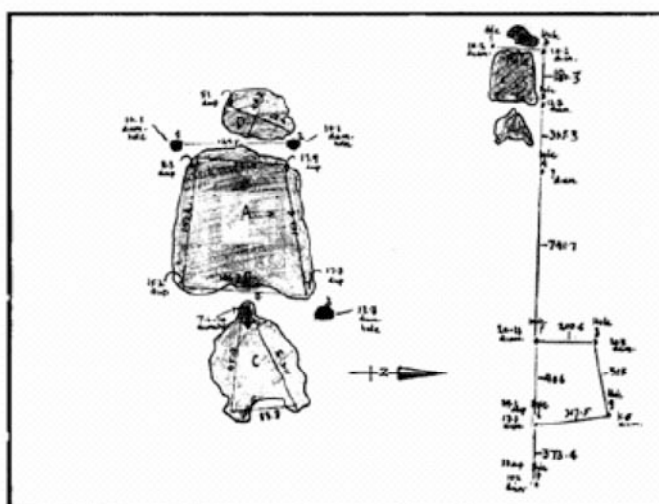


Fig. 7. Sketch of Site IV - Tal-Gruwa (a). (Not to scale; measurements in cm)



The Rock with the Cut Pans

MALTA

The Enigmatic Rock-Cut Pans of Mgarr ix-Xini



Photo by Google



















