

KOLHORN, SOUTHERN SITE: THE WELL GENERAL DESCRIPTION

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ABSTRACT: Near Kolhorn, province of Noord-Holland, the Netherlands, a Late Neolithic cylindrical well was excavated. Its diameter 0.60-0.70 m; its depth below the original surface 2.50 m. It had no lining, but the lower part had been filled in with charred reed, it is believed in order to protect its wall below the water table from erosion. Its location in a freshwater pocket and the charred reed device are interpreted as indications to the adaptation over the generations to the marine, tidal flat environment of its constructors.

KEYWORDS: Kolhorn, Neolithic, settlement site, well.

1. INTRODUCTION

As indicated in the General Introduction to the Kolhorn excavation reports (van der Waals, this volume), activities were transferred in 1983 from the Northern to the Southern site. Within the checkerboard system, a series of N-S and E-W oriented 2 x 10 m trenches were excavated as a means of sampling the site, and to obtain continuous N-S and E-W sections. These trenches were numbered 12-19 (cf. van der Waals, this volume: fig. 4).

During the excavation it soon became clear that with the levelling of this site in 1973 and subsequent ploughing, almost all of the archaeological deposit had been either pushed into the ditch between the two sites or had been incorporated into the plough-soil. Only here and there, on the talus of the creek, and in features, did the base of the original settlement layer survive in situ. Under it, the contact layer with the undisturbed subsoil was generally well preserved. This contact layer was cleared away in order to detect underlying features, like pits and postholes.

On 13 July, 1983, while shovelling away the contact layer in trench 13, the contours of a pit appeared (indicated in the documentation as feature 41). It was cut off by the northern edge of the trench (figs 1-2). At first, it was presumed that this pit was a grave, but on gradually digging downward the feature proved to be round. The pit was excavated in the following three weeks.¹ A well-pointing was installed to permit excavation below the water table.

Once it was clear that we had discovered a well, press publicity aroused considerable public interest. Among the many colleagues who visited the excavation we should like to mention Dr. P. Cleveringa and W. Westerhoff of the Rijks Geologische

Dienst (Haarlem and Alkmaar), whose evaluation of the situation and support of the interpretation of the pit as being a well were of considerable help to the excavators.

After the excavation, it was realized that the presence of a well in this marine, tidal flat landscape implied that there had been fresh water down to a depth of c. 2.50 m below the surface of the natural bank on which the settlement was situated. In order to gain as much pertinent information as possible, the geochemical and pedological departments of the Instituut voor Aardwetenschappen of the University of Utrecht were invited to assist. This resulted in the visit of Dr. J.J. Reynders and B.W. Zuurdeeg to the site. On the basis of their proposal, the Province of Noord-Holland provided an extra subsidy for additional investigations. These took place in the second half of 1984. In 1985 the definitive report by B.W. Zuurdeeg, Y.M.A. Coenegracht and J. van der Wal was presented to the excavators (cf. their contribution, this volume). Gratitude is due to the geologists for the prompt production of a report which is essential for the archaeological interpretation. We much regret that we had to postpone its publication until the moment that other aspects of the well could also be reported on (contributions by Pals, Schelvis and Zeiler, this volume). But we have chosen not to postpone it until the integral publication of the excavation of the Southern Site.

2. EXCAVATION AND DESCRIPTION OF THE WELL

At the first the appearance of the feature underneath the contact layer, at a depth of 0,50 m below the then surface of the arable soil (1.92-1.95 below N.A.P. =

