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SETI I / OSIREION PROJECT

REPORT OF THE SEASON JANUARY 1992

INTRODUCTION

This report is an account of the first season of fieldwork undertaken by the Seti I / Osireion Project ("the Project") of the University Museum, University of Pennsylvania, in January 1992. The main aim of the Project is the study of conservation aspects of certain monuments at Abydos, particularly those connected with the so-called Osireion.

The Project staff in January 1992 consisted of Dr. Steven Snape (Field Director), Prof. Norbert Baer, Dr. James Brooks, Mr. David Grumman, Mr. John Gnaedinger, Dr. Bahay Issawi, and Mr. A. Bruce Mainwaring. The Project was also greatly assisted by the participation of our Egyptian Antiquities Organisation representative, Mr. Talat, and the help and interest of Mr. Yahya, EAO Chief Inspector at Sohag, Mr. Khattib at Balliana, and Dr. Mutawwe Balboush in Cairo. The Project also benefitted from practical help offered by Dr. David O'Connor and Matt Adams, and from Ibrahim Sadek and Mme. Amira, at the American Research Center in Cairo.

The report consists of an amalgamation of various specialist reports provided by members of the Project, with particularly significant contributions from David Grumman (on the Ground Probing Radar Survey undertaken by him at the site), James Brooks and Bahay Issawi (on their study of the geological context of the Abydos area – their full geological report is attached), Norbert Baer (on specific conservation issues connected with stonework within the Osireion) and John Gnaedinger (on structural conservation matters).

The report falls into three parts, corresponding to the three major areas worked by the Project in January 1992. These are; the Osireion itself, the part of the Seti Temple closest to the Osireion, and an area to the west of the temple of Ramesses II.

It should be noted that cardinal points referred to in this report are the traditional local directional indicators used at Abydos (i.e. "West" or "Project West" is actually 'true' South-West).

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May 1993

PART I – THE OSIREION

FORM, FUNCTION AND PREVIOUS FIELDWORK

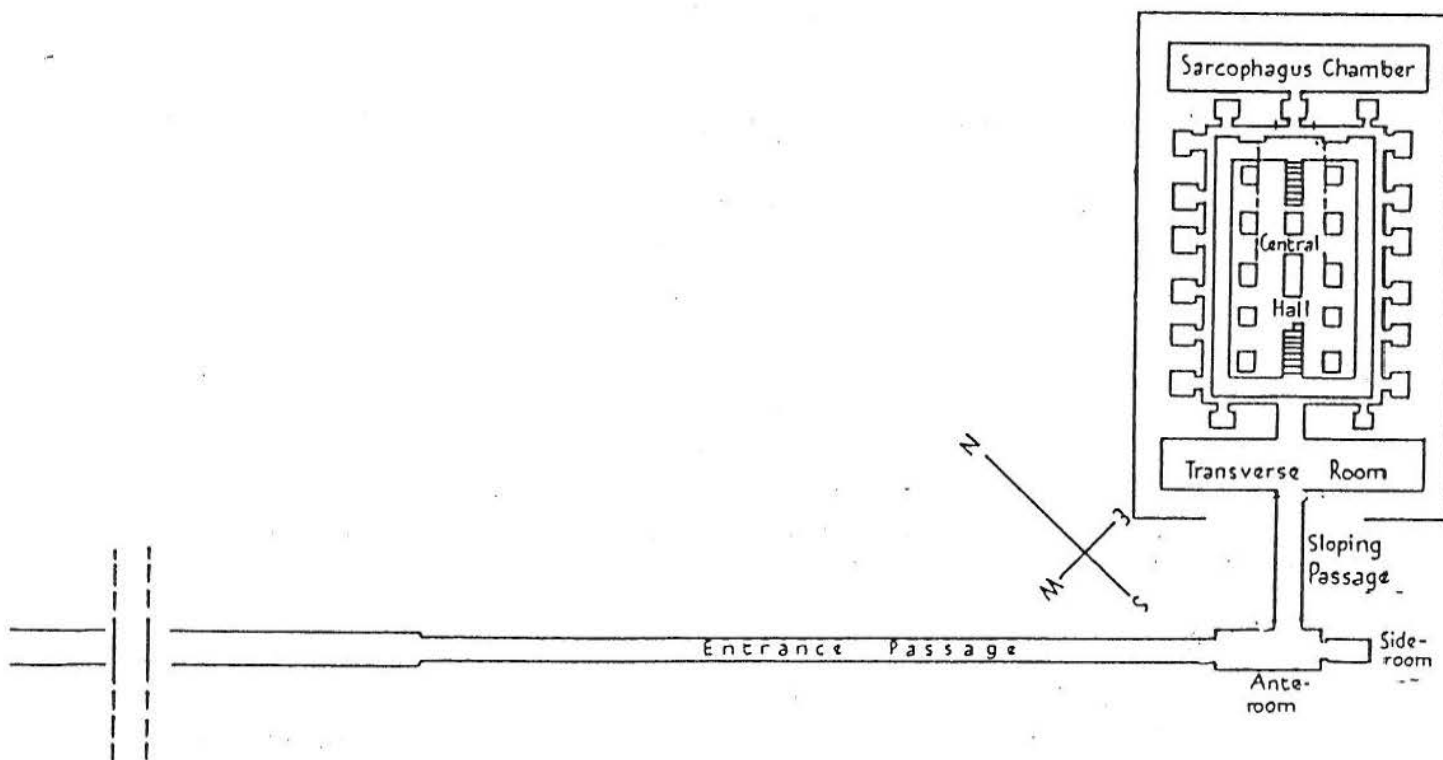
What follows is a summary of the most important aspects of the monument. Fuller publications of the Osireion, its architectural features, and reliefs can be found in Murray (1904) and, especially Frankfort (1933).

The term "Osireion", first used by the Greeks to apply generally to cult-centres of the god Osiris, is now used in egyptology to designate one particular building. This is a structure erected within the enclosure of the Cenotaph-Temple of the Nineteenth Dynasty king Seti I (c. 1306–1290 B.C.) at Abydos, a site particularly associated with the god Osiris. This building, hereafter referred to as "the Osireion", is also known in the literature simply as "the Cenotaph of Seti I"; both these designations indicate the assumed function of the Osireion, which will be discussed in more detail below.

One of the Osireion's remarkable features is that it, unlike the temple behind which it is located (see Figure 1), was designed and built as a subterranean structure (see Plate 1). A large pit was cut into the desert and the Osireion built within it. The whole structure (see Figures 2 and 3 for a plan and section of the Osireion) was roofed over, and seems likely to have had earth piled over it, perhaps to form a mound, including tree-pits, some of which were uncovered by the initial excavators of the monument. Access to the internal parts of the Osireion was via a long descending corridor, entered through a doorway built where the corridor met the main enclosure wall which surrounded the whole complex.

The major features of the lower parts of the monument are (overleaf and see figure 3) a Lower Sloping Corridor giving access to a wide Transverse Hall and, beyond that, the Central Hall of the Osireion. The Central Hall is the most remarkable portion of the Osireion, consisting of a central 'island' on which ten granite pillars support granite architraves bearing the roof. From this Central Island, to the east and west, stairways run down into a surrounding Channel (see below). Around the Central Hall are a number of smaller rooms one of which, to the east, gives access to the wide Sarcophagus Chamber. The Osireion is constructed of granite, sandstone and limestone, as illustrated in Figure 2.

The specific function of this seemingly unique building is unclear. It is obviously part of a complex of buildings of which it and the Cenotaph-Temple (also built for, and mostly by, Seti I) are the most important parts. The Cenotaph Temple was started by Seti I, but completed in its present form by his son Ramesses II, while the Osireion was largely built and decorated under Seti I, but with additional reliefs (chiefly in the long entrance corridor to the Osireion) added by his grandson Merenptah). It seems likely that the whole complex can, in some ways, be regarded as a 'dummy' tomb (the Osireion) and a 'dummy' mortuary temple (the Cenotaph-Temple) which were erected at the site of Abydos because of the connection with Abydos, and as counterparts to the 'real' tomb and mortuary temple of Seti I at Thebes. Further remarks on royal cenotaphs at Abydos are to be found in Part III, below.



With this background, it is hardly surprising that the closest architectural parallels that can be identified to the Osireion are New Kingdom royal tombs, particularly those of the mid-Eighteenth Dynasty, with their long entrance corridors/stairways, deliberate right-angled turns, and columned burial chambers/suites of rooms. Mythologically, the Osireion can also be linked to the tomb of the god Osiris (on the Umm el-Qaab, in the western part of Abydos) and ideas concerning resurrection in the 'underworld' and the identification of king and god.

One of the most significant constructional features of the Osireion, at least as far as the specific orientation of the Project is concerned, is the deep channel ("the Channel") which surrounds the main body of the Central Hall of the Osireion. It is in the Channel that the ground-water can clearly be observed, even when this ground-water is being pumped out of the Osireion to maintain a relatively low-level, and it is clear that the provision of a Channel with at least a partial fill of ground-water, was part of the original design of the monument. Once again this can, perhaps, be linked to mythological ideas about linking this monument, with its resonances of re-birth/resurrection, to other ideas about an 'island of creation' in a way which is imperfectly understood. Nevertheless, the intention of the ancient builders to provide a water-filled Channel within the Osireion is an important feature in our attempts to understand how the Osireion 'works' as a structure and as a piece of symbolic architecture.

The appearance of the monument agrees very closely with that of a building referred to by the classical geographer Strabo who visited Abydos in the first century BC:-

... there is a well there, situated at a depth, and thus one descends to it through a vault of monoliths, of exceeding size and workmanship. There is a channel leading to this place from the Great River. Round the channel there is a grove of Egyptian acanthus, sacred to Apollo.

The description is very close to that which can be either seen today or can be reconstructed through firm archaeological evidence (e.g. the tree-pits, although Strabo was obviously following a not-uncommon practice of classical writers in associating Greek and Roman deities – Apollo in this case – with Egyptian ones). But the most interesting aspect of this description, apart from the fact that the "Osireion" was known and accessible in the first century BC, is the status of the "channel" which connected the monument to the "Great River" (i.e. the Nile). The existence and nature of this "channel" (not to be confused with the Channel which has already been described within the Central Hall of the Osireion, is particularly germane to conservation issues centred on the Osireion, which forms the main thrust of the enquiries summarised in this report.

The Osireion was first discovered in the winter of 1901/02 season by W.M.F.Petrie, working for the Egypt Exploration Society, with full-scale excavation commencing in 1902 by the Egyptian Research Account directed by M.Murray and H.Petrie (Murray, 1904). In 1912 the Egypt Exploration Society took responsibility for the continued clearance of the monument, firstly with two seasons directed by E.Naville and then after excavation was interrupted by the First World War the Osireion was finally cleared under the direction of H.Frankfort during a six month season in 1925/26. One of the technical difficulties encountered in the later stages of clearing the Osireion was that of ground-water hampering access to the lower parts of the monument. This difficulty was temporarily solved during excavation by the use of a 16 hp steam engine.

The subsequent publication of the Osireion by Frankfort (1933) is the major record of the monument, and one which is impossible to improve on at present due to the subsequent deterioration of the monument (particularly those of its carved and painted reliefs which were of limestone) and its current comparative inaccessibility due to high levels of groundwater when compared to the situation in 1926.

Since 1926 major archaeological work on the Osireion has consisted of the maintenance of the condition of the monument by the Egyptian Antiquities Organisation (EAO). This has recently included the installation of fixed pumps around the Osireion in an attempt to control the high levels of groundwater within the monument. To date, this particular issue has not been satisfactorily resolved so that "the island of creation awaits its own resurrection" (Kemp 1982, 8).

THE GROUNDWATER PROBLEM AND THE GEOLOGY OF THE ABYDOS AREA

The identification of the specific source of the groundwater affecting the Osireion was one of the central aims of the Project. It has been assumed in the past that the sole factor at work here is the level of the Nile itself, with fluctuations in its level from year-to-year and, particularly, during the year as the Nile is artificially raised and lowered for agricultural purposes, as a modern version of the annual inundation which occurred before the building of the High Dam at Aswan. Thus, in 1943, an archaeologist writing about the Osireion reported that;

"... new irrigation works designed to increase the land under cultivation in the district... As a result of the new irrigation works the water table in the district rose to a higher level acting on the soil... In the Osireion, where the central hall was designed to resemble an island surrounded with water, the water rose about one metre above its normal level inundating parts which should remain dry."
(Rostem 1950, 67-68)

However, the geological survey carried out by Dr. James Brooks and Dr. Bahay Issawi as part of the Project, has revealed a radically different interpretation to the specific source of the groundwater within the Osireion, and the geology of the Abydos region as a whole. Their conclusions, described in detail in their report, may be summarised as follows:-

- 1) That the source of groundwater within the Osireion is not directly due to the Nile itself, but to an aquifer of 'fossil water' within the Qena Sand, dating from c. 10,000-5,000 B.P., and which drains from the east side of the Western Desert towards the Nile Valley.
- 2) That the level of water within this aquifer is unpredictable.
- 3) That these results offer a radically different interpretation to the source of groundwater within the Osireion to that offered by Frankfort, Rostem, etc. It should, however, be noted that particularly high Nile levels can impose themselves on top of the local aquifer, thus bringing into play a second variable in the potential height of groundwater within the Osireion.

An interesting possible correlation between the current findings and the work of Frankfort on the monument is the latter's description of a "Gebel Moiya" (lit. "mountain of water"), a hard geological layer located low down in the Channel of the Central Hall of the Osireion. This layer, when penetrated, caused water to spout up from it (Frankfort 1933, 19). It is possible that this layer corresponds to the conglomerate forming a capping to the aquifer-containing Qena Sands (see Figure 7).

