



THE HASHEMITE KINGDOM OF JORDAN

Annual
of the
Department of Antiquities

1976
XXI

Department of Antiquities

Amman

The Hashemite Kingdom of Jordan

Editorial Board:

Dr. Adnan Hadidi, Director General

Dr. Fawzi Zayadine

Miss Rose Habaybeh

Miss Khawla Qusus

Suscription Fee

3.000 Jordanian Dinars

Mailing Address:

P.O.Box 88

Amman

JORDAN

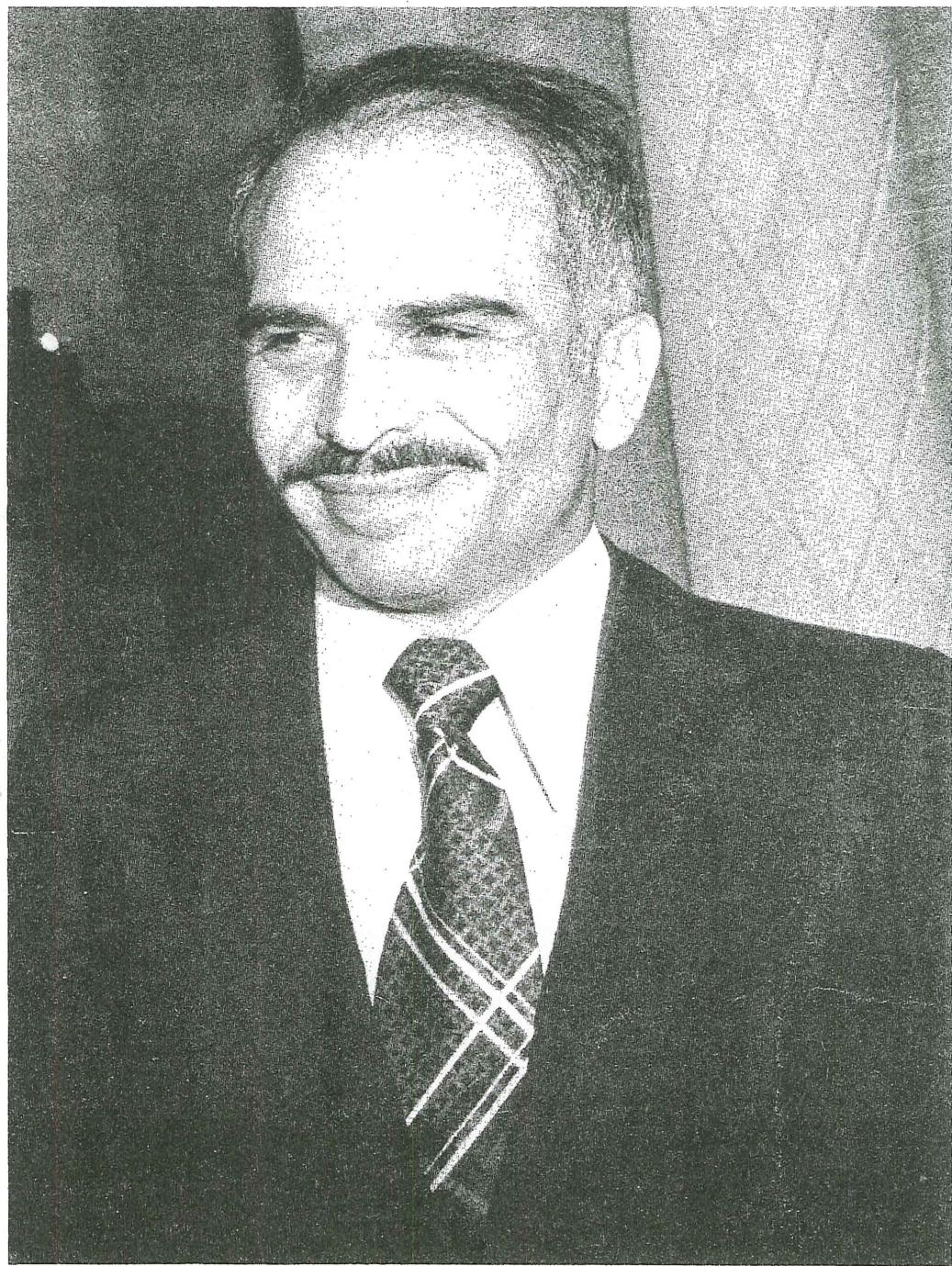
Opinions expressed in this *Annual* do not necessarily represent the policies of the
Department of Antiquities.

PRINTED IN JORDAN

BY

THE JORDAN PRESS FONDATION — AL RAI

PHONE: 67171 — AMMAN



It is a great pleasure for the Department of Antiquities of dedicate this volume of the Annual of the Department of His Majesty King Hussein on the occasion of His Silver Jubilee.

Table of Contents

Kathleen M. Kenyon and her Place in Palestinian Archaeology by Adnan Hadidi	7
Archaeological Survey of the <i>Limes Arabicus</i> : A Preliminary Report by S. Thomas Parker.....	19
Ein Asklepios—Kopf in Amman by Klaus Stemmer.....	33
The 1976 Season of Excavations at Tell Hesbân by Lawrence T. Geraty.....	41
New Discoveries on Mount Nebo by M. Piccirillo	55
A Byzantine Church at ed-Deir (Ma'in) by Piccirillo and M. Russan.....	61
Preliminary Report on the Exploration and Excavation of Mugharat el Wardeh and Abu Thawab. by Robert A. Coughenour.....	71
Travaux effectués par l'Institut Géographique National de France by M. Gory.....	79
Etablissement d'un Photoplan by M. Gory.....	87
Relevé Photogrammétrique à Pétra by F. Zayadine et Ph. Hottier.....	93
Ti. Iulius Iulianus Alexander, Gouverneur d'Arabie by M. Sartre.....	105
The Amman Airport Excavations, 1976 by Larry G. Herr.....	109
New Epigraphical Material from the Harra Region of Jordan by Vincent A. Clark.....	113
More Safaitic Texts from Jordan by M.C.A. Macdonald and G. Lankester Harding.....	119
Two New Latin Inscriptions from Jordan — 1976 by David L. Kennedy.....	135
A Nabataean Inscription from Beida by F. Zayadine.....	139
Une inscription bilingue nabatéenne et grecque à Pétra by J.T. Milik.....	143
PLATES.....	155

Arabic Section

Jbeyha church 1976 by Mujahed Al Mhaisen.....	9
--	---

Kathleen M. Kenyon and her Place in Palestinian Archaeology

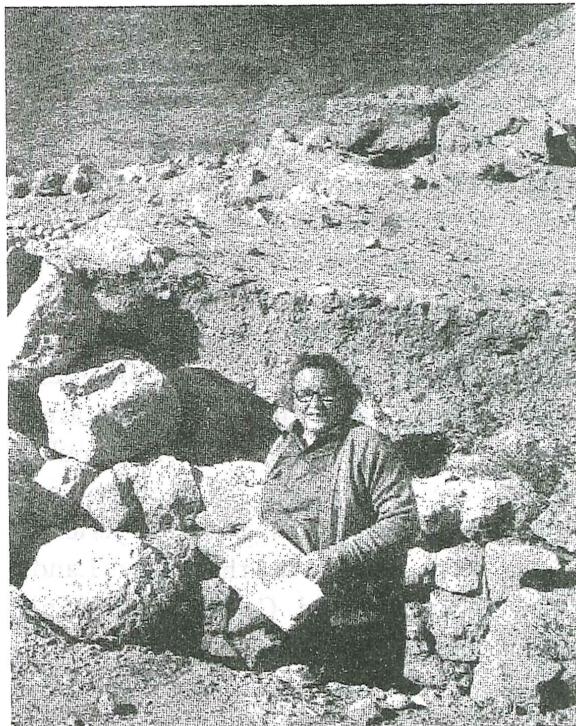
by

Adnan Hadidi

(Presented on the occasion of her
seventieth birthday in January 1976)

Introduction

Since early in her archaeological career, Kathleen M. Kenyon has been dedicating the greater part of her time and scholarship to excavations and research in the Holy Land. Though primarily a biblical archaeologist, Miss Kenyon's field of interest includes almost every aspect of Palestinian archaeology from prehistoric ages to modern times. Before starting her lifelong career in Palestinian archaeology, Miss Kenyon had already attained a high standard of academic and archaeological training. The daughter of Sir Fredric Kenyon, director of the British Museum from 1909 to 1930, Kathleen Mary Kenyon was born in London in 1906. She was educated at St. Paul's Girls' School in London, and at Somerville College, Oxford, where she read history. In spite of her family connections with the British Museum, of which she is a trustee, it was only by chance that she first became concerned with archaeology; this was when she was given the opportunity in 1929, of assisting in the British Association excavations at Zimbabwe, Southern Rhodesia. For the next five years she learned the craft of archaeological field work under the direction of Dr. R.E.M. (now Sir Mortimer) Wheeler and Mrs. Wheeler at the Romano-British town of Verulamium (St. Albans). During this period she also began her lifelong association with biblical archaeology, as an assistant at the excavations in Samaria-Sebaste sponsored by the British School of Archaeology in Jerusalem, under



Buseirah — 1974

the direction of Mr. J.W. Crowfoot, where work continued until 1935. In this year, Miss Kenyon became secretary of the newly established Institute of Archaeology at the University of London, a post which she held until 1948 when she became lecturer in Palestinian archaeology at the Institute. In 1962 she resigned this post to become principal of St. Hugh's College, Oxford, a post which she held until her retirement in 1973.

For a time Miss Kenyon's excavations were confined to Roman and Iron Age sites in England; at Leicester, Veroconium and the Wrekin, Shropshire, Southwark,

London, Breedon-on-the-Hill, Leicestershire, and Sutton Walls, Herefordshire. During the war she served in the British Red Cross. Her first excavation after the war was conducted abroad in North Africa at Tripolitania.

In 1952 Miss Kenyon became director of the British School of Archaeology in Jerusalem, and in this year resumed excavations in Palestine. From 1952 to 1958, she excavated at Jericho on behalf of the British School, the Palestine Exploration Fund, and the British Academy, in collaboration (in some years) with the American Schools of Oriental Research and the Royal Ontario Museum. From 1961 to 1967, she excavated in Jerusalem on behalf of the same three institutions, with collaboration from the École Biblique et Archéologique de St. Étienne and the Royal Ontario Museum. Among her many important publications are, *Beginning in Archaeology* (1952; 1953; 1961), *Digging Up Jericho* (1958), *Archaeology in the Holy Land* (1960), *Amorites and Canaanites* (1966) and *Jerusalem* (1968). But before we embark on a discussion of Miss Kenyon's major archaeological contributions, a brief sketch of the history of Palestinian archaeology is not out of place. On the contrary, it is essential for a better understanding and fuller appreciation of Miss Kenyon's work.

As in all other branches of knowledge, archaeology in Palestine had a modest beginning, and it is only after a long period of experiments in digging and classification of

archaeological materials, that it has now reached a high degree in reliability and refinement both in the techniques and interpretations. Before the turn of the nineteenth century, archaeology depended mainly on the accounts of travellers and pilgrims who carried on the mediaeval tradition. But early in the nineteenth century, a new spirit of inquiry appeared in the works of the German explorer, Ulrich Jasper Seetzen, the Swiss, Johann Ludwig Burckhardt, and the Englishmen, C.L. Irby and James Mangles. Seetzen was the first to explore East Jordan scientifically. Burckhardt discovered Petra and was the first to record Arabic place-names correctly throughout (1801–1812); he eventually became a Muslim, travelling as Sheik Ibrahim and his tomb is in a Muslim cemetery in Cairo. Irby and Mangles discovered Araq el-Emir, an excellent Hellenistic site, in East Jordan. In 1821, the English, John Silk Buckingham published the first plans of the ruins at Jerash. In 1838, the American theologian, Edward Robinson and his friend, Eli Smith, identified a good number of biblical places for the first time, and traced the line of the Agrippan Wall of Jerusalem. In 1863, F. de Saulcy cleared the so-called Tombs of the Kings near Jerusalem.

The year 1865 marks the establishment of the Palestine Exploration Fund, and its aims were defined as «the accurate and systematic investigation of the archaeology, the manners and customs of the Holy Land, for biblical illustration.»¹ Two

1. Kathleen M. Kenyon, *Archaeology in the Holy Land*, London, 1960, p. 3; the objects of the fund are now as follows «To obtain and disseminate information respecting ancient and modern Syria, Lebanon, Jordan and Israel, and the ancient and modern inhabitants there of respectively, the History, Li-

terature, Ethnology, Mineralogy, Numismatics, Topography, Geography (physical and political), Geology, Zoology, Botany, Meteorology, Natural History, and the manners and customs of the same countries...» cf. Recent issues of the *Palestine Exploration Quarterly*.

years later, Charles Warren, a young British ordnance officer, was sent out by this organisation to excavate at Jerusalem. Although Warren misdated several of his finds, he, nevertheless, laid the foundations for all subsequent work on the topography and history of Jerusalem. From 1872 to 1878, the same organisation sponsored a British expedition under the leadership of C.R. Conder and H.H. Kitchener (Lord Kitchener of Khartoum), which made a thorough survey of Western Palestine. This survey remains indispensable for the archaeologist and the topographer. In 1870, the American Palestine Exploration Society was established on the same lines as the British organisation. In the same year a French diplomat, Charles Clermont-Ganneau, recovered the famous Mesha Stone and sent it to the Louvre. Meanwhile, the German, G. Schumacher, a member of the Tempelgesellschaft made a cartographic and archaeological survey of the Hauran (southern Syria) and northern East Jordan.²

The discovery of the importance of pottery as a dating tool was achieved in less than a decade after Schlieman's excavation at Hissarlik, when Furtwängler and Loeschcke produced the first publication which considered the chronological significance of decorated pottery.³ Ten years later, in 1890, Sir W. Flinders Petrie, recorded for the first time the stratification Tell el-Hesi, south-west of Hebron, and demonstrated the importance of the use of

pottery for dating purposes, by his ability to give fairly accurate absolute dates to certain strata which contained Syrian-Palestinian pottery identified with that previously found in datable Egyptian Tombs.⁴ He also discovered the fundamental principle of sequence-dating by which it is possible to extend relative chronology into periods where there are no stratified remains for direct comparison.⁵

In 1898, the Deutsche Orient-Gesellschaft was founded and sponsored many excavations, most important of which was in 1907–1909 when Ernst Sellin and Carl Watzinger excavated Jericho in the Jordan Valley. This was the first properly staffed major excavation, and when the report was published, it contained superb plans and photographs, and the pottery was adequately treated with drawings and photographs to illustrate a detailed text.⁶ In 1908–1910, George A. Reisner and C.S. Fisher excavated Samaria for Harvard University. Reisner applied a new archaeological technique which he had already developed in Egypt; a combination of the British methods of Petrie and the German methods of Dörpfeld and Koldewey.⁷

In 1920, the British Mandatory Government in Palestine established a department of antiquities, headed by John Garstang, an experienced archaeologist of the University of Liverpool, and at the same time a similar department was founded in East Jordan, headed by George Horsfield. This resulted

2. Gottlieb Schumacher, Northern Aglun.
3. Adolf Furtwängler und Georg Loeschcke, *Mykenische Thongefäße*, Berlin, 1879.
4. W. Flinders Petrie, *Tell el Hesi (Lachish)*, London, 1891.
5. W. Flinders Petrie, *Gerar*, British School of Archaeology in Egypt, 1928 and by the same author, *Ancient Gaza*, I-IV, British School of Archaeology in Egypt, 1931-34;

Cf. Paul W Lapp, *Palestinian Ceramic Chronology*, Jerusalem, 1961, p. 1; W.F. Albright, *The Archaeology of Palestine*, (Pelican) 1961, p. 29.

6. E. Sellin and Carl Watzinger, *Jericho*, Leipzig, 1913.
7. G.A. Reisner, C.S. Fisher, D.G. Lyon, *Harvard Excavations at Samaria*, Cambridge, Mass., 1924.

in a liberal policy towards foreign excavators, and the number of archaeological enterprises increased steadily between 1921 and 1936. The most remarkable advance in Palestinian archaeology during these years has been in the field of prehistory. In 1925, an Englishman, F. Turville-Petre, discovered the first stratified prehistoric deposits in caves near the Sea of Galilee. In one of these caves, he found a typically Neanderthal skull in an equally typical Mousterian context.⁸ Four years later, Miss Dorothy Garrod, on behalf of the American School of Prehistoric Research and the British School of Archaeology in Jerusalem, undertook a series of campaigns in the caves of Wadi el-Mughara, running from Mount Carmel to the Mediterranean, which resulted in the discovery of the new Natufian culture, which extends from the Middle Palaeolithic to the Mesolithic Age.⁹

One of the land-marks in the history of Palestinian archaeology has been the excavation of Tell Beit Mirsim, south-west of Hebron, by W.F. Albright and M.G. Kyle in 1926–1932, on behalf of the American School of Oriental Research in Jerusalem. The importance of the excavation is derived not from the intrinsic merits of the remains revealed, but in the successive layers of occupation dating from late in the third millennium to sixth century B.C., and in the thoroughness with which the objects recovered, especially the pottery, were studied and published.¹⁰ It has provided

a standard basis of comparison for Palestinian ceramic chronology in the Middle and Late Bronze Ages, and in the Iron Ages I and II.

From 1933 to 1946, Nelson Glueck made a remarkable systematic archaeological survey of East Jordan from the Syrian border to the Gulf of Aqaba. The survey was published in the Annual of the American Schools of Oriental Research, in which appeared maps showing more than 1500 ancient sites.¹¹ Glueck concluded, on the basis of surface finds (mainly sherds), that most of East Jordan (except the Jordan Valley and the Northern part of the country), was occupied only in relatively short periods, separated by long periods of nomadism between the end of the Middle Bronze I period and the beginning of Iron Age (1850–1250 B.C.). This theory is now considered obsolete due to the discovery of ancient remains including pottery of those periods in many places south of the Zerka River.¹²

The excavations at Tuleilat el Ghassul, in the Jordan Valley, by the Jesuit Fathers of the Pontifical Biblical Institute, between 1930 and 1938, brought to light the new Ghassulian culture which lies within the Chalcolithic period in the fourth millennium, and the recovery of mural frescoes in polychrome from this site indicate the high level of culture in Palestine nearly six thousand years ago.¹³

-
- 8. Cf. W.F. Albright, *op. cit.*, p. 37.
 - 9. D.A.E. Garrod, and D.N.A. Bate, *The Stone Age of Mount Carmel*, I., Oxford, 1937; D.A.E. Garrod, *The Natufian Culture*, *Proceedings of the British Academy*, XLIII.
 - 10. *Annual of the American Schools of Oriental Research*, XII, XIII, XVII and XXI-XXII; W.F. Albright, *op.cit.*, p. 43.
 - 11. *Annual of the American Schools of Oriental Research*, XIV, XV, XXV-XXVIII.
 - 12. H.J. Franken, «The Other Side of the Jordan», *Annual of the Department of Antiquities of Jordan*, XV (1970), pp. 6f., N. Glueck, *The Other Side of the Jordan*, 1970, p. 141.
 - 13. A.Mallon, R. Koeppel, R.Neuville, *Teleilat Ghassul I*, Rome, 1934; R. Koeppel, *Teleilat Ghassul II*, Rome, 1940.

The discovery by chance in 1947 of the Dead Sea Scrolls opened up an entirely new area for exploration and brought into the focus of scholarly attention a segment of history at the beginning of the Christian era, which before had been virtually neglected by archaeologists. A burst of scholarly work in the study, discussion and publication of the new materials has created what may appropriately be termed a new discipline of study. However, the most important discovery in connection with the Dead Sea Scrolls, from the archaeologist point of view, was the recovery of a considerable amount of stratified Hellenistic and Roman pottery from the ruins nearby the caves which contained the Scrolls.¹⁴ This has been very useful in dating more closely the Palestinian pottery types of the period between 200 B.C. and 70 A.D.

Archaeologists in recent years, have had the advantage of new techniques. Assisted by such specialists as the palaeoethnobotanist, hydrologist, zoologist, anthropologist, nuclear scientist and many others, the archaeologist has been able to utilize a variety of new clues to gain a picture of many formerly neglected aspects of ancient life, such as the description and origin, crafts, industries, foods, water sources, of the people that lived at a site. Moreover,

the radiocarbon test, known as Carbon-14, for measuring the age of samples of carbon, has become a particular boon in enabling the archaeologist to be more certain than ever before about the date of his discoveries, especially those from remote ages.¹⁵ It is against this background that the remarkable archaeological enterprises of Miss Kathleen Kenyon were carried out at Samaria, Jericho and Jerusalem.

A New Classification of Sigillata Wares:

When the joint British-American-Hebrew-University Expedition continued the excavation of Samaria, where Reisner had left off, Miss Kathleen Kenyon, who was a student of the British School in Jerusalem at the time, had the wonderful opportunity of showing her keen instinct for scientific archaeological analysis and interpretation and her unusual talent for engineering and organizing archaeological work. Large sections of the first and third volumes on the buildings and objects from Samaria are her work.¹⁶ The results provided good evidence for the complete history of the site, from the ninth century B.C. until the Byzantine period. Through close observance of stratified deposits, it was possible to clear up the chronology of Reisner, e.g. the

-
14. R. De Vaux, Fouille au Khirbet Qumran: Rapport Préliminaire, *Revue Biblique*, LX, 1953, pp. 83-106; Rapport préliminaire sur la deuxième campagne, *Revue Biblique*, LXI, 1954, pp. 206-36; Rapport préliminaire sur les 3e, 4e, et 5e campagnes, *Revue Biblique*, LXIII, 1956, pp. 533-77; Cf. J.T. Milik, *Ten Years of Discovery in the Wilderness of Judaea*, translated, by J. Strugnell, Naperville, Illinois, 1959; Cf. F.M. Cross, Jr., *The Ancient Library of Qumran*, Garden City, 1958.
 15. Carbon-14 was first developed in Chicago by Dr. Libby in 1944, see W.F. Libby, *Radio-carbon Dating*; There are now very many

books dealing with scientific techniques that can be utilized for the use of archaeologists; To mention only a few: F.E. Zeuner, *Dating the Past, an Introduction to Geochronology*, London, 1950; I.W. Cornwall, *Bones for the Archeologist*, London, 1964; and *Soils for the Archaeologist*, London, 1958 R.J. Forbes, *Mettallurgy in Antiquity*, Leiden, 1950.

16. J.W. Crowfoot, K.M. Kenyon, E.L. Sukenik, *Samaria-Sebaste I: The Buildings*, London, 1942; J.W. Crowfoot, G.M. Crowfoot, K.M. Kenyon, *Samaria-Sebaste III: The Objects*, London, 1957.

latter dated the round towers lining the acropolis to the Iron Age, when in fact they were proved to be Hellenistic, being thus reduced nearly five centuries in date. Moreover, when Miss Kenyon published her study of the stratification and pottery of Samaria,¹⁷ she contributed a solid basis of subsequent chronological studies, especially in the Iron Ages I and II, and the Hellenistic and Roman periods. Her proposed scheme for classifying sigillata wares is a sound and very important innovation. Under the old system, sigillata wares are vaguely classified into 'Pergamene' and 'Samian'; the first term designates the pale ware either whitish yellow or buff and the latter the red ware. In a full discussion, supported by evidence from sealed deposits, Miss Kenyon¹⁸ proves the invalidity of this early classification and suggests a much safer method by which the wares are divided into three classes: Eastern sigillata «A», «B» and «C» of which «A» is the latest and commonest in Palestine and the rest of the Eastern Mediterranean Seaboard. She further sub-divides Eastern sigillata «A» into two main types: Ware 1, is buff and consists of two sub-types: 1a, is so pale as to be true cream with a «fairly dark red» glaze, «sometimes lustrous» with «occasional brownish patches or dark spots» and sometimes just «dull»; 1b, is pinkish with visible «brush strokes». Both varieties have no «mica». Ware 2, «is also buff, but warmer in tone», with either light or dull glaze. Ware 1, was common during the pe-

riod between 57 and 30 B.C. followed by ware 2 which became predominant. According to Miss Kenyon the subsequent development of Eastern sigillata «A» is not yet clear, though the evidence from Samaria» shows that it has a comparatively long history after the Augustan period.»¹⁹ Miss Kenyon concludes from the Samaria evidence that sigillata had come into «fairly common use» in Palestine by about 60 B.C., «but that a date much earlier than this cannot be proved.»²⁰

The Wheeler-Kenyon Improved Trenching Method:

In 1952, Miss Kenyon wrote an excellent hand-book on the subject of archaeology as an independent branch of the modern sciences. A second, enlarged edition was published in 1953, and a third revised edition, including sections on American archaeology by Saul S. and Gladys D. Weinberg, in 1961.²¹ Writing with first-hand knowledge of the technique of field work and the principles of excavating, Miss Kenyon's hand-book provides an indispensable basic framework not only for beginners in Palestinian archaeology, but indeed for all would-be archaeologists. Most of the techniques and principles described in this book, had already been devised and applied successfully by such eminent archaeologists as V. Gordon Childe,²² Sir Flinders Petrie,²³ Sir Mortimer Wheeler,²⁴

-
- 17. Samaria-Sebaste III: The Objects, pp. 90-133, 198-209, 217-234, 281-305.
 - 18. Ibid., pp. 281-305.
 - 19. Ibid., p. 288.
 - 20. Ibid., p. 285.
 - 21. Kathleen M. Kenyon, Beginning In Archaeology, New York, 1961.
 - 22. V. Gordon Childe, What Happened in History, London, 1960, Man Makes Himself,

- New Light on the Most Ancient East, London, 1964, Piecing together the Past, London 1956.
- 23. W.M. Flinders Petrie, Seventy Years in Archaeology.
- 24. R.E.M. Wheeler, Archaeology from the Earth, Oxford, 1954; by same author Still Digging, London, 1955.

W.F. Albright,²⁵ G.A. Reisner, C.S. Fisher,²⁶ and many others. But when in 1952–8, Miss Kenyon applied Sir Mortimer Wheeler's improved trenching method to the excavation of Jericho, the results were so brilliant that this method is becoming rapidly popular. The new Wheeler-Kenyon techniques, as they are now called, essentially involve careful use of test trenches in order to determine exact stratification before digging an area, followed by additional test trenches at right angles to walls as they are cleared. The sides of these trenches (which are usually less than a metre in depth) are smoothed with a trowel, and all signs of floors, ash levels, deposits of debris, filling etc., are drawn to scale and used to guide further excavation.²⁷ This method has become indispensable particularly in mud-brick sites.

Jericho: Oldest Walled Town:

The excavation of Jericho begun by the Germans was continued by Garstang in 1929–36,²⁸ who discovered the first pre-pottery Neolithic culture but failed due to lack of evidence to establish the date of the fall of the last Canaanite town and was unable to obtain clear evidence of an urban settlement in the Late Bronze Age. Miss Kenyon was challenged to reopen work at

Jericho by a threefold objective: to excavate tombs, to clear important Neolithic remains discovered by Garstang, and to «obtain additional evidence on the date of the fall of the latest Bronze Age city, presumably to be associated with the Israelite invasion under Joshua...»²⁹ As for the latter issue, Miss Kenyon's conclusion is as follows: «It is impossible to associate the destruction of Jericho with such a date (the Exodus in the thirteenth century B.C.). The town may have been destroyed by one of the other Hebrew groups, the history of whose infiltrations is, as generally recognized, complex. Alternatively, the placing at Jericho of a dramatic siege and capture may be an aetiological explanation of a ruined city. Archaeology cannot provide the answer.»³⁰ Nevertheless, the excavations established a sequence of occupation that began in the Mesolithic period, ca. 8000 B.C., and continued until the end of the Middle Bronze Age, ca. 1560 B.C.³¹ The greatest interest of the results lay in the discovery of two highly developed stages of the earliest Neolithic which yielded sensational finds. The two settlements, the first designated Proto-Neolithic and the later, Pre-Pottery Neolithic A, were enclosed by massive defenses, indicating the existence at this early period (6800 B.C.), of a developed communal organization capable of undertaking massive public

-
- 25. W.F. Albright, *The Archaeology of Palestine*, (Pelican book) 1961.
 - 26. G.A. Reisner, C.S. Fisher, D.G. Lyon, *Harvard Excavations at Samaria*, Cambridge, Mass., 1924.
 - 27. K.M. Kenyon, *Beginning In Archaeology*, New York, 1961, pp. 77, 95-105, fig. 7.
 - 28. *Palestine Exploration Fund Quarterly Statement*, 1930, 1931, 1935, 1936; J. Garstang and J.B.E. Garstang, *The Story of Jericho*, London, 1948.
 - 29. K.M. Keyon, *Excavations at Jericho*, Vol. 1, London, 1960.
 - 30. *Archaeology and Old Testament Study*, ed. by D. Winton Thomas, 1967, p. 273.
 - 31. See the preliminary report in *Palestine Exploration Quarterly*, 1951, 52, 53, 54, 55, 56, 57; K.M. Kenyon, *Digging Up Jericho*, London, 1958; K.M. Kenyon, *Amorites and Canaanites*, The British Academy, London, 1966; Cf. *Archaeological Discoveries in the Holy Land*, compiled by the Archeological Institute of America, New York, 1967, pp. 19-28.

works. Occupation of the site started in the Mesolithic, c. 8000 B.C., and there was a continuous development from that stage into the town of the Pre-Pottery Neolithic period. Other sites have produced evidence for periods approaching the same dates, but Jericho remains unique as the only site that has produced a complete sequence of development from nomadic beginnings to full urbanization.³²

Jerusalem: Excavating 3000 Years of History.³³

Many expeditions have investigated the problems of the archaeology of Jerusalem, but the continuous occupation of the site for thousands of years has rendered excavation very difficult and most of the results have been inconclusive. The first major excavations were undertaken on behalf of the Palestine Exploration Fund by Captain (later Sir Charles) Warren in 1864–67; Warren investigated the walls of the so-called Temple area, and his results were nicely recorded.³⁴ Between 1894 and 1897 F.J. Bliss and A.C. Dickie undertook a widespread archaeological investigation of Jerusalem, again on behalf of the Palestine Exploration Fund, in which both the archaeological and the architectural side were well handled.³⁵ But at that stage strati-

graphical methods and ceramic chronology had not been developed to assist in dating strata, so errors in dating structures led the excavators to wrong conclusions. Warren dated the Herodian masonry of the retaining wall of the so-called Temple Enclosure to the time of Solomon instead of to the reign of Herod the Great,³⁶ while Bliss thought he had identified the line of the wall, said to have been built by the Byzantine empress Eudocia, above the foundations of the Herodian wall south of the Ophel hill. Later excavations by Mr. R.W. Hamilton³⁷ proved that the wall was built before the time of Eudocia. In 1909 and 1911 the Parker Mission³⁸ carried out many soundings and tunnellings on the Ophel hill, south-east of Jerusalem, generally accepted as the site of the original settlements of the Jebusites and later the early Israelites. The only significant result was to uncover a series of water channels in connection with the Virgin's Fountain. In 1913–14, R. Weill, on behalf of Baron Edmond de Rothschild, conducted excavations on the southern tip of the Ophel hill, in which fragments of a complicated series of fortifications were uncovered.³⁹ The task of interpreting the results of both these expeditions was taken up by Père Hugues Vincent of the Dominican Biblical School.⁴⁰ Between 1923 and 1927,

-
- 32. Cf. *Archaeological Discoveries in the Holy Land*, compiled by the Archaeological Institute of America, New York, 1967, p. 20.
 - 33. Kathleen M. Kenyon, *Jerusalem*, New York, 1968.
 - 34. C. Warren and E.R. Conder, *The Survey of Western Palestine*. Jerusalem. pp. 195 ff.
 - 35. F.J. Bliss and A.C. Dickie, *Excavations at Jerusalem 1894–1897*, London, 1898.
 - 36. Cf. W.F. Albright, *The Archaeology of Palestine*, (Pelican) 1961, p. 26.
 - 37. Ibid. p. 168; Cf. *Quarterly of the Department of Antiquities of Palestine*, vol. I, p. 97; vol. II, pp. 34 ff.
 - 38. Kathleen M. Kenyon, *Archaeology in the Holy Land*, London, 1960, p. 315.
 - 39. R. Weill, *La Cité de David*, I, Paris, 1920 and *La Cité de David*, II, Paris, 1947; Cf. W.F. Albright, *The Archaeology of Palestine*, (Pelican) 1961, p. 156.
 - 40. H. Vincent, *Jérusalem sous Terre*, London, 1911; Cf. W.F. Albright, *The Archaeology of Palestine*, (Pelican) 1961, p. 35; Kenyon, *Archaeology in the Holy Land*, London, 1960, p. 315.

R.A.S. Macalister, J.G. Duncan and J.W. Crowfoot, directed excavations on the Ophel hill, for the Palestine Exploration Fund, in an effort to solve the problems of the early history of the city.⁴¹ The site was very much disturbed, and only fragmentary remains were recovered. However, in the 1927 excavation, an imposing gateway was discovered on the inner side of the Ophel ridge, which was in use in the Maccabean period. Between 1934 and 1948, C.N. Johns of the Department of Antiquities of Palestine, carried out scientific excavations at the present citadel and along the lines of the ancient walls. Mr. Johns was able to date stratigraphically the older lines of the wall at the north-west corner of the early city, and to show that the earliest line of wall crossing the Tyropoeon Valley and connecting the points of the western and eastern ridges was not earlier than the Hellenistic period.⁴²

In 1961–67, Miss Kathleen M. Kenyon directed gigantic excavations on the slopes of the Ophel hill and in the garden of the Armenian convent with the objective of establishing the plans of the successive stages of Jerusalem.⁴³ The expeditions were sponsored by the British School of Archaeology in Jerusalem, the British Academy, the Palestine Exploration Fund and the Royal Ontario Museum. Financial contributions were also received from numerous universities and learned societies

chief among which were the National Geographic Society and the Russell Trust and Birmingham City Museum. The supervisory and technical staff was international in all seasons, mainly drawn from Britain, Canada, Jordan, the U. S.A., Australia, Denmark, Holland, Argentina and Saudi Arabia. Collaboration and great assistance from the Department of Antiquities and the Department of Islamic Properties (the Awqaf) in Jordan, has been recorded by the expedition with deep gratitude.

The main objective of the excavations was achieved with nearly complete success. It is now possible, for the first time, to give a plan of Roman Jerusalem (Aelia Capitolina),⁴⁴ based on evidence revealed by the excavations. Former plans of Roman Jerusalem are based totally on descriptions and fragmental finds.⁴⁵ The new discoveries have also enabled the excavator to produce plans of the Jebusite city in the Late Bronze age, the Davidic and Solomonic cities of the Iron Age, Post-Exilic city ca.440 B.C., and the plan of Herodian Jerusalem.⁴⁶ The evidence for these plans is in part «reasonably certain», and the early history of Jerusalem can now be written with more clarity. One of the most important discoveries was a cache of bronze vessels and iron objects at the base of a wall dated eighth-seventh century B.C.⁴⁷ In Palestine, bronze vessels have been found in tombs (mostly of a rather later date) but

-
41. R.A.S. Macalister and J.G. Duncan, Excavations on the Hill of Ophel, Jerusalem, 1923-5, *Annual of the Palestine Exploration Fund*, IV, London, 1926; J.W. Crowfoot, in, *Annual of the Palestine Exploration Fund*, V, London, 1929.
 42. *Quarterly of the Department of Antiquities of Palestine*, Vol. V (1935), pp. 127-135; Cf. vol. XIV (1950), pp. 121 ff.
 43. *Palestine Exploration Quarterly*, 1966; See also vols. of, 1962, 1963, 1964, 1965, 1967;

Cf. K.M. Kenyon, *Jerusalem*, New York, 1968.

44. Cf. *Palestine Exploration Quarterly*, 1967, p. 66.

45. Cf. W.F. Albright, *The Archaeology of Palestine*, (Pelican) 1961, p. 168.

46. Cf. *Palestine Exploration Quarterly*, 1966, pp. 73-88, figs. 1, 2, 3, 4.

47. Cf. *Palestine Exploration Quarterly*, 1967, p. 67, pl. XVI B.

none at all on a town site. This is the first evidence that has survived the damaging effects of the soil of Palestine of what were probably quite ordinary household and table vessels.

Epilogue.

In conclusion, one may say that the chief contributions of Miss Kathleen Kenyon to Palestinian archaeology, and consequently to our knowledge of Near Eastern pre-historic and historic periods, are first, the improvement of the technique of field work, and secondly, laying more stress on the scientific approach in the interpretation of discovered material. Her methods and interpretations supplement and clarify rather than displace previous works. We have seen from the brief outline of the history of Palestinian archaeology that Miss Kenyon has not invented altogether new principles of excavation, but by carefully and systematically applying Sir Mortimer Wheeler's im-

proved trenching method to the excavation of Jericho, she was able to produce such brilliant results that this method is rapidly gaining ground. She has been able to objectively evaluate Professor Garstang's evidence for the latest date of the fall of the Canaanite town of Jericho, and her work has, clarified chronology throughout, and yielded sensational results for Pre-Pottery Neolithic. Likewise, her work in Samaria is an ideal example of what an archaeologist can achieve by careful systematic digging. Her excellent scientific argument concerning the ceramic chronology of Iron Ages, Hellenistic and Roman pottery in Samaria, has provided a solid basis for future research in this field. Miss Kenyon's excavations in Jerusalem have brought many results of great historical importance, clarified several lingering chronological questions, and contributed a good deal to our knowledge of the early history of the holy city.

Adnan Hadidi

BIBLIOGRAPHY

The following is a list of the books written by Miss Kathleen M. Kenyon, in addition to numerous articles and preliminary reports which are to be found mostly in the *Palestine Exploration Fund Quarterly Statement*, the *Palestine Exploration Quarterly*, *Annual of the Palestine Exploration Fund*, *Eretz Israel* (Annual of the Israel Exploration Society) and the *Annual of the Department of Antiquities of Jordan*.

1. K.M. Kenyon, *Excavation at the Jewry Wall Site*, Leicester, Oxford, 1948.
2. *Archaeology in the Holy Land*, London, 1960.
3. *Digging Up Jericho*, London, 1960.
4. *Beginning in Archaeology*, New York, 1961.
5. *Excavations at Jericho*, Vol. I, London, 1958.
6. *Amorites and Canaanites*, London, 1966.
7. *Jerusalem*, New York, 1968.

8. J.W. Crowfoot, G.M. Crowfoot, Kathleen M. Kenyon, *Samaria-Sebaste: The Objects*, London, 1957.
9. J.W. Crowfoot, Kathleen M. Kenyon E.L. Sukenik, *Samaria-Sebaste: The Buildings*, London, 1942.

The following books and articles are listed below for general reading:

1. W.F. Albright, *The Archaeology of Palestine*, (Pelican Book) 1961.
2. *Archaeological Discoveries in the Holy Land*, compiled by the Archaeological Institute of America, New York, 1967.
3. R.J.C. Atkinson, *Field Archaeology*, London, 1960.
4. W.F. Bade, *A Manual of Excavation in the Near East*, Berkeley, 1934.
5. Stanley Casson, *Progress of Archaeology*, New York, 1934.

6. V. Gordon Childe, *What Happened in History*, London, 1960. *Piecing together the Past*, London, 1956.
7. J.G.D. Clark, *Archaeology and Society*.
8. R.G. Collingwood, *The Archaeology of Roman Britain*, New York, 1930.
9. G.E. Daniel, *A Hundred Years of Archaeology*, London, 1950.
10. J. Johnson, So You Want to be an Archaeologist, in *Classical Journal*, 42.
11. Seton Lloyd, *Foundations in the Dust*, London, 1947.
12. W.M. Flinders Petrie, *Seventy Years in Archaeology*.
13. W.M. Taylor, A study of Archaeology, in *American Anthropologist*, 50.
14. R.E.M. Wheeler, *Archaeology from the Earth*, Oxford, 1954.
15. Still Digging, London, 1955.
16. C.L. Woolley, *Digging Up the Past*, (Pelican Book) Baltimore, 1963.



Archaeological Survey of the *Limes Arabicus*: A Preliminary Report

by
S. Thomas Parker
(Figs. 1 – 3)

Introduction

The annexation of the Nabataean kingdom by the Roman Emperor Trajan in A.D. 106 brought yet another province, called Arabia, within the Roman Empire. To defend this new province, which essentially consisted of modern Jordan, the Sinai, and extreme southern Syria, the Romans followed their customary procedure and developed a *limes*, or fortified frontier, similar to others in the Empire. The *limes* consisted of a number of camps, forts, and watchtowers, which were linked together by a system of roads. Stretching southward from the provincial capital of Bostra (modern Bosra, now in southern Syria), the *Limes Arabicus* extended through Jordan to 'Aqaba (ancient Aila) on an arm of the Red Sea. All told, it defended some 360 kilometers (225 miles) of frontier. Although some scholars had

studied this *limes* as early as the late nineteenth century, no fully comprehensive survey of the entire system had ever been conducted.¹ In addition, despite the large number of excavations conducted within Jordan over the years, not a single site within the *limes* has ever been excavated.² This is especially notable when one realizes the amount of attention other *limes* have received, especially in Britain, Europe, and Syria.

In view of the limited state of knowledge about the *Limes Arabicus*, the author resolved to conduct a new archaeological survey of the system. The permit for this work was kindly issued by the Department of Antiquities of the Hashimite Kingdom of Jordan. The project received the institutional sponsorship of the American Schools of Oriental Research and was aided by its affiliate in Amman, the American

1. By far the most important work was done by R. Brünnow and A. von Domaszewski, *Die Provincia Arabia*, 3 vols. (Strassburg: Trübner, 1904-09). Although the work of these two great scholars is monumental and provides much significant data, they were hampered by the lack of any ceramic typology in dating. They were also unable to cover the southern sector of the *limes*, from Ma'an to 'Aqaba, or about 100 kilometers of frontier. See also R. Brünnow, «Die Kastelle des arabischen Limes»; *Florilegium Mis de Vogüé* (1907) 77 ff. The groundwork for the Roman road system in this area was developed by P. Thomsen, «Die romischen Meilensteine der Provinzen Syria, Arabia, und Palestina», *Zeitschrift des Deutschen*

Palaestina-Vereins 40 (1917) 1-103. Of some value for the study of the *limes* is the survey work of Nelson Glueck, *Explorations in Eastern Palestine*, 4 vols., (Cambridge: American Schools of Oriental Research, 1934-1951), although Glueck was primarily concerned with Nabataean and earlier period sites. The most important recent discussion of the *limes* is G. W. Bowersock's article, «A Report on Provincia Arabia», *Journal of Roman Studies* 61 (1971) 219-242. See especially 236 ff.

2. The only possible exception might be the recent excavation of Rujm Malfuf, an Iron Age watchtower apparently reused in the Roman period in Amman.

Center of Oriental Research (ACOR). The staff of the survey consisted of S. Thomas Parker of the University of California, Los Angeles, as director, Dr. Frank L. Koucky of Wooster College as geologist, Dr. James A. Sauer of ACOR as ceramic typologist, and Paul McDermott of U.C.L.A. as photographer. Ahmed Odeh and Mohammad Subhi Omari served as the official representatives of the Department of Antiquities.³ Further part time staff included Scott Rolston, Margaret Langford, Robin Brown, and Mary Witt.

Some of the preliminary work on the project was conducted during a feasibility study in Jordan in June of 1975, funded by grants from the U.C.L.A. Graduate Division and the U.C.L.A. Friends of Archaeology. Further preliminary work took place in June, July, and August, 1976, while the formal survey commenced on August 16 and ended on September 6, 1976. The survey was funded by grants from the U.C.L.A. Friends of Archaeology, the Shell Oil Foundation, the U.C.L.A. Patent Fund, and the Kyle Kelso Fund. The author would like to express his thanks to each of these organizations for their support. For most of the duration of the survey the staff was based at the American Center (ACOR) in Amman. But for several days the base of operations was shifted to the Department of Antiquities caves in Petra and then to 'Aqaba to cover the southern fort sites.

The goals of the survey were primarily twofold. First, a ceramic sample was collected at each *limes* site to provide evidence for the history of occupation at

the site itself and the chronological development of the *limes* as a whole. Second, a topographical analysis of each site was conducted to ascertain each fort's defensibility, potential as an observation post, water supply, and any associated settlements. Also examined was each fort's relationship to the ancient road network, adjacent forts, and surrounding topography. In other words, the function of each particular fort was examined, to determine both the local situation and the overall picture of imperial defence.

The ceramic sample varied greatly in size, depending on the size of the site (which varied from a watchtower ca. 5 meters square to a *castra* of 11 acres) and the amount of surface pottery present. But on average 200 to 400 sherds were taken from each site. In addition to the ceramic collection and topographical analysis, each site was photographed and its architectural plan was studied. Any other surface artifacts, such as glass, tesserae, flints, coins, or other objects, were collected along with the pottery. Besides this material, an apparently new Latin building inscription was found at Qasr 'Uweinid (probably from the Severan period), which will be published subsequently.

The criteria for selecting the *limes* sites to be surveyed were essentially two. First, it was decided to cover as many as possible of the military posts within the system which were larger than watchtowers in size. Thus both legionary camps (or *castra*, at Lejjun and Udhruh) and some 23 auxiliary forts (or *castella*) were surveyed. Since it

3. I wish to express my thanks to Yacoub Oweis, Director-General of the Department of Antiquities, and to Yusef Alami, the Assistant Director, for their cooperation and assistance in the furtherance of the project.

I also owe a great debt of gratitude to Dr. Sauer, Director of ACOR, who unselfishly furthered the project in all its stages and provided the facilities of ACOR for our use.

was not feasible to include all the watchtowers (which number in the hundreds) within the survey, a sampling of twelve watchtowers was selected for examination. In addition, two caravanserai and two non-military sites from the same period were also surveyed, for a total of 41 sites in all. Second, unlike earlier investigators, we felt the need to cover the entire geographic range of the *limes*, from the Gulf of 'Aqaba to the Syrian border. The only area neglected because of political circumstances was the ca.18 kilometer section from the Syrians border north to Bosra. Besides the forts along the *limes* itself, several advanced posts, located eastwards in the Syrian Desert, were visited and surveyed.

Before presenting the results of the survey, it is necessary to emphasize the preliminary nature of this report. The aim here is to present a summary of the ceramic data from each site, a basic chronological scheme for the development of the *limes*, and some tentative historical conclusions. A forthcoming volume will present the detailed topographical, architectural, and ceramic data from each site, reexamine all the ancient literary and epigraphic evidence, and analyze the *limes* from a historical perspective.

Results

From the 41 sites covered by the survey team a total of more than 12,500 sherds was collected. These were returned to ACOR in Amman, washed, and analyzed. More than 3,600 from the total number were saved for drawing and further study. The chronological conclusions presented

here are based on the ceramic typology for the late periods of Palestinian archaeology (post 539 B.C.) developed by Dr. Sauer from the excavations at Heshbon in Jordan.⁴ Sauer's typology, based on both historical and archaeological evidence, was controlled by associated numismatic evidence. More than half a dozen dated building inscriptions from several of the forts themselves provided a further chronological check upon the ceramic evidence. Without exception, pottery which corresponded in date with the building inscriptions was found at each of these sites.

Sauer's subdivisions of the Roman and Byzantine periods, which are of principal importance for the survey, are listed below:⁵

Early Roman I	63–37 B.C.
Early Roman II	37–4 B.C.
Early Roman III	4 B.C.–A.D. 73
Early Roman IV	73–135
Late Roman I	135–193
Late Roman II	193–235
Late Roman III	235–284
Late Roman IV	284–324
Early Byzantine I	324–363
Early Byzantine II	363–392
Early Byzantine III	392–450
Early Byzantine IV	450–491
Late Byzantine I	491–527
Late Byzantine II	527–565
Late Byzantine III	565–614
Late Byzantine IV	614–640

The following chart lists all 41 sites surveyed, including 37 military sites, two caravanserai, and two sites (Zeinab and Ureiniba) of a non-military nature. For each site the chart supplies its name, site

4. J.A. Sauer, *Heshbon Pottery 1971* (Berrien Springs, Michigan: Andrews University, 1973) 1-7.

5. Ibid., 3-5.

number (for location on the maps), type (watchtower, *castellum*, etc.), any relevant epigraphic evidence listed by date, and the pottery collected (total number of sherds, number saved, and the number assigned to a particular period or periods).

It should be noted at this point what the limitations of this kind of evidence are. The survey method of determining the sequence of occupation at a particular site by surface pottery was proven effective in this area by Nelson Glueck as long ago as the 1930's, but this method is inferior to stratigraphic excavation. This implies caution especially regarding apparent gaps in occupation and other arguments from silence. On the other

hand, the greatest degree of probability of occupation at any site is the latest evidence, which may cover or obscure earlier material.

The abbreviations used in the chart are as follows: Mod—modern; Ott—Ottoman (1516-1918); Ay/Mam—Ayyubid/Mamluk (1174-1516); Abb—'Abbasid (750-979); Um—Umayyad (640-750); Byz—Byzantine; R—Roman, Nab—Nabataean; Hel—Hellenistic; Ir¹—Iron I, Ir²—Iron II; B—Bronze; Chal—Chalcolithic; E—early; L—late; prob—probable; pos—possible; UD—undetermined; CR—*castra*; CL—*castellum*; WT—watchtower; CV—caravanserai; NM—non-military;



No	Site Name	Site Type	Epigraphic	Total	Saved
1	Deir el Kahf	CL	A.D. 306 ^a , 367-375 ^b	1,309	150
	pottery tabulation – 20 Mod, 16 Ott, 42 Um, 22 E Byz I–III, 7 LR III–IV, 2 LR I–II, 26 ER II–IV 2 Ir(?), 9 UD, body sherds—2 Byz, 2 LR				
2	Qasr el Ba'iq	CL	A.D. 412 ^c	278	115
	tabulation – 5 Mod, – 56 UM, 19 L Byz II–IV, 13 E Byz, 14 LR IV, 8 UD				
3	Qasr el Hallabat	CL	A.D. 213, ^d 529, ^e	660	221
	tabulation – 1 Ay/Mam, 91 Um, 56 L. Byz I–IV, 3 E Byz III–IV, 17 E. Byz I–II, 41 LR IV, 12 LR I–III.				
4	Qasr el Usaikhin	CL	—	383	37
	tabulation – 14 L Byz II–IV, 18 LR II–IV, 5 ER III–IV				
5	Qasr el Azraq	CL	A.D. 326–333 ^f	154	71
	tabulation – 3 Mod, 23 Ott, 2 Ay/Mam, 7 Um, 34 LR III to E Byz I body sherds, 1 ER III, 1 Ir, 1 UD.				
6	Qasr el 'Uweinid	CL	—	358	107
	tabulation – 107 LR IV dominant; pos ER IV–LR body sherds.				
7	al-Hadid	CL	—	193	193
	tabulation – 1 Ay/Mam, 8 E Byz I, 7 LR IV, 177 prob LB.				
8	al-Qastal	CL	—	490	264
	tabulation – 10 Mod, 197 Ay/Mam and E Ott, 28 Um, 12 LR IV to E Byz I, 15 ER, 2 IR ² (?)				
9	Umm el Walid	CV	—	609	219
	tabulation – 11 Ay/Mam, 16 Um, 14 E Byz I–II, 22 LR III–IV, 26 LR I–II, 10 LR body sherds, 112 Nab, 3 LB(?), 5 UD				
10	Qasr es-Za 'faran(a)	WT	—	391	133
	tabulation – 1 Mod, 11 Um, 19 LR I–IV, 70 Nab, 28 Ir ² , 4 Ir ¹				
11	Qasr el Za'faran(b)	WT	—	70	20
	tabulation – 9 LR IV to E Byz I, 61 Ir ²				
12	er-Rumeil	WT	—	172	46
	tabulation – 43 Ir ² , 3 Ir ¹				
13	Khan ez-Zabib	CV	—	180	82
	tabulation – 5 Mod, 41 Um, 10 E Byz I–II, 17 LR/E Byz body sherds, 4 LR I–III, 5 R body sherds.				
14	Museitiba	WT	—	314	46
	tabulation – 2 Mod, 1 Um, 6 E Byz I–II, 10 LR I–IV, 15 Nab, 5 Ir ² , 7 Ir ¹				
15	Qasr Saliya	WT	—	283	174
	tabulation – 1 Ay/Mam, 3 LR, 28 Nab, 139 Ir ² , 3Ir ¹				
16	Khirbet ez-Zona	CL	—	326	75
	tabulation – 12 L Byz I–IV, 41 E Byz I–III, 17 LR IV, 5 Ir ²				
17	Qasr eth Thuraiya	CL	—	162	30
	tabulation – 1 Ay/Mam, 7 E Byz I–III, 22 LR IV.				
18	er-Rama	WT	—	286	119
	tabulation – 1 L Ott, 10 E Byz I–II, 11 ER IV, 92 Nab, 3 Ir ² , 2 UD				

No.	Site Name	Site Type	Epigraphic	Total	Saved
19	Muhattet el Haj (a) (upper)	CL	—	481	135
	tabulation — 3 Mod, 7 L Mam/Ott, 17 L Byz I—III, 16 E Byz I—IV, 15 LR IV, 2 pos. LR I—III, 12 ER IV, 61 Nab/Er, 2 Ir ²				
20	Muhattet el Haj (b) (lower)	CL	—	138	35
	tabulation — 3 Mod, 1 Ott, 8 L Byz III—IV, 3 E Byz, 10 LR IV, 10 Nab				
21	Qasr el 'Al	WT	—	216	46
	tabulation — 13 E Byz I—II, 1 prob LR III—IV, 24 Nab, 8 Ir ²				
22	Qasr Bshir	CL	A.D. 306 ^g	218	74
	tabulation — 40 E Byz I—II, 34 LR IV				
23	Khirbet el Fityan	CL	—	207	56
	tabulation — 2 L Ott, 4 E Byz I—II, 30 LR IV, 1 pos LR II—III, 5 Nab/ER, 11 Ir ² , 3 UD				
24	el-Lejjun	CR	—	501	140
	tabulation — 3 Mam/Ott, 2 Um, 3 L Byz I, 69 E Byz I—IV, 46 LR IV, 1 pos LR II—III, 9 pos ER IV, 5 pipe fragments, 2 roof tiles				
25	Qasr Abu Rukba	WT	—	197	14
	tabulation — 9 E Byz I—II, 5 LR IV				
26	Qasr esh Shuhar	WT	—	190	28
	tabulation — 1 Ay/Mam, 18 Nab/R body sherds, 9 Chalco/EB				
27	Jurf-ed-Darawish	CL	—	105	17
	tabulation — 2 E Byz I—II, 12 LR II—IV, 3 UD				
28	Qasr el Bint	WT	—	354	55
	tabulation — 14 E Byz I—III, 7 LR III—IV, 3 LR I—II, 5 ER IV, 26 Nab				
29	Da'janiya	CL	—	225	65
	tabulation — 3 Mam/Ott, 14 L Byz I, 21 E Byz I—IV, 15 LR III—IV, 5 LR I—II, 7 UD				
30	Udhruh	CR	—	722	167
	tabulation — 4 Mod, 42 L Mam/Ott, 10 L Byz I—II, 24 E Byz III—IV, 17 E Byz I—II, 7 LR IV, 55 Nab, 8 Ir ²				
31	Ail	CL	—	494	65
	tabulation — 1 Mod, 3 L Ott, 6 L Byz I—II, 5 E Byz III—IV, 8 E Byz I—II, 9 LR III—IV, 24 Nab, 9 Ir ² .				
32	'Ain Sadaqa	WT	—	236	50
	tabulation — 4 L Ott, 30 E Byz I—IV, 9 LR IV, 1 LR III(?), 3 Nab, 3 UD				
33	el Hammam	CL	—	162	43
	tabulation — 2 Ay/Mam, 2 Abb, 13 Um, 21 E Byz, 2 ER IV (?), 3 UD				
34	el Mutrab	CL	—	148	36
	tabulation — 2 Ay/Mam, 21 E Byz, 4 ER (?), 3 Chal, 6 UD				
35	Khirbet el Qirana	CL	—	346	110
	tabulation — 1 L Ott, 30 E Byz I to L Byz I, 8 LR III—IV, 7 LR I—II, 57 Nab, 3 Ir ² (?), 4 UD				

No	Site Name	Site Type	Epigraphic	Total	Saved
36	el Qirana watchtower	WT	—	276	54
	tabulation — 1 L Byz II—III (?), 26 E Byz I to L Byz I, 5 LR IV, 11 Nab, 1 Ir(?), 10 UD				
37	el Quweira	CL	—	167	33
	tabulation — 5 Mod, 4 E Byz I—III, 14 LR III—IV, 8 ER IV(?) body sherds, 2 UD				
38	Khirbet el Khalde	CL	—	422	135
	tabulation — 19 L Byz, 21 E Byz, 31 LR III—IV, 13 LR I—II, 8 ER IV, 35 Nab, 8 UD				
39	Qasr el Kithara	CL	—	422	75
	tabulation — 1 Mod, 48 L Byz, 7 E Byz, 9 LR III—IV, 3 LR I—II, 7 ER IV				
40	Ureiniba	NM	—	162	43
	tabulation — 1 Mod, 1 Ay/Mam, 5 Um, 4 L Byz, 6 E Byz I—III, 8 Byz, 6 ER, 9 Nab, 3 Ir ² .				
41	Zeinab	NM	—	133	36
	tabulation — 6 E Byz I—III, 18 IR III—IV, 12 ER/Nab.				



Epigraphic references:

- ^aH.C. Butler, *Princeton Archaeological Expeditions to Syria in 1904-5 and 1909* (Leyden: Brill, 1909), III. A. 2, No 228, pp. 126-127.
- ^bButler, III. A. 2, No 229, pp. 127-128.
- ^cButler, III. A. 2, No 21, p. 42.
- ^dButler, III. A. 2, No 17, p. 21.
- ^eButler, III. A. 2, No 18, pp. 22-23.
- ^fG. W. Bowersock, JRS 61 (1971) 241.
- ^gR. Brünnow and A. von Domaszewski, *Die Provincia Arabia* (Strassburg: Trübner, 1904-09) vol. II. 58.

An examination of the accompanying chart will show the number of military sites occupied in each of the Roman and Byzantine periods. Not included in this chart are four essentially non-military sites: Ureiniba (40), Zeinab (41), and the caravaserai of Umm el Walid (9) and Khan ez-Zabib (13). Also absent is the watchtower of er-Rumeil (12), which produced evidence entirely from the Iron Age. Thus a total of 36 military sites are presented here.

Historical Conclusions

During most of the Early Roman period (63 B.C.-A.D. 135), Transjordan, with the exception of certain areas such as Peraea and the region of the Decapolis, comprised part of the Nabataean Kingdom.⁶ To protect their borders, settlements, and

caravan routes, the Nabataeans constructed a system of small forts and watchtowers, either building new structures⁷ or repairing and reoccupying many Iron Age fortifications.⁸ Upon the Roman annexation of the Nabataen state in A.D. 106, many of these sites were simply incorporated into the newly emerging *limes* system. In fact, the takeover of these Nabataean fortifications probably provided the initial framework of the *Limes Arabicus*. In the northern portion of Transjordan, the attested absence of Nabataean pottery, first noticed by Glueck,⁹ makes this transition more difficult to observe. But the presence of Early Roman I-III pottery from such sites as Deir el-Kahf ((1) and Qasr el Hallabat (3) may indicate the possibility of earlier Nabataean forts and garrisons. In addition, the Romans built a few new forts at the time of the annexation (ER IV), such as Qasr el Kithara (39) in the extreme south. A great amount of attention was devoted to the construction of the main north-south road, or *via nova*, which ran from the provincial capital of Bostra south of 'Aqaba (Aila) and which was completed in A.D. 111. By the end of Hadrian's reign in 138 the province was garrisoned by *Legio III Cyrenaica* at Bostra plus a number of auxiliary units.¹⁰

During the Late Roman I-III periods (135-284), the number of fort sites gradually increased from nine to fourteen. Some of the former Nabataean forts were expanded or rebuilt and several new forts

-
6. S.T. Parker, «The Decapolis Reviewed» *Journal of Biblical Literature* 94 (1975) 437-441.
7. Sites 19, 20, 28, 32, 36, 38.
8. Sites 10, 14, 15, 28, 21, 23, 26, 31, 35.
9. N. Glueck, *The Other Side of the Jordan* (Cambridge: American Schools of Oriental Research, 1974) 211; *Deities and Dolphins* (New York: Farrar, Strauss, and Giroux, 1965) 6.
10. G.W. Bowersock, «The Annexation and Initial Garrison of Arabia» *Zeitschrift für Papyrologie und Epigraphik* 5 (1970) 37-47. M.P. Speidel, «Arabia's First Garrison» *ADAJ* 16 (1971) 111-112.

were constructed, such as the important *castella* of Da'janiya(29), Hallabat (3), and Qasr el Usaikhin (4). It seems that no particular area was emphasized, but that the entire frontier received attention. Although the second century was a period of general peace and stability throughout the Roman Empire, the third century witnessed civil wars, foreign invasions, and considerable anarchy. In the later third century came the meteoric rise of Palmyra in Syria. Palmyrene armies reached as far as Egypt, and must have severely disrupted the Roman army of Arabia as well as the armies of the other eastern provinces. After the defeat and destruction of Palmyra by the Emperor Aurelian (270-275), the Romans were faced with a task of reorganization and reconstruction.

This challenge was met by the Emperor Diocletian in the Late Roman IV period (284-324). A glance at the accompanying chart shows a dramatic increase in the number of occupied fort sites, from fourteen to thirty. Particular attention was paid to the northwestern end of the Wadi Sirhan, a natural migration route from the interior of the Arabian peninsula. Qasr el Azraq(5) joined Qasr el 'Uweinid (6) and Qasr el Usaikhin (7) to form a line to control access out of the Sirhan. Several important *castella* in the central sector of the *limes* were constructed, such as Khirbet ez-Zona (16), Qasr eth Thuraiya (17), Qasr Bshir (22), and Khirbet el Fityan (23). But especially important in this period was the construction of the two great camps (*castra*) at el-Lejjun (24), which was probably garrisoned by a new legion, *Legio IV Martia*, and at Udhruh (30), near Petra.

Throughout the fourth century the number of occupied *limes* sites remained at this high level. The survey suggests that 31 sites were occupied in Early Byzantine I (324-363) and 27 in Early Byzantine II (363-392). This highly developed state of the *limes* is confirmed by the historian Ammianus Marcellinus in the later fourth century, who noted that Arabia was *castrisque oppleta validis et castellis* («filled with strong camps and castles»).¹¹ The *Notitia Dignitatum*, written at the end of the fourth century, gives us a kind of snapshot picture of the Roman forces garrisoning the *limes* at this time. The protection of the frontier was then the responsibility of two *duces* of Arabia and Palestine. The provincial reorganization of Diocletian had reduced Arabia to northern Transjordan and created a new province, *Palestina salutaris* (sometimes called *Palestina tertia*), which included the Sinai, the Negev, and the southern half of the *Limes Arabicus*. Under the *dux Arabiae* were two legions (III *Cyrenaica* and IV *Martia*) and 19 auxiliary units strung out from Bostra to the Wadi Hesa. The *dux Palestinae* commanded one legion (X *Fretensis*) and 29 auxiliary units, which were mostly stationed from the Wadi Hesa southward to Aila ('Aqaba).¹² A.H.M. Jones estimated that these enormous forces totaled 35,500 men.¹³ It should also be noted that over half the building inscriptions from the *limes* forts themselves date to the fourth century.¹⁴ Thus the literary and epigraphic evidence tends to support the conclusion of the ceramic survey, that the Late Roman IV through Early Byzantine II periods (284-392) were the time of the greatest

11. Ammianus Marcellinus, 14.8.13.

12. *Notitia Dignitatum*, Oriens 34, 37.

13. A.H.M. Jones, *The Later Roman Empire, 284-602*, 3 vols. (Oxford: Blackwell, 1964) III, 380.

14. See the epigraphic references at the end of the site list.

strength and complexity of the *Limes Arabicus*.

The Early Byzantine III period (392-450) marked a steep decline from the number of sites occupied in the previous period, from 27 to 19. This decline continued, though at a much slower pace, through the succeeding Late Byzantine periods down to the Arab Conquest in 636. Both the *castra* sites of Lejjun (24) and Udhruh (30) were abandoned by the end of the fifth century or in the early sixth century. A number of important *castella*, such as Da'janiya (29), Azraq (5), Thuraiya (17), Fityan (23), Bshir (22), el Hammam (33), el Mutrāb (34), and el Quweira (37), were also abandoned about this time. This process of gradual evacuation of the military posts in Arabia may be partially due to the turnover of much of the area to the Ghassanids, who were local vassals of the Byzantines. A slow transfer of power to local Arab phylarchs has also been suggested for Byzantine Syria in the fifth and sixth centuries.¹⁵

The Sassanid Persian invasion and occupation of the eastern provinces (including Arabia), which began in the Late Byzantine IV period (614-640), provided another blow to the *limes* system. Only a mere seven sites show evidence of occupation in this period, which could equally be due to garrisons of Persian, Ghassanid; or Byzantine soldiers. It was only after great difficulty that the Emperor Heraclius succeeded in regaining the eastern provinces by 628 and reasserting Byzantine control. But the decisive victory of the Arab armies under the banner of Islam at

the Yarmuk river only eight years later marked the death of the *Limes Arabicus*. It is interesting that in the subsequent Umayyad period (640-750) many of the fort sites in the north, towards the Umayyad capital of Damascus, show evidence of heavy occupation. But this Umayyad pottery gives out almost completely south of the Dead Sea.

Conclusion

Despite its ultimate failure, the *Limes Arabicus* functioned effectively and with only rare failures in defending the long desert frontier for over half a millennium. Its presence secured the benefits for the *Pax Romana* to the inhabitants of Arabia and Palestine and security for the early spread of Christianity. Neither before nor afterwards until modern times was Transjordan so thickly settled as when protected by the *limes*. Thus it is important that the individual fort sites of the system be preserved for future study and excavation. The author commends and encourages the Department of Antiquities in its continuing efforts to protect as many as possible of these well preserved and valuable sites, which are gradually being lost to modern development. Especially crucial for preservation are the two great camps of Lejjun and Udhruh. It is hoped that future excavation will reveal more about this system, which is one of the relatively untouched archaeological treasures of Jordan.

S. Thomas Parker
University of California,
Los Angeles

15. B. Rubin, *Das Zeitalter Iustinians* (Berlin: 1960) I, 274 f. The apparent conversion of the fortress of Qasr Burqu', located well east of the *limes*, from an advanced military post

into a monastic settlement in this period should also be noted. See H. Gaube, «An Examination of the Ruins of Qasr Burqu'» ADAJ 19 (1974) 99-100.

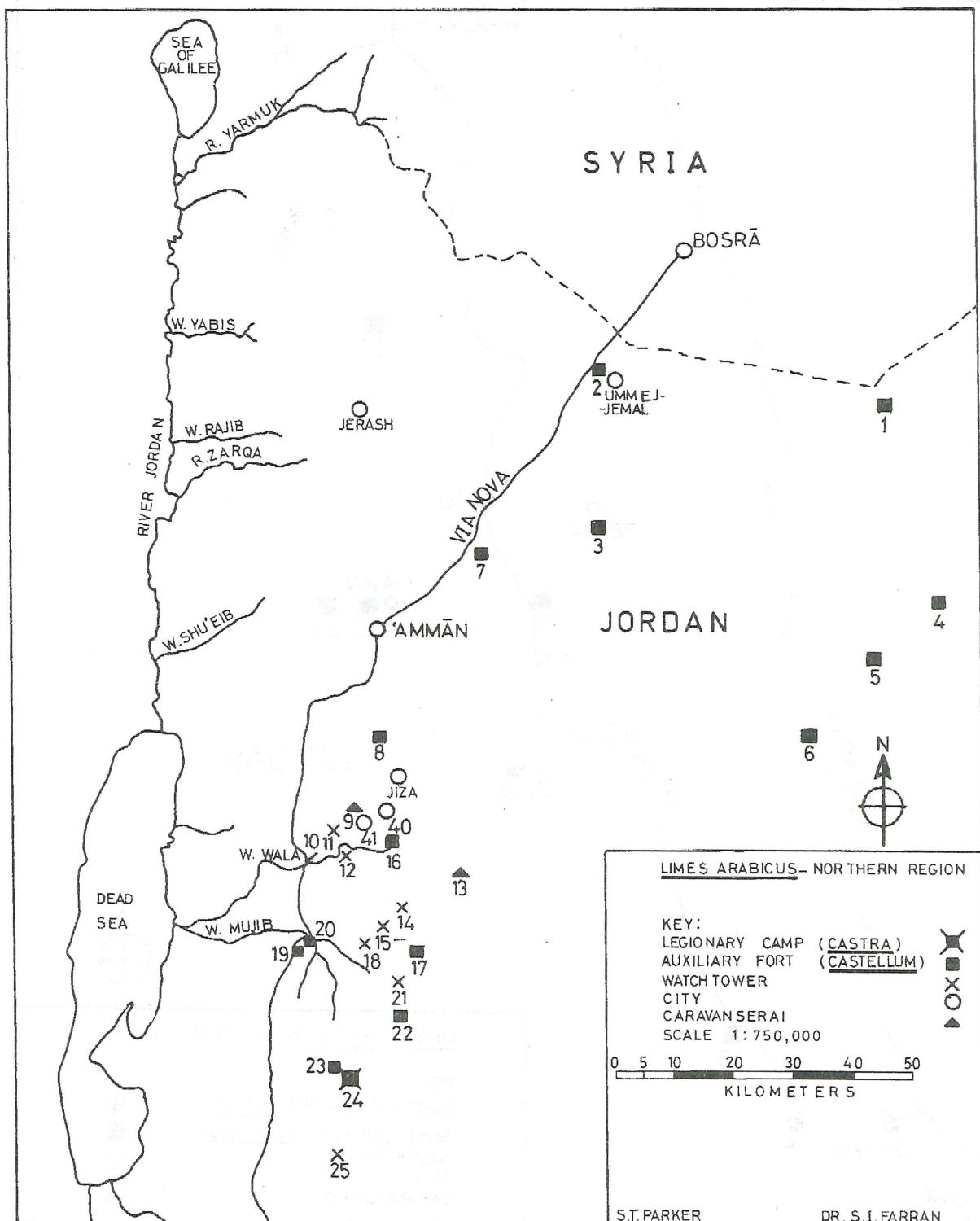


FIG. 1

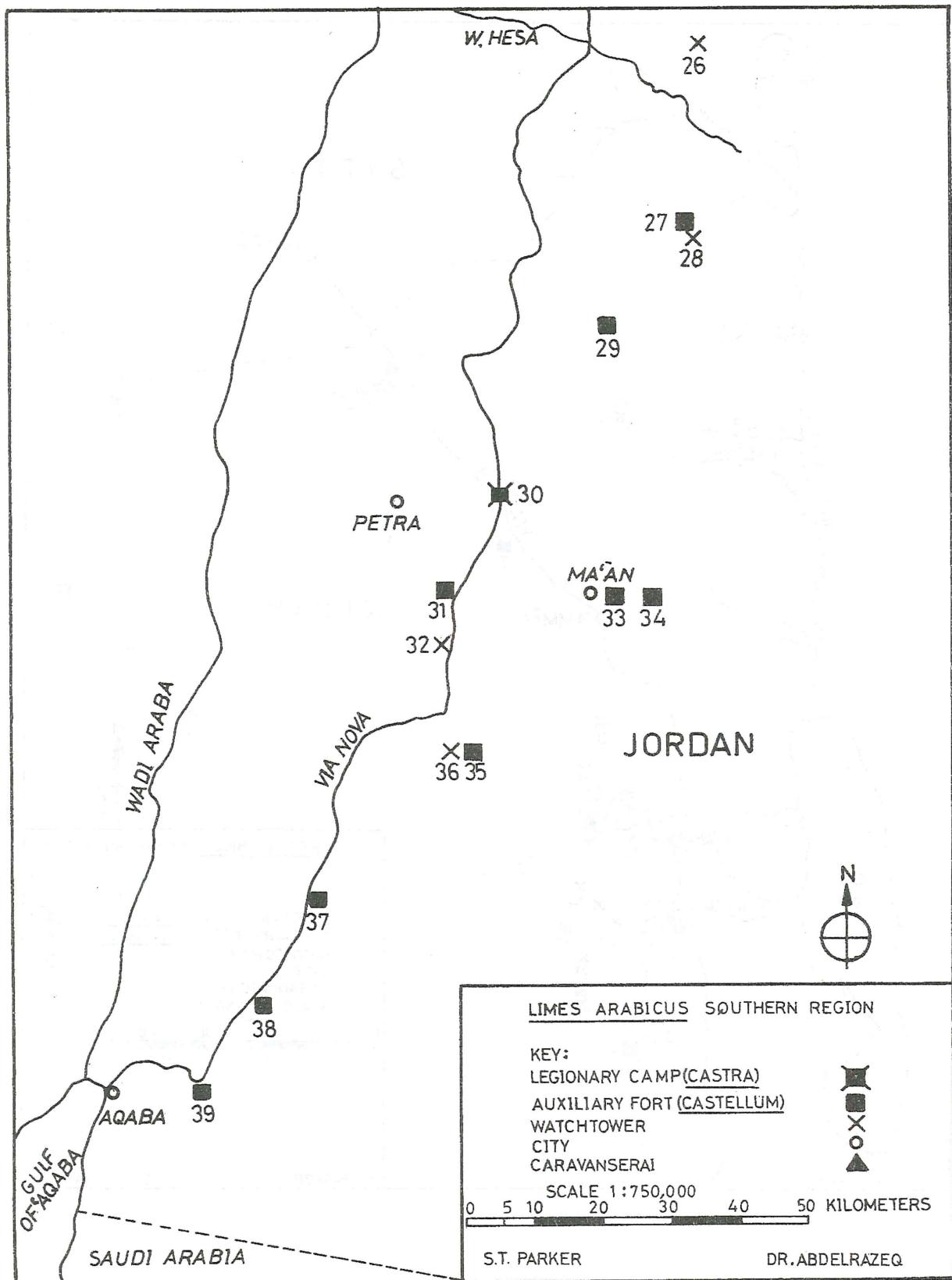


FIG. 2

LIMES ARABICUS : HISTORICAL DEVELOPMENT

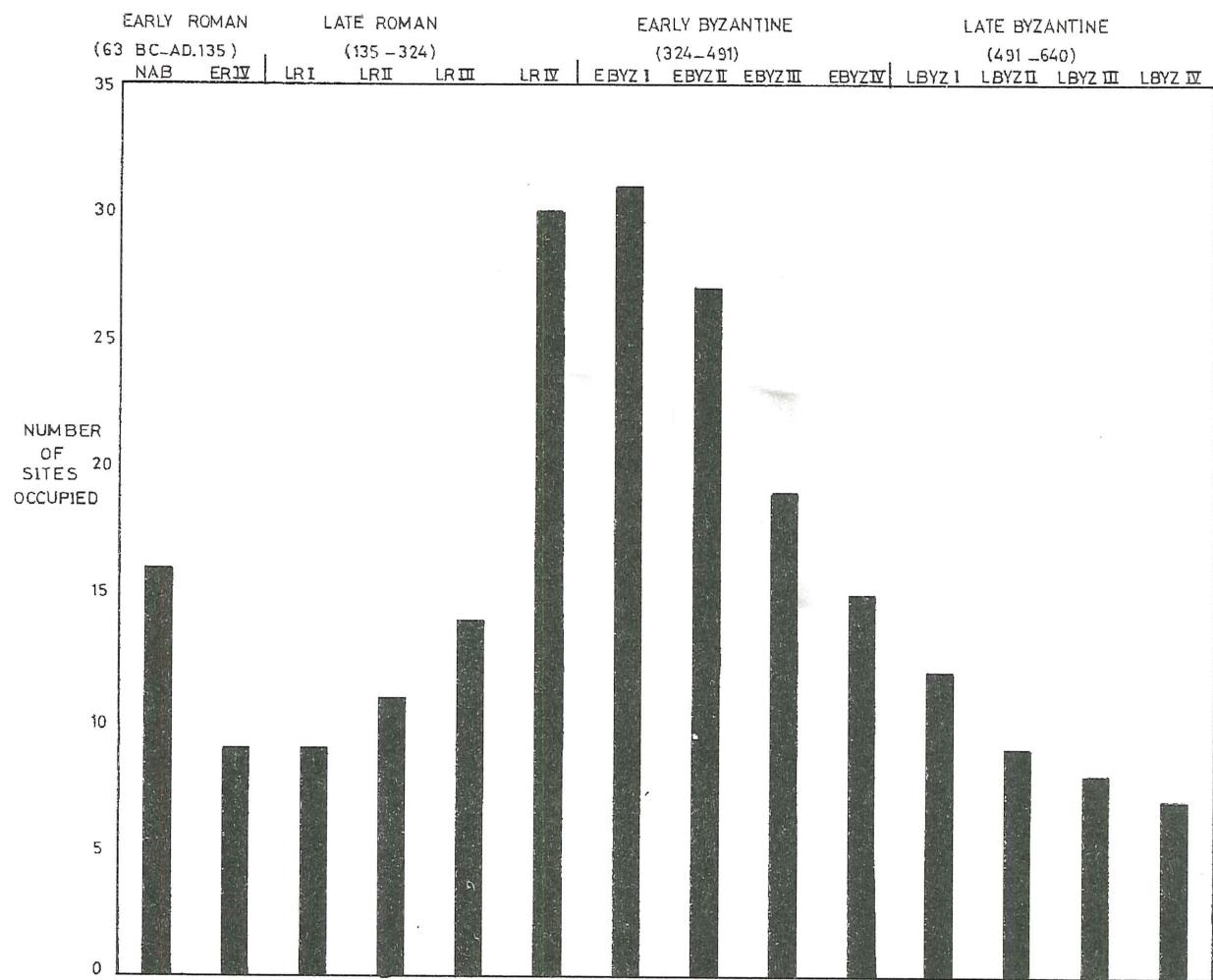


FIG. 3

Ein Asklepios-Kopf in Amman

von

Klaus Stemmer

Dem Gedenken W.-H. Schuchhardts (1900 - 1976) gewidmet*

Der Kopf (Pl. I-II) aus weiß-gräulichem Marmor wurde 1926 bei den Ausgrabungen des damaligen Palestine Department of Antiquities in Jerash, dem antiken Gerasa, gefunden und zwar – das wird später noch wichtig werden – auf dem Fußboden einer verschütteten frühchristlichen Basilika etwa der Zeit um 400 n. Chr.; in welcher der zahlreichen Kirchen, das läßt sich leider nicht ermitteln. Denn von einem Photo anlässlich seiner einjährigen Ausstellung in London¹ und zwei beiläufigen Erwähnungen² abgesehen scheint der Kopf keine Beachtung gefunden zu haben. Er ist selbst im Standardwerk über Gerasa³ nicht erwähnt, obwohl es die unmittelbar anschließenden amerikan.-engl. Grabungen von 1928–34 zum Thema hat.

Da sein ursprünglicher Kontext nicht rekonstruierbar ist, muß man für seine kunst- und religionsgeschichtliche Einordnung ausschließlich den Kopf selbst befragen.

Er hat eine Gesamthöhe von 26cm; die Distanz Mundspalte – Haaransatz beträgt 11 cm – er ist also leicht unterlebensgroß. Der größte Teil des Halses und die Enden des langen Haars auf der Rückseite fehlen im Bruch. Ferner fehlen auf der linken

Seite eine große Partie des teilweise à jour gearbeiteten Haarstranges und als größte Beeinträchtigung der Gesamtwirkung – zumindest im Profil – die Nase. Hingegen nehmen zahlreiche Bestoßungen vor allem an den Brauen und im Haupt- und Barthaar dem Kopf nichts von seiner besonderen Wirkung. Diese ist entscheidend mitgeprägt durch eine stimmungsvolle Drehung zur Rechten und eine leichte Neigung des Kopfes. Alle Detailformen ordnen sich einem Bezugssystem ein, das durch die Mittelachse (Haargabelung, Nasenwurzel, Mund- und Bartmitte) und den Querachsen (Mundspalte, Linie durch die Augenwinkel und Haaransatz) gebildet wird. Nur geringfügige asymmetrische Abweichungen beleben den ruhigen und gleichförmigen Aufbau des Kopfes und verhindern den Eindruck einer langweiligen toten Formelsprache. Die plastische Masse des Kopfes verteilt sich ebenfalls leicht asymmetrisch, und zwar ist die rechte Kopfhälfte steiler in die Tiefe gebaut, die linke hingegen stärker nach vorne in die Fläche gezogen. Dieselbe feine Nuancierung äußert sich in der parallelen, also nicht spiegelbildlichen Führung der seitlichen Haarlocken, die das Gesicht in der Weise rahmen, daß einer auf der linken Seite ins Gesicht zeigenden Lockenspitze rechts eine herausweisende entspricht.

* Amman, Nationalmuseum inv. J 2212.— Diesem Manuskript liegt ein Referat anlässlich der Feier des 75. Geburtstages von W.-H. Schuchhardt in Freiburg i.Br. zugrunde. Ich danke dem Jordan Department of Antiquities für die großzügige Hilfsbereitschaft während meiner Stipendiatenreise 1974 und die Genehmigung, die römische

Plastik des Nationalmuseums Amman bearbeiten zu dürfen.

1. Brit. Mus. Quarterly 1, 1926/27 114 Taf. 60; 111. London News, July 31, 1926, 193. 421.
2. Bull. Cleveland Mus. 1967, 83 Abb. 35 (Hinweis M. Bergmann); vgl. auch Anm. 13.
3. C.H. Kraeling, Gerasa – City of the Decapolis (1938).

Das Haar ist sehr locker und voll gegeben, scheitelt sich in der Mitte des Hauptes und fällt in schönen Lockenbögen an den Seiten herab, wobei sich einzelne Haarkompartimente in verschiedenen Schichten übereinander-lagern. Vor allem die linke, dem Betrachter stärker zugewandte Seite ist sehr originell gestaltet. Hier gabelt sich das Haar oberhalb des Ohres und fällt in dicken Strähnen lappenartig herab. Die Rückseite ist konventioneller gebildet und vernachlässigt. Von einer Spinne auf der Kalotte ausgehend bedecken kleine Sichellocken den Hinterkopf. Das Nackenhaar endet in nur noch abozzierten eingedrehten Locken. Der Hinterkopf mit seinen flacher anliegenden Haaren ist deutlich vom aufgewölbten vorderen Haarkranz abgesetzt, so daß der Eindruck entstehen könnte, der Kopf trüge eine Binde oder dergleichen. Die genaue Überprüfung jedoch erweist dies als irrig.

Der kurze Bart wölbt sich kraftvoll vor und besteht aus kleinen eingedrehten Lökchen, die wie Buckeln wirken und teilweise nur grob angelegt sind. Der Mund ist leicht geöffnet und läßt sogar noch die obere Zahnreihe erkennen. Die Augen haben eine umrissene Iris und halbmond-förmige Pupillen. Die Hautpartien sind geglättet und poliert, die Kopf- und Barthaare stumpf gearbeitet.

Mit der Frage nach der Benennung ist gleichzeitig die Frage nach dem Typus ausgesprochen. Es darf als sicher angenommen werden, daß es sich nicht um ein Porträt,

sondern um einen Idealkopf handelt. Von den bärtigen Gottheiten bieten sich Zeus und Asklepios an; auch Poseidon ist nicht ausgeschlossen. Aber bereits Thraemer, der sich als erster um eine brauchbare Typologie der Asklepios-Statuen bemühte,⁴ mußte erkennen, daß «die sichers Unterscheidung zwischen Köpfen des Asklepios und Zeus, wo Attribute fehlen, zu den heiklen Aufgaben der Archäologie (gehört)». Und in der Tat hilft uns die Typologie auch nicht weiter, denn der Kopf in Amman vertritt nicht einen uns bekannten Typus. Aber dennoch ist er Asklepios-Typen verwandter als Zeus-Typen, z.B. einer Asklepios-Statue des Typus Giustini in Neapel, deren Kopf jedoch nicht – wie Heiderich u.a. betonen⁵ – die gute Überlieferung darstellen soll, oder einem Asklepios im Palazzo Pitti, dessen Kopf angeblich zugehörig sein soll.⁶ Charakteristisch jedenfalls ist das in der Mitte der Stirn gegabelte Haar, das nicht wie bei vielen von L. Curtius behandelten Zeus-Köpfen⁷ eng anliegt, sondern locker sich aufwölbt und sich somit von den vielen Zeus- und auch Asklepios-Köpfen abhebt, deren Stirnhaar in der Mitte anastolé-artig aufsteilt. Ferner scheint der Ausdruck des Kopfes, der durch ein gewisses Sentiment bestimmt ist, bei aller Vorsicht im Urteil keineswegs herrscherlich-pathetisch, sondern eher sympathetisch im wörtlichen Sinne d.h. mitführend und gütig zusprechend zu sein und so eher für eine Benennung als Asklepios zu sprechen. Hierauf wird später noch eingegangen werden.

4. E. Thraemer in Roscher, Mythologisches Lexikon I (1884-86) 637.
5. Neapel N.M. 6360; Guida Ruesch Nr. 224; A. Neugebauer, 78. Berl. Winckelmanns programm (1921) 43 Taf. 3,1; G. Heiderich, Asklepios (Diss. Freiburg i. Br. 1966) 24 Nr. 3.

6. Ebenda 86ff.; EA. 219-221; L. Curtius, zeus und Hermes (1. Erg.-Heft der Röm. Mitt., 1931) 24 verdächtigt die Statue zu Recht als ein Pasticcio.

7. Curtius a.O. 48ff. Taf. 12-17.

Unter den zahlreichen erhaltenen bärtigen Köpfen ist mir bisher kein einziger bekannt, der den typologischen Voraussetzungen – insbesondere des soeben charakterisierten Stirnhaares – genügte, um als exakte Kopie gelten zu können. Doch es scheint Köpfe zu geben, die sich in einem gewissen Abhängigkeitsverhältnis befinden. Einer dieser Köpfe befindet sich im Museum zu Foligno⁸(Pl. III–IV). Abweichend vom Kopf in Amman trägt er einen Blattkranz mit Binde (*corona lemniscata*).⁹ Die Anlage der seitlichen Haarpartien ist wesentlich einfacher und gleichförmiger und fügt auf der rechten Seite am vorderen Hals eine Lockensträhne hinzu. Andere Veränderungen sind weitgehend auf den Zeitstil zurückzuführen; so die abgeflachte Haarmasse mit den Kurzen Bohrungen und den stehengelassenen Stegen, die an die Perückenfrisuren der Julia Domna-Zeit erinnert, und der flächigere Aufbau des Kopfes mit den ausgelaugten Einzelformen. Er ist vielleicht eine vereinfachende Weiterbildung des Kopfes in Amman und sicherlich eine Arbeit spätantoninisch-severischer Zeit. Die bekannte Asklepios-Statue in Istanbul aus den Faustina-Thermen in Milet¹⁰ wendet zwar den Kopf zur Linken, weist aber von einigen Vereinfachungen in der Organisation des Haares abgesehen eine so starke Abhängigkeit auf, daß man ihren Kopf als eine seitenverkehrte Umbildung bezeichnen kann¹¹ (Pl. V–VI).

Mit diesen erschlossenen abhängigen kai-serzeitlichen Varianten erhebt sich endlich auch für den Kopf in Amman die Frage der Datierung. Theoretisch bieten sich m.E. fünf zu erwägende Möglichkeiten an:

- 1) Original der Zeit um 300 v.Chr. mit Veränderungen späterer Zeit
- 2) Kopie nach Original der Zeit um 300 v.Chr.
- 3) Späthellenistisches Original mit Veränderungen späterer Zeit
- 4) Kopie nach späthellenistischem Original
- 5) Antoninische Erfindung.

Letztere Möglichkeit deutet schon an, daß ich den Kopf zumindest in seinem jetzigen Zustand für eine Arbeit der antoninischen – und dort wohl der frühantoninischen – Zeit halte. Dafür sprechen die Glättung des Karmates mit dem dazu kontrastierenden stumpfen Haar, dessen zähe, teigige Wiedergabe mit den durchgezogenen Bohrungen, die Angabe von Iris und Pupille und mit Einschränkungen die vernachlässigte Ausarbeitung der Rückseite. Für eine antoninische Erfindung wiederum mag ich den Kopf aus zwei Gründen nicht halten. Erstens erscheint mir die Anlage des Haares so originell und nach einem wohlbedachten Ordnungsprinzip durchorganisiert, daß man

-
8. Inst. Neg.Rom 38.273, 38.276-7, 40.978.
 9. Die Form der Blätter und der Früchte gibt keinen eindeutigen Aufschluß darüber, ob es sich um Lorbeer und so mit Sicherheit um einen Asklepios-Kopf oder aber auch um Olivenblätter und somit möglicherweise um einen Zeus-Kopf handelt. Über den Kranz wird bald die im Drück befindliche Tübinger Dissertation (1970) von M. Blech, Studien zum Kranz bei den Griechen, informieren. Hier dürfte der Kranz jedoch ein verdeut-

- lichendes Attribut sein, das die römische Werkstatt hinzugefügt hat, vgl. Anm. 12.
10. Mendel I 330f. Nr. 124; Milet 19, 97f. Nr. 1 Taf. 25. – FARchivKöln Neg. 70/3-4.
11. Ähnlich ist auch der Kopf in Dresden, J. Overbeck, *Atlas der griech. Kunstmythologie* (1871-89) Taf. 11,10, der einer nicht zugehörigen Poseidon-Statuette, Hettner³ (1875) Nr. 201, aufgesetzt ist und erst nach einer Autopsie beurteilt werden kann.

sie lieber auf eine gute Erfindung zurückführen möchte, die sich selbst in der teigig ausgeführten Kopie noch wiederspiegelt. Zweitens spricht stärker als die Existenz von zwei Varianten gegen eine antonische Erfindung, daß bei einer kaiserzeitlichen Neuschöpfung eines Asklepios eigentlich die Wulstbinde nicht fehlen dürfte, da sie als wesentliches Attribut betrachtet wurde.¹²

Es bleibt also die Alternative, ob unser Kopftypus ein Original des späten oder des frühen Hellenismus wiedergibt. Und hier tut sich die eigentliche Schwierigkeit auf, denn auf der Suche nach Vergleichen fand sich kein einziger, der voll befriedigend gewesen wäre. Es ist ein Problem, wie man die nicht zu leugnende klassische Komponente des Kopfes, die sich im ruhigen Aufbau der Gesichtszüge und in der Anordnung des Haares äußert, bewertet – als letzte Ausläufer der Klassik oder als Klassizismus. Die sentimentgeladene Haltung und der geöffnete Mund lassen durchaus an ein späthellenistisches Werk denken, aber alle

bärtigen Männerköpfe dieser Zeit arbeiten entweder mit viel stärkeren plastischen Pathosformeln¹³ oder aber sind als klassizistisch-eklektische Neuschöpfungen wesentlich langweiliger und meist rasch zu erkennen.¹⁴

So möchte ich denn vorschlagen, das Original des Kopfes in die Zeit um 300 v.Chr. zu datieren, wobei das Jahr 300 realiter und historisch gedacht natürlich nicht eine solche Markierung ist, wie wir es archäologisch-stilistisch oft empfinden, und man den Kopf wohl richtiger als einfach (frühellenistisch) klassifiziert. Die Grenzen dieses Zeitraumes etwa zwischen 320 und 240 v.Chr. würden durch Werke wie den Herakles Farnese¹⁵ und den Gallier Ludovisi¹⁶ markiert. Der von Pandermalis m.E. zu Recht an das Ende des 4.Jhs. datierte sog. Phokion-Strategenkopftypus¹⁷ und der Typus der Athena Rospigliosi¹⁸ sind in ihren Habitus, dem posenhaften Pathos, verbunden mit dem tradierten Klassizismus der Formensprache, recht verwandt. Der Asklepios Amman stünde dann in der di-

- 12. A. Krug, *Binden in der griech. Kunst* (Diss. Mainz 1967) 46ff.
- 13. Vgl. den Kopf in Korinth, Mus. inv. 1433 (Hinweis H. Weber): F.J. de Waele, *AJA* 37, 1933, 439 Taf. 52, 1; E. Capps jr., *Hesperia* 7, 1938, 544ff. Abb 3.4 führt die Kopie auf ein Werk der pergamenischen Kunst zurück und vergleicht bereits den Kopf aus Gerasa. Doch ist der Korinther Kopf in der plastischen Formensprache viel pathetischer und etwa dem bärtigen Kopf des Kleinen Frieses nahe, Pergamon 1112, 192 Taf. 36,1.
- 14. Am nächsten kommt noch ein von Schefold Asklepios benannter und in das 1. Jh. v. Chr. datierter Kopf der Slg. Käppeli, K. Schefold, *Meisterwerke griech. Kunst* (1960) 280 Nr. VII391; Ausst.Kat. Basel «Kunstwerke der Antike» (1963) Nr. A26, und Köpfe die meist aus Alexandria stammen oder mit der alexandrinischen Kunst in Verbindung ge-

- bracht werden, vgl. z.B. E. Thiemann, *Hellenistische Vatergottheiten* (1959) 91 f. 137 Bl.
- 15. Die gute Basler Kopie: *Führer durch das Antikenmuseum* (1968) 35 Nr. 34; K. Schefold, *Basler Antiken im Bild* (1958) 38ff. Taf. 31. Vergleichbar sind auch beim Kairos des Lysipp die wohl u.a. thematisch bedingten seitlichen isolierten Haarpartien, J. Boardman – J. Dörig – W. Fuchs, *Die griech. Kunst* (1966) Abb. 245.
- 16. Helbig⁴ III (1969) Nr. 2337 (W. Fuchs); E. Künzl, *Die Kelten des Epigonos von Pergamon* (1971) 7ff. Taf. 8f.
- 17. D. Pandermalis, *Untersuchungen zu den Klass. Strategenköpfen* (Diss. Freiburg i.Br. 1969) 59ff. Taf. 17ff.
- 18. A. Borbein, Marb. Winckelmannsprogramm 1970, 35f.

rekten Tradition klassischer Asklepios-Statuen¹⁹, wie sie z.B. der von Heiderich an den Anfang des Jahrhunderts gesetzte Asklepios Doria Pamfili²⁰ oder das Vorbild der Neapler Variante des Asklepios Giustini²¹ oder sogar der sog. Dresdener Zeus²² vertreten.

Daß gerade im Frühhellenismus neukonzipierte Asklepios-Darstellungen geschaffen worden sein dürften, wird auch durch die literarische Überlieferung nahegelegt, wenn wir hören, daß Demosthenes den auch heute noch etymologisch ungeklärten Namen des Asklepios von $\eta\pi\iota\sigma$ ($\epsilon\pi\iota\sigma$) ableitet,²³ das nach Pape²⁴ «durch freundliches Zureden begütigend und durch magisches Besprechen Schmerzen lindernd» meint und auch bei dem Tragiker Lykophron im 3. Jh. v. Chr. ein Epitheton des Asklepios ist.²⁵ Diese populäre Herleitung ist

wissenschaftlich heute sicherlich falsch,²⁶ zeigt aber doch, welche Vorstellungen man ab der Mitte des 4. Jhs. mit Asklepios verband und welche Erwartungen Priesterschaft und Gläubige an sein Bildnis knüpften. Hierfür nun scheint unser Kopf ein beredtes Zeugnis zu sein.²⁷

Stimmt diese Datierung, würde er auch besser diesen Zeitraum repräsentieren als dieköpfe anderer Asklepios-Statuen, die auf Grund des statuarischen Typus in den frühen Hellenismus gesetzt wurden: der Asklepios Pitti²⁸ und der Asklepios Salone.²⁹ Sie erscheinen im Vergleich recht blaß und wahrlich klassizistisch.

Stimmt diese Datierung, wäre natürlich ferner die Frage nach der gewandelten Götter – und Götterbildvorstellung dieser Zeit anzuschließen. Sie wendet sich von den Olympiern ab, die von Rodenwaldt³⁰ für

-
- 19. Vgl. auch Anm. 30.
 - 20. G. Heiderich, *Aesklepios* (Diss. Freiburg i.Br. 1966) 41ff.; EA. 2089-90.
 - 21. Vgl. Anm. 5.
 - 22. G. Treu in *Festschr. Benndorf* (1898) 99ff. Taf. 3; L. Curtius, *Zeus und Hermes* 1. Erg.-Heft der Röm. Mitt., 1931) 21ff. G. Lipppold, *Griech. Plastik* (Handb.d.Altertumswiss. VI, 1950) 190 Anm. 9; zur Kopfreplik Thermenmus. vgl. Helbig⁴ II Nr. 2206 (H.v.Steuben).
 - 23. Ps.-Plut.vit. 10 orat. p. 261 (Hutten); Eustathius ad Iliadem ad Iliaden 4,202; Herodian 1 p. 122 (Lenz); vgl. die Sammlung der Testimonia bei E.J. u. L. Edelstein, *Asclepius* (1945) I 124ff. Nr. 266-276.
 - 24. W. Pape, *Handwörterbuch der griech. Sprache* (1914) 1174.
 - 25. Alexandra 1054 (Kinkel) und Scholion, ebenda p. 165, in dem Ἀπλίος als der ältere Name des Asklepios bezeichnet wird; bereits bei Homer in Verbindung mit $\phiάρμακα$ pharmaka verwendet, Il. 4,218; 11,515.830. Die Kassler Inschrift, M. Bieber, *Die antiken Skulpturen und Bronzen* (1915) 39f. Nr. 80 Taf. 33; IG II² Nr. 4533, nennt Asklepios $\eta\piι\alpha\phiρων$ epiophron und stammt zwar aus dem 3. Jh.; geht aber auf Aiphron, einen Dichter des 4. Jhs. v.Chr., zurück; vgl. U.v. Wilamowitz, *Griechische Verskunst* (1921) 494.
 - 26. Vgl. H. Frisk, *Griech. etymologisches Wörterbuch* (1960) 164f.; RE. 112, 1643.
 - 27. Einen vagen Eindruck der Gesamtwirkung des statuarischen Motives vermögen vielleicht die Statuetten Brit.Mus. 1694, R. u. E. Boehringer, Homer (1939) 139 Taf. 118 vgl. auch Taf. 114ff., und Milles Coll., A. Andrén, *Opusc.Romana* 5, 1965, 102 Nr. 20 Taf. 23, zu geben. Die Berliner Statuette, Abb. in Roscher, ML 1 636, hat A. Furtwängler, Meisterwerke (1893) 398 Anm. 4, als neuzeitlich ausgeschieden. Die römischen Statuetten übertreiben zwar die gesenkten Kopfhaltung ins Sentimentale, doch zeigen sie sehr deutlich das unterschiedliche und neue Verhältnis zwischen Götterbildnis und Betrachter auf.
 - 28. Vgl. Anm. 6.
 - 29. Rom, Kapitolin.Mus. Salone 5; G. Heiderich a.O. 63; Helbig⁴ II Nr. 1396 (H. v.Steuben).
 - 30. G. Rodenwaldt, *ΘΕΟΙ ΡΕΙΑ ΖΩΝΤΕΣ* (THEOI RHEIA ZOONTES) (Abh. Preuss. Ak.d.Wiss.Phil-Hist.Kl. Nr. 13, 1943).

die Spätklassik als die *ρεια ζωοντες* (rheia zoontes) charakterisiert wurden, und neuen persönlicheren Gotheiten zu, die den Heilserwartungen stärker entgegenkamen.³¹ Diese Erwartungen waren durchaus nicht nur transzendornter Art, sondern wurden ausgelöst durch die beständige Wirtschaftskrise der griechischen Welt im 4. Jh., die eine zunehmende Verarmung und Proletarisierung des Kleinbürgertums zur Folge hatte.³² Gerade in der Spätklassik nahm der Asklepios-Kult einen sprunghaften Aufstieg und zwar in allen Bevölkerungsschichten, doch bevorzugt natürlich bei der sozial schlechter gestellten Masse.³³ Nur am Rande sei bemerkt, daß er 293 v.Chr. auch in Rom eingeführt wurde.³⁴ In dieser Zeit wurde die Heilserwartung auch auf Sterbliche übertragen (307 v.Chr. Antigonas und Demetrios), die $\Sigma \omega \tau\eta\rho$ (Sotér-) Titulatur nimmt hier

ihren Ausgang,³⁵ ist jedoch das Hauptepitheton gerade für Asklepios.³⁶

Wie sehr diesen Erwartungen das 'seelisch affizierte'³⁷ Haupt des Arztgottes in Amman entsprach, das sich gleichermaßen in persönlicher Ansprache einen gewissermaßen zu ergänzenden Bittsteller zuwendet, dies zeigt die Tatsache, daß seine Ausstrahlungskraft in irgendeiner Weise auch die Christen angesprochen hat und er in irgendeiner Form in der frühchristlichen Kirche Aufstellung gefunden hat – wohl als Statue, denn der Hals ist ja gebrochen. Genaueres läßt sich nicht sagen, da es keine exakte Beobachtung der Fundzusammenhänge und etwaiger weiterer Fragmente gibt. Eine Verwendung als Christus im Philosophentypus und gleichzeitig eine Übernahme der Bedeutung als $\Sigma \omega \tau\eta\rho$ (sotér) ist nicht gänzlich ausgeschlossen,³⁸ wie

1. Die spätgriechische Religion und der Kult des Asklepios
2. Der Asklepios-Kult in Amman
3. Der Asklepios-Kult in der spätgriechischen Kunst
4. Der Asklepios-Kult in der spätgriechischen Archäologie
5. Der Asklepios-Kult in der spätgriechischen Literatur
6. Der Asklepios-Kult in der spätgriechischen Philosophie
7. Der Asklepios-Kult in der spätgriechischen Medizin
8. Der Asklepios-Kult in der spätgriechischen Politik
9. Der Asklepios-Kult in der spätgriechischen Religion
10. Der Asklepios-Kult in der spätgriechischen Religion

31. M. P. Nilsson, Geschichte der griech. Religion I (Handb.d.Altertumswiss. V2, 1955) 806ff.; K. Zimmermann in Hellenische Poleis III (1974) passim, bes. 1243ff. Die S. 1246 erwähnte Asklepios-Hygieia-Gruppe ist klassizistisch, vgl. Helbig⁴I (1963) Nr. 137 (H. V. Steuben); auch der Asklepios-Kopf von Melos, G. Lippold, Griechische Plastik. (Handb.d.Altertumswiss. V1, 1950) 259 Taf. 95,2, weist zwar über Köpfe wie Slg. Käppeli, Ausst.Kat. Basel «Kunstwerke der Antike» (1963) Nr. A12, und Hist. Mus. Moskau, E. Thiemann, Hellenistisch Vatergottheiten (1959) 139 E1; M. Kobylina, La sculpture antique sur le littoral nord de la mer Noire (1972) 23 Taf.7, hinaus, bleibt aber dennoch der unpersönlich Gott, der unbeteiligt in die Ferne blickt. Auf seine

- pat. isch-plastische Formensprache stellt der Kopf in Amman jedoch bereits eine klassizistisch-frühhellenistische Reaktion dar.
32. M. Rostovtzeff, The Social and Economic History of the Hellenistic World (1941) 94 ff.
33. K. Zimmermann a.O. 1247.
34. RE. II², 1676.
35. Kultisch wohl erstmalig 307 v.Chr. Antigonas und Demetrios, vgl. Ch. Habicht, Gottmenschen und griech. Städte (1956) 44ff.; H. Kasper, Griech. Soter-Vorstellungen (Diss. Mainz 1961).
36. RE. II², 1677 f.
37. E. Thraemer in Roscher, Mythologisches Lexikon I (1884-86) 636.
38. RE. IIIA1, 1218f. (F. Dornseiff); F.J. Döller, Antike und Christentum 6, 1950, 241ff.

eine sogar typologisch verwandte Christus-Darstellung auf einem Sarkophag beweist.³⁹ So frühe christliche Standbilder sind zwar spärlich in der antiken Literatur bezeugt,⁴⁰ aber nur zweifelhaft überliefert und in der Forschung heiß umstritten.⁴¹ So gewinnt der Kopf aus Gerasa auch von ganz anderer Seite an Gewicht, wenngleich er zu dieser Diskussion keinen entscheidenden Beitrag liefert, da sein Fundzusammenhang zu unsicher ist. Wann die zugehörige Statue aufgestellt und wann sie mit der Kirche

zerstört wurde, bleibt ungewiss; lediglich hinsichtlich des Datums der Zerstörung lässt sich vermuten, daß sie entweder während der sasanidischen Besatzung (614-28 n. Chr.) oder bei der Eroberung durch die Mohammedaner 635 n. Chr. erfolgte, spätestens aber bis zum Edikt Yazids II. (720-24 n. Chr.), das alle bildhaften Darstellungen vernichten hieß⁴²

Klaus Stemmer



-
- 39. Rom, Thermenmus. 67.606; F. Gerke, Die frühchristl. Sarkophage der vorkonstantinischen Zeit (1940) 223ff. Taf. 34. 36,1; 1; J. Engemann, Untersuchungen zur Sepulkralsymbolik der späteren römischen Kaiserzeit (1973) 87 Taf. 57b.
 - 40. So vor allem die berühmte Gruppe zu Paneas in Palästina, die Christus mit der Blutflüssigkeiten gezeigt haben soll, Eusebius, h.e. 7, 18, 2f.; O. Wulff, Altchristliche und byzantinische Kunts I (1936²) 115. 149f. II Nachtrag 18f.; H. Leclercq in Dict. d' Arch. Chret. et de Liturgie 13 (1937) 1014f.s.v.

Paneas, in der man auch schon mit guten Gründen eine ältere Asklepios-Gruppe vermutet hat, die dann als Christus-Statue umgedeutet worden sei, vgl. Lit. bei J. Wilpert in Strena Bulliciana (1924) 295 ff., der sich allerdings für eine christliche Entstehung ausspricht. — Für fachlichen Rat danke ich H. Kaiser-Minn und H.-G. Severin.

- 41. Vgl. J. Kollwitz in RAC II (1954) 321ff. s.v. Bild; III (1957) 3f. s.v. Christusbild.
- 42. C.H. Kraeling, Gerasa — City of the Decapolis (1938) 67ff.

The 1976 Season of Excavations at Tell Hesbân

by Lawrence T. Geraty

With most of its goals reached, the fifth season of archaeological excavations at Tell Hesbân, some 25 kilometers southwest of Amman, came to an official close on August 11, 1976, having begun eight weeks earlier on June 15. The results of the previous four seasons of work were reported in *ADAJ* as follows: the 1968 season: XII–XIII (1967–68) 51–52; the 1971 season: XVII (1972) 15–22; the 1973 season: XVIII (1973) 87–88 and XIX (1974) 151–156; and the 1974 season: XX (1975) 47–56. Despite skyrocketing costs and unprecedented logistical difficulties (associated primarily with trying to obtain enough water for basic necessities), the core staff readily agreed that the 1976 season was the best to date in terms of results.

Again the chief sponsor of the dig was Andrews University (Berrien Springs, Michigan), under the umbrella of the American Center of Oriental Research in Amman (whose Director, Dr. James A. Sauer, served as project advisor) and with the cooperation of the Department of Antiquities (whose Director-General, Mr. Yacoub Oweis, issued the excavation permit and proved helpful in numerous ways). Further financial and staff support came from Calvin Theological Seminary (Grand Rapids, Michigan), Covenant Theological Seminary (St. Louis, Missouri), Winebrenner Theological Seminary (Findlay, Ohio), Earthwatch (a national effort conceived by the Center for Field Research in Belmont, Massachusetts, to mobilize citizens of all ages in basic field research expeditions),

and the Kyle-Kelso Archaeological Fund. The remainder of the dig's income came from student fees and the generous help of a number of private donors.

Excavation Goals on Tell

Projected as the final season of excavations at Tell Hesbân, our general stratigraphic goal was to connect Area C on the western slope with Area A on the summit (Area A was already connected with Area B, on a shelf to the south, through Area D) and to complete to bedrock all squares that had been begun on the acropolis in all five seasons (1968, 1971, 1973, 1974, and 1976) so that we could ultimately publish a representative cross section of the mound from surface soil to bedrock, in quarter-pie fashion, from the western edge eastward to the center, and from the center southward to the edge of the tell's southern shelf.

In addition, certain architectural finds required further investigation. In Area A, these included the excavation of the western extent of the Byzantine basilica church, the interpretation of extensive Mamlûk remains apparently associated with the Islamic bath, and the clarification of major Roman walls that may have belonged to a temple. In Area B, our primary goal was to trace the connection between the huge Iron Age reservoir's 30 cm. thick plaster flooring first found in the original square of Area B with the 15 meter stretch of plaster retaining wall later found in adjoining squares to the east. It was hoped also that the corners of this reservoir wall

might be found so as to at least estimate the pool's extent. We also hoped to further clarify the nature of the southern access route to the acropolis by uncovering more of the Late Roman monumental stairway and its associated roadways. Between Areas A and B, in the southern most square of Area D, we had previously found considerable Iron I remains, the earliest at the site, so we decided to expose as much of them as possible. And in Area C extensive Iron Age and Roman fortifications as well as a Mamlūk domestic complex needed further investigation.

Excavation Results on Tell

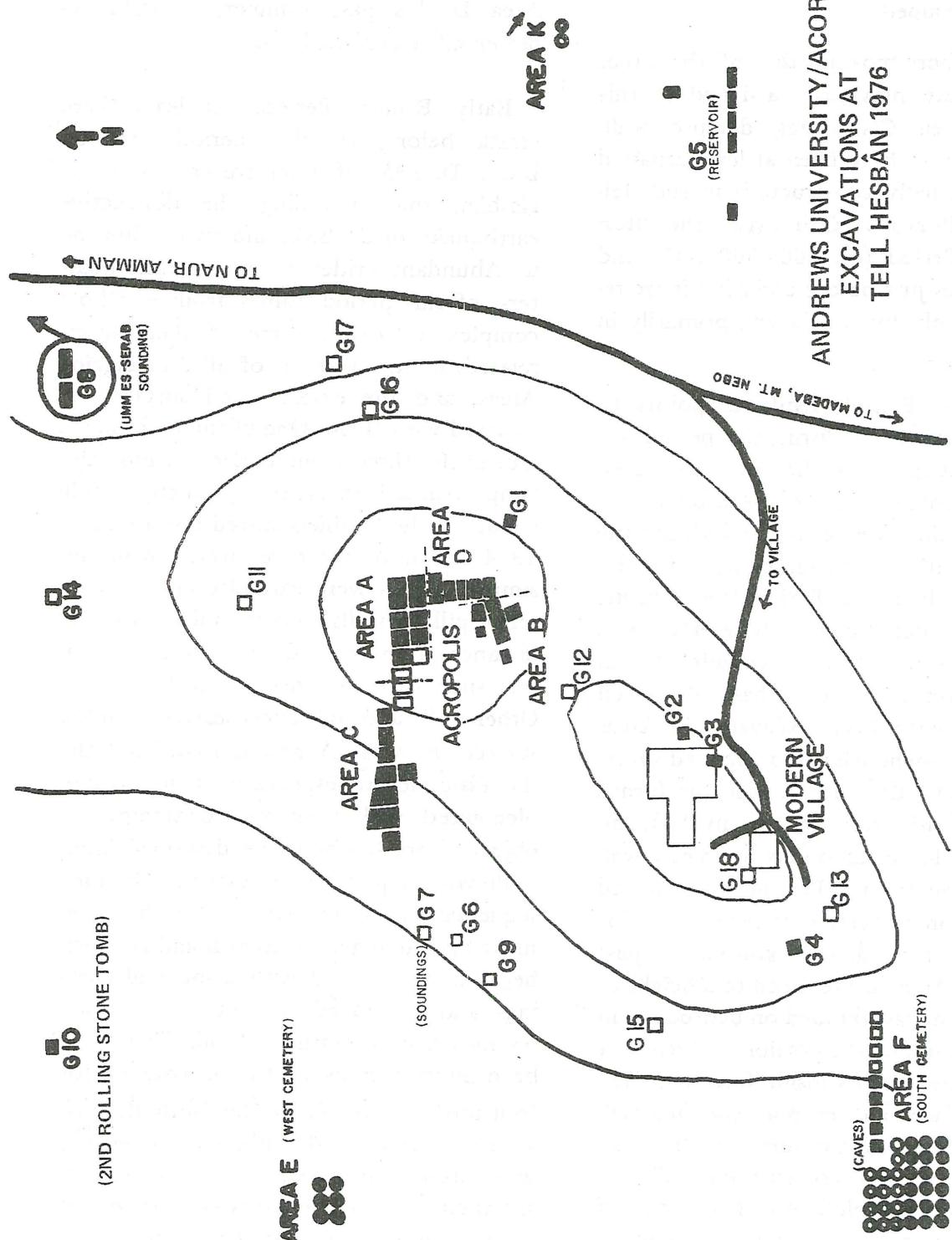
This general stratigraphic goal and these many specific architectural goals were virtually all achieved by opening up 4 new squares (to connect up Areas A and C) as well as continuing excavation in 15 previously-opened squares on the tell proper. By the end of the season, bedrock had been reached in all but one of these squares; thus out of the 32 squares begun in Areas A, B, C, and D during five seasons of work, we have reached bedrock in all but three of them (and two of these served only as limited soundings and were never intended to reach bedrock). This achievement enabled the chief stratigrapher with the help of the area supervisors to work out during the final season a site-wide synthesis and correlation of all excavated loci which yielded at least 23 strata covering a 2700 year period from Iron I to Mamlūk with very few gaps in occupation. This periodization scheme now becomes the basis for preparation of a final excavation report for Tell Hesbān.

To describe the results of this last summer's excavation in greater detail, we will start from the earliest occupational evidence on the tell and proceed to the most recent,

later returning to goals and achievements of other aspects of the expedition.

Iron I Period. PI. VII, I. As with previous seasons, the earliest stratum of occupation attested anywhere on the mound dates back to the Iron I Period (ca. 1200–1000 B.C.). The only architectural elements associated with this stratum (in Area D, a plastered cistern and a 5 meter deep, 13 meter long, reservoir [?] of undetermined width, and in the Area B continuation of this unusual feature, where it had narrowed to a deep channel in bedrock, a major wall built of rough, tightly-fitting boulders) belong to Iron IA (12th century B.C.) as does the 4 meter deep rapid fill in the Area D reservoir [?]—a fill remarkably similar to the later Iron II/Persian fill layers that were dumped into the Area B reservoir. But in the two squares farthest down the hill to the west in Area C, a 2 meter deep fill yielded an abundance of Iron IB and C sherds in addition to Iron IA sherds, about 80 circular ceramic loomweights, and an uninscribed seal containing a design typical for this period.

Iron II/Persian Period. The most notable structure of this stratum—previously reported from Area B—is undoubtedly the largest such Iron Age reservoir on Jordan's East Bank PI. VII, I. This past summer it was cleared all the way to its plastered bottom along its 6 meter deep plastered eastern retaining wall, partially cut vertically through bedrock and partially constructed header-stretcher fashion. Furthermore the two rounded plastered corners of the reservoir associated with its 16 meter long eastern wall were also excavated. Tip lines within the excavated portion of the reservoir indicate it was probably square; thus it would have originally held 1,200,000 liters of water. Whether the ca. 800 B.C. date of its upper courses applies



A schematic plan of Tell Hesbān, showing previously opened squares or tombs in black, while those begun in 1976 are white. Notice the expanded nature of the work this season.

FIG. 1

to its construction or only its repair could not be ascertained.

The southern most portion of the other key structure previously assigned to this stratum, Area C's zigzag defense wall, now appears to have been at least repaired (if not originally constructed) in the Hellenistic Period. Otherwise the Iron II/Persian Period (ca. 800–500 B.C.) and the centuries just before and after it are represented only by soil layers, primarily in Areas B and C.

Hellenistic Period. Evidence points to two strata at Hesbân during this period (ca. 250–63 B.C.), the earlier one associated with reoccupation of the site after a possible gap in the Late Persian Period, and the later one, with the strengthening of the site in the Late Hellenistic Period. It was during this period that the Area B reservoir was filled with soil, that a lower defense wall was constructed around the base of the tell (portions having been excavated in Areas D, B, and C—where it was associated on its inner, uphill side, with a rock platform), sometimes with cross walls (as in D.4), and that the well-built acropolis perimeter wall protected the summit. Previously excavated in Area D, an 8 meter long portion of this latter perimeter wall was exposed this past summer in Area A. Preserved to a height of 2.5 meters, it was founded on bedrock—as in Area D, but unlike the portion in Area D, it was associated on its inside face with Hellenistic surfaces and even an abutting Hellenistic wall (which later served as the foundation for the northern exterior wall of a Late Roman temple). Another series of Hellenistic installations previously reported are the nearly ubiquitous rock-cut caverns called variously cisterns, wine cellars, or storage pits. At least the unplastered ones may now be considered silos since in the vicinity of possible threshingfloors on bedrock, several of them have contained chaff,

pyramid-shaped weights, and in one case in Area D this past summer, a perfectly-preserved Hellenistic lamp.

Early Roman Period. At least three strata belong to this period (ca. 63 B.C.–A.D. 135) of extensive occupation at Hesbân, one preceding the destructive earthquake of 31 B.C., and two, following it. Abundant evidence for domestic quarters of this period comes from a whole complex of caves, some of them interrelated, in the bedrock of all four digging Areas, and the exterior soil surfaces associated with them. One of these produced a beautiful three-spouted black «Herodian» lamp with a high central (broken) handle similar to the double-spouted one found in 1974. Some of the caves were rough and simple, others were carefully cut with interior pillars, walls, and several rooms. The distance from front door to back wall in one such cave in Area C was 13 meters. Other walls and soil layers scattered on the surface in Areas A and C round out the domestic picture, especially when it is supplemented with numerous contemporary objects from tombs to be described later.

Previous reports have described the long sequence of plaster layers and their soil make-up found across Areas B and D which began in this period with associated curnings and continued without interruption on into the Byzantine Period. They have been interpreted as a series of roadbeds for foot traffic, or plazas. In the southern most square of Area D this plaza led from the west through a broad gateway to a courtyard and thence through a narrower gateway out onto a ramp on the east that probably led up onto the acropolis; this ramp was repaired and reused in the Late Roman Period as well. (Another ramp, probably later, but similar in design and function, was also excavated in the easternmost square of Area C.)

Perhaps as a result of the 31 B.C. earthquake, the Hellenistic acropolis perimeter wall appears to have been repaired and buttressed in this period. In Area A, the buttressing took the form of a deep sloping layer of stones laid directly on bedrock against the outside of the perimeter wall; in Area D, a sloping buttress wall was laid up against a fill of Hellenistic soil that lay several feet deep along the outer face of the perimeter wall. Between this buttress wall and the gateway-courtyard-gateway-ramp complex (already described) to the south were the walls and floor of a house that opened onto the plaza to the west.

The period's most impressive preserved architecture belonged probably to Area C's high (6 meters preserved) stone tower whose northeastern foundation trench went down through about 5 meters of Iron Age fill to reach bedrock. Its western facade and interior seem to have been rebuilt in Late Roman and Early Byzantine times when the structure saw continued use, surely as some type of public building.

Late Roman Period. Occupation at Hesbân continued through at least two strata during this period (ca. A.D. 135–324). At first there was basically a continuation of the Early Roman features, at least in Area D where the buttress wall was given a new skin and the adjoining house to the south was reused, and in Area C where the high tower was remodeled and the cave rooms saw continuous habitation—even with rebuilt entrances in two cases. But then came the construction of the Area D monumental stairway Pl. VII, 2, right over the buttress wall and house already described. First discovered in 1973, this imposing stairway was traced further west this past summer into Area B until its entire preserved width of 13 meters was exposed. An adjoining robber

trench suggests it originally went another 2 meters at least. Along the entire stretch of its base it was associated with contemporary plastered roadway or plaza layers. Obviously this grand southern entrance to the acropolis must have led to an important public structure at the summit. Several imposing Late Roman walls in Area A suggest the presence of a temple during this period—one that was oriented toward the east and preceded by a paved platform and a stylobate wall that would have supported four columns. In fact, this temple may even appear on the rare Elagabalus coin minted at Esbous (Roman Heshbon) ca. A.D. 220; two examples of which have been discovered at Hesbân. These exterior temple walls (those running east-west abutted the Hellenistic perimeter wall on the west) and many of its finest architectural fragments (such as pillar bases and capitals) were later reused in the Byzantine basilica which succeeded it. The above mentioned Area C ramp with its associated retaining wall may have been one access route from the west at this time. Also in Area C, a Late Roman domestic complex was excavated—one that probably lasted until the A.D. 365 earthquake.

Early Byzantine Period. No less than six strata belong to this active period at Hesbân (A.D. 324–450). In all of these the monumental Roman stairway of Area D continued in use, but with each there was a new resurfacing of the adjoining roadway or plaza which naturally gradually raised its level in relation to the stairway. From off the Area B stairs in a secondary Early Byzantine context came the prize artistic find of the season: a finely executed ivory plaque depicting «Prometheus Bound.» True to the myth, he stands with his arms above him, his wrists bound to the rocks, while a vulture eats out his entrails—all this a punishment for his having revealed to man the secret of fire Pl. VIII, I.

The destructive earthquake of A.D. 365 provided a midpoint for the Early Byzantine strata. It apparently strewed rocks clear across the Area B plaza, caused massive collapse in a subterranean installation in Area C, and may have even been responsible for ceiling fall in several of the tombs to be described later. This may have been the occasion for the Early Byzantine rebuild of the high Roman tower in Area C where a cooking pot, juglet, and unique four-spouted lamp (whose handle ends in the eye and beak of a bird) represent the refurbishing.

The last Early Byzantine stratum (ca. A.D. 400–450) represents a major new development at the site. At least partially reusing existing Roman architectural fragments and some Roman walls as foundation, a basilica-type Christian church was constructed. Probably at the same time, the large Area B kiln discovered in 1968 was built to produce the lime needed for plaster in the new church. Both the church and the kiln have been described in previous reports. This past season, however, we were able finally to clarify some of the problems connected with the narthex which remains mostly buried under the later Mamlūk bath complex: the wall separating the narthex and nave and the main entrance from one to the other were identified. The fourth and fifth pillar bases along the northern stylobate wall were also discovered.

Late Byzantine Period. (Pl. VIII, 2) Evidence for at least two strata from this period (ca. A.D. 450–661) was found, primarily associated with the ecclesiastical structures on the acropolis, most data having disappeared from lower down on the sides of the mound (Areas B and C) due probably either to erosion or robbing. In the mid-6th century A.D., the church in Area A, or perhaps rooms associated with it, were extended considerably to the west;

this is claimed on the basis of the discovery in two different probes this past season of two mosaic floors, one in A.9 on the north, and the other continuing under the west balk of A.6 on the south, on into A.8 (and possibly even A.10). The narthex wall for this Late Byzantine phase of the church was never found. Associated with it to the south in Area D, however, between the church and the acropolis perimeter wall, was the fine dolomitic limestone tile floor described in earlier reports. In the final Late Byzantine stratum this tile floor was covered with closely-fitting flagstone pavers associated with a new entrance through the acropolis perimeter wall and a new stone stairway outside it to the south (the old Late Roman stairs finally having been replaced).

Umayyad Period. The first Arab period (ca. A.D. 661–750) is represented by at least one stratum, with substantial remains again only within the acropolis perimeter walls. A house on the flagstone floor in Area D and the unusually large (2 meters in diameter, 1 meter deep) and well-preserved ceramic oven cut through a Byzantine mosaic floor in Area A have been described in previous reports. Though no major new finds from this period were made on the tell proper, some important data (to be mentioned later) from this stratum was uncovered in two soundings in the modern village to the south of the tell.

Abbāsid Period. Again, the remains of this period (ca. A.D. 750–969) comprise only one stratum at Hesbān. In addition to an Area B stone-lined pit which had previously provided the best evidence, this last season yielded several new soil layers in Area A.

Ayyūbid/Mamlūk Period. (Pl. X, 1) After a gap of over 200 years represented by some pottery but no architecture or soil

layers, came at least three strata (ca. A.D. 1200–1456). The middle stratum, Early Mamlūk, appears to have been a real renaissance for Ḥesbān, short-lived though it was. All Areas have produced some evidence. The vaulted room and series of cisterns from Area D were previously reported, as were numerous habitation caves, both on and surrounding the tell. The largest one by far, however, was discovered only this past season in Area B. One hundred meters in extent and in some places two stories high, it may be more properly termed a cave-cistern complex. Too large to excavate in the final season, it was only explored; from off the surface came two large, beautifully glazed Mamlūk bowls—one patterned in brown and yellow, the other in black and green. A large complex of domestic buildings—with well-preserved walls, intact floors and thresholds, and numerous artifacts—was laid bare in the eastern sector of Area C. One vaulted building contained three rooms, each with two plastered floors in primary association with the walls. The floor of the northernmost room incorporated eight small (9 cm. diameter) cuplike circular installations, arranged in pairs, and filled with reddish earth; we have no good explanation of their function. Outside the room to the west was a water channel and sump constructed on bedrock, probably for drainage.

The Area A vaulted room, courtyard with associated channels and cisterns, and the well-preserved bath complex (Pl. IX, 1) have all been reported before. Immediately adjacent to the bath's western wall, between it and the acropolis perimeter wall, however, another major Mamlūk architectural complex was excavated in 1976. Its central feature was the finest flagstone-paved courtyard so far found at the site (Pl. X, 2). On this pavement, against the western wall of the bath, ran a high plastered bench ending on the north at a water

installation whose exact function was not clear, though it was certainly related to a drain beneath the pavement. Opening onto the northern side of the courtyard were four thresholds from adjoining corridors and rooms, while on the southern side, there were only three—including a round-about indirect access corridor from the bath. The courtyard may have remained open to the west since its entire width from north to south was at one time spanned by an arch whose well-cut springers both remained *in situ*. Beneath this arch, on the western portion of the courtyard an extensive plastered platform was later added next to the acropolis perimeter wall. Altogether, these well-preserved and related Mamlūk structures in Area A indicate a high level of creativity on the part of their builders.

Following the Late Mamlūk stratum at Ḥesbān there was another gap in occupation of about 450 years until the settlement of the Modern Period which has taken place since World War I.

Further Expedition Goals and Results

Besides the stratigraphical and architectural goals for Areas A–D on the acropolis of Tell Ḥesbān, the results of which have just been summarized, there were a number of related objectives.

Soundings. In 1973 a series of small soundings (collectively labelled Area G) was begun around the edges of the tell and in the modern village with the goal of testing the reliability of the main stratigraphical sequence obtained from the acropolis. By 1974, these soundings of the stratigraphy in the vicinity of the tell had reached the number of ten. This past season we continued one previous sounding (G.4) and initiated eight more (G.11–18).

In addition to bringing to light some important complementary data, their combined results appeared to confirm the accuracy and completeness of our more extensive work on the acropolis, especially in terms of occupation history.

Sounding G.12 was located in the saddle between the acropolis and the modern village to the south. Completed to bedrock, the earliest feature discovered was a cistern whose date was no later than Hellenistic but possibly Iron Age, though its latest plastering was in the Mamlūk Period. A deep wall which abutted its neck stones was added later in the Late Roman and Early Byzantine Periods.

Farther south at the old Nabulsi family manor in the village, Sounding G.18 revealed a probable Late Byzantine construction date for the imposing wall fragment upon which the northwestern corner was built. Slightly to the northwest from G.18, in a courtyard sector of the village, was Sounding G.13 which uncovered a portion of an Umayyad underground plastered pool with at least one associated vaulted passageway. (Though neither of the foregoing soundings were completed to bedrock, the following two were.) At the edge of the village still farther north was previously worked Sounding G.4, a cistern-cave complex roughly 17 meters long, 3 meters deep, and 4 meters wide. The cruciform-plan of the cistern proper may go back to the Roman Period to judge from the sherds imbedded in its first plaster layer as well as the apparent date of the stairway leading down into it. In the Byzantine Period it was cleaned out and may have been reused for domestic purposes since several lamp niches appear to have been cut in the walls at that time and a cooking pot was found in the remains of a fire. Later, in the Umayyad Period, the vertical mouth

was rimmed with collar stones but subsequently blocked in the Mamlūk Period when the cistern was connected up to an adjoining cave by cutting a tunnel between them. Down the hill from G.4 to the west was Sounding G.15 where another imposing wall was found, perhaps built in the Roman Period, though all loci on its inside face were Ayyūbid/Mamluk all the way down.

On the north edge of the acropolis Sounding G.11 laid bare another wall along a scarp of bedrock. Beneath it was the vaulted entrance to another cistern—obviously used last in the Ayyubid/Mamlūk Period. To the east and slightly to the south was Sounding G.16 on the tell's eastern slope where very little previous work had been done. Though Late Byzantine soil layers and walls were reached, there was unfortunately not sufficient time to complete the probe to bedrock. In a north-easterly direction not far from the Na'ur-Madaba road those in Sounding G.17 reexcavated a small portion of a mosaic floor that had been first reported to Bastiaan Van Elderen in 1970 and seen by him that same year. Perhaps the floor of an «East Church», it contained a 6th century A.D. pattern (showing evidence of iconoclasm) almost identical to the Masuh Byzantine church floor excavated by Van Elderen in 1970. The sounding's only purpose was to reestablish and report the location of the mosaic floor so it might be included in any future work at the site.

When the expedition's drafting team discovered what looked like an apse wall almost hidden in another fence wall in the saddle north of the tell, Sounding G.14 soon established there the presence of another church (Pl. X, 2). Quickly dubbed the «North Church,» its dimensions appeared to be nearly 30 meters east-west by 15 meters north-south, with at least some

of the original structure possibly preserved to a height of 2 meters. A trench across the apse wall that was completed to bedrock outside the church combined with the architecture of the church itself, produced evidence to suggest two Late Byzantine phases for the church after its founding in the late 5th or early 6th centuries A.D., the second phase being connected with the addition of an «elder's bench» in the apse. Over the mosaic floor associated with this second phase was a domestic complex probably to be dated to the Umayyad Period, partly on the basis of a very important early Islamic coin. And last came three layers of (probable) Mamlūk cyst burials in which all the skeletons were oriented east-west (with the apse), many of the thirty with grave goods.

Cemeteries. Beginning with the 1971 season numerous Roman and Byzantine tombs have been excavated in Cemeteries E and F, to the west and southwest of the tell, respectively. The artifacts and skeletons from a variety of rock-cut tombs have complemented nicely the data gleaned from contemporary strata on the tell. In 1976 it was hoped that the same objective could be achieved for the Iron Age. Though a systematic search of the surrounding hillsides likely to conceal an Iron Age cemetery was undertaken, no earlier tombs were found. Realizing such an endeavor has more to do with chance than skill, we contented ourselves with the careful excavation of several new types of tombs for the Roman and Byzantine Periods. The following features were especially noted and studied: architectural elements, typology, tooling techniques (e.g. one tomb had been cut with at least five different tools while another had only one used throughout), history of robbing, stratigraphy (e.g. it was observed that the phasing of tomb interiors coordinated well with the stratigraphic

evidence immediataly in front of their respective entrances). In all, 18 tombs and caves were cleared along the western slope of the tell (Area F.24–41, though F.24–26, 29, 32, 33, 35, 36, and 39 were probes that were eventually abandoned) and 2 tombs, in a brand new cemetery across the Wadi el-Marbat to the east (Area K.1,2).

Four of the tombs originated in the Roman Period. The earliest, F.31, was a typical loculus-type Early Roman tomb though its heaviest use appeared to be in the Late Roman and Early Byzantine Periods. A collapsed ceiling, due perhaps to the A.D. 365 earthquake, kept it from subsequent robbing (three «Herodian» lamps were found fallen immediately below a lamp niche in what looked like earthquake tumble). Primary, secondary, and cremation burials were all represented-more than 30 skeletons in all. One loculus alone produced about 30 objects, many of them distinctive (e.g. a four-handled Early Roman cooking pot, a scarab-obviously an heirloom and not a Roman imitation, a Nabataean painted spouted juglet, and an alabaster footed bowl (Pl. XI, 2).

Tomb F.28 was cut slightly later in the Early Roman Period though its use pattern and *terminus ad quem* was the same as F.31. It produced a few objects, some pig bones, and 7 skeletons, but was interesting primarily because it had an arcosolium above each set of loculi.

Tomb F.27 was Late Roman in origin but was reused and robbed in Byzantine (and modern) times. It was mixed in type with 8 loculi and 3 sarcophagi containing some 17 burials. From a Roman loculus came an exquisite gold earring (Pl. XI, 2) with settings containing both a pearl and a blue cameo-type relief of a woman's head, a fine incense burner, and several bone and

ivory pins. Tomb F.40 was likewise Late Roman but empty.

Two of the tombs (F. 30 and K.1) were typically Byzantine in form and contents (as was K.2 though it was not excavated). Tomb K.1 produced an interesting bronze mascara bottle in the stylized shape of a female figure.

Four caves were excavated-two of them apparently used only as animal shelters or for domestic purposes: F.41 in the Ayyūbid/Mamlūk Period and F.34 in the Byzantine Period. Wasters in the latter indicated the presence of a neaby potter, at least in Late Byzantine times. The other two caves were used for burials: F.37 had a vertically cut wall towards the back with five sarcophagi arranged along the edges around a fine balatte pavement. Late Roman in construction, it had a disproportionate number of infant bones (35 fetuses out of 50 burials). In the Byzantine Period this installation was damaged (purposely?) and in the Ayyūbid/Mamlūk Period it was altered for domestic occupation. Cave F.38, too, was Late Roman continuing into Early Byzantine, and contained multiple (primary but disturbed?) burials-about 25 skeletons with three times that many grave goods. Whether these burials were in a cave because they were poorer or because some special circumstances surrounded these persons' death and burial could not be ascertained.

Regional Archaeological Survey. In 1973 and 1974 a team completed an archaeological survey of the region within the approximate radius of 10 kilometers of Tell Hesbān (from Na'ur in the north to Madaba in the south, and from the Jordan Valley in the west to the Amman-Madaba Road in the east). This concentrated effort mapped 125 sites, enabling the expedition

to sketch the patterns of occupation in the Hesbān region and how the tell proper fitted into them. The team also traced the Roman road from Livias (Tell er-Rameh) to Esbus (Hesbān) and conducted a sounding at Umm es-Sarab to test the validity and usefulness of surface sherding (there was a correlation between surface sherds and those excavated).

In 1976 it was decided to extend the successful work of the archaeological survey team to the triangular region between the Amman-Na'ur Road and the Amman-Madaba Road, with the hope that previous results could be tied in to the region's ancient and (rapidly expanding) modern capital before most of the relevant data were destroyed. This danger can be illustrated by the team's frustration in trying to locate within the target region at Khirbet es-Suk a milestone of the *Via Nova* identified by Peter Thomsen about 1917. Apparently the new settlement in the region has destroyed it for no trace of the *Via Nova* could be found. The team was successful, however, in mapping 30 sites in this extension of their previous radius; most of them were occupied in the Iron Age and Byzantine Period, about half of them in the Roman and Umayyad Periods, and less than a quarter of them in the Chalcolithic and Bronze Ages and the later Arabic periods.

The two most impressive tells in the region were Tell el-'Umeiri (with its spring, surface architectural remains, and evidence of occupation in every major period between Early Bronze and Iron II plus some later periods) and Jalul (PI.XII). For the latter, a detailed contour map was prepared and an experimental procedure was tried by surface sherding 101 randomly selected 10 x 10 meter squares on a grid. This effort produced 27,000 sherds from the Neolithic Period (?) to modern times, but with the

Bronze and Iron Ages especially well represented. Portions of at least 5 figurines were also found along with an inscription—an Iron Age 'alef incised on a Late Bronze Age sherd.

Other Scientific Data. Provision was made in 1976 for increased collection and analysis of the types of scientific data that have become so important for a fuller understanding of an ancient site. Thus, a team of more than twenty scientists and their assistants were on hand to provide the archaeological staff with in-field identifications of human (more than 200 skeletons) and animal bones, soils, rocks, and snails. In addition, this team sought to assemble diverse environmental and cultural data pertinent to the diachronic study of human adaptation at Hesbân. Emphasis was upon gathering data which could help to explain the continuity in the subsistence practices of the people of Hesbân from the earliest period down to the present-i.e., a continuous dependence upon animal exploitation, particularly sheep and goat.

The fieldwork carried out by this team can be divided as follows: 1) Environmental and ethnographic fieldwork aimed at illuminating our understanding of the existing ecological situation at Hesbân. Thus, ethnographic fieldwork among seven sheep and goat keeping households was carried out in conjunction with studies of the local geological, zoological, and botanical environment as well as measurements of local weather conditions (with the aid of a first-rate wheather station provided through the courtesy of Jordan's Meteorological Department Director-General, Ghazi El-Rifai). Forthcoming as a result of these activities are a cultural-ecological analysis of existing subsistence arrangements involving sheep and goats at Hesbân, a geological map of the Hesbân vicinity, up-to-date faunal and

floral lists (nearly 100 plants) of the Hesbân vicinity, and a climatic sequence for Hesbân during the past ten years.

2) Zooarchaeological and other environmental fieldwork aimed at strengthening the data necessary to establish the specific character of the subsistence practices at Hesbân during all of its occupational history. To this end, more than 50,000 animal bones have been identified and described individually—including osteological measurements of over 20,000 fragments—and all of this data is currently being prepared for computer-aided analysis. Of special interest are certain rare species which have now been identified, including at least 50 bones of wild boar, several bones of the Mesopotamian fallow deer, bones of a lion (from the Roman period) and of red deer, and possible remains of Indian humped-back cattle. It is of interest that most of these species require lusher vegetation than now exists around Hesbân. Other environmental data were collected using dry and wet sieving techniques. The hundreds of land snails, molluscs, carbonized seeds, and other organic material yielded by these procedures will serve as independent lines of evidence in the attempt to reconstruct the natural environment of each of the occupational periods at Hesbân. Our final conclusions about human adaptation and about the development of the animals themselves at Hesbân will be based upon the cumulative evidence yielded by extensive zooarchaeological analysis of animal remains taken together with the evidence yielded by the other environmental, archaeological, and ethnographic data.

3) Investigations aimed at discovering the depositional, post-depositional, and excavation factors which affect our understanding of the material excavated. For example, our environmental data retrieval

system was tested throughout the 1976 season in a «control square». Square C.9 was particularly suited to this objective since it was being opened for the first time and a wall conveniently divided the square into halves-each with comparable loci to the other. The northern half was excavated in the usual fashion while in the southern half, all soil was sieved and floated and all possible data was saved. Results were roughly comparable in the two halves in terms of sherds and objects saved; the primary difference proved to be the retrieval of a relatively much greater quantity of bones of small mammals, birds, and fish in the sieving process. Other studies were carried out to ascertain what the post-depositional factors are which may affect bones. The extent to which the chemical composition of soils affect bone preservation was what interested our biochemist. Another study-involving extensive observation of dog feeding behavior coupled with a bone survey extending over 5000 square meters-established with certainty the tremendous havoc wreaked by dogs on the make-up of animal food remains. For example, dogs were observed eating entire chicken bones, an observation which may explain why almost never were chicken bones found dispersed in the yards surrounding Hesbân households, and this despite the popularity of chicken in the villagers' diet.

In addition to the thousands of bones and hundreds of scientific samples already mentioned, the stratigraphic work on the tell and in the soundings and cemeteries yielded 800 registered small finds (among them 57 legible coins and 37 whole pots), 36,000 registered sherds, and thousands of glass fragments-all now undergoing further study. A full preliminary report of the 1976 season's results is scheduled for publication during the winter of 1977-78.

Staff

The foregoing accomplishments of the past season at Tell Hesbân are due primarily to the dedicated and persistent efforts of a large, qualified, and varied volunteer staff. Key staff members remained the same as in 1974. Lawrence T. Geraty of Andrews University was director; Roger S. Boraas of Upsala College (East Orange, New Jersey), chief stratigrapher and coordinator of specialists; James A. Sauer of ACOR, project advisor and chief ceramic typologist; Siegfried H. Horn of Andrews, former director, project advisor, and object registrar. For the first time he was assisted by Abraham Terian of Andrews who promptly identified all coin finds in the field-a major aid in maintaining stratigraphic control.

Continuing as area supervisors were Bastiaan Van Elderen of Calvin in Area A, Larry G. Herr of Harvard in Areas B (while Sauer was writing) and D, W. Harold Mare of Covenant in Area C West and Robert D. Ilbach, Jr., of Grace Theological Seminary (Winona Lake, Indiana) on the regional archaeological survey. New in 1976 were S. Thomas Parker of U.C.L.A. in Area C East (for purposes of efficient supervision the expanding Area C was divided into two areas) and John J. Davis of Grace in Areas F and K (the cemeteries). Supervisors over Area G (the nine separate soundings around the base of the tell) were B. Michael Blaine of Fuller Seminary (Pasadena, California), G.12; Robyn M. Brown of the University of Michigan, G.11, 16-18; John I. Lawlor of Baptist Bible College (Clarks Summit, Pennsylvania), G.14; and Donald H. Wimmer of Seton Hall University (South Orange, New Jersey), G. 4, 13, 15.

Back for the fifth time were chief architect-surveyor Bert DeVries of Calvin and

pottery registrar Hester B. Thomsen of Greater New York Academy. Other returning specialists included chief zooarchaeologist Øystein S. LaBianca of Brandeis (who also organized and supervised the 3 week post-session bone analysis when Joachim Boessneck and Angela von den Driesch of Munich's Institut für Palaeoanatomie served as consultants), physical anthropologists Robert M. Little of Andrews and James H. Stirling of Johns Hopkins, and chief photographer Paul H. Denton of Andrews. New in 1976 were director of education Robert A. Coughenour of Western Theological Seminary (Holland, Michigan), geologist P. Edgar Hare of the Carnegie Geophysical Institute (Washington, D.C.), and camp physician Ronald D. Geraty of New England Memorial Hospital (Stoneham, Massachusetts). Once again Muhammad Adawi of ACOR was chief cook and Mahmoud Rusan, Omar Yunis, Arif Abul-Ghannim, and Muhammad Murshed Khadija represented the Department of Antiquities, the latter as foreman. Other Jordanian archaeologists included Samir I. Ghishan, Nabil S. Qadi, and Saleh Sari.

Altogether there was a staff of about 100 from the United States, Jordan, Canada, Australia, Norway, West Germany, Finland, Switzerland, Peru, and Taiwan. This unusually large group (which was assisted at the tell and at camp by about 140 hired workmen) was comfortably housed about 10 kilometers south of the tell at the UNWRA Girls' School for Palestinian Refugees in Madaba. The facilities were adequate for make-shift bone and geology laboratories, a drafting room, a darkroom, and rooms for the processing of pottery, glass, and small finds—all this thanks to the

kindness of John Tanner, Director of UNWRA in Jordan, and his associates. (Despite the large staff, some of whom were overseas for the first time, we are thankful to report that there were no hospitalizations or serious accidents or illnesses during the two-month expedition.)

Other persons in Amman whose assistance greatly facilitated our work included Their Royal Highnesses Crown Prince Hassan, Crown Princess Tharwat, and Prince Raad, His Excellency Minister of Tourism and Antiquities Ghaleb Barakat, U.S. Ambassador Thomas Pickering, Elizabeth Aimé, Kenneth and Remie Fenske, and, of course, as always, Director-General of the Department of Antiquities Yacoub Oweis and his assistant, Yousef Alami, without whose cooperation none of the expedition's work would have been possible.

Future Plans

Though no further expeditions to carry out new work are planned, it is probable that after manuscripts for a final synthesis of results are well under way, it will seem advisable to return to the field once more to check or clarify certain conclusions. In the meantime the expedition has already prepared a detailed proposal for reconstruction and preservation of the excavated areas of Tell Ḥesbān (with plans and sections) which the Department of Antiquities has adopted and has already begun to implement.

L.T. Geraty
Andrews University

New Discoveries on Mount Nebo

by
M. Piccirillo
(Figs. 1 – 2)

By building a sanctuary on top of Mount Nebo, overlooking the Jordan Valley and the Dead Sea, the first Christian communities of the region wished to perpetuate the biblical memory associated with the last moments in Moses' life. Perhaps, the place had already been identified by a preceding classical funeral monument.

A Roman pilgrim at the end of the 4th century, Etheria, reports in her memoires that she visited a little church, the memorial or cenotaph of Moses, built on the summit of the mountain and kept by Egyptian monks. In the next century another pilgrim, Peter the Iberian, who came to the sanctuary twice, reported that he saw the momorial in a large church or Basilica.¹

The literary data was confirmed by the archaeological excavations directed by the late Father Sylvester Saller of the Franciscan Biblical Institute of Jerusalem, which were carried out on the top of the mountain at the place still called today in Arabic *Siyagha*, an Aramaic term for monastery. On the ruins of a Roman mausoleum with three apses (a cella trichora)², a little church had been built in the 4th

century. It was succeeded, in the next century, by a basilica with three aisles, decorated with a mosaic floor (Pl. XIII). In the 6th century a baptistery was added, propped against the southern wall, and a chapel to the Virgin Mary. On the northern wall was a large rectangular hall which Fr. Saller had recognised as being the *diaconicon* of the basilica. At that time the basilica and the lateral chapels had been adorned with a new mosaic floor.

The 1933–37 excavations stopped when they reached the floors both in the basilica and in the monastic complex that had developed on the top of Mount Nebo³ at the same time.

In the sixties Fr. Virgilio Corbo of the same Institute, resumed work in the basilica to cover and restore the mosaic floors which were until then poorly protected against the inclemency of the weather and the curiosity of tourists. Excavations under the bedding of the mosaics in the baptistery, the chapel of the Virgin Mary and the southern aisle, showed that to enlarge the little church mentioned by Etheria and to add the two lateral chapels it was necessary to sacrifice some rooms of the monastery

1. The literary sources are gathered and studied by Fr. S. Saller in the XVth chapter of *The Memorial of Moses on Mount Nebo*, Part I, pp. 330-347.
2. B. Bagatti, *Edifici cristiani nella regione del Nebo* in *Rivista di Archeologia Cristiana*, XIII

(1936) 4-13. Cfr also *Phasga* in *Dictionnaire de la Bible Supplément*, vol. VII, 1122s.

3. S. Saller, *The Memorial of Moses on Mount Nebo*, Part I, The Text; Part II, The Plates, Jerusalem 1941. III, The Pottery, by Fr. H. Schneider, Jerusalem 1950.

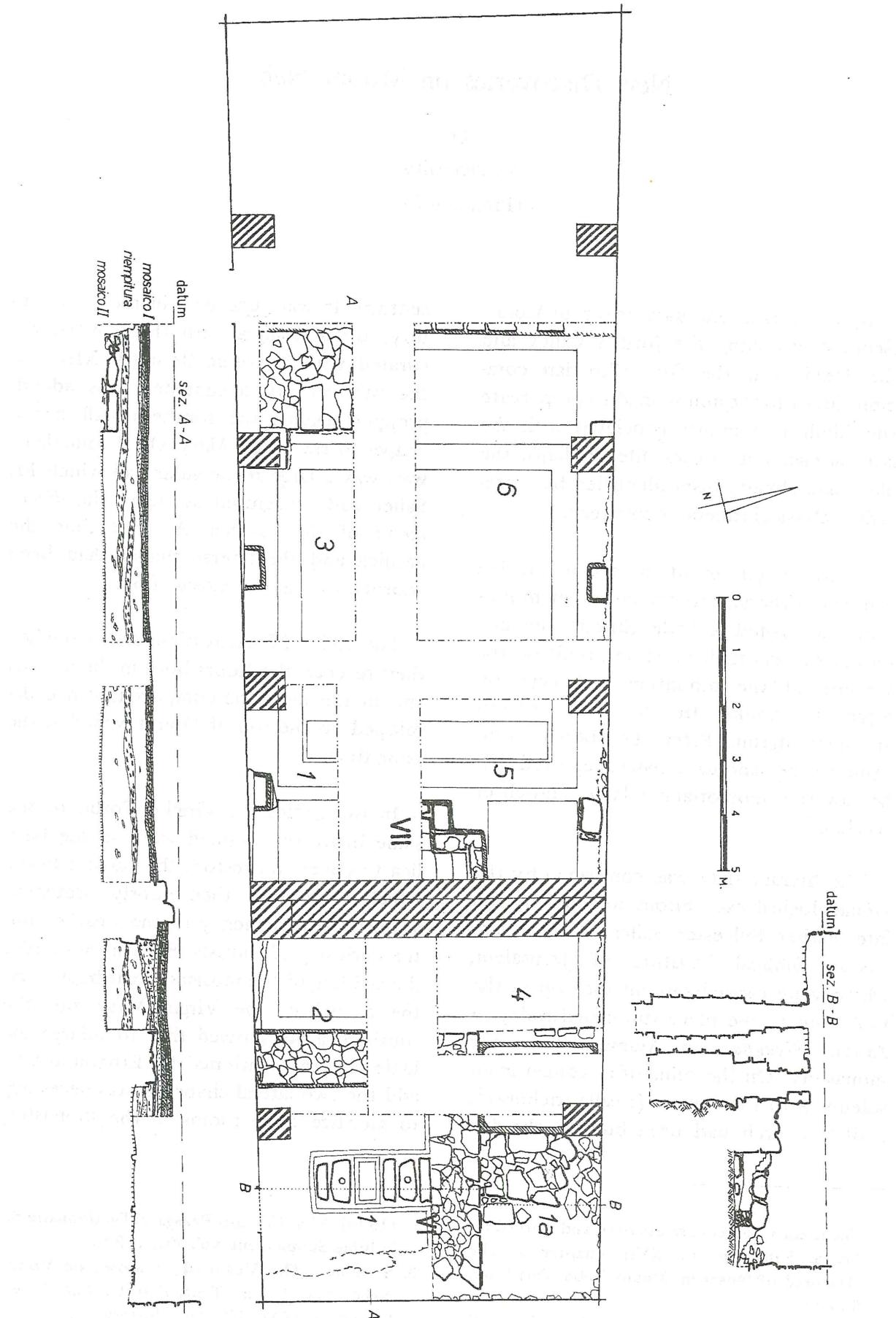


FIG. 1 - Pianta e sezioni del complesso architettonico.

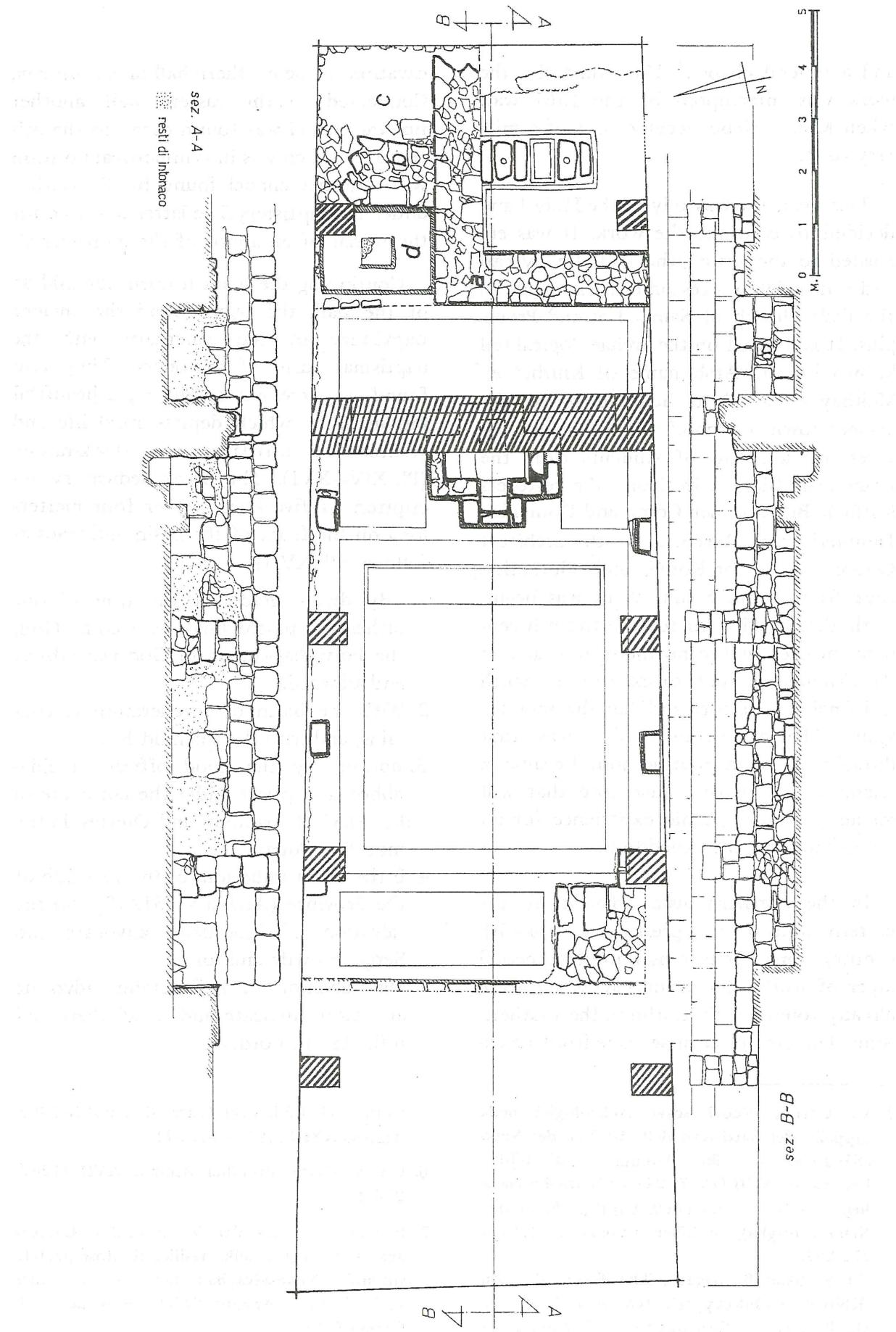


FIG. 2

and a funeral chapel.⁴ Unfortunately, the work was interrupted by the 1967 war, when Mount Nebo became part of a military zone.

This year, the Custody of the Holy Land decided to continue the work. It was entrusted to the writer who had already carried out in 1973 a restoration campaign in the little church of Saints Lot and Procopius. It is located on the archaeological tell known by the Arab name of Khirbet el-Mukhayyet which is believed to be the ancient town of Nebo.⁵ The writer was assisted by a group of students from the Franciscan Biblical Institute, the restorers Raffaele Beretta from Como and Domenico Tampieri from Ravenna, by the architect Cesare Calano of Rome, and Florentino Diez from Leon, Spain. Work was begun methodically, first to remove the 6th century mosaics in the northern aisle and in the *diaconicon*, then to excavate in depth and finally to restore and lay the mosaics again. The excavation which was first thought to be a routine job, became a scientific and artistic adventure that will remain an unforgettable experience for all the members of the expedition.

In the northern aisle, adjacent to the eastern wall of the presbytery, a 4–5th century tomb came to light under a second layer of white tessarae mosaics which were already found by Fr. Corbo in the southern aisle. The greater surprise came from the ex-

cavation in the northern hall of *diaconicon*. Connected to the eastern wall, another funeral chapel was found dated to the 5th century, which was in symmetrical position with another chapel found by Fr. Corbo, under the baptistery. The latter was used for the burial of an abbot of the monastery.⁶

Continuing the work towards the middle of the hall, the team found the ancient baptistery of the sanctuary with the baptismal basin of masonry. They also found, in excellent condition, a beautiful mosaic floor which depicts rural life and scenes of hunting and stock-raising (Pl. XIV–XVI). The Greek dedicatory inscription of five lines is over four meters long on the front of the basin and reads as follows (Pl. XVII).

1. «By divine grace, at the time of our father and pastor Elias, beloved by God, the holy diaconicon of God was rebuilt and adorned.
2. With the basin of regeneration it contains, and with the splendid Ki.
3. borion, by the good offices of Elias abbot and priest under the consulate of the Flavii Lapadius and Orestes, in the month of August.
4. In the ninth induction of the year 425 of the Province (Arabia = 531 A.D.) for the salvation of Mousileios advocate and Sergia his wife and for
5. the salvation of Philadelphus advocate and Goti advocate and of all their kinsfolk. Amen, Lord.»

4. V. Corbo, Nuovi scavi archeologici nella cappella del battistero della basilica del Nebo (Siyagha) in *Liber Annuus Studi Biblici Franciscani* XVII (1967) 241-258; Scavi archeologici sotto i mosaici della basilica del monte Nebo (Siyagha), in *Liber Annuus* XX (1970) 272-297.
5. Cfr S. Saller-B. Bagatti, The Town of Nebo (Khirbet el-Mukhayyet), Jerusalem 1949 and M. Piccirillo, Campagna archeologica a

Khirbet el-Mukhayyet (città di Nebo) in *Liber Annuus* XXIII (1973) 341-371.

6. Cfr V. Corbo in *Liber Annuus* XVII (1967) 254-257.
7. For more details Cfr M. Piccirillo, Campagna archeologica nella basilica di Mosé profeta sul monte Nebo-Siyagha (1 luglio – 7 settembre 1976) in *Liber Annuus* XXVI (1976) 281-318, Plates 49-80.

A second inscription of two lines at the entrance of the baptistery also gives the names of the artists who completed the decoration. It reads:

1. «Lord Jesus Christ, remember the clerics and monks and (all the) others who rest here (in peace).

2. Lord remember Soelos and Kaiomos and Elias the mosaacists and their whole families.»

Their work is not only intact but some of the scenes reveal a really admirable sense

of composition. Among other things, it is the first time that such scenes have been found without being enclosed in plant volutes, and it is the oldest dated mosaic with such pattern discovered in Jordan so far.

Among the fragments of plaster thrown in the filling, we have been able to gather graffiti and various letters and parts of inscriptions, always in Greek, which bear witness to veneration and use of this holy place in the 6th century.⁷

M. Piccirillo



A Byzantine Church at ed-Deir (Ma'in)

by

M. Piccirillo and M. Russan

During the summers of the years 1972–73, the Department of Antiquities excavated the Byzantine complex of ed-Deir, on the high-way Ma'in-Calliroe.

The complex is common in its plan: built on the top of an isolated hill, yet not far away from the town. Though simple and modest in its structure, it fits well for its religious aim. Quadrangular in plan, (Fig.1)¹ it consists of a small church and three chamber on its southern wall.

The small church: (PL.XVIII—and fig. 1).

It has three naves with an inscribed apse flanked by the two small sacristies. The monument is 16m. long and 15,50m. wide; Ten pilasters (5 on each side, the first two in the façade) devide the church into a rather large central nave and relatively small lateral ones. From the many fragments Pl.XIX,1, we conclude that the roof was covered with tiles, common in the region at this time.

The church has two doors: the main one in the façade, the second one in the northern wall leading to the terraced fields. The presbytery occupies the eastern bay of the central nave: it is enclosed by a low wall on the north and south and by a screen on the west. On the plaster of the southern wall, there is a socket for a marble balustrade, now in the Madaba Museum.

1. The plan and the designs of the pottery were drawn by Victor Pena, O.F.M.

Fragments of «Nebo stone»² posts and screen, sculptured with geometrical patterns, are still in situ, as is the case of the marble slab under the altar. The four colonnettes are in the Madaba Museum.

In the church are to be noted a cupboard on the southern wall, the column near the fifth pilaster, perhaps used for the ciborium, and the four steps leading to a platform near the entrance of the funeral chapel, perhaps the pulpit.

The mosaic floor is still well preserved as is a fragment of the plaster apse and appears to represent a carpet (Pl. XXIV,1). The mosaic is geometrical in design (Pl. XXI), except for the panel beside the altar which is decorated with volutes of vines. Also noteworthy are the tabula ansata in the nave with the dedicatory inscription (Pl. XXVIII,1) and the geometrical panel of the southern aisle near the entrance to the funeral chapel.

The three rooms: (Fig. 1)

In the southern wall of the church are three doors leading to three rooms. Through the first one (a), originally covered by a roof supported by an arch, one can enter the southern sacristy. The second room (b), still finely plastered and decorated with mosaics, was built in a second

2. So F. Saller calls it in Siyagha I, p. 70, when describing the same stone. Cfr, also Siyagha II, pl. 61, 1-2.

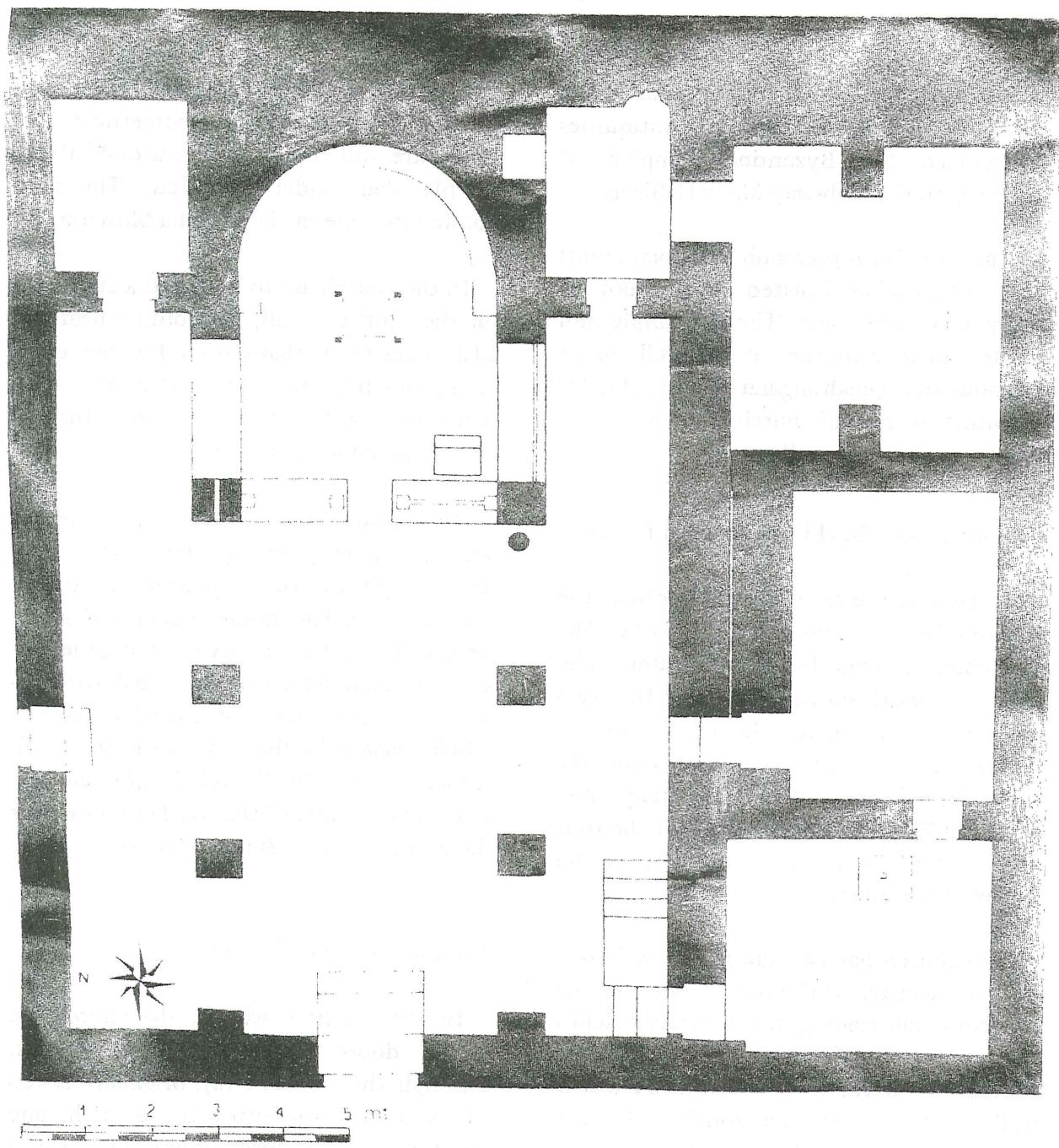


FIG. 1

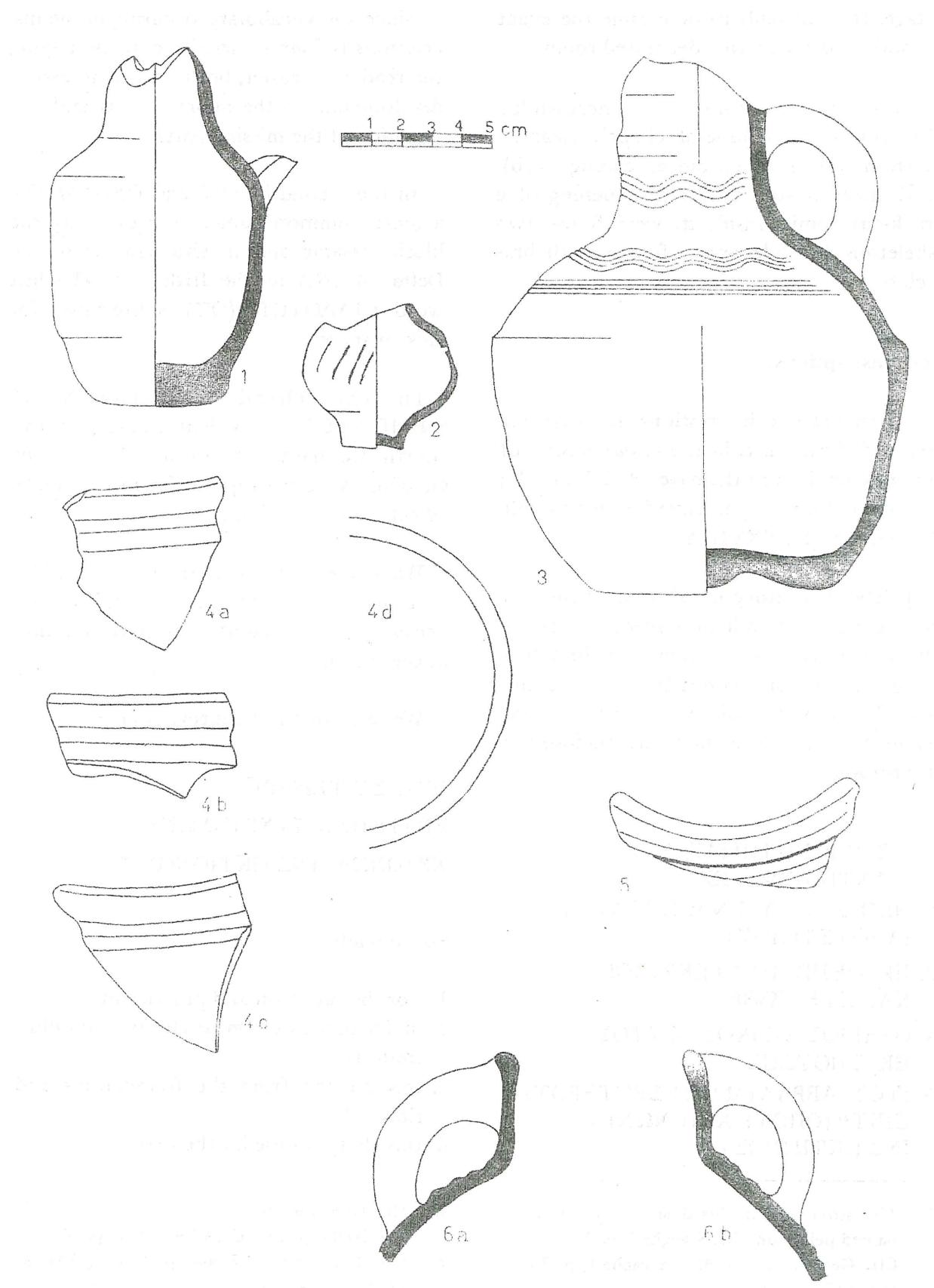


FIG. 2

stage. It is difficult to determine the exact function of such a fine decorated room.

The third room (c) meanwhile, functioned as a funeral chapel. Near its eastern wall is an entrance, leading to (b), and there is still in situ the opening of a rock-cut tomb. Inside it, were found two skeletons (a male and a female with bracelets).

The inscriptions:

There are two inscriptions: the first one (I), a dedication, is in the *tabula ansata* of the mosaic floor in the nave (Pl. XXVIII,1); the second one (II) is carved on the marble balustrade. (Pl. XXVIII,2).

I. The dedicatory inscription consists of five lines, quite well preserved, except for the lower left corner where the first two words of the fourth and fifth lines are damaged. Two crosses and two *haederae distinguentes* as two small branches enclose the inscription.

1. + ΤΠΕΡ ΣΩΤΗΡΙΑΣ ΚΑΙ
ΑΝΤΙΑΗΜΨΕΩΣ
2. ΘΕΟ(Δ)ΩΡΟΤ ΕΝΔΟΞΩΤΑΤΟΥ
ΙΛΛΟΤΣΤΡ(ΙΟΤ)
3. ΕΚ ΘΕΜΕΛΙΩ(Ν) ΕΚΤΙΣΘΗ
ΚΑΙ ΕΤΕΛΙΩΘΗ
4. Ο [ΑΓΙΟΣ Ο] ΙΚΟΣ ΟΤΤΟΣ
ΕΚ ΣΠΟΥΔΗΣ
5. [ΤΟΤ ΑΒΡΑΑ] Μ ΠΡ(ΕΣΒΥΤΕΡΟΤ)
ΕΠΙΤΡ (ΟΠΟΤ) ΧΡ (ΟΝΩΝ) Ι
ΙΝΔ (ΙΚΤΙΩΝΟΣ) +.

3. The stone which closed such a tomb was named *pellaikon*. Cfr. Siyagha I, p. 37.
4. Cfr. Gerasa, n. 344, 336. Siyagha I, p. 255. Moab 57, 59 ecc.
5. More than with *οcikos*, the adjective is used with *topos*. Cfr Gerasa, n. 285.

Since the vocabulary occurring in the inscriptions is found elsewhere in the region, the reading is easier, both for the necessary development of the abbreviations and the restoring of the missing parts.

In the second line we read ΘΕΟΔΩΡΟΥ a quite common name,⁴ suggested by the black tessarae still in situ, similar to the Delta of INΔ in the fifth line. The last word is ΙΛΛΟΤΣΤΡΙ(ΟΤ) abbreviated for lack of space.

In the third line the N of ΘΕΜΕΛΙΩΝ is evident enough. In the fourth we have part of an O and I of ΟΙΚΟΣ. We can suppose the intermediate adjective to be (ΑΓΙΟΣ)⁵

We suggest in the fifth line ΑΒΡΑΑΜ, first because of the final M, and second because this oriental name is quite common in the region.

We solve that last abbreviations :

- ΠΡ (ΕΣΒΥΤΕΡΟΤ)⁷
ΕΠΙΤΡ (ΟΠΟΤ) ΧΡ (ΟΝΩΝ)⁸
ΧΡ (ΟΝΩΝ) ΙΝΔ (ΙΚΤΙΩΝΟΣ)⁹

So we read:

1. For the salvation and protection
2. of Theodorus the most glorious and illustrious
3. was erected from the foundations and finished
4. this (holy) house by the zeal

6. Cfr. Gerasa n. 334.
7. Cfr. Nebo, p. 258. QDAP 9 (1942) p. 96.
8. Cfr. Syria, nn. 367-368, p. 291. QDAP 9 (1942) p. 64.
9. Cfr. Gerasa, nn. 275-277. QDAP 9 (1942) 112.72.

5. (of Abraam) presbyter administrator.
The sixth induction.

The two titles *most glorious and illustrious*¹⁰ in the Byzantine times are used indiscriminately. Hence it is impossible to indicate the exact nature of the civil office of Theodorus, the benefactor of the church. If our reading is correct, no similar examples for a *presbyter administrator* are known.

II. The inscription on the marble balustrade: (Pl. XXX).

The marble balustrade (1,42m by 0,87m) decorated with a cross in its centre, has the carved inscription on the upper moulded side. The stereotyped expressions enable us to read the inscription in its entirety. It is a prayer to God by the benefactor.

After KE, abbreviated (note the line on the two letters), there are four letters missing. In similar inscriptions we have the imperative of the root MIMNHΣKΩ and we can integrate the last word with (ΤΟΥ ΔΟΤΛΟΥΤ)¹². So we read:

† K E [M N H Σ] ΘHTI
ΤΩ ΣΩΕΛΕΕΙ ΙΩΑΝΝΟΥ
TOY AMAPΤΩ ΛΟΥ
[TOY ΔΟΥ] ΛΟΥ COY

To be translated: + Lord remember in your mercy John your servant the sinner +.

Pottery and other objects

We have selected some representatives:

1. Cooking pot pl. XXIX,2,1-3; Fig. 4,2.
buff ware, blackened by fire. It has an

open form with two twisted handles put horizontally under the rim. The base is round with *umbellicus*.

2. Cooking pot Fig. 4,1

As the preceding pot, reddish ware.

Parallels:

Siyagha III, p. 57, fig. 4,1.

Dhiban I, Pl. 14,9.

Dhiban II, Fig. 9,9-11; Fig. 12,35-40.

3. Jar Pl. XXIX,2 Fig. 41,3.

Fragments. Reddish ware. Without neck. Two handles.

Parallels:

Siyagha III, 19, Fig. 1,3.

Dhiban II, Fig. 12,54. 46.49.

4. Tile Fig. 4,4.

Fragment, reddish ware.

Parallel:

Siyagha III, p. 132, Fig. 5.

5. Juglet Pl. XXIX,2,9 Fig. II,1 Madaba 292.

Reddish ware. Cylindrical form. Broken neck and handle.

6. Jug Pl. XXIX,2,8 Fig. II,3 Madaba 289.

Reddish ware. Globular body, with a moulding on the neck and on the shoulder. Broken neck. Handle. Plain base with *umbellicus*. Decorated with combed lines.

Parallel:

Siyagha III, p. 93,5.

7. Juglet Pl. XXIX, 1 Fig. 2,2 Madaba 292.

Reddish ware. Globular body, decorated with shallow diagonal lines. High base.

Parallel:

Bethany Pl. 128, a-b.

8. Rim Pl. XXIX, 2, 5.7 Fig. 2,4, a.b.c.

Buff Ware.

10. Cfr. Syria, n. 305, p. 245.
11. Cfr. SEG XX (1964) nn. 378-79. V. CORBO, Ricordi dell'antico cristianesimo nel

paese di Moab in Liber Annus XIV (1964)
p. 240.