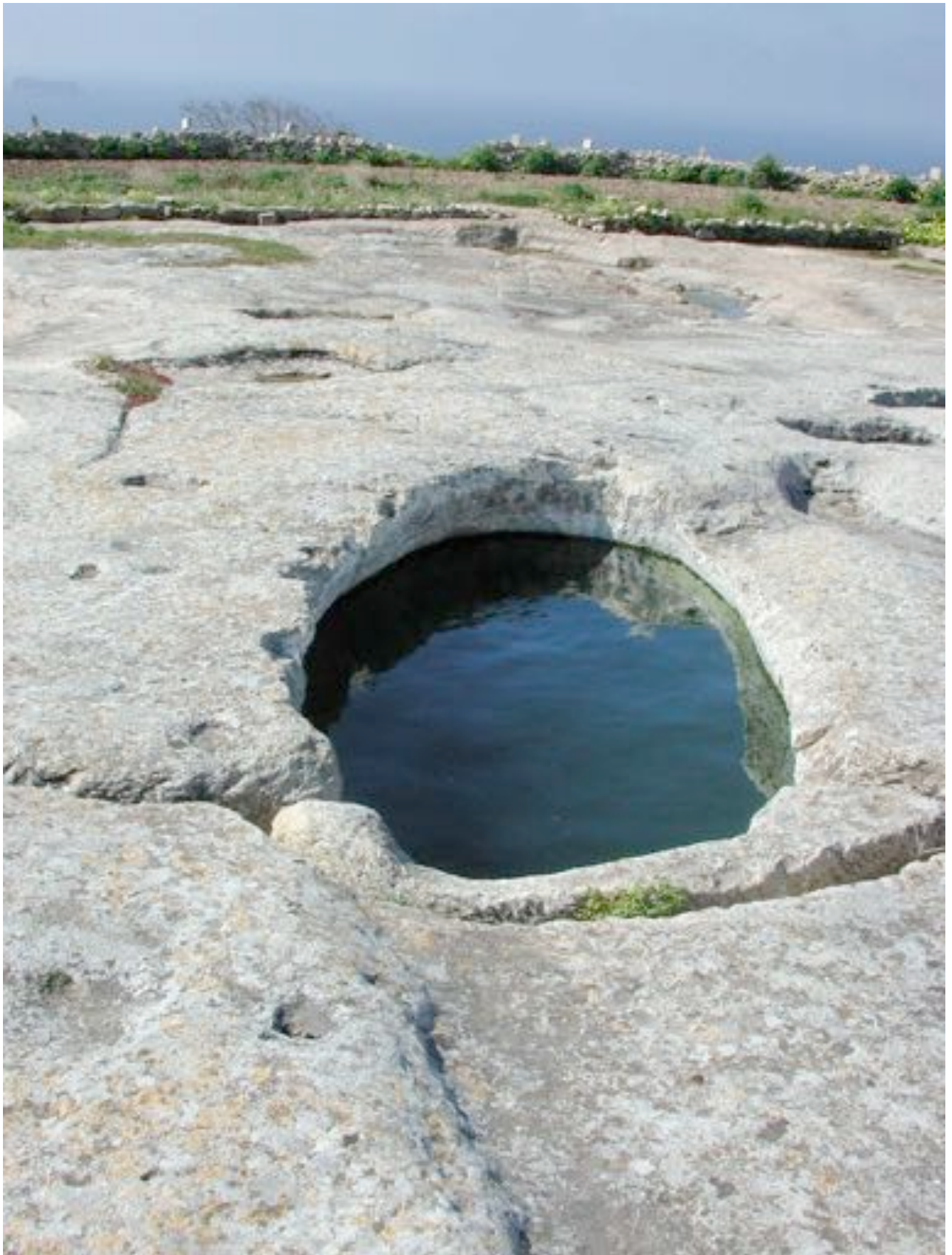






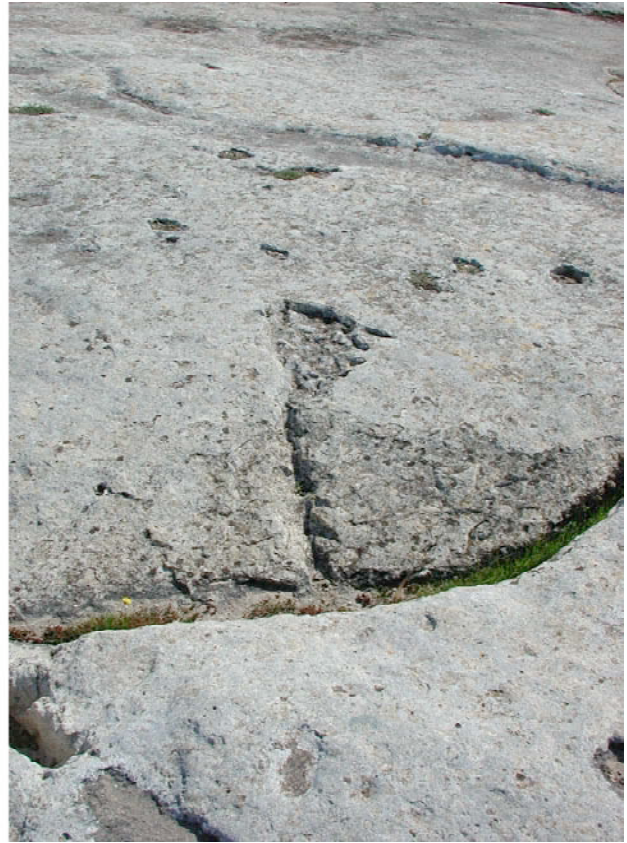




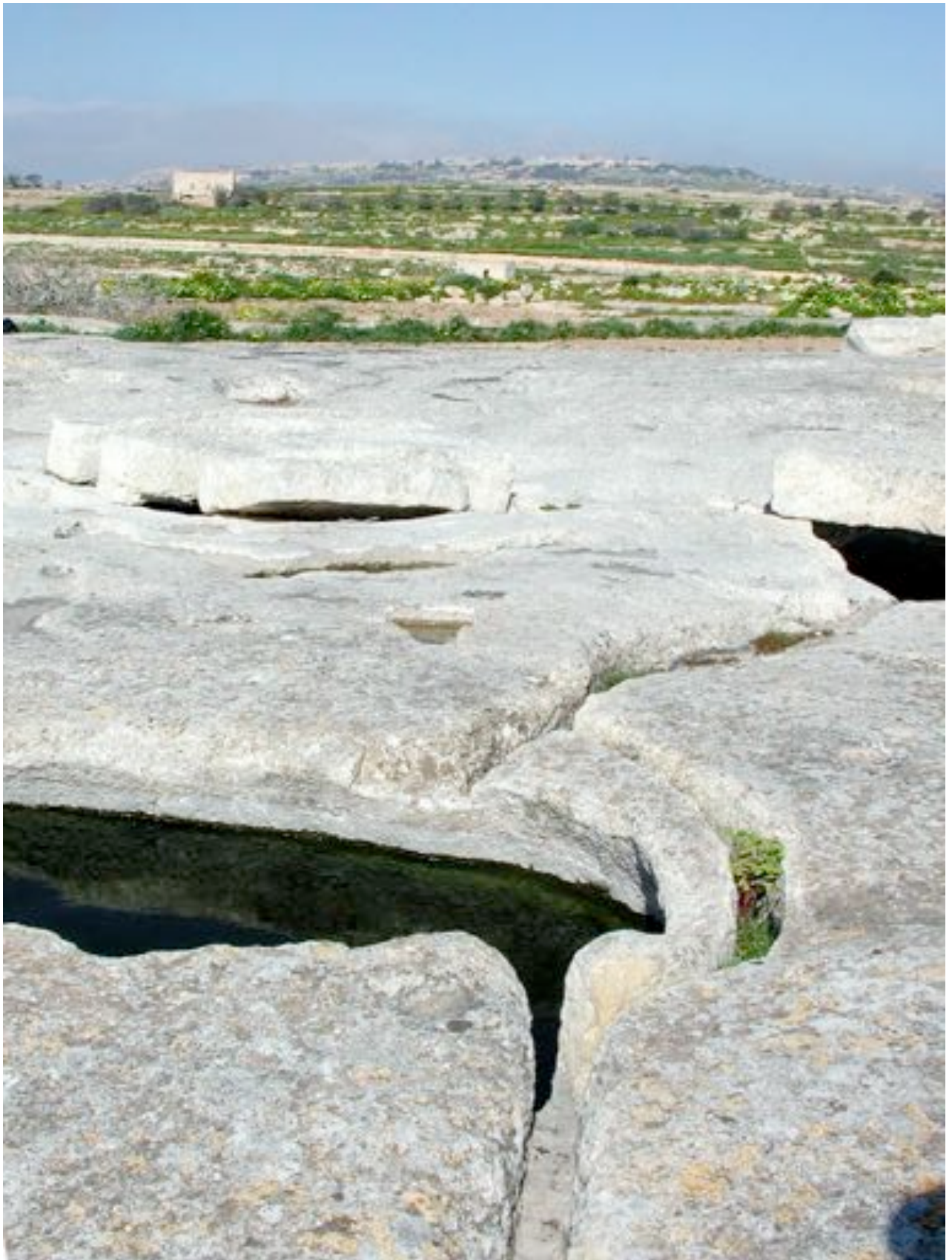