DETERIORATION OF THE MONUMENT

From the above brief description of the function of the Osireion, it will be clear that the structure was erected to specifically include elements which would be submerged by groundwater. It also seems clear that the selection of materials used within the Osireion reflects this state of affairs; in broad terms granite and sandstone were used for parts of the interior which are either close to the groundwater or are particularly load-bearing, while limestone was used where substantial decoration of the wall was required, since the fine-grained limestone (used extensively in the Seti Temple itself) particularly lends itself to the easy carving of relief in the form of scenes and texts. It should, however, be noted that there does not seem to have been an intention that any of the masonry would be submerged by groundwater, although those elements which are do not seem to have suffered to a profound degree. The use of this fine quality limestone is particularly notable in the two sloping corridors which give access to the interior of the Osireion, their connecting Anteroom, and the Sarcophagus Chamber. It is in these parts of the monuments that the deterioration of important parts of the Osireion is most profound.

The Lower Sloping Corridor (Plate 5) is the part of the monument of greatest accessibility where the deterioration of limestone reliefs can be most clearly observed. Their very poor condition (Plates 6-8), presumably as a result of salt efflorescence via capillary action, stands in stark contrast to the well-preserved reliefs in the Anteroom and the Upper Sloping Corridor. The deterioration of these reliefs in the Lower Sloping Corridor can be seen by comparing their condition today with the amount of sculpted detail recorded during Frankfort's work (see Frankfort 1933, Vol. II, Plates).

The Sarcophagus Chamber (Plate 4) was inaccessible to Project staff in January 1992 due to the particular height of the groundwater in this part of the monument, but it is certain that here too the deterioration of the limestone reliefs is substantial. Indeed, the deterioration of this part of the Osireion seems to have been the most drastic effect of the raising of the groundwater level in 1943; *"The eastern wall of the sarcophagus room is built in limestone of poor quality which turned pasty under the action of the water"* (Rostem 1950, 68). The structure of this part of the Osireion also seems to be under threat, since the walls and ceiling of this chamber are currently (January 1992) being supported by wooden scaffolding. This situation is particularly serious since the reliefs in this part of the Osireion are probably the most important in the monument, consisting of a cosmographical ceiling, decan tables and a dramatic text.

THE CONDUIT TO/FROM THE OSIREION

One of the hypotheses used by the Project in our attempts to understand the exact nature of the Osireion is the existence of an underground conduit leading from the Osireion, passing underneath the Seti Temple, with an exit point opening somewhere to the east of the Seti Temple. Since the implications of the existence of this conduit are fundamental to our study, it is necessary to discuss the evidence for the existence of this conduit, its presumed function, and how its existence may have implications for projected plans to ameliorate the conservation aspects of the Osireion.

The existence of a subterranean conduit was first alluded to in print by Rostem who discussed some relevant archaeological work carried out at the Seti Temple itself during the 1940's. The relevant sections of his account to the existence of the conduit are as follows:

"Some twenty five years ago Mr. E. Baraize, engineer of the Department of Antiquities, excavating in the second court of the temple revealed the fact that the temple was partly built on solid rock and partly on debris filling a deep ditch which was hewn out of the rock, for an obscure reason, in the central area (nearly the middle third of the width) all along the axis... The reason why the Egyptians made that ditch in the central area was not satisfactorily explained until Abdel Salam made several soundings with results which suggest a very probable explanation"

(Rostem 1950, 67)

"Abdel Salam, to study the nature of the soil on which the temple was built, adopted a method of boring with tubes in making his soundings. Since the axis of the ancient trench coincides with that of the temple and the Osireion, suggesting that if any construction exists in the trench it will probably lie on that axis, Abdel Salam decided to put down his borings in a series of points along that line. The soil brought up by boring at a point in the first court was a mixture of debris, sand and mud. At a depth of about 10 metres fragments of limestone came up indicating a layer 60 cms. thick, then came a very thin layer of mud and again limestone for another 60 cms. The tube then dropped in a void 90 cms. deep to encounter a third layer of limestone 40 cms. thick with sand and mud underneath it"

(Rostem 1950, 70)

97 // The Rostem/Abdel Salam interpretation of the results from what seems to have been one boring from a series whose number and specific location are not made clear by the publication, is of a conduit 90 cms. deep with a roof consisting of two courses of limestone and a bed of the same kind of stone (Figure 5). A single boring of a series made "in the plantations west of the antiquities zone" produced fragments of granite at a depth of about 7 metres (Rostem 1950, 70) which were interpreted as the mouth of the conduit opening onto a canal leading from the Nile to a point in front of the Seti Temple.

The existence of the canal itself is more than likely. It is mentioned by Strabo (see above) and would be standard practice by the Egyptians to provide a route for the transportation of very large elements of stone masonry to a construction site, where transport by water was very much easier than overland.

The conduit itself is rather more problematic, primarily relying on the interpretation of a single boring in the first court of the Seti Temple. It worth noting that no exit point for the conduit within the Osireion itself was noted by Frankfort during his 1926 excavations, although this itself need not be conclusive.

In order to test this theory of the existence of a stone conduit within a trench running under the main axis of the Seti Temple, a series of traverses were made using the GPR, specifically the first and second courts, the hypostyle halls and selected chapels within the Seti Temple, the area directly north-east of the first court and the strip of land between the Seti Temple and the Osireion (see Figure 8).

The results of this exploration were that no indications of a buried water conduit, or excavations possibly associated with the construction of such a conduit were observed on the GPR records. In general, the depth of exploration and data quality appear to have been degraded by the shallow soil and groundwater conditions. Specifically, the limitations to the use of the GPR included the presence of silt and clay, elevated moisture levels, and the possible presence of crystallised salts in the area directly above the water table. Such circumstances made it impossible to detect anything below two to three metres in the areas surveyed, well above the likely depth of the hypothesised conduit. An additional handicap was the reinforced concrete walkway which bisects the first and second courts on the axis of the temple, and therefore directly above the area of primary interest as far as the presence of the conduit is concerned; the reinforcing steel of the walkway allowed no penetration of the GPR signals.

It would seem, therefore, that the inconclusive nature of the GPR survey means that excavation is the only feasible solution to prove/disprove the hypothesis of the existence of a conduit. Since such excavation is clearly impossible in the context of the rear parts of the temple (i.e. the hypostyle halls and areas to their west) the detection of the conduit in the area where it is presumed to have been detected by Abdel Salam (i.e. the courtyards of the Seti Temple).

The conduit, if it is to serve any practical function, is presumably connected with the overall aim of the original builders to have the Osireion as a monument which is partially filled with water, yet not flooded with it. The two possibilities which suggest themselves are as a duct running from the canal to the east of the Seti Temple, into the Osireion in order to fill/replenish the Osireion channel with Nile water, possibly at times of high flood during the inundation. This would fit well with religious ideas regarding rebirth and resurrection which are closely connected with the Osireion as a mortuary monument, and it is in these terms that the conduit has been regarded by those scholars who have referred to its existence (e.g. Kemp 1982, 82). However, it may also be that the conduit was designed to take water from the Osireion in order to maintain an even water level within the Osireion channel; this postulation would fit well with the possibility discussed above that the source of groundwater within the Osireion is a natural aquifer whose movements are unpredictable.

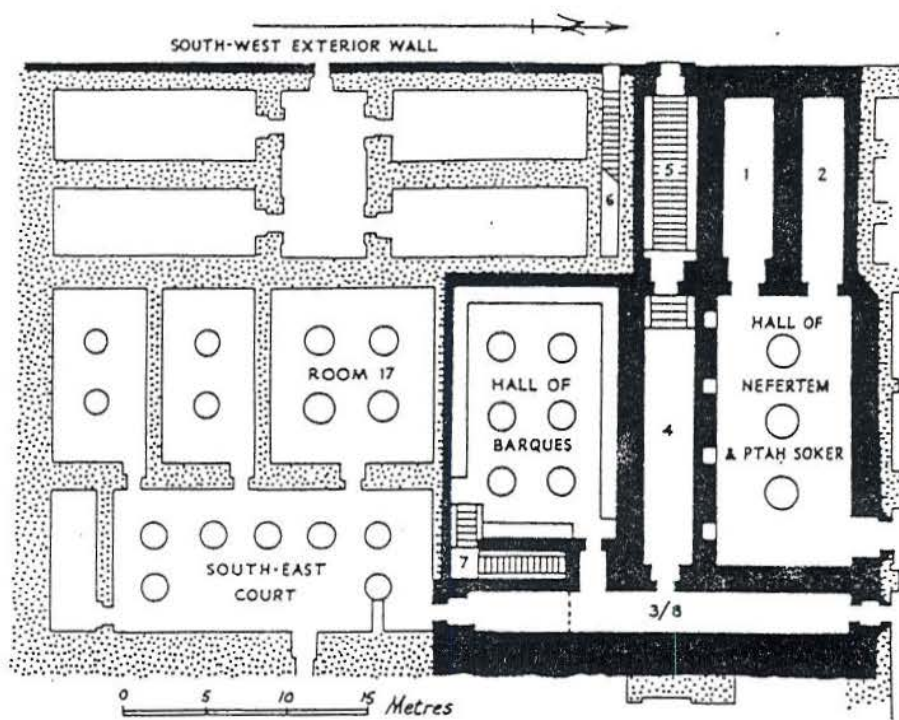
It must always be borne in mind that our evidence for the conduit is very slim, resting on one boring by Abdel Salam. Therefore we do not have a consistent, traceable record of the conduit indicating a slope. The granite found by Abdel Salam in the cultivation to the east of the Seti

Temple may or may not be connected with the conduit (e.g. be a terminus for it); if so then the slope would be away from the cultivation and towards the Osireion, indicating an inflow of water to fill the Osireion. Nevertheless the possibility of the existence of the conduit is one which is well worth pursuing; it is of great archaeological interest and may possibly be able to be re-activated in order to drain the Osireion as well as providing one means of accessing the water within the aquifer for future use.

PART II – INVESTIGATIONS WITHIN THE SETI TEMPLE

Introduction

One piece of work carried out by the Project which was both designed to test the potential of the GPR in a particular context, and to gain a better understanding of part of the Project's area of concern, was an investigation of parts of the rear of the Seti Temple itself. This area was within the northern part of the southern extension of the Temple on its western side, in particular that part of the Temple immediately to the south of the Stairway Passage and to the west of the Hall of Barques, chiefly represented by the remains of the Upper Rising Staircase (see plan below). The Rising Upper Staircase itself rises from a separate doorway in the western wall of the Temple, and gave access to now-destroyed upper rooms. The architectural configuration of this part of the Temple and its changes in plan are by no means clear and warranted further investigation; this investigation is best carried out at this stage using a non-destructive method which is able to elucidate the structure of the area behind the southern wall of the Stairway Passage and below the Upper Rising Staircase, and was therefore an ideal opportunity to test the potential of the GPR to investigate monumental architecture.



1. Chapel of Nefertem
2. Chapel of PTAH-SOKER
3. Gallery of the Lists (see fig. 4)
4. Corridor
5. Stairway Passage
6. Upper Staircase
7. Staircase from Hall of Barques to Upper Gallery
8. Upper Gallery

The Architectural History of the Western Entrance area of the Temple

This part of the southern extension to the Temple was subject to changes in plan in antiquity, and although much of the present decorative scheme was planned and carved during the reign of Seti I (e.g. the Hall and Chapels of Nefertem and Ptah-Sokar, the Stairway Passage) there is also a substantial amount of relief which was not carved until the subsequent reign of Ramesses II (e.g. the Corridor, most of the Hall of Barques, the western external wall). The decorative scheme of this part of the Temple, and much of its architectural detail, were recorded with a view to eventual publication, during the period 1979-1983 by a British team from the Egypt Exploration Society (Baines 1984, 1990).

The first point to be noted is the configuration of the more important of the rooms/corridors in this part of the Temple. The Gallery of Lists and the Corridor, with its western extension the Stairway Passage, form an inverse 'T'-shape. Immediately to the west of the two arms of this 'T' are two significant parts of the southern extension; to the north the Nefertem/Ptah-Sokar Complex, and to the south the Hall of Barques. Modifications in the plan of the Nefertem/Ptah-Sokar Complex have been studied in detail by Baines (1984, 16-18). The current design of a three-columned hall opening onto two chapels was not the original one; the first design here consisted of a six-columned hall, similar in outline to the Hall of Barques, opening onto three chapels. The location of the southern three columns of this hall is now filled by the southern wall of the Nefertem/Ptah-Sokar Hall, an alteration which in effect created the Corridor as a separate architectural entity; similarly the third chapel of the original group was converted into the Stairway Passage giving access to a new entrance to the Temple, that on the western wall. This doorway at the end of the Stairway Passage gave access, via leaving the Temple, to the Upper Rising Staircase and thereby, presumably, the roof of the Temple. A later modification of design in this arrangement under Ramesses II meant that the Upper Rising Staircase could be accessed from the Stairway Passage without having to leave the Temple, at which time the outer door of the Upper Staircase was walled up (Baines 1984, 17) - see Plate 9 for an exterior view of the Temple showing this later blocking. The ability to directly access the desert west of the Temple (and the superstructure of the Osireion ?), while providing a convenient route to the roof within the Temple may have been the major considerations involved in these architectural changes (Baines 1990, 82), but may have served to obliterate earlier, discarded configurations in this part of Temple.