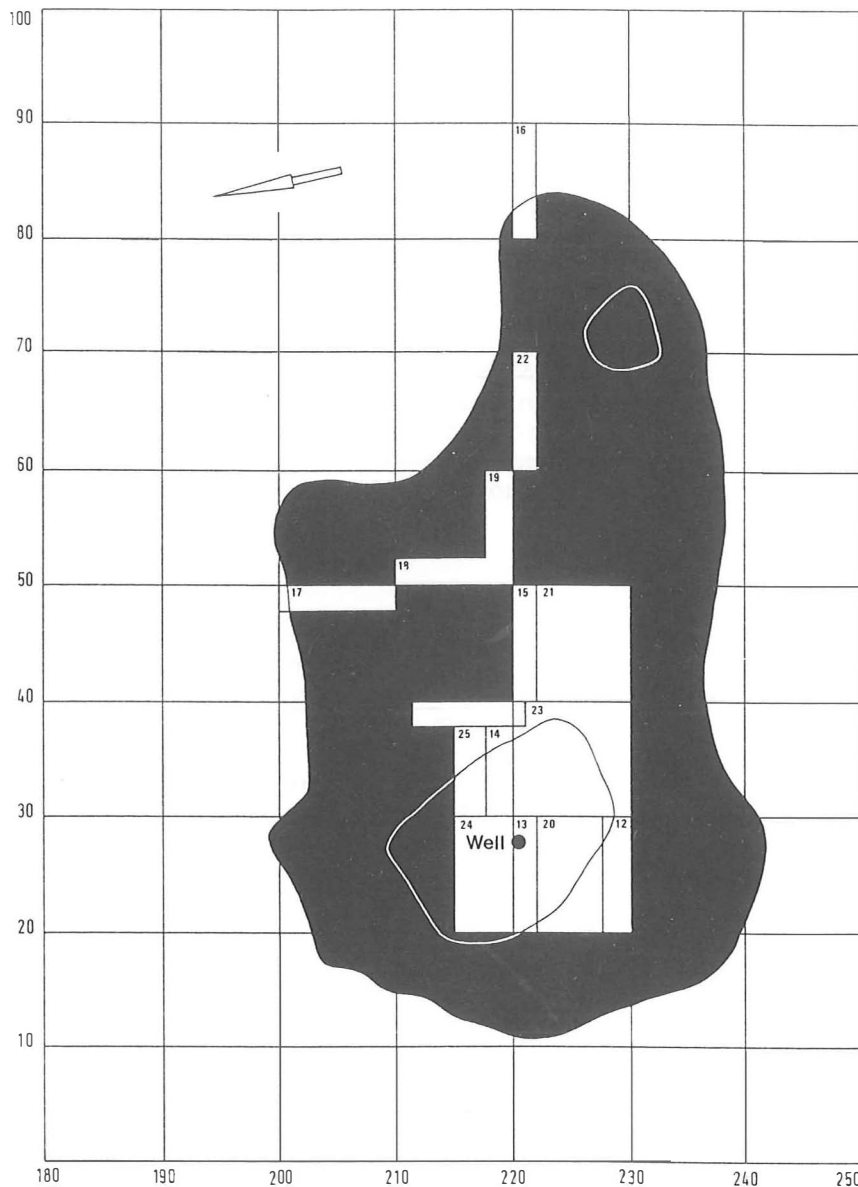


Fig. 1. Kolhorn, the southern site with the working areas excavated and their numbers. In working area 13 the situation of the well (feature 41) is indicated.

Dutch Ordnance Datum), and in the belief that it represented a grave, it was decided to continue the excavation horizontally, and to register changes in its appearance by drawing at short vertical intervals (fig. 2: a-e). When, at a depth of 2.22 m below N.A.P., it became clear that the pit was not a grave, a different strategy was adopted. It was decided first to excavate only its southern half, in order to obtain a section of the pit at its widest, E-W diameter (along the 220.31 m E-W line; cf. van der Waals, this volume: fig. 4). Only after the drawing of this section (fig. 2) had been completed, was the northern part of the pit, in as far as within the limits of working area 13, excavated. The tangent of the pit

lying outside trench 13 was left untouched.

Prior to the decision to excavate the pit in two halves, samples were collected of its filling (samples series 1). Subsequent to that decision, all soil from its filling was kept. In the southern half, this soil was collected in units which only partly coincided with stratigraphically identifiable units (collected soil series 2). The northern half was excavated and the soil was collected according to six stratigraphical units recognized in the section (fig. 2; collected soil series 3).

In the main, the pit is of cylindrical shape. Its depth below the base of the occupational deposits is exactly two meters (deepest point 3.94 m below