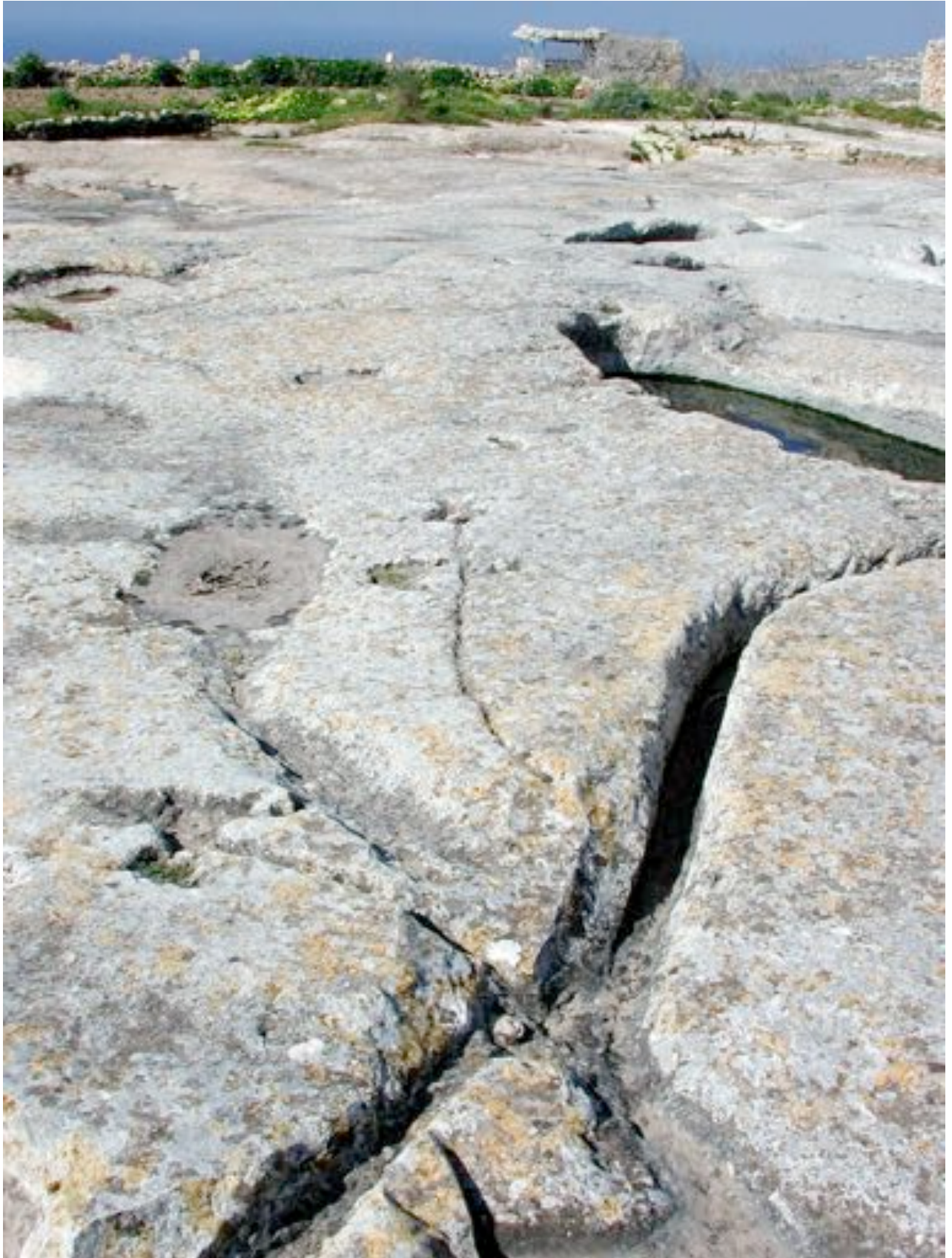
















































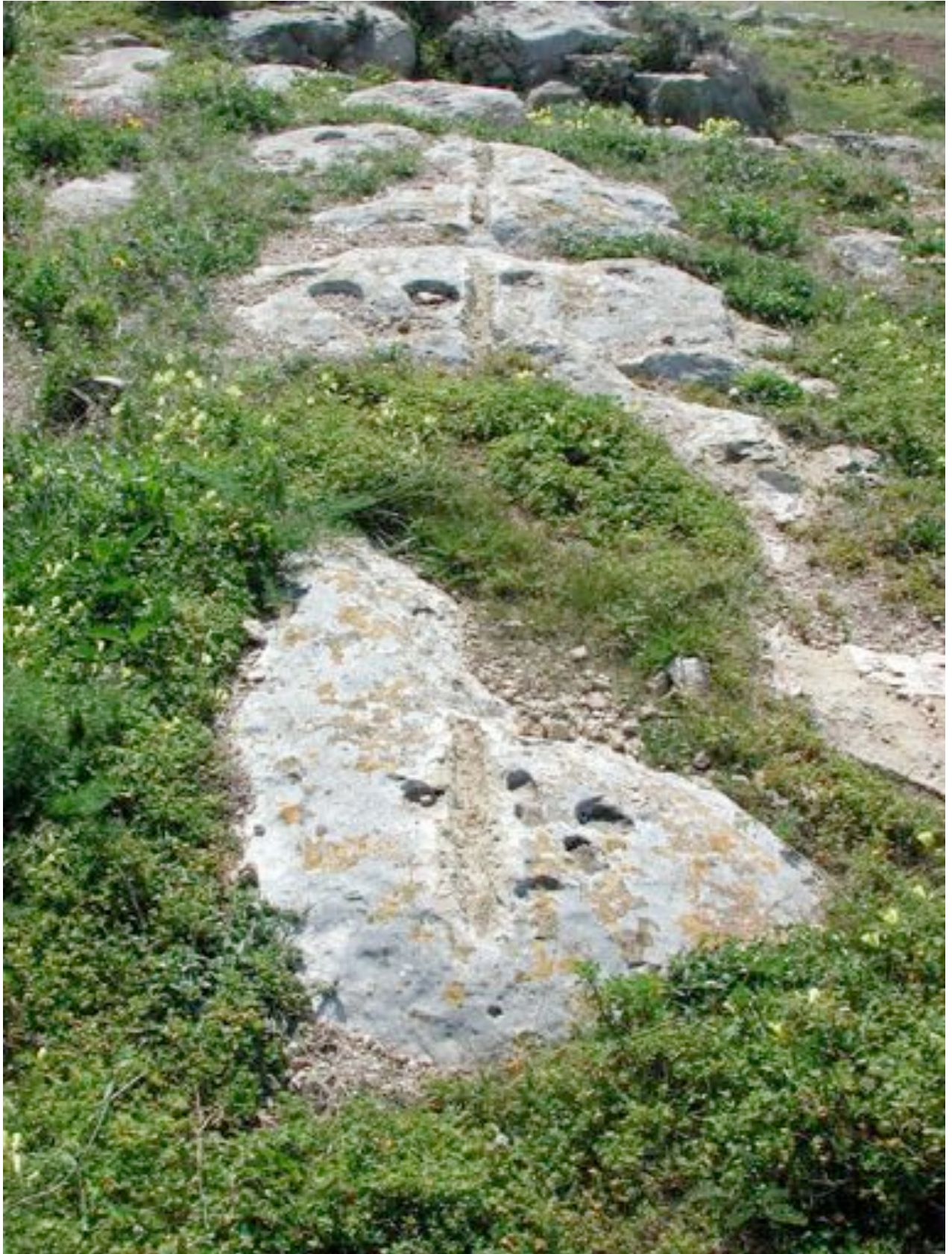


























































































A parallel Place in Spain?