However, if Baines' studies have made clearer the modifications in design to the north of the Corridor and Stairway Passage (i.e. around the Nefertem/Ptah-Sokar Complex), possibly as part of a re-styling of parts of the Temple by Ramesses II after his father's death, changes in the area to the south of the Corridor and Stairway Passage are less understood.

The Ground Probing Radar Survey

The detection of concealed or discarded architectural configurations was the major aim of this facet of the GPR Survey. The southern wall of the Corridor and the Stairway Passage were examined using the GPR in order to detect architectural anomalies caused by changes in plan, or

by now-buried structures. Storeroom "C" was also examined in this way, as was the debris-covered ledge which represents much of the course of the Upper Rising Staircase (the stone treads are now missing), as far east as the Hall of Barques (for location of the GPR scans see Figures 9 and 10). The Hall of Barques itself was inaccessible to the Project.

The chief result of this work was the detection of an architectural anomaly located in the area underneath the Upper Rising Staircase. This in itself is not, perhaps, surprising considering the history of architectural change in this part of the Temple, but does not specifically identify the nature of this anomaly. Possible interpretations of the results of this anomaly, as derived from the GPR data, are given in Figure 11. Likely possibilities for the cause of this anomaly may be footings for different walls in an area where we find rooms at different heights causing irregular fill, or that the Upper Rising Staircase itself is a change of plan to a chapel originally built as a parallel to the Nefertem Complex with the anomaly the results of accommodations to these changes (Baines pers. comm.), or the presence of other as yet unidentified structures or remains of structures.

Therefore the GPR examination has proved very successful in locating an architectural anomaly whose nature can only be clarified by other investigative means.

PART III – INVESTIGATIONS IN THE AREA OF THE RAMESSES II TEMPLE

Introduction

As an adjunct to the main work of the Project in and around the Osireion, the Ground Penetrating Radar ("GPR") was used in a separate, yet connected, piece of work immediately behind (i.e. to the west of) the Ramesses II Temple (see Figure 1 for the location of the Ramesses II Temple, and Figure 8 for the area of GPR coverage).

This work was carried out for two major reasons. Firstly, conditions here are ideal for the use of the GPR consisting of wind-blown sand overlying any buried structures; since this is an archaeological environment common to many desert-edge sites in Egypt where the GPR might also be used with good results it seemed an ideal opportunity to test the GPR while attempting to provide an answer to an archaeological problem connected with the Ramesses II Temple at Abydos.

The Ramesses II Temple Enclosure

This temple was constructed by Ramesses II during or after he completed the work on his father's temple (i.e. the Seti Temple at Abydos). It has generally been regarded as serving the same function as the Seti Temple itself, i.e. as a "Cenotaph Temple" at Abydos serving the mortuary cult of the dead king, particularly associating him with the god Osiris. However, this interpretation has recently been challenged by Kuhlmann (1982), who believes that the Ramesses II Temple may not possess the same status as a temple devoted to a royal mortuary cult as the Seti Temple, but may have served as a way-station for the procession of the barque-shrine of the god Osiris at particular festivals.

The Ramesses II Temple was built on a much more modest scale than that of the Seti Temple. Although the craftsmanship displayed in the use of materials and decoration of the walls is in no way inferior to that of his father's temple, it survives in a more denuded form than the Seti Temple, generally lacking the upper portions of the building (i.e. upper parts of walls and roof).

But the Ramesses II Temple itself is only the most substantially visible part of what must originally have been a complex of buildings within a mud-brick enclosure wall (Temenos), but the line of this Temenos wall itself has not been fully traced on the ground, so it is impossible to say how large this enclosure was, or the number of structures it may have contained. The doubt over the exact course of the Temenos wall around the Ramesses II Temple (but see below) is in direct contrast to the Seti Temple; here the circuit of the Temenos wall is known, with a main entrance at the front of the Seti Temple, and separate entrances on the western side of the enclosure (the "desert pylon") and the shaft giving access to the entrance corridor of the Osireion. It must be noted that the Temenos Wall of the Seti Complex is designed to enclose the Seti Temple and the Osireion as parts of a single complex of religious structures.

However, if the Ramesses II Temple is, in general terms, a more modest counterpart to the Seti Temple, then it may be possible that the Ramesses complex contains structures similar in nature and intent to those within the Seti complex. In particular, the high ground immediately to the (local) west of the Ramesses II Temple would seem a likely location for such an additional structure, particularly if it is in any way similar to the Osireion itself.

On this high ground there lie a number of large granite architectural elements. Their presence has prompted some scholars (e.g. Kemp 1975) to suggest that they may be part of a now-buried structure underneath where these blocks now lie. One must note, however, that a more definite origin for at least some of these blocks can be ascertained from the running inscription some of them contain. This inscription was copied incorrectly by Mariette, and appears so in most egyptological literature on the monument, but a correct, and fuller, version (incorporating other blocks recovered by the Kuhlmann Mission) appears as a photograph in Kuhlmann 1979, pl.57. This text gives the titulary of King Ramesses II, followed by the dedication "He made as his commemoration of his father Osiris, the making of a great seat (st wrt) in pure alabaster, roofed in ..." at which point the blocks break off. The central problem lies in the identification of the st wrt, "great place/seat", a term which can refer to a variety of religious structures, most often the temple itself or the most part of the temple, the sanctuary (Spencer 1984, 108-114). While it would be tempting to identify the st wrt with the assumed buried building, it is more likely that it refers to either the Ramesses II Temple or its sanctuary; an inscription on the Ramesses II Temple refers to the st wrt (i.e. probably the Temple itself) being "in pure alabaster, roofed in granite" (Spencer 1984, 112).

These blocks therefore seem unlikely to come from an Osireion-like structure belonging to Ramesses II, but this does not preclude the possibility that the high ground on which they currently rest does not cover such a monument. Again, the results of the Kuhlmann mission seem to cast doubt on such a possibility; Kuhlmann has identified part of the Temenos wall of the Ramesses II enclosure close to the back (local west) and (local) northern walls of the temple, thus putting the Ramesses II Temple in the (local) north-west corner of its enclosure (Kuhlmann 1979, 190). This, if true, would make it less likely that the Ramesses II complex contains a counterpart to the Osireion, and raises the question of whether there are other grounds to suspect the presence somewhere at Abydos of an Osireion-like structure of Ramesses II.

An "Osireion" for Ramesses II ?

In his discussion of the term "cenotaph" in relation to the use of the term for the Middle Kingdom "memorial chapels" at Abydos, O'Connor notes that strictly speaking a cenotaph should include an empty/dummy burial chamber, and that monuments of such a type have been located at Abydos for Senwosret III, Ahmose, Seti I, and probably included one for Ramesses II (O'Connor 1985, 164). The term used for a memorial chapel is m'h't, and New Kingdom examples include that of Tetishery, mother of Ahmose (a clear distinction is made between a true tomb and a cenotaph - Ayrton et al 1904, 45 & pl.52)

Evidence for a m'h't of Ramesses II comes from another structure constructed by that king at Abydos, the so-called "Portal Temple", which is attached to the main Osiris enclosure, c. 900 metres to the (local) north of the Ramesses II Temple. A block from this "Portal Temple", one of the many recovered since 1967 by the Pennsylvania-Yale expedition, seems to contain part of a list of deities, underneath each of which was the name of an offering-place or sanctuary. The list has a counterpart in the Gallery of the Kings in the Seti Temple which, like the "Portal" block (published in Silverman 1988), contains the word m'h't. The presumption is that the Seti text refers to the Osireion, but the "Portal" block specifically refers to the "m'h't of Ramesses II". Silverman notes that the identity of this structure is unclear; it may be the "Portal Temple" itself, part of that temple, or quite another building entirely (Silverman 1988, 276). The block itself may also have been re-used from elsewhere.

The Geophysical Survey of January 1992

The area immediately behind (i.e. to the local west of) the Ramesses II Temple was investigated by David Grumman using the GPR. The area concerned is illustrated in Figure 12. The survey conditions in this area were, as anticipated, found to be very suitable for GPR survey (sand/gravel deposits over man-made features at a relatively shallow depth) and yielded GPR data of very high quality.

The interpreted survey data seems to indicate the presence of a structure of considerable size (Figure 13), with a good coverage of floor slabs at approximately the same level as that of the floor in the Ramesses II Temple itself (i.e. c. 1.5 to 2.5 metres below ground surface in this area), although it should be noted that exact depth calibration was impossible for this particular GPR survey. Moreover, a substantial quantity of what appear to be in situ masonry elements probably indicate the presence of standing stone walls, while there are two features which seem to be at a rather greater depth than that of the floor blocks. At least one example of what appears to be a massive granite block, similar to those lying on the surface, was detected by the GPR (see Plate 12). As Grumman notes, a good analogue for the results presented here in plan and cross-section (Plate 13) would be a similar GPR survey of the Ramesses II Temple itself before it was excavated (i.e. with low stone walls, substantial intact flooring, no intact roof, large granite blocks lying out of place from a collapsed/robbed out roof).

It is therefore clear that there is some significant stone structure buried immediately behind the Ramesses II Temple, and its discovery is a clear vindication of the use of this method of sub-soil prospecting. The exact nature and identity of this building can, of course, only be fully determined by excavation, but one might speculate as the possible owner of this structure. The obvious suggestion (leaving aside the problem of the intervening Temenos wall behind the Ramesses II Temple) is an "Osireion" built by Ramesses II, perhaps on the model of that of his father. Other possibilities include hitherto "lost" mortuary/cenotaph temples which are known from other records; examples include New Kingdom Temples for Hatchepsut, Tuthmosis II, Tuthmosis IV, Ay, Sethnakht, and Ramesses III (Simpson 1980, 390; Helck 1966, 168-169).

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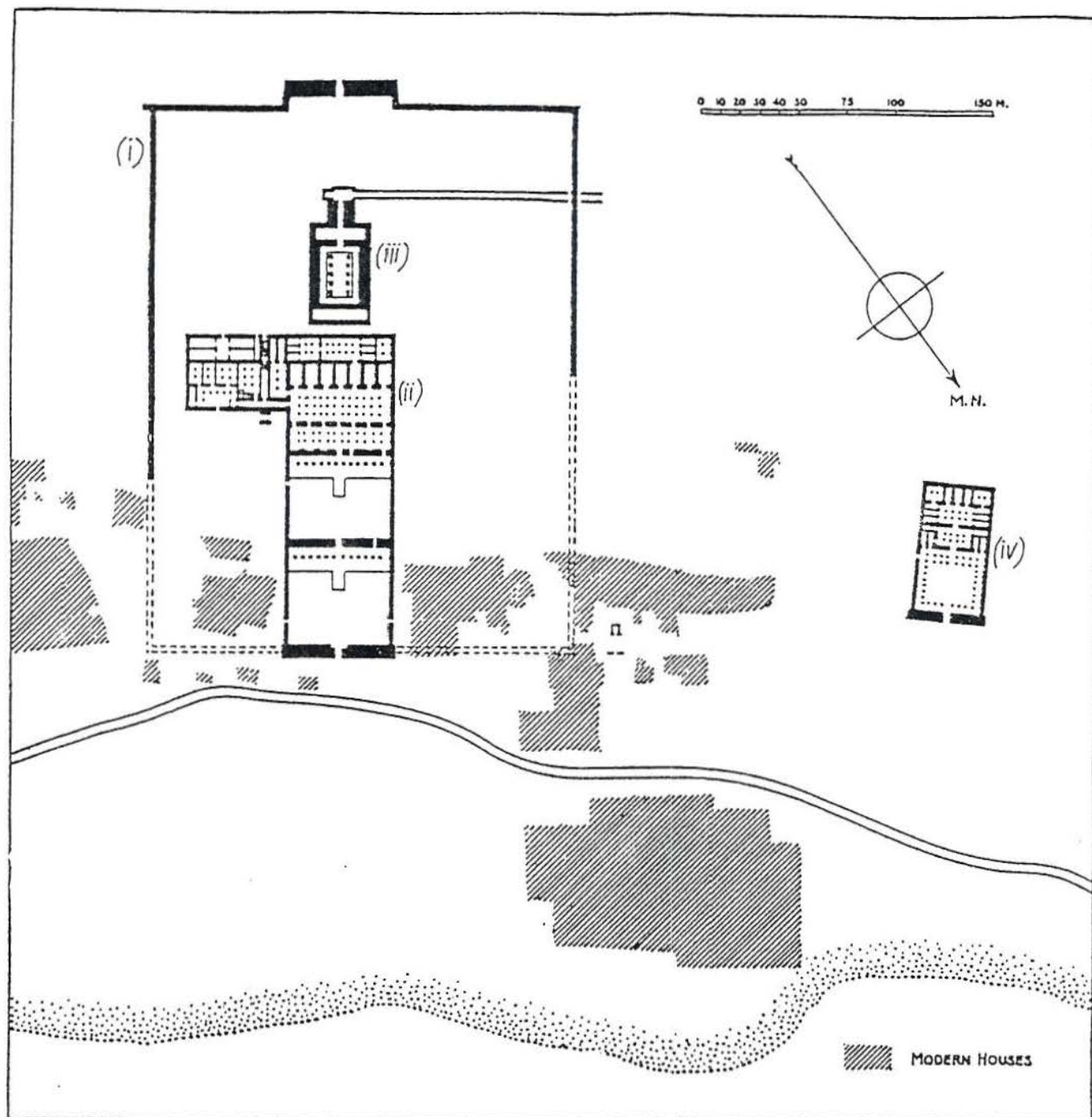
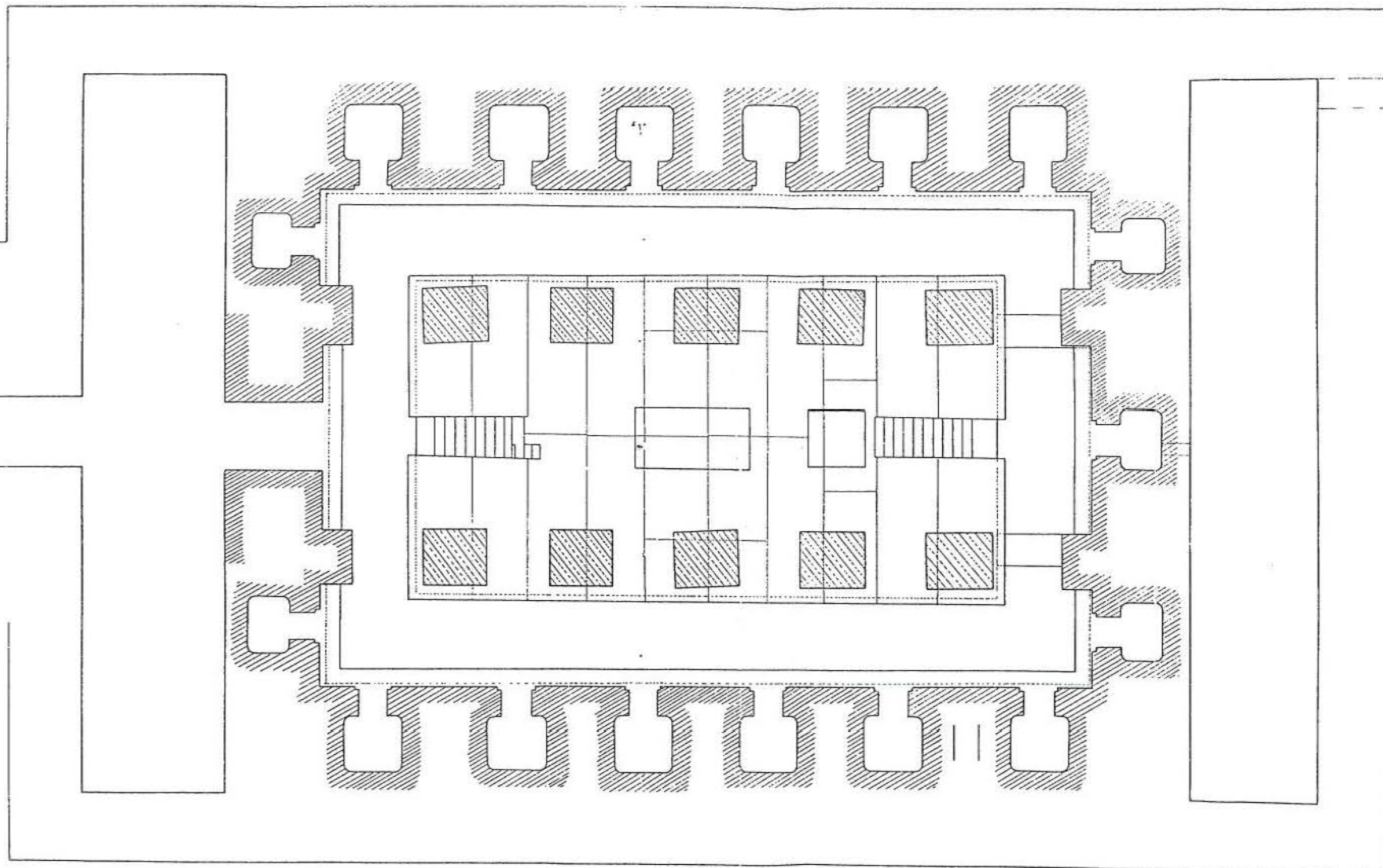