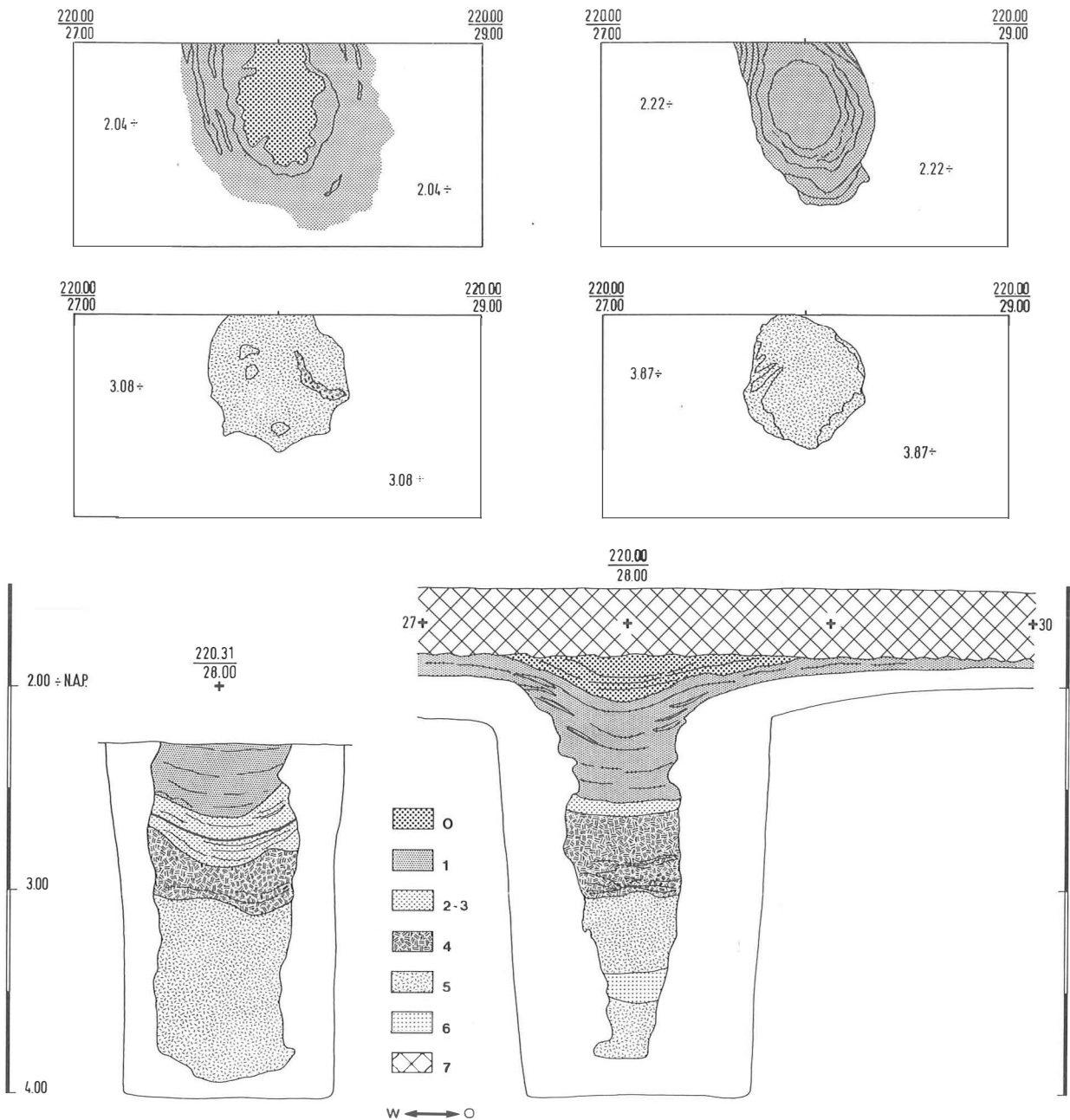


Fig. 2. Kolhorn, the well. Horizontal plans at different elevations, median and tangential sections. Legend (numbers according to the stratigraphical units discerned during the excavation): 0. settlement debris; 1. settlement debris; 2-3. settlement debris in clayey matrix; 4. coarse organic material (mainly reed); 5-6. charred plant remains, mainly of reed; 7. recent arable layer. Drawing S.W. Jager, D. Sankey, J. Abbenes, J.D. van der Waals, J.H. Zwier (B.A.I.)

N.A.P.). Its diameter varies slightly from level to level between 0.60 and 0.70 m. No traces whatsoever of a well-lining were observed, and it is assumed that none was ever present.

In the fill, seven stratigraphical units could be clearly distinguished. These are, from top to bottom (figs 2-3):

0. Settlement debris, believed to represent the base of the occupation layer, sagged into the pit due to compaction of its content after it had been filled in;

1-3. Settlement debris of varying structure, believed to represent the material that filled the pit following its falling into disuse as a well;