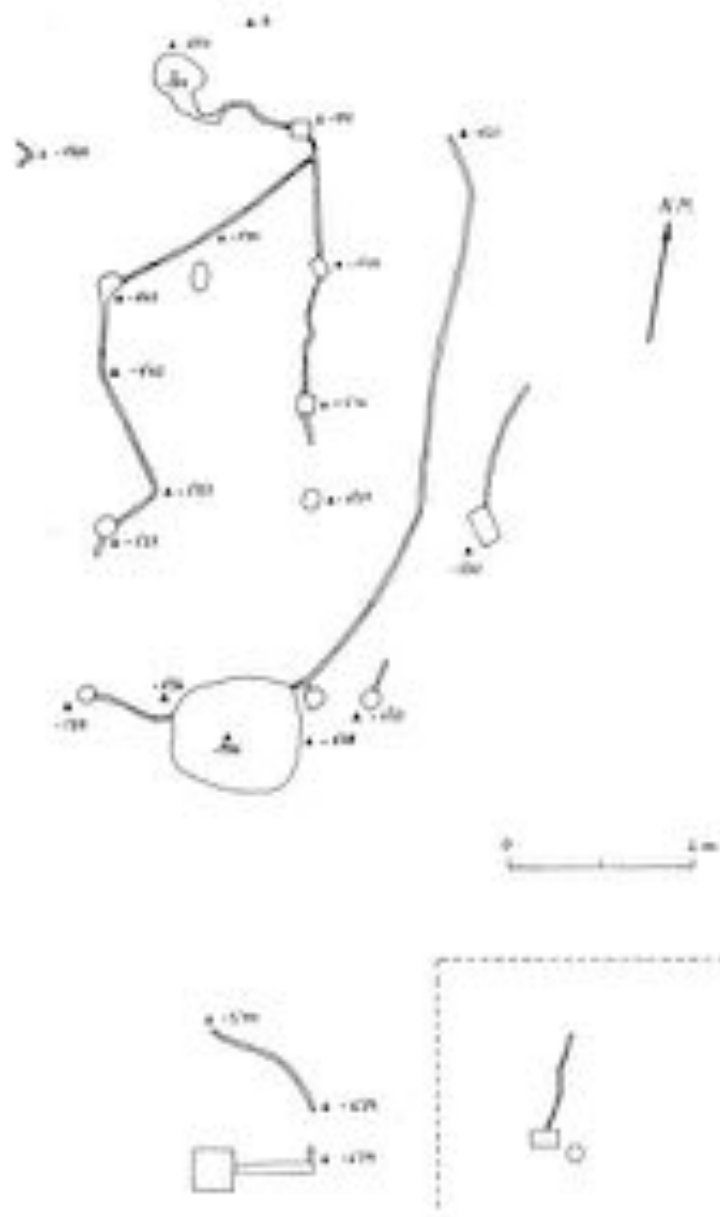
SOLANA DE LA PEDRERA

drawing and photos are of the keyword by Google:

[Jumilla - Patrimonio - Región de Murcia Digital - Solana de la Pedrera](#)

Carved pans connected with channels are located in the region of Murcia Albacete y Alicante Spain.

It is supposed that it was used for a former cult or a water ritual.



drawing: Hernández Carrión, E; Gil González, F; Medina Ruiz, A. J. Revista Pleita nº 4.



All photos from the webside see keyword by Google:
[Jumilla - Patrimonio - Región de Murcia Digital - Solana de la Pedrera](#)

CATÁLOGO DE LOS PETROGLIFOS DEL TÉRMINO MUNICIPAL DE JUMILLA. PROSPECCIÓN DEL 2005

PREHISTORIA Y ARTE RUPESTRE

Cayetano Herrero González. Museo Municipal “Jerónimo Molina” de Jumilla

Cipo de Las Damitas: 42/A
Menhir de El Prado: 43/A

PREHISTORIA Y ARTE RUPESTRE

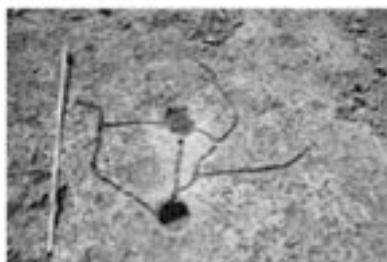
81

CATÁLOGO DE LOS PETROGLIFOS DEL TÉRMINO MUNICIPAL DE JUMILLA

ALGUNOS EJEMPLOS



Casa de Tres Chavos – Núm. cat. 8/D.



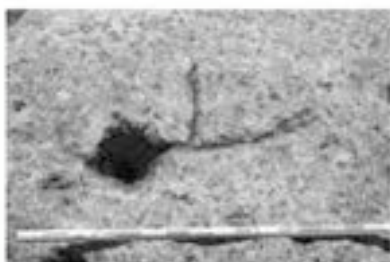
Puntal del Zorro – Núm. cat. 11/A.



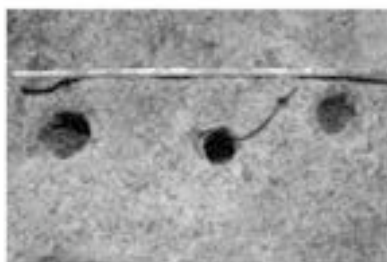
Cabezo, Casa los Corrales – Núm. cat. 15/A.



Casa de los Corrales – Núm. cat. 16/A.



Casa del Zorro – Núm. cat. 12/A.



Casa del Zorro – Núm. cat. 12/B.