Figure 1: Map of the area examined at Abydos

- (i) The Temenos (enclosure) Wall of the Seti I Complex
- (ii) The Seti I Temple
- (iii) The Osireion
- (iv) The Ramesses II Temple



PLAN OF CENTRAL HALL AND SARCOPHAGUS ROOM.

Scale of Metres

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

CRANITE
SANDSTONE
LIMESTONE

Figure 2: Plan of the main body of the Osireion (from Frankfort 1933, Pl.II)

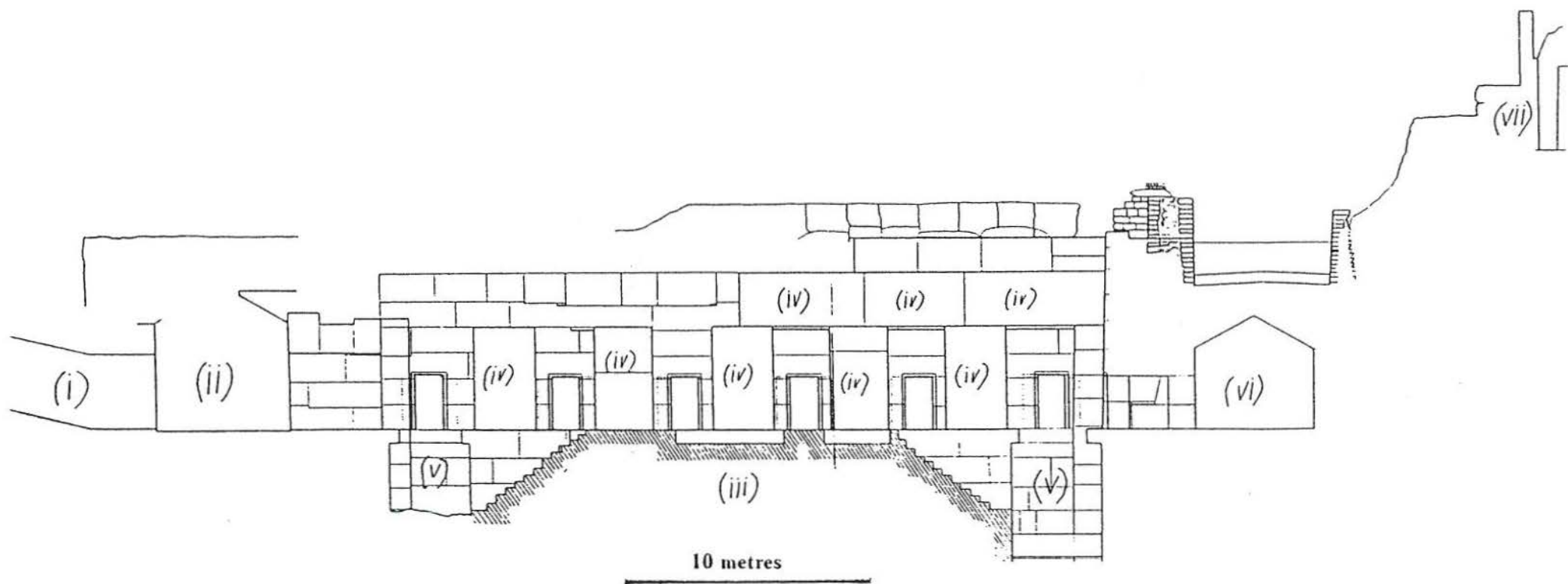


Figure 3: Cross-section of the Osireion (after Frankfort 1933, Pl.III)

- | | |
|-------|---------------------------------|
| (i) | Lower Sloping Corridor |
| (ii) | Transverse Hall |
| (ii) | Central Hall, "Island" |
| (iv) | Central Hall, granite monoliths |
| (v) | Central Hall, Channel |
| (vi) | Sarcophagus Room |
| (vii) | Rear part of Seti Temple |

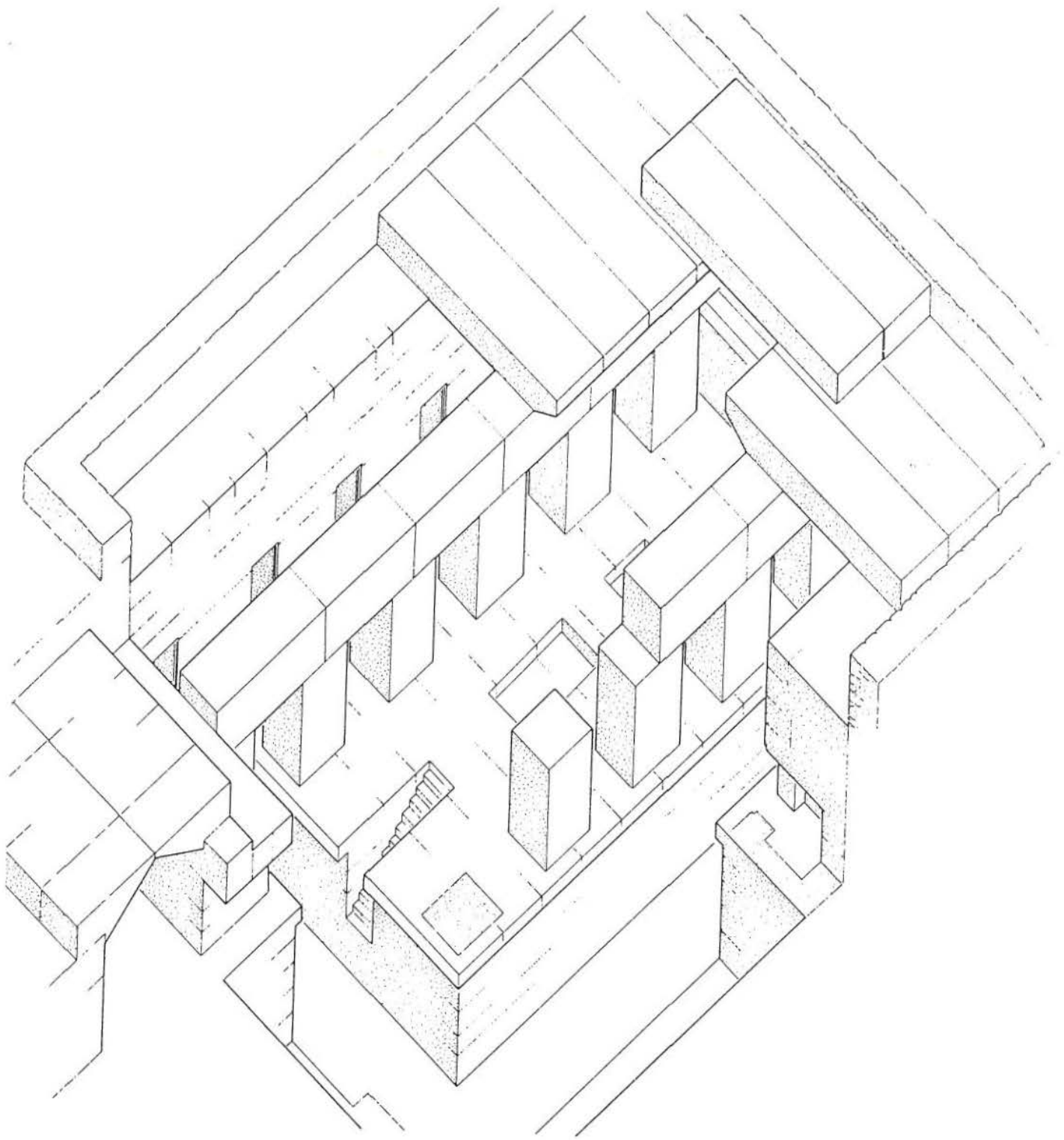


Figure 4: Reconstruction of the Central Hall and Sarcophagus Room of the Osireion
(from Arnold, 1991, fig.4.125)

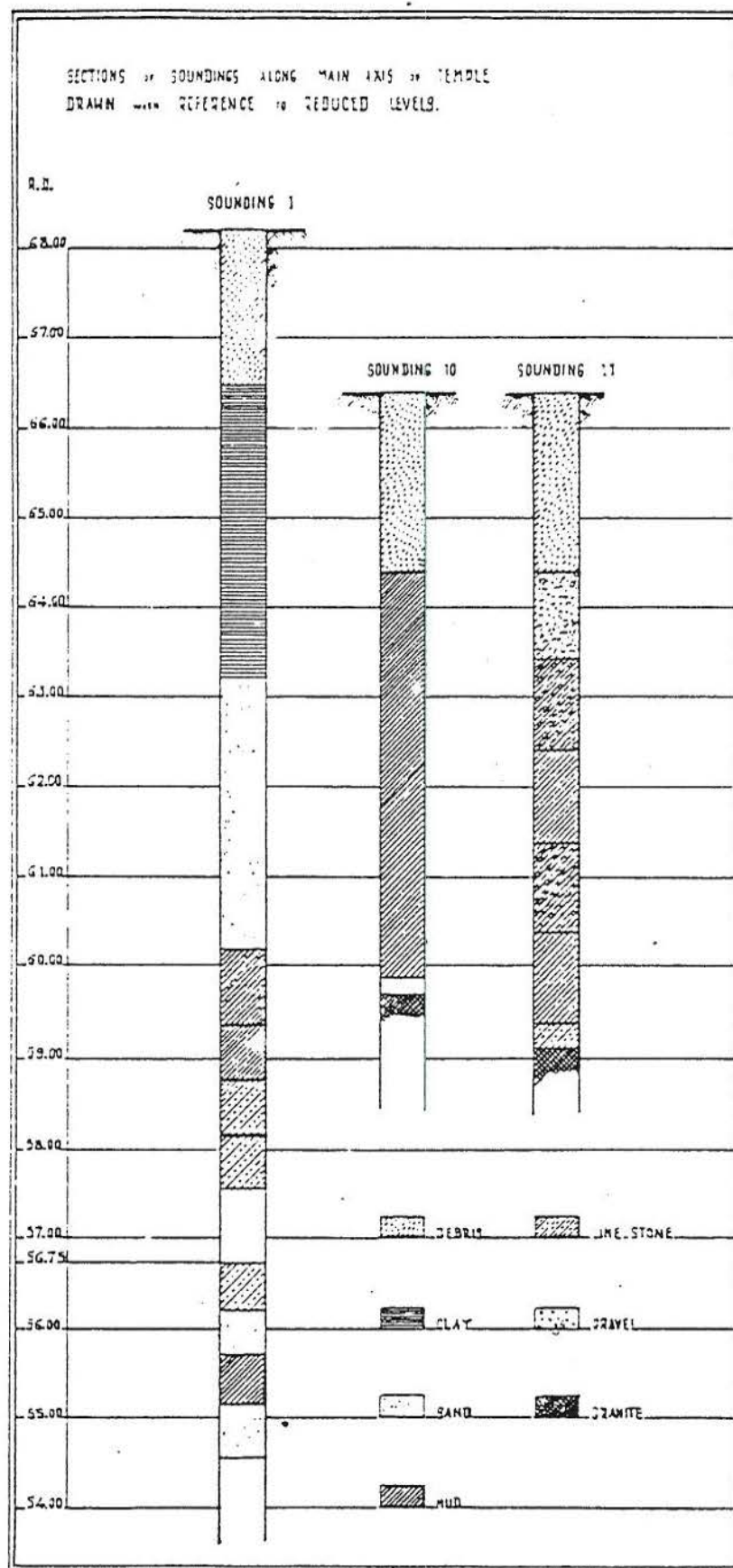
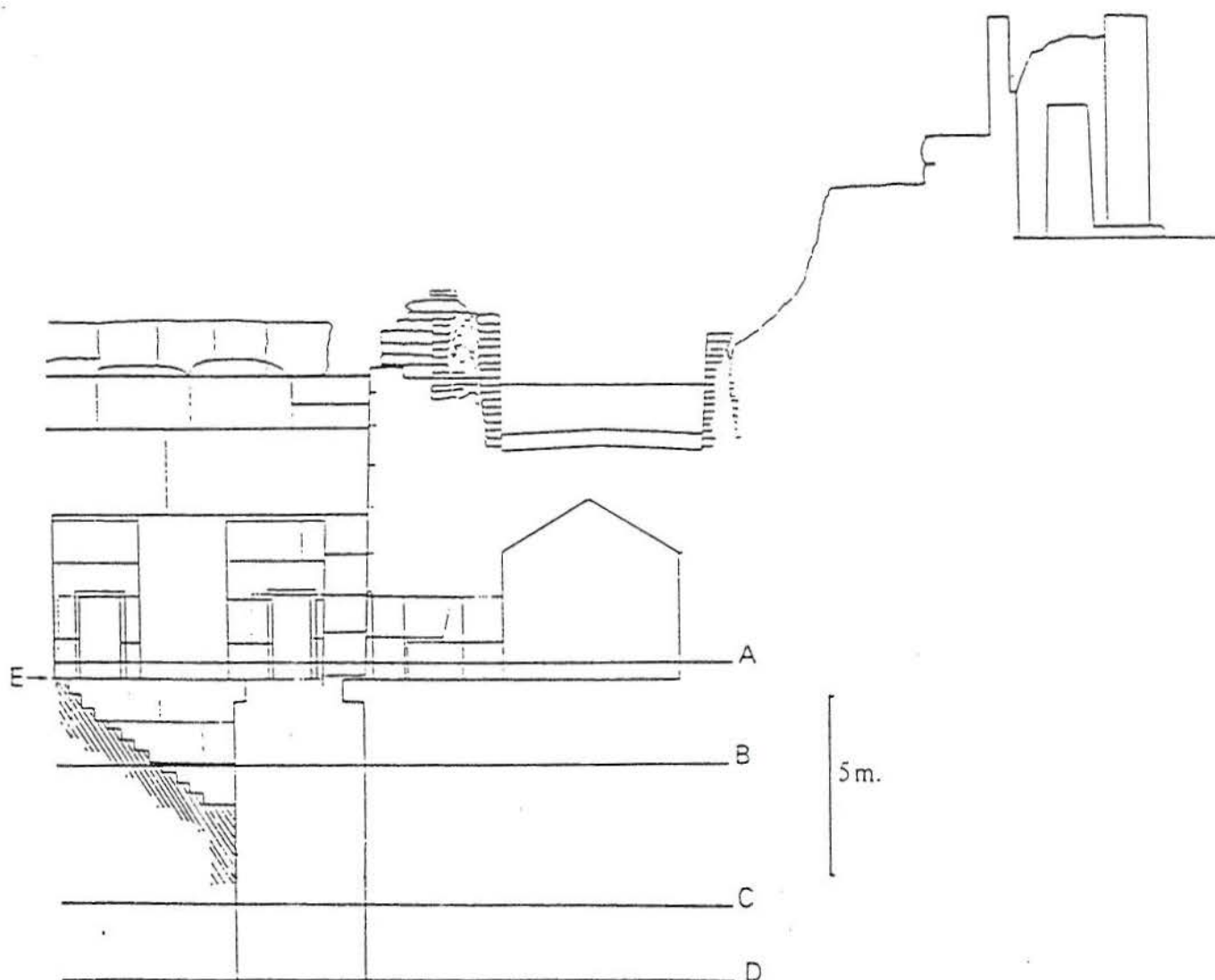


Figure 5: Sections of borings taken along the axis of the Seti Temple in 1943 (from Rostem 1950, pl.X)
Note that Sounding 1 was taken in the Second Court of the Seti Temple, and that the feature occurring between 56–59 metres is the suspected Conduit.
Soundings 10 & 11 seem to have been taken near the cultivation east of the Seti Temple.



- A = Water level, January 1992
- B = Water level, 1926 (Frankfort)
- C = Level of Conduit (Rostem)
- D = "Gebel Moiya" (Frankfort)
- E = Floor level of Central Hall

Figure 6: Schematic cross-section showing the ground-water level within the Osireion at different times.

GEOLOGICAL CROSS-SECTION, ABYDOS AREA

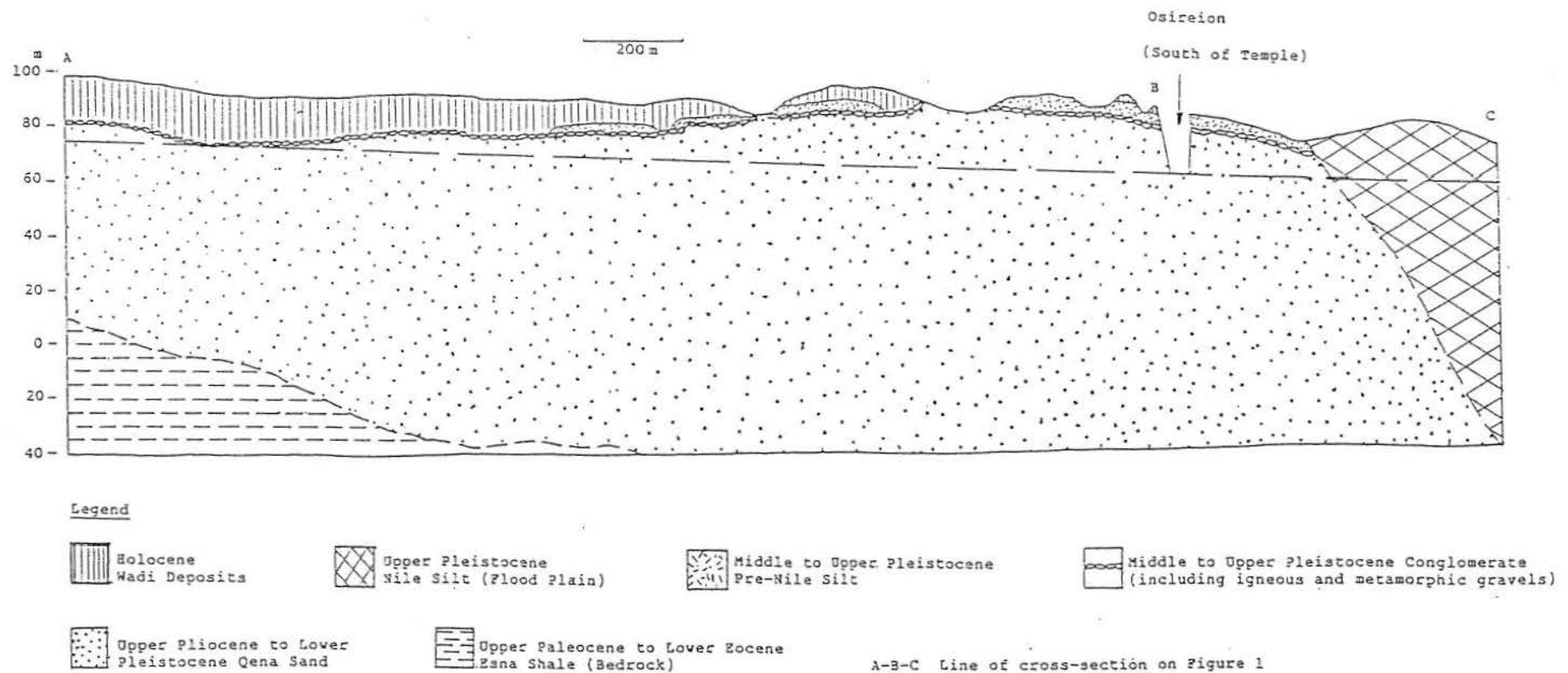
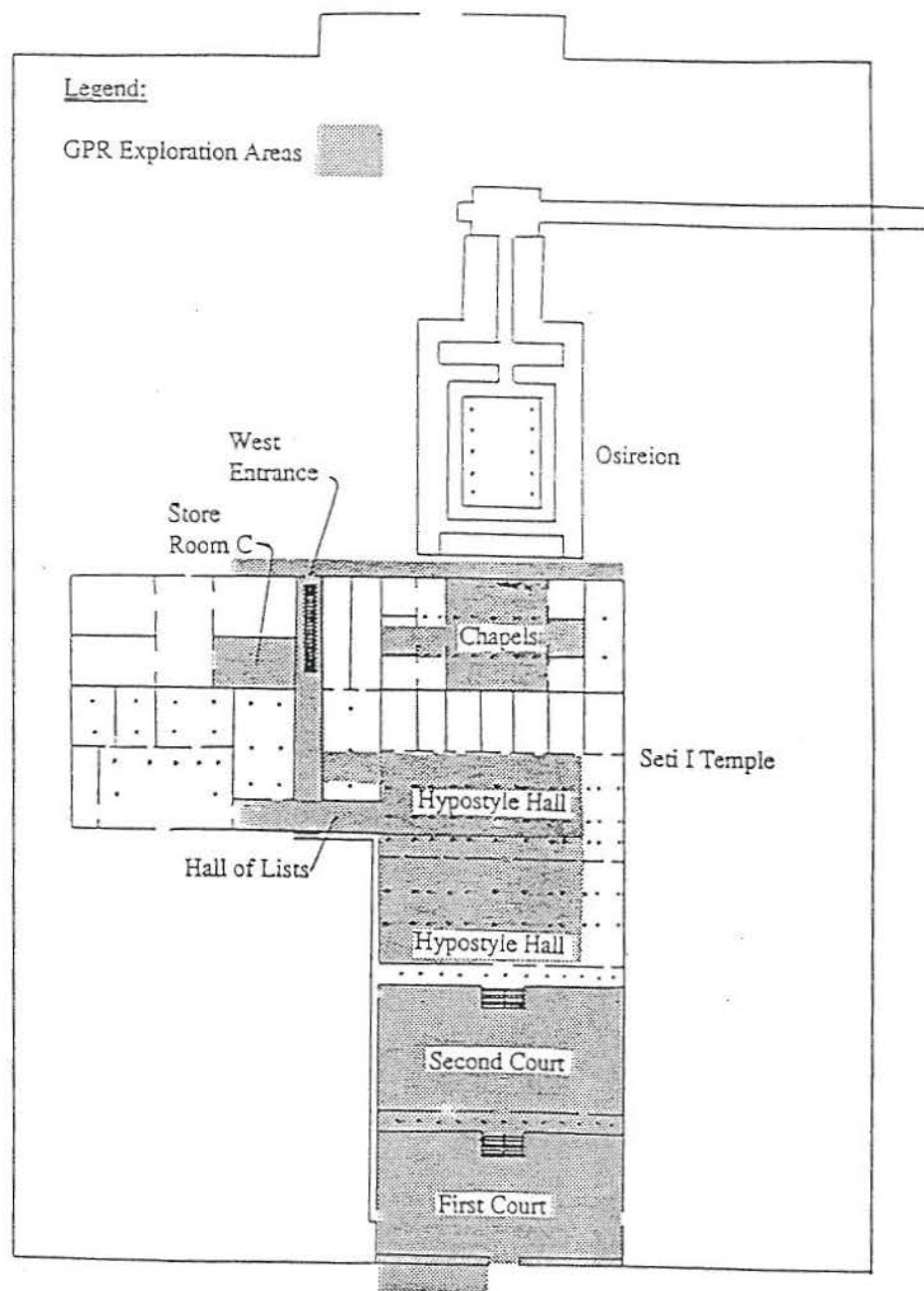


Figure 7: Geological Cross-Section, Abydos Area
(original section by James Brooks & Bahay Issawy)



SETI I / OSIREION EXPEDITION
 ABYDOS, EGYPT
 JANUARY, 1992

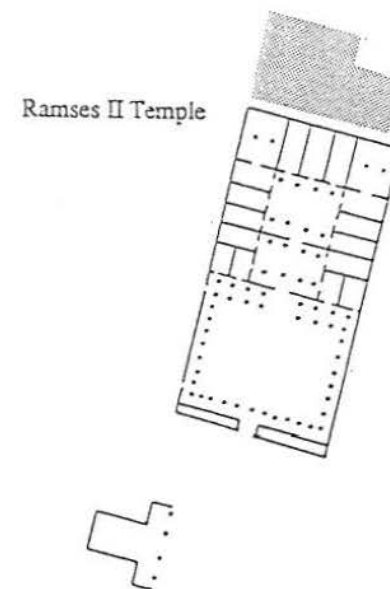
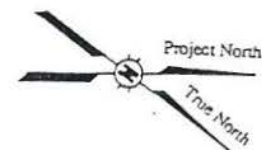
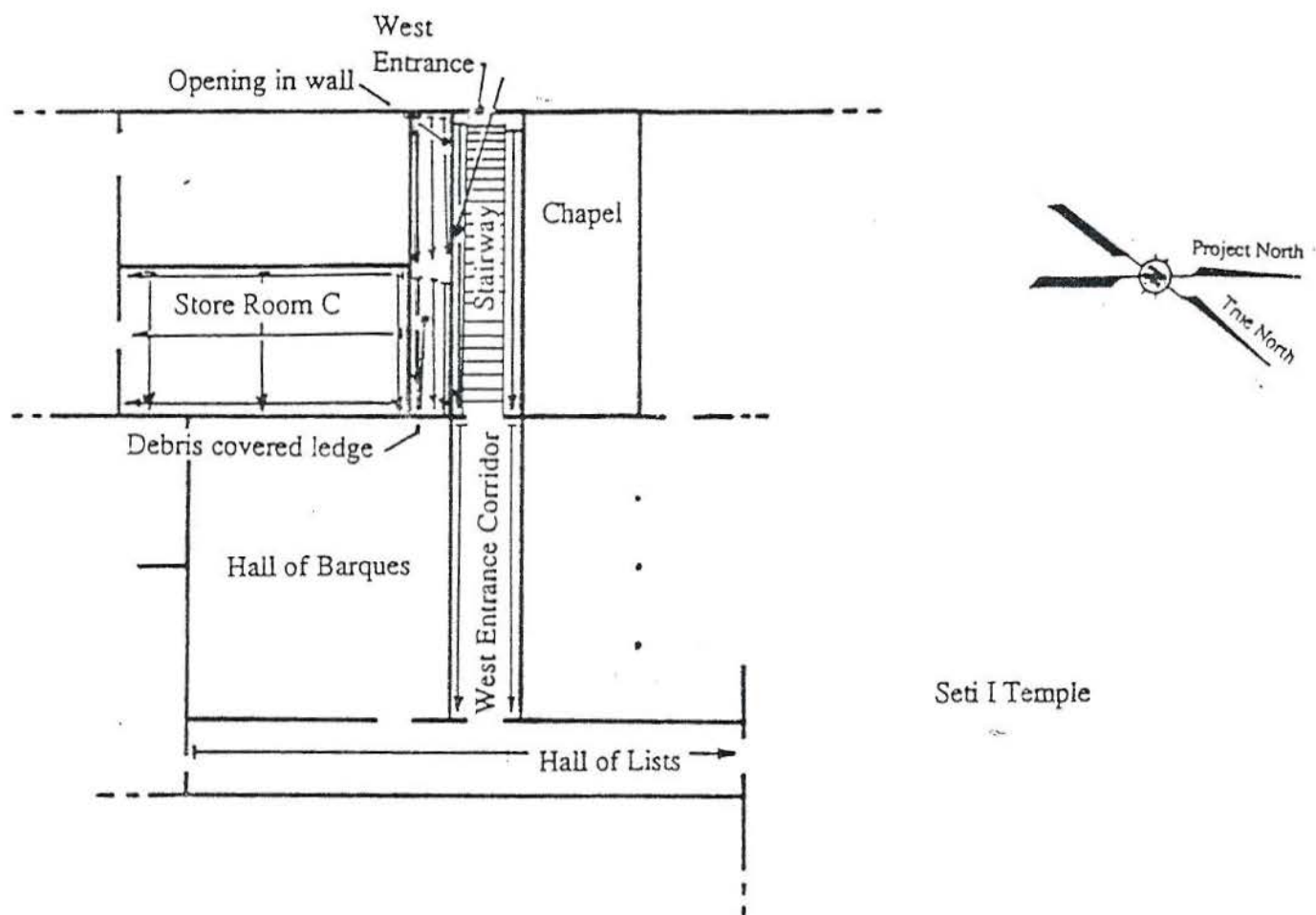


Figure 8: Site diagram - GPR exploration areas
 (original plan by David Grumman)



Seti I Temple

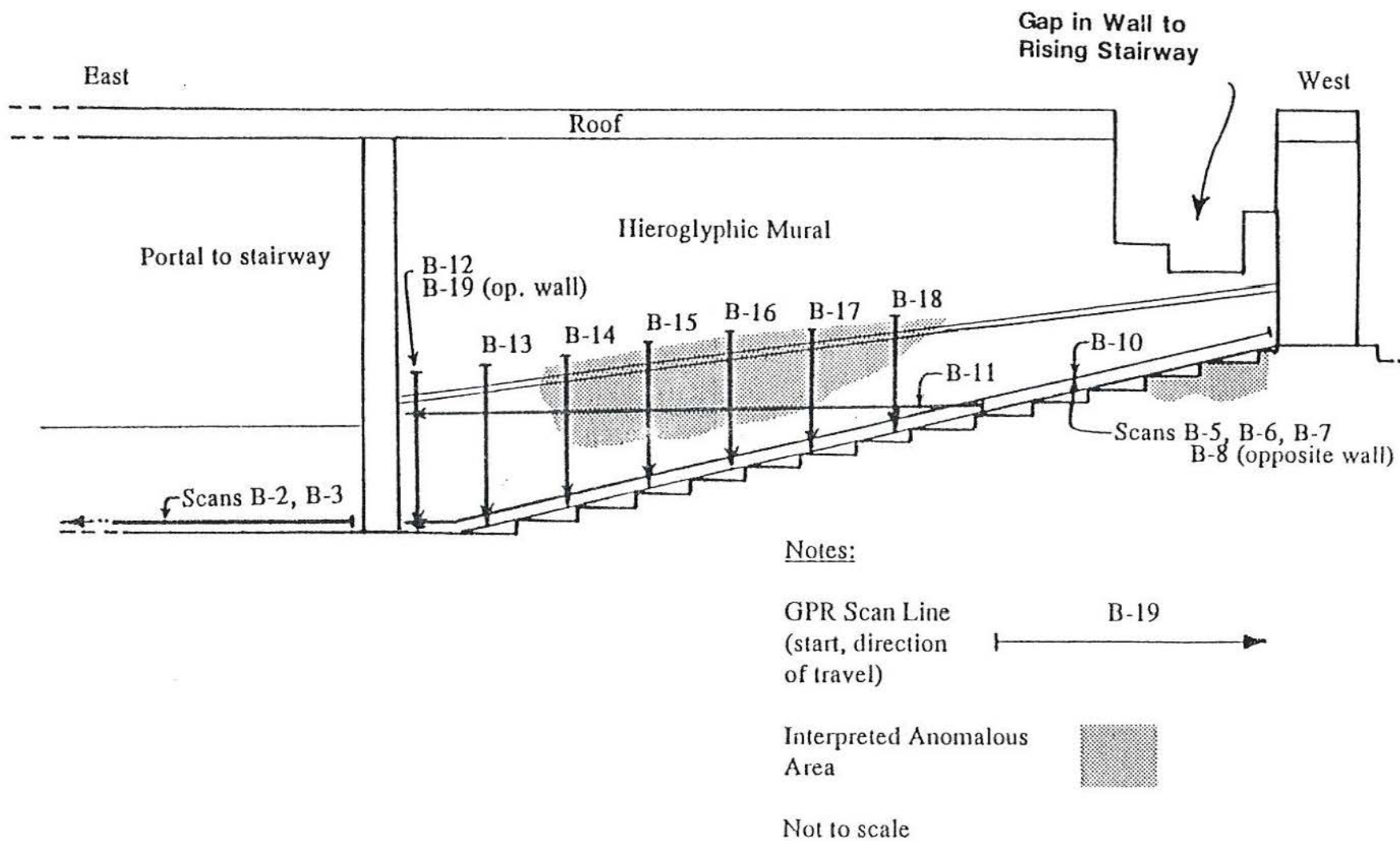
Notes:

GPR Scan Line (start, direction of travel)  B-19

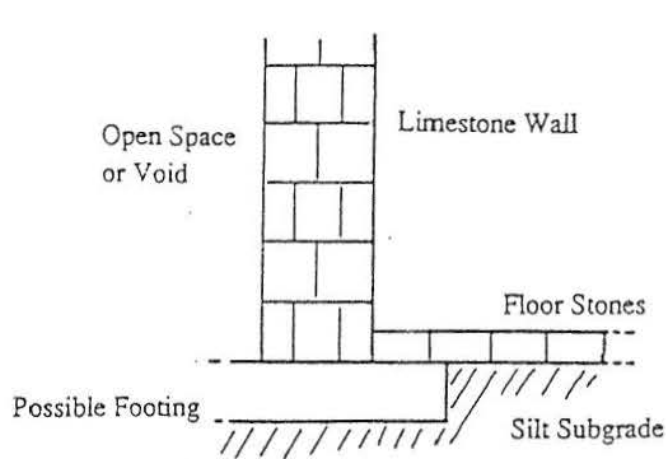
Not to scale

Figure 9: GPR survey location plan - rear part of Seti Temple (original plan by David Grumman)

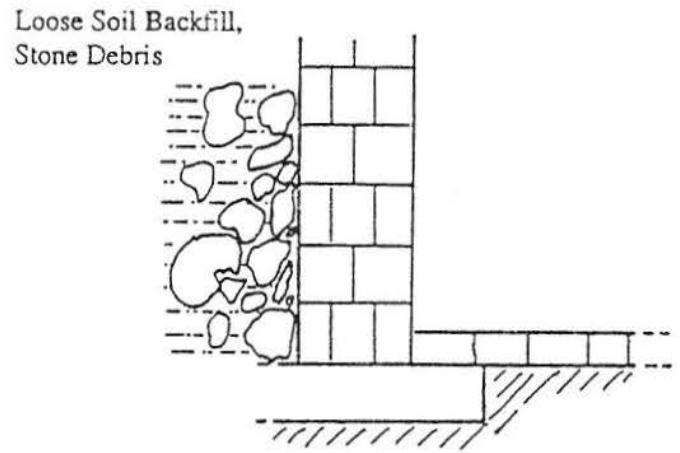
Figure 10: West Entrance Stairway, GPR location diagram (facing south)
(original plan by David Grumman)



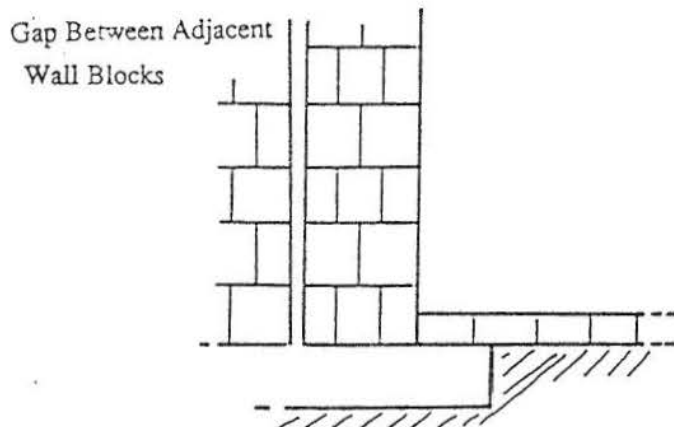
Cross-section of wall



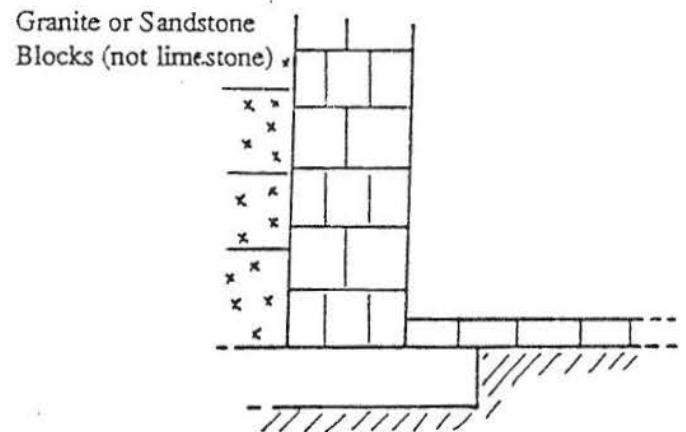
A) Open Space or Void



B) Loose Soil and/or Stone Rubble Backfill



C) Small Void or Gap Between Limestone Wall Blocks



D) Different Stone Blocks (granite, sandstone, other) Behind Limestone Wall

Figure 11: Schematic, alternative interpretations of the GPR anomaly observed at the rear part of the Seti Temple (original plan by David Grumman)

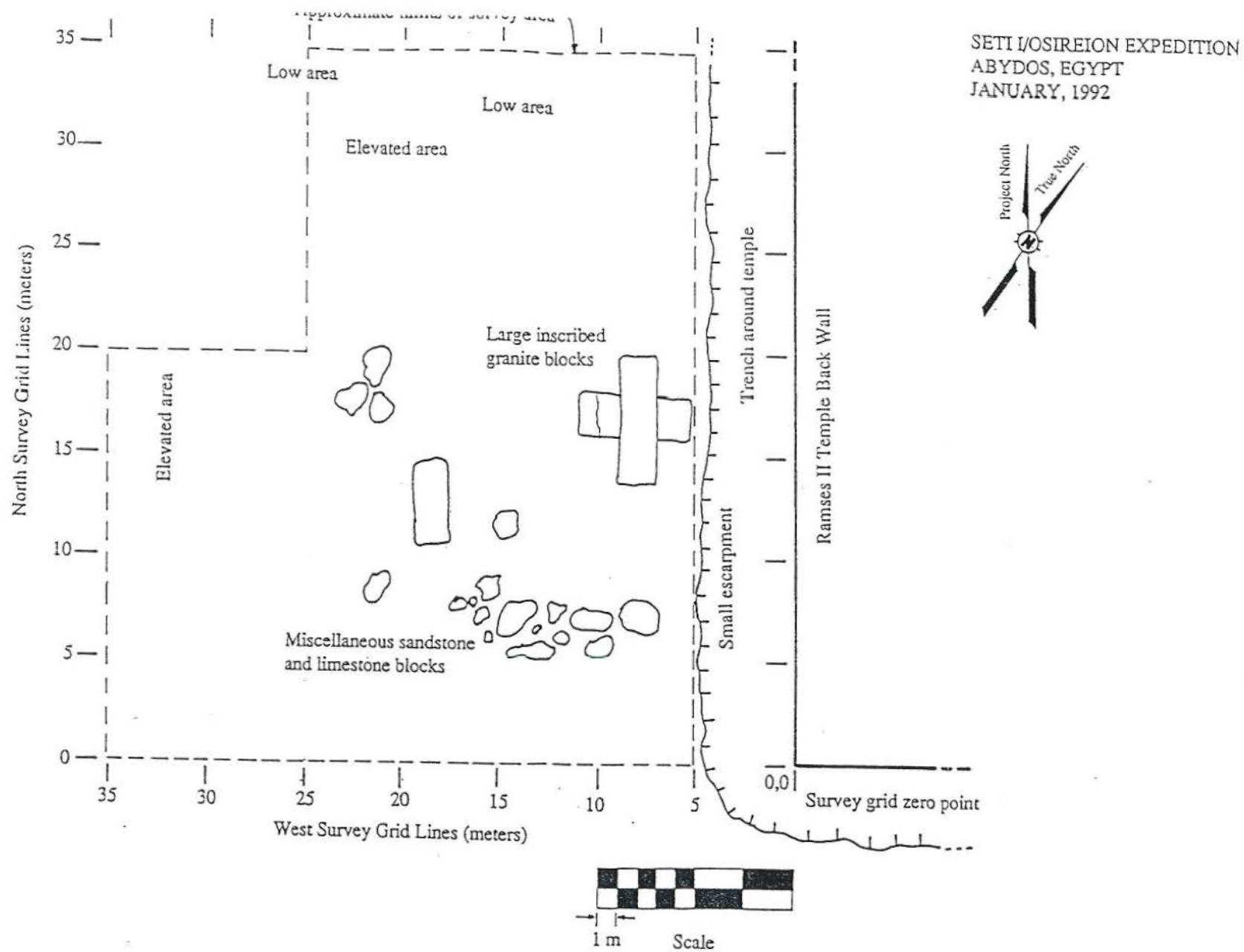


Figure 12: GPR survey area, west of Ramesses II Temple
(original plan by David Grumman)

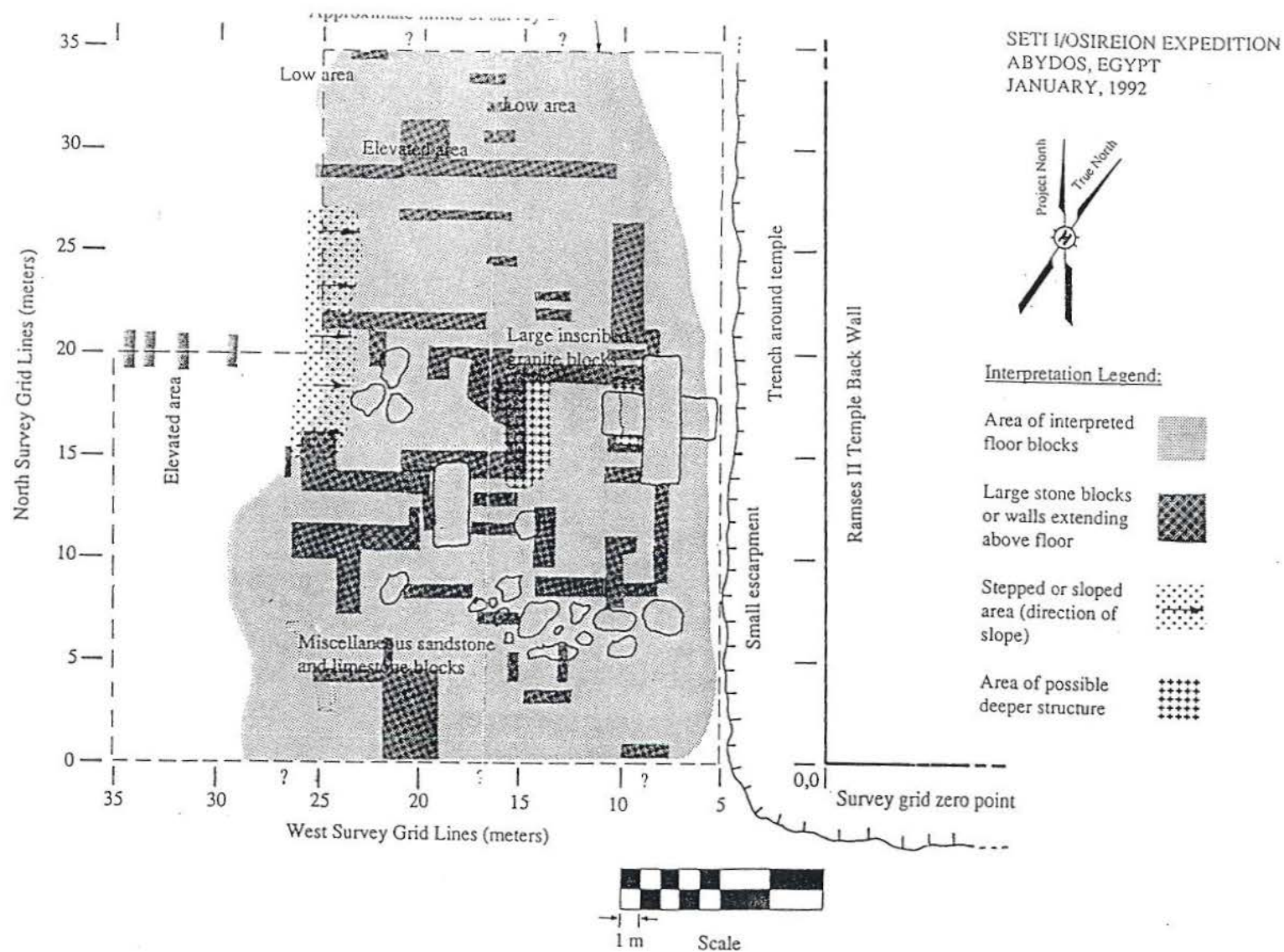


Figure 13: Schematic Interpretation of GPR survey records for the area west of the Ramesses II Temple.
 (original plan by David Grumman)



Plate 1: View of the Osireion from the (local) south.



Plate 2: View of the interior of the Osireion, looking down into the Central Hall from the (local) east.

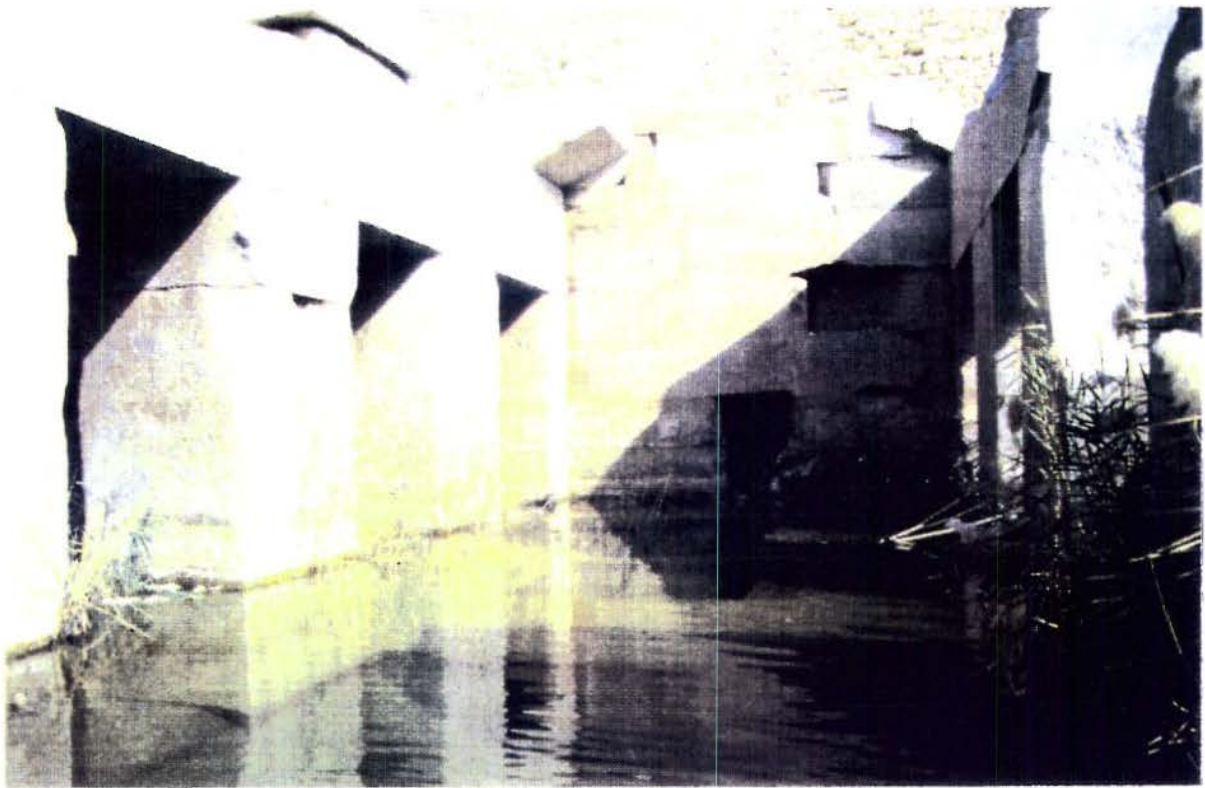


Plate 3: View within the Central Hall of the Osireion, looking towards the entrance to the Sarcophagus Room.



Plate 4: The entrance to the Sarcophagus Room. Note the wooden scaffolding supporting the interior of the room.



Plate 5: View looking up the Lower Sloping Corridor, from the Transverse Hall, towards the Vestibule.

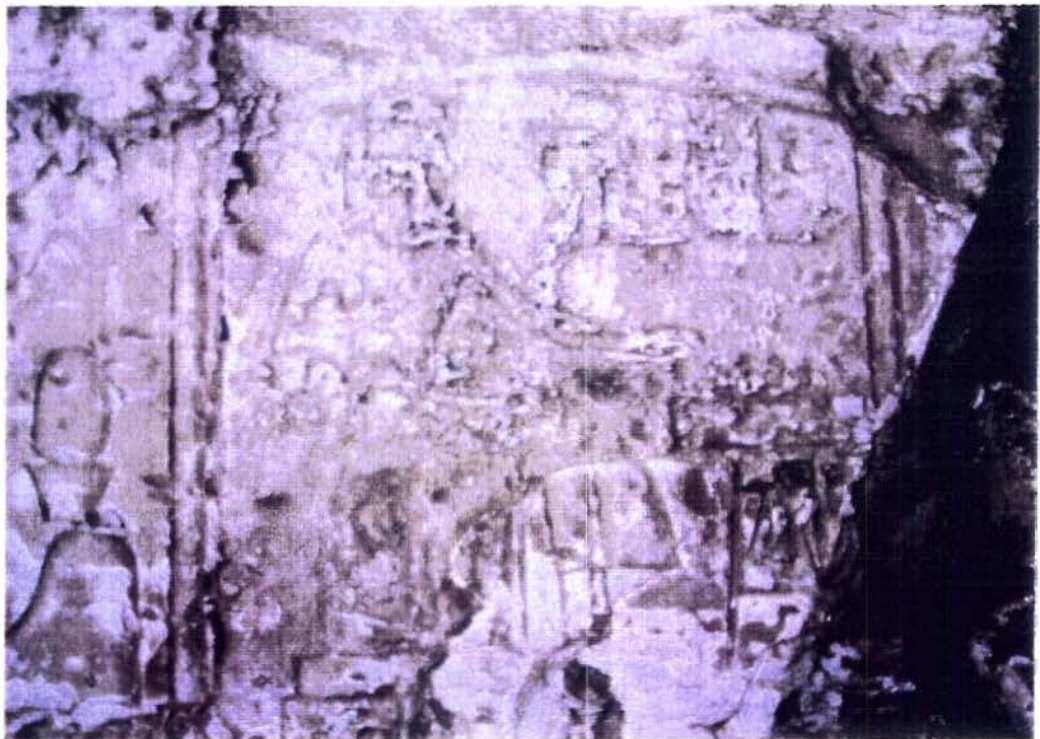


Plate 6: Limestone reliefs on the walls of the Lower Sloping Corridor. In the centre, the denuded figure of a seated King stretching his arm over a table of offerings.

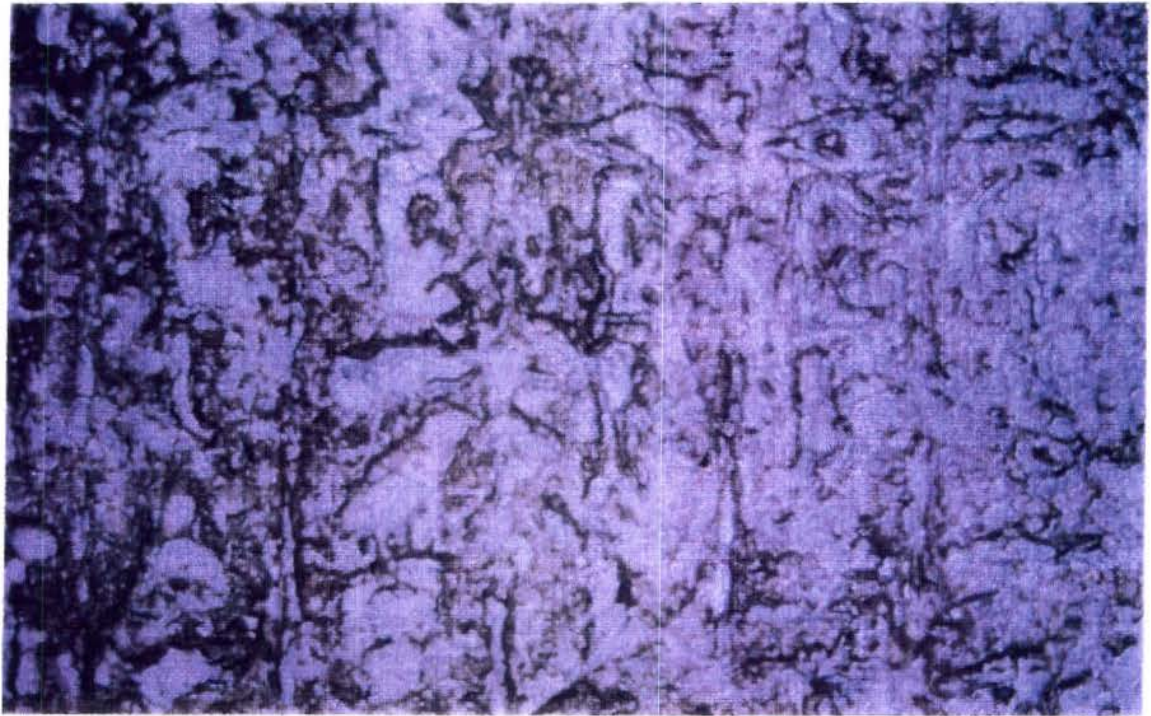


Plate 7: Vertical columns of hieroglyphic text on the limestone linings of the Lower Sloping Corridor.

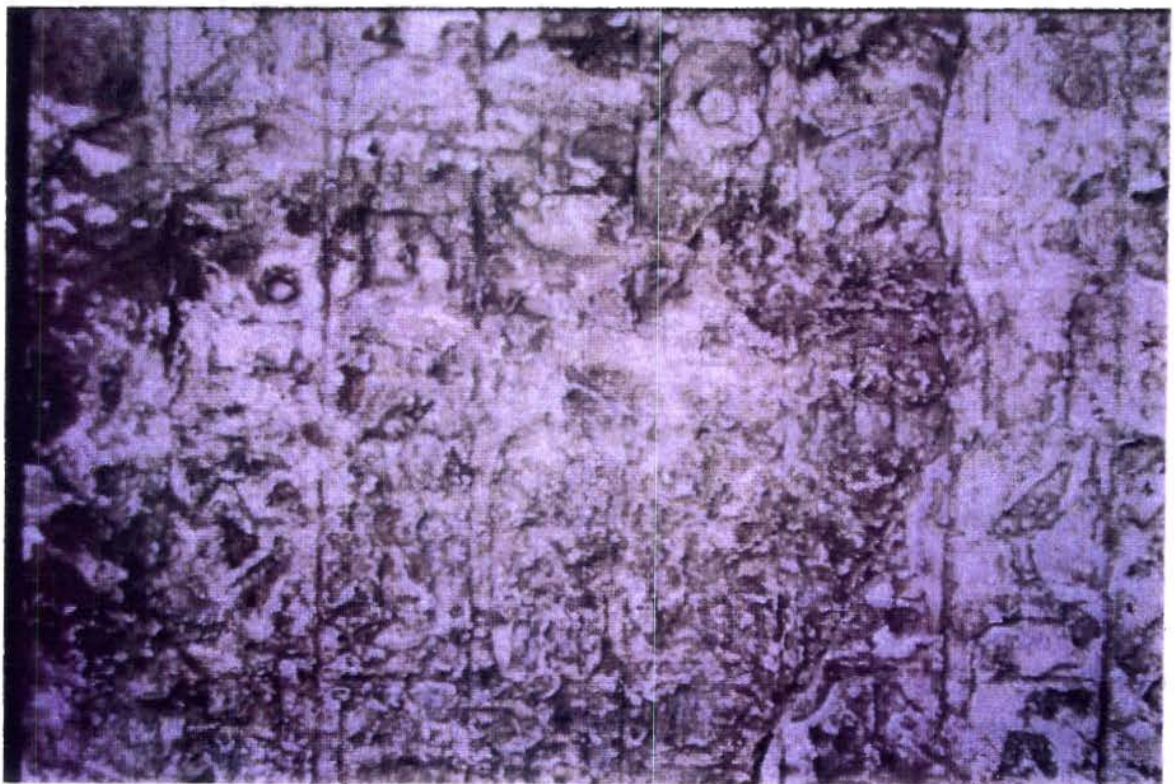


Plate 8: Vertical columns of hieroglyphic text on the limestone linings of the Lower Sloping Corridor.



Plate 9: Exterior Back Wall of the Seti Temple. On the far left, the entrance to the Sloping Entrance Corridor, in the centre the blocked-up original entrance to the Rising Staircase.



Plate 10: View looking along the axis of the Rising Staircase towards its now-blocked entrance at the rear of the Temple.

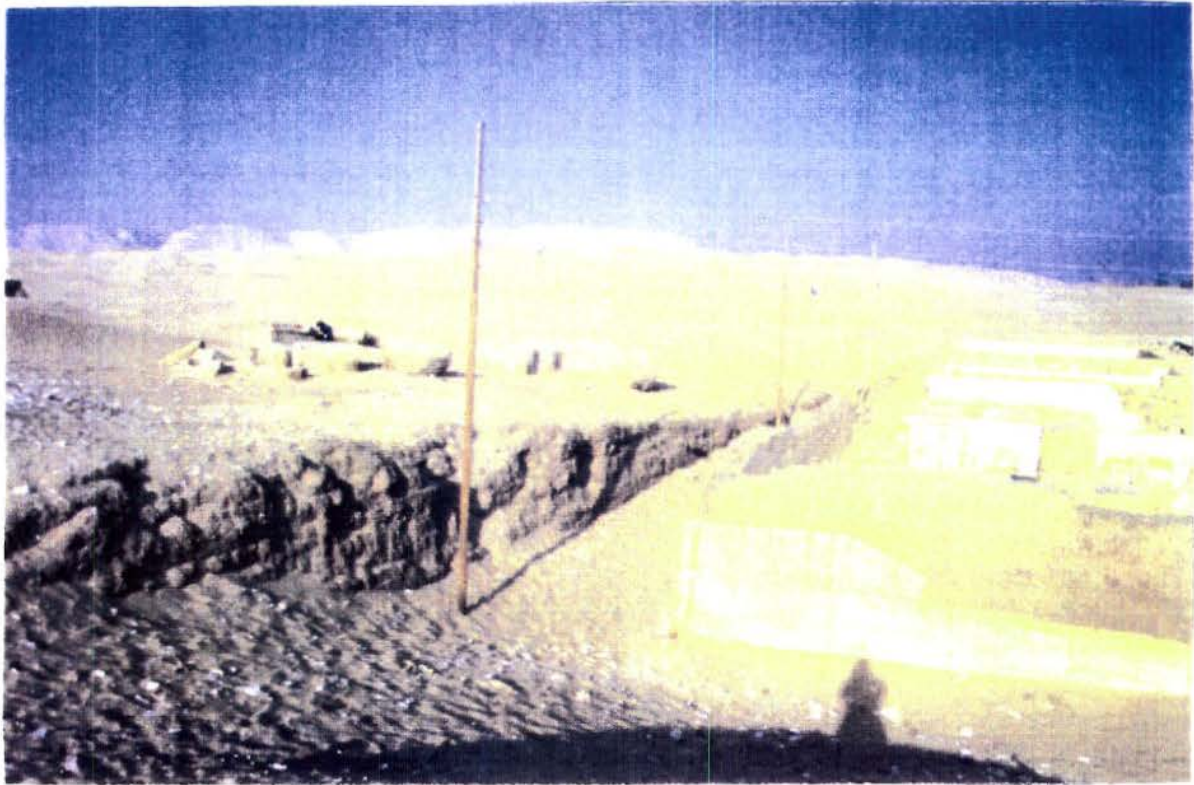


Plate 11: View showing; to the right, the rear of the Ramesses Temple, in the centre (immediately behind the telegraph poles) what is probably the Temenos Wall of the Ramesses Complex, in the mid-ground on the left the granite blocks marking the approximate area of GPR testing.

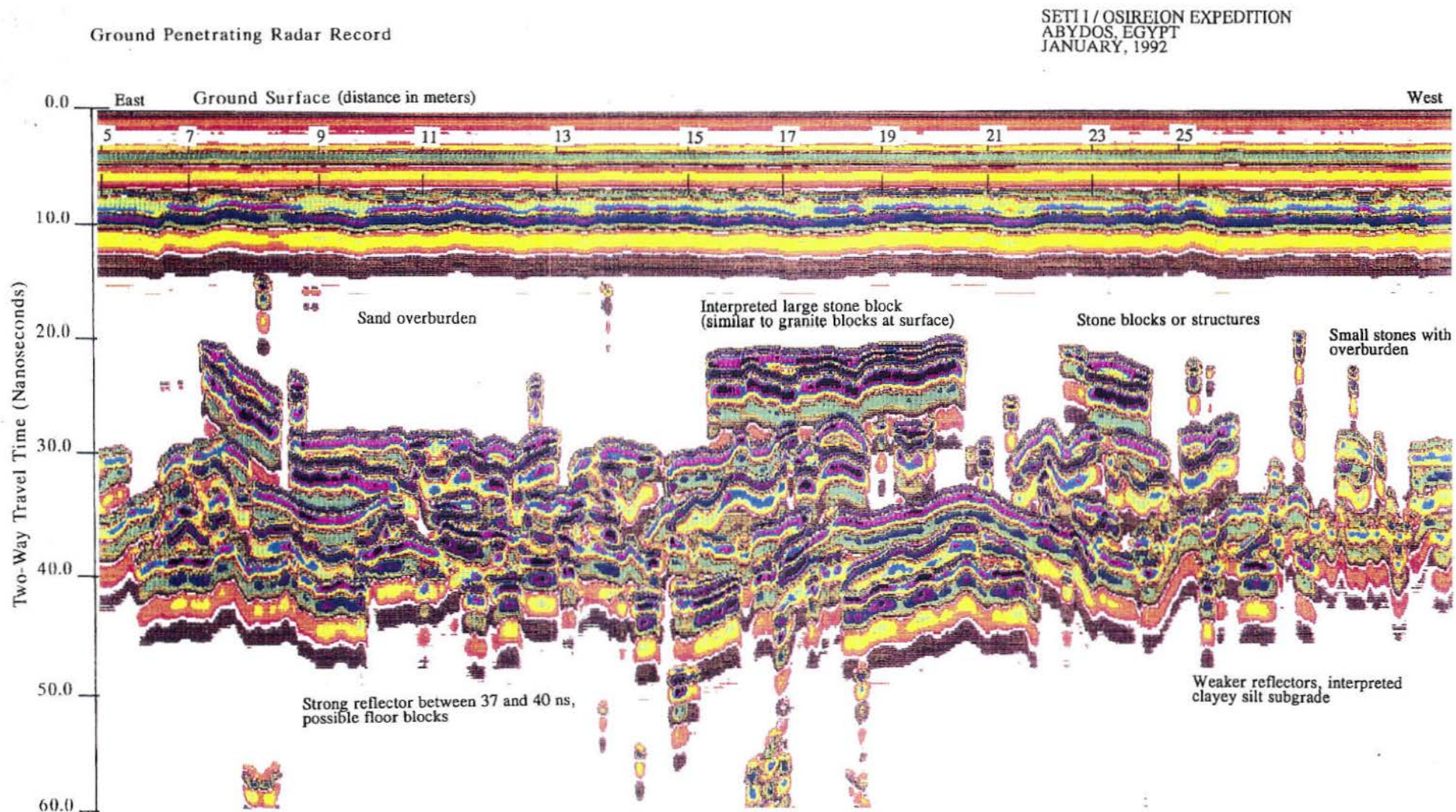


Figure C-19: GPR survey record for line 14 m north - West of Ramses II Temple.