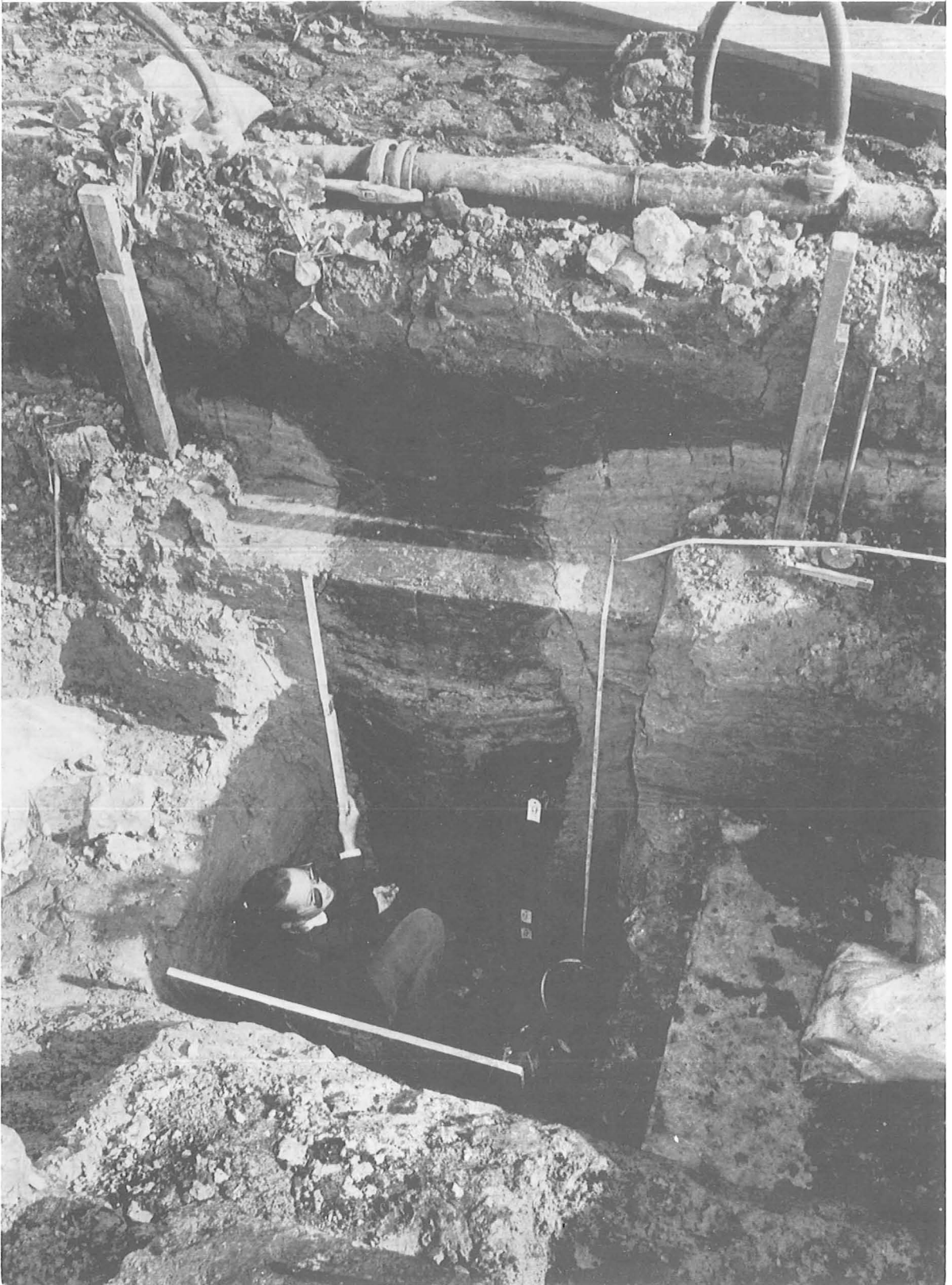


Fig. 3. Kolhorn, the well after the completion of the excavation of the southern half. Photography A.N.P., Amsterdam.

4. Coarse organic material believed to have fallen into the pit during its use as a well, prior to its being filled in;

5-6. What during the excavation (and for a time afterwards) was believed to be sea-urchin detritus (mainly needles), but what now appears to represent charred remains of plants, mainly reed.

3. DISCUSSION

The top of the fill (units 0-1) suggests sagging of the pit's contents subsequent to its falling into disuse and being filled in. Consequently, the levels of separation between the stratigraphical units as described in the preceding section were originally situated higher.

It is here suggested that unit 4 (the coarse organic material, with hardly any soil) represents the material that fell into the pit during its use. If so, and assuming that the compaction was about 0.30 m, the top of this part of the fill represented the water table. If this be correct, the water table must have been at the level of what is now 2.70 below N.A.P. At this level, the diameter of the well is at its widest, which could be the consequence of water erosion of the sides by the repeated drawing of water.