12. Cfr. Gerasa, nn. 331. 336. 344.

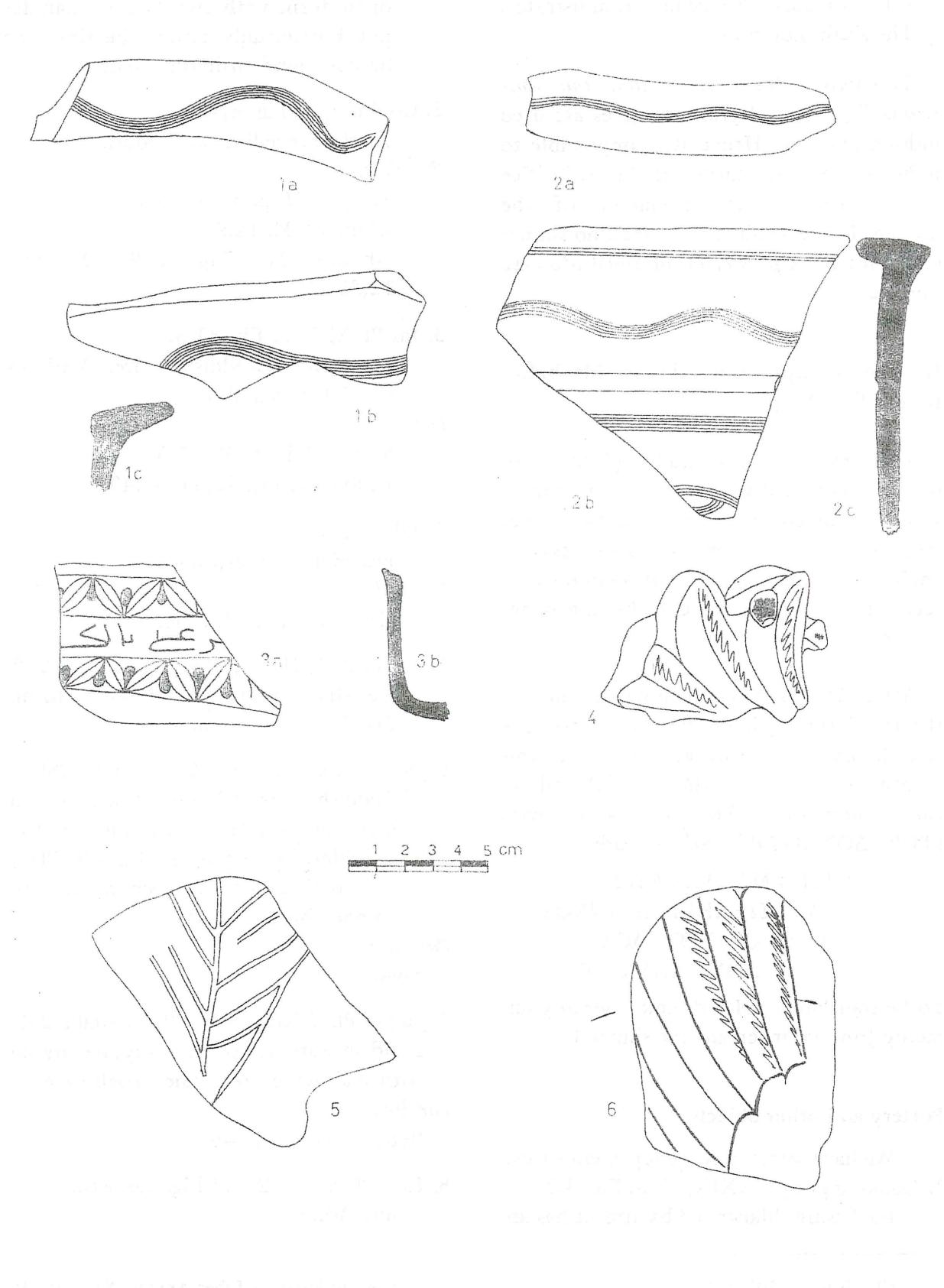


FIG. 3

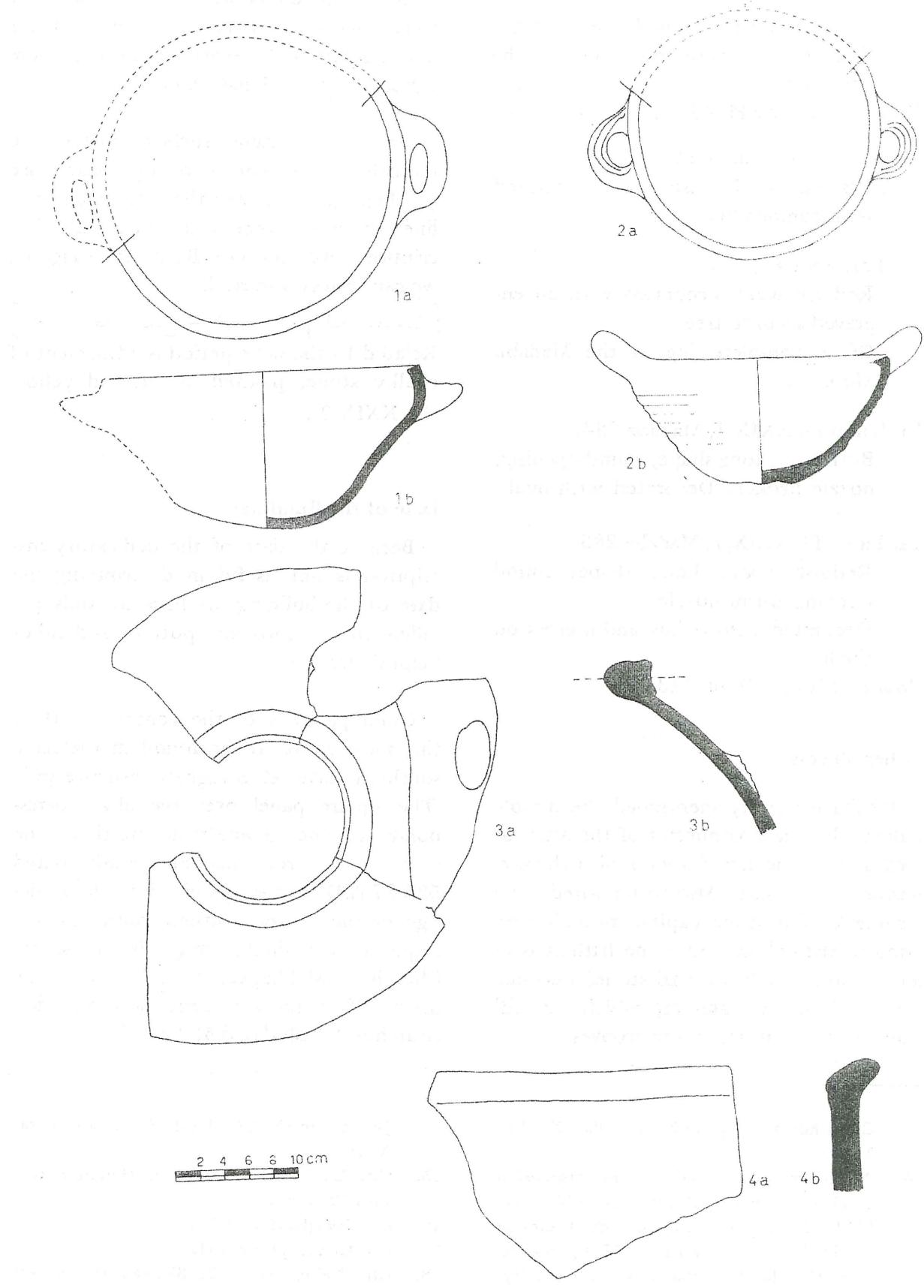


FIG. 4

9. Rims Fig. 2,6 a.b.

Reddish ware. A simple neck with a flat handle from the rim to the shoulder.

Parallel: Bethany Pl. 46, 7298.

11. Basin Fig. 3, a.b.c.; 2 a.b.c.

Fragments. Reddish ware, decorated with combed lines.

12. Fragment Fig. 3,5.

Reddish ware, decorated with an engraved stylized tree.

Cf a complete jug in the Madaba Museum.

13. Lamp Pl. XXIX,1, Madaba 284.

Buff ware, long shape, round opening, nozzle broken. Decorated with ovuli.

14. Lamp Pl. XXIX,1, Madaba 283.

Reddish ware. Long shape; round opening, burnt nozzle.

Decorated with palms and a cross on the base.

Parallel: Siyagha II, pl. 143,10.

Other objects:

We have already mentioned the marble balustrade, the colonnettes of the altar, as well as the bracelets¹³ found with the skeletons in the tomb. Also to be noted are a fragment of a stone capital, probably related to the columns near the fifth pilaster and carved on a hewn nari stone, a cosmic cross (16 cm in diameter) which has still traces of red painting in the grooves.

13. Cfr. Dhiban II, fig. 28,5. 16. e Pl. XXV,12. 15. 35.

14. A Similar object called triple suspension bracket, has been published by H.W. CATLING, *The Kornos cave: an Early Byzantine site in Cyprus*, in Levant II (1975) p. 50, fig. 5,18. Cfr also D.C. Baramki, *An Early Byzantine Synagogue near Tell es-Sultan*,

On the tabula ansate of the mosaic floor were pieces of a metal chain used for hanging lamps.¹⁴ Scattered nearby there were fragments of glass lamps.

From the Arabic surface pottery we publish a fragment of a cup, plain base (Pl Fig. 5,3). Between the two ornamental lines there are some letters of a Kufic inscription. As Antonio Battista¹⁵ suggests, we can restore and read:

[نَاعِبُ السُّلْطَةِ الْمُظَفَّرُ عَلَى الْكَسْرِ] كَ الْمُحَرَّوَةَ

Related to the same period is a fragment of chalky stone, painted in red and yellow (Pl. XXIX,2).

Date of the Building:

Because the date of the dedicatory inscription is not useful in determining the date of the building, we have to study parallels to the mosaics, pottery and other helpful elements.

Good parallels to the central motif of the mosaic are to be found in the large southern nave at Siyagha's monastery;¹⁶ The square panel over the altar corresponds to the geometrical motif in the church of Procopius at Jerash dated 526-27 A.D.¹⁷; the geometrical floral design of the central southern room (b) corresponds to a similar design in St.-George Church at Mekhayyet,¹⁸ in the Siyagha's basilica,¹⁸ in the area near the synagogue-church in Jerash dated 530-31.¹⁸

Jericho, in QDAP VI (1938) pp. 73-77, pl. XXII.

15. Cfr. L.A. MYER, Saracenic Heraldry, Oxford 1933, p. 72.

16. Cfr. Siyagha II, pl. 97,1.

17. Cfr. Gerasa, pl. LXXXII.

18. Cfr. Nebo, pl. 30,2; Siyagha II, pl. 92; Gerasa, pl. LXV.

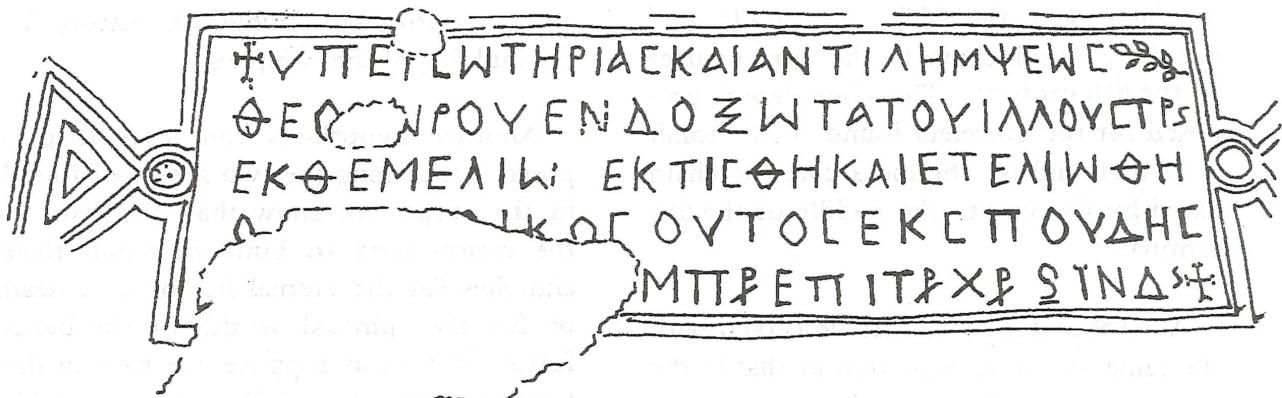


FIG. 5 Η αναπαράσταση της επιγραφής που απεικονίζεται στην πλακέτα με την αρχική διάταξη των λέξεων.



FIG. 6

Τοις προτεραιότεροι περιόδοι της αρχαιότητας, οι αρχαίοι Έλληνες θεωρούσαν την θεότητα της γης ως μια ιδιαιτερά σημαντική ιδέα. Οι θεοί ήταν οι καταβόθραντες της γης, οι οποίοι έδιναν την ζωή στους ανθρώπους. Οι θεοί ήταν οι καταβόθραντες της γης, οι οποίοι έδιναν την ζωή στους ανθρώπους.

The pottery and other objects suggest the same date: the Dhiban II parallels are dated by Tushingham to the third quarter of the 6th century. The same date is proposed for the bracelets found in the tomb at Dhiban and for the metal hanging chain dated by Cattling to the middle of the 6th century.¹⁹

A «Nebo stone» balustrade carved with the same geometrical pattern as that in the presbytery found at Siyagha, was given a late date by Father Saller.²⁰

There is another element which with further discoveries, will be of great help for more dating. During the excavations, between the northern door and the second pilaster from the main door, a skeleton was found facing downwards with its head towards the façade. Some stones had fallen on the skeleton and broken its tibia. This element, together with the metal hanging chain and the broken lamps on the mosaic floor leads one to conclude that the church was destroyed by an earthquake. In an inscription found at Rabbat Moab and published by F. Zayadine,²¹ it is mentioned that a church was repaired «after the earthquake» during the year 597. Earthquakes took place in 588 and 599. Thus we have

here perhaps a date *antequem* which agrees with our proposed middle 6th century for the building of the complex.

Another hypothesis can also be proposed, concerning the two skeletons found in the crypt. We know that Christians in the region used to build or repair their churches for the eternal life of their dead or for the spiritual wealth of the benefactors.²² We can suppose we have in the tomb the remains of Theodorus and his wife, the builder of the complex, a rich man of Ma'in, who erected the church and the three annexed rooms for funerary purposes. Perhaps the building was destroyed by an earthquake. The innocent victim was the man assigned to the church, who was killed by a stone which fell from the roof.

We can add this new element of the history of Ma'in during the Byzantine period, to what Father de Vaux published in the 30ies²³ The funeral complex probably was built around the first half of the 6th century and destroyed by an earthquake. On the ruins a family lived during the Umayyad period.

Michele Piccirillo
and
Mahmud Rusan

19. Cfr. note 14.

20. Cfr. note 3.

21. F. Zayadine, Un séisme à Rabbat Moab (Jordanie) d'après une inscription grecque du VI^e s., in *Berytus* XX (1971) p. 139-141.

22. Cfr. Nebo, cap. IV, . 138-203.

23. R. De vaux, Une mosaïque byzantine à Ma'in (Transjordanie), *RB.* (1938) pp. 227-258; *RB* (1939) p. 78 ss.

Preliminary Report on the Exploration and Excavation of Mugharat el Wardeh and Abu Thawab

by
Robert A. Coughenour

The Genesis of the Project

The project covered in this report had its beginning in the mind of James L. Kelso, now Emeritus Professor of Old Testament History and Archaeology at Pittsburgh Theological Seminary. In 1956 Kelso wrote to Nelson Glueck concerning his plans for excavations in the Ajlun area of Jordan, the best source of iron ore in the country and the most promising place to begin an iron industry investigation. Glueck had described two particular sites, Mugharat el Wardeh (Cave of the Rose) and what he called Abu Trab (1951:225, 237–38; 231–32). In his answer to Kelso he wrote the following:

You will find that I have mentioned the piles of slag around Ajlun. However, I never found in any one place a sufficient amount of clear pottery which would enable me to assign the mining and smelting carried on there to any definite period. If my memory serves me correctly at the moment, the mining activities there have generally been attributed to fairly late periods. I should not be surprised to learn, were it possible to engage in exhaustive, almost square meter by square meter examination of the slag piles around Ajlun, that evidence might be found going back to B.C. times.

Kelso had to abandon hopes for the project when, in 1960, after the fourth season

at Bethel, he suffered a heart attack just as he was in the final planning stages of an exploration in Ajlun. Finally, in the summer of 1976, twenty years after the Kelso-Glueck correspondence, a preliminary exploration and test excavation was made by the author of this report at the two sites Glueck had described, Mugharat el Wardeh and Abu Trab. The work was done under the auspices of the Kyle-Kelso Archaeological Fund, with permission of ACOR and the aid of the Department of Antiquities of Jordan.

The Nature of the Project

Since the Ajlun district of Jordan is the best source of iron ore in Jordan from antiquity to the present (Van den Boom and Lahloub 1962:6; Torrente 1967:5; Basha 1968:3, Bender 1974:57), it is the best place to begin a study of the iron industry of Jordan. What may be learned of the persons who exploited the iron ore deposits, how they reduced the ore to metal and how they manufactured and used products of iron, and when all of this took place is what we would like to discover. Very little is known about the making and treating of iron in antiquity and virtually nothing is known of the state of the craft in ancient Jordan.¹ To date the best sources for the Wardeh area are the prospection studies of the iron mines by Van den Boom and Lahloub published in 1963, the papers of Torrente in 1967 and Basha in 1968, and the geologic surveys of Friedrich Bender of

1)Initial bibliographic research and study of the subject was conducted under a DenUyl Grant from

Hope College, Holland, Michigan. See the attached Bibliography.

the German Geologic Mission undertaken for the Hashemite Kingdom of Jordan in 1972 and 1973. Glueck's surveys of 1936-38 are of importance for describing the two sites with which we began, but little archaeological data is included from his all too brief visits.

Wardeh is dated by Bender, a geologist, as Crusader and by Glueck as medieval. Neither is a satisfactory designation by today's more sophisticated methods of description. Until our 1976 exploration and test excavation no pottery and little slag had been found at Wardeh to aid in the dating of the site (Glueck 1951:232; 238). James Swauger of Carnegie Museum in Pittsburgh, Pennsylvania did collect and analyze a few slag samples in 1961 when he studied Jordan's dolmen fields.

Our initial project is to fully explore the Wardeh smelting operation. In our second stage we propose to locate, describe, and to sample by excavation insofar as practicable other iron ore sources and smelting sites in Jordan. In the summer of 1976 were told by a Jordanian man from Anjara in the southern Ajlun district that he knows personally of four iron mine sites other than Mugharat el Wardeh and that there are by local reckoning thirty one such sites from Laksheba, the southernmost village of Jebel Ajlun, to Ajlun, a distance by surface of c. 60-70 km. Whether or not the figure is inflated, it is certainly not impossible, as the Natural Resources Authority of Jordan and all others who have such information recognize that southern Ajlun is the most prominent ore source in Jordan.

We selected Mugharat el Wardeh because it is the best described and richest iron ore deposit of Jebel Ajlun and Abu Trab (and) because, according to Glueck (1951:225), it is the closest site giving evidence of a smelting operation.

A team of researchers was gathered together to undertake the work from August 9 to August 16, 1976. Two days were spent at Abu Trab (sic) and five days were spent at Wardeh. The author served as principal investigator and director of the work. Others were Oscar C. Schultz, Jr. of Winebrenner Theological Seminary, Findlay, Ohio who served as photographer; Carl S. Wheat, a mining engineer from San Marino, California as surveyor; Sultan Schraideh, inspector for the Department of Antiquities in the Irbid district; Oude Abass, our driver from the Department of Antiquities; Timothy Schultz and John Mark Cougheenour, students with previous excavation experience at Tell Hisbân. The pottery specialist was James A. Sauer, Director of ACOR and analyzing our iron slag is J. Alfred Berger, principal metallurgist from the University of Pittsburgh.

Mugharat el Wardeh

Mugharat el Wardeh is located about 35 km. NNW of Amman on the southern slope of Jebel Ajlun. The nearest village which unfortunately cannot be reached by road is Rajib, about 3 km. to the north. Deir Alla, in the Jordan valley, clearly visible from Wardeh, is an hour and a half distant by foot according to the local Wardeh villagers. Also the so-called Ajlun castle, Qalat al-Rabadh, some 50 km. to the north can be seen from Wardeh. The best access to the site by four wheel drive vehicle is from the village of Sakib midway on the E-W road from Jerash to Ajlun. One turns south and follows a donkey path to the caves at Wardeh. More precisely the caves are located by the following map coordinates: Eastern coordinates 217,000-218,000 at E - 217,225 and between 181,000-182,000 at N-181,115. The site is 2 km. NE of Furwan rather than NW as Glueck describes (1951:237). The elevation

of the test square is 661 m. above sea level and the elevation of the caves which open into the iron mine is 655 m. above sea level.

The caves at Wardeh are in a depression to the south of the present road when heading west toward the Jordan valley (Pl. XXXI, 1). The Wadi Zerka wends its way in front of the slope to the south about 10 km. away.

Our first task at Wardeh was a brief exploration of each of the three caves. Each of the three cave openings leads to horizontal shafts of the mine itself. To enter the mine one can enter any of the three openings. The largest cave entrance, a 3 m. wide x 2 m. high mouth, leads immediately to a longitudinal underground cavern whose floor is approximately 6 m. below the surface. Bender (1947:157-58), relying in part on the detailed study of the deposit carried out by Van den Boom and Lahloub (1962) described the ore body as «irregularly lenticular in shape, approximately 300 m. long (NW), about 200 m. wide and up to 9.80 m. thick. . . The main components [are] hematite and limonite. Calcite, quartz and chalcedony occur as accessory minerals; they are very rare in the main ore body. Sulphides were not observed... This deposit was formed by hydrothermal, probably late-magmatic, epithermal metasomatism. . . The average iron oxide content of 205 samples from 15 boreholes was 67.9% Fe₂O₃; the proven ore reserves are 561,000 tons.» The caves had washed-in materials and a deep mud sediment to a depth of at least 30 cm. and more likely a meter. Only one very late sherd was recovered in the caves.

We began a systematic sharding of one km. in all directions with our center at the opening of the caves. In the process we loca-

ed the test pits and shafts of JIMCO (Jordan Industrial Mining Corporation, a Jordanian company formed in 1956 to attempt to mine the ore reserves) c. 300 m. to the west of the caves site. Other JIMCO test pits are c.200-300 m. to the west of the caves area and just south of the present road to Furwan. We were told that JIMCO gave up the attempt to mine the ore due to the inaccessibility of the site to heavy equipment.

Sherding at the site recovered predominantly Ayyubid-Mamluk pottery, some Byzantine and Roman sherds and quite large amounts of slag. Glueck has described the location as without the presence of slag (1951:232) and without pottery (1951:238) so we were delighted to locate both in large amounts.

Final explorations of the caves led us to determine that no excavation of the caves' interiors or at the mouth of any of them would prove useful in the short time available. The mud, stone, debris and dead scrub washed into the cave left both the mouth and the immediate interior with a possible meter of mud. We reasoned that the users would not deposit much in the way of occupational evidence so we decided on another location for the test square. Our selection was based on several factors: 1) the area with the largest number and greatest concentration of sherds and slag; 2) the highest site to the north for view, breeze and watch over the cave entrances; 3) proximity to a water source (Ain Wardeh); 4) the deepest apparent soil where occupation could have layered.

We began excavating a three meter test square some 30 meters north of the caves entrance, a location which met all our criteria. In the course of the excavation five loci were numbered. Sherds from all loci in

the square were Ayyubid-Mamluk, with a few Roman body sherds (Pl. XXXII, 1). Slag taken from the test square at several levels totaled 149.5 kg. The largest amount, nearly five buckets full, came from a gray ash and slag locus (locus 3) which may be a pit-shaped smelting installation. The edge of a stone basin, the type of hearth used to smelt iron ore as early as Roman times emerged at 25 cm. below the surface (Tylecote 1965:225). Unfortunately, no time was available to complete the site to bedrock.

Abu Thawab

Initially, we experienced some difficulty in locating the site Nelson Gluck described and named Abu Trab (1951:225; 238). As we progressed several factors of some importance emerged. First, Glueck had either misheard or mistransliterated the Arabic name. No villager recognized the name Abu Trab. The correct place name is Abu Thawab as indicated by the Department of Lands and Surveys Sheet 11/70. The second problem was the matter of Abu Thawab's distance from Wardeh. Glueck had it c. 10 km. to the SE-ESE of Wardeh on the south of the Wadi Zerka (1951:238). This figure is correct if measured on a flat map, but the actual distance traveled between the two points is 54 km. traveling the donkey paths, fording the deep cut of the Zerka and reaching Wardeh by the ancient road along the southern Ajlun mountain slope through the village of Burma, the most direct route possible. The third factor is the impossible identification of Abu Thawab as the smelting site of ore carried from Wardeh. The 54 km. distance across the Zerka to the south from Wardeh and the presence of smelting remains at Wardeh are enough to dissociate the two sites. Abu Thawab is indeed the site of an

ancient smelting operation, but it is independent of the iron mine at Wardeh. In fact, preliminary ceramic evidence shows it may be an earlier site than Wardeh's own smelting operation though Wardeh's evidence is not yet completely clear.

Abu Thawab is located c. 2 km. ENE of Er-Rumman just off to the east of the present road between Amman and Jerash, c. 14 km. south of Jerash. Dhaharet Abu Thawab is nothing more than the northeast slope of a hillock beside Wadi Abu Thawab. The wadi runs to Wadi Rumman which flows immediately into the Zerka just west of the present ford of the Zerka crossed by the new road. The old ford is only c. 2 km. to the NNW of Abu Thawab. More precisely Abu Thawab is found at map coordinates between E-230,000 and 231,000 and N-174,723 and 174,750 at 551 m. above sea level.

The distinctive features of the site include three smaller caves not, however, of the mining type found at Wardeh, and an area of slag and sherd remains covering c. 300 m. square. No architectural remains are to be seen. Of the three caves currently used as animal shelters, two of them appear to have been used as cisterns. The presence of slag is greatest in front of cave two and between caves one and two, a 20 m. plateau strip where a slag dump is clear (Pl. XXXI, 2). A furnace or smithing operation might well be located by test excavation. The slag recovered is iron slag, but no source for the ore has been determined.

Systematic surface sherding yielded Iron I body sherds in every locus as well as Roman and Late Roman, Early Byzantine, a few Byzantine, some Umayyad, but predominantly Ayyubid-Mamluk pottery everywhere (Pl. XXXII, 2).

Concluding Historical Observations

Obviously the preliminary investigations at Wardeh and Abu Thawab do not warrant elaborate hypotheses concerning the iron industry in Jordan. Nevertheless, a few observations which may show the potential significance of this research are in order.

We have established that ore from the Wardeh mines was smelted at the site. The predominance of Ayyubid-Mamluk pottery found with the slag in stratified loci suggests that we must seek historical data to link the mining and smelting operations with Ayyubid rule over this district. Evidence of Ayyubid interest in the Ajlun mines is found in Arabic historical sources.²

Trade in timber and iron were important government monopolies in the medieval states, because of their military significance (Ashtor 1976:114). So the production of iron is likely to have been a government enterprise rather than a private one. Also the establishment of the iron industry is likely to be related to state enterprise rather than individual or group ownership in the Ajlun district.

Despite an embargo on iron export imposed by both church and state in the twelfth through the thirteenth centuries (Ashtor 1976:240; Mayer 1972:120, 174), European merchants frequently circumvented the ban. The Ayyubids concluded a treaty with the Pisans in 1173 and again in 1215 by which the latter undertook to supply the Ayyubids with precisely those goods embargoed earlier: iron, timber and pitch (Ashtor 1976:240). Still the attrac-

tion of a dependable supply of iron must have been a considerable attraction to the Ayyubid governor who built the Qalat al Rabadh, the imposing castle near the village of Ajlun.

The local availability of iron ore and timber, hence charcoal for reducing these ores to iron, may together have encouraged the establishment of the iron industry in the Ajlun area. But the making of iron required not only the timber and ore as raw material; the essential ingredient was technology, and the experience built up through generations of working with iron. Where were such technology and craftsmen to be found? Specialists in iron production would have been available to the builder of Qalat al Rabadh, Izz ad-Din Usama, whom Saladin transferred from Beirut to become governor of Ajlun (