Units 5-6 were long believed to represent sea urchin detritus, to which, macroscopically, the material bears some resemblance (cf. for instance van der Waals, 1988). This faulty determination was not at first questioned, as the geologists of the Rijks Geologische Dienst at Alkmaar pointed out that this material often can be collected in reasonable quantities in the inner curves of the creeks in the tidal flat landscape, especially in Calais IV-A2 deposits. However, upon sending a sample of this material to W. Kuyper, a malacologist, Instituut voor Prehistorie of the University of Leiden, the material (after sieving part of it through a 25 mm sieve) appeared to contain no sea-urchin detritus at all; but to consist of:

"... fine plant remains, almost all charred. Half of the material is white 'charred'. Identifiable were remains of reed (*Phragmites australis*) such as fragments of stalks (a.o. culm nodes), leaves (cf), and numerous seeds, and also seeds of orach (*Atriplex litoralis*-type). It is striking that many plant remains are white 'charred'. This must be a consequence of a high content of silicate in the plant cells. Since mostly remains of reed were recognizable it is quite well possible that the rest of the material also consisted largely of reed."²

It had been suggested (van der Waals, 1988) that the sea-urchin detritus was collected on purpose in order to fill the lower part of the well with a highly porous, comparatively heavy material that would not float, serving to protect the wall of the pit. In this way, the water-providing capacity of the lower part of the

well would have remained intact and at the same time the wall of the pit below the water table would have been protected from erosion. We assume that charred reed could have served the same purpose; an assumption which has to be tested experimentally.

If the above interpretation of pit and charred reed as being a well be accepted, the following thoughts occur. The digging of the pit down to the lower limit of the fresh water pocket underneath the natural bank along the creek (cf. Zuurdeeg, Coenegracht, van der Wal & Reynders, this volume) presupposes the knowledge that such pockets can be found at a certain depth under elevations (as under dunes) in an area where otherwise all groundwater is brackish or salt. The use of the charred reeds for the purpose suggested above can be considered a rather sophisticated technological adaptation to an extraordinary environment. Both presuppose a thorough knowledge of this environment. Such knowledge can hardly be otherwise than the fruit of experience in that area over the generations. This does not favour the idea of the Beaker people in question being immigrants from the higher sandy grounds to the East and the Southeast (Louwe Kooijmans, 1985: p. 65). It rather suggests the possibility of a degree of continuity since the Vlaardingeng Culture occupation of the same area.

Wells in Neolithic context appear to be quite rare. In most cases, well-linings were constructed to protect the edges from erosion, as at the Early Danubian site at Mohelnice in Moravia (Tichy, 1971) and at Schwiesterstorf in Lower Saxony (Nelson, 1988, I: p. 218; II: p. 395, nr. 623). At both sites linings of wood had been used. Wood-lined wells in Poland are mentioned by Jazdzewski (1936, p. 382). At Emmerhout, municipality of Emmen, province of Drenthe, the Netherlands, a lining of birch bark was found (excavation B.A.I., unpublished). In later prehistory also wicker-work was used for protection (Marseen, 1956). In this respect two round pits with descending approach must be mentioned, found in a depression in the TRB settlement in the Beekhuizer Zand near Harderwijk (the Netherlands). Here, no provisions at all were made to prevent erosion (Modderman, Bakker & Heidinga, 1976: pp. 43, 73, fig. 1). The same may have been the case in a well found in 1913 in early TRB-context in the valley of the Oder near Wroclaw-Pracze (then Breslau) (Seger, 1919).³ So far, the Kolhorn way of protecting the edges of the shaft seems to be an exceptional response to the environment.

At Kolhorn, the stratigraphy suggests that the well belongs to the earliest occupation phase. Even the basic layer of the site seems to overlie the well. That is to say, no cutting through this layer was visible to the excavators. But we should realize that such a cutting would have been hard to detect, in view of the extremely thin package of archaeologi-

cal sediment preserved. If the well is actually early, it is conceivable that with the increasing desalination of the environment the necessity for maintaining the well (apparently the only one present at both sites) became less urgent (compare the pertinent remarks on this point in the papers by Pals and by Schelvis, this volume).

4. NOTES

1. The well was excavated by Marion Aarts, Jelle Abbenes, Bobby Gales, Sake Jager and Dave Sankey.
2. Letter (7 March, 1990) by W. Kuyper, Instituut voor Prehistorie, University of Leiden (translated by the author).
3. To A.E. Lanting I am indebted for references, to J.N. Lanting for help and suggestions. Dr. J.J. Butler corrected the English text.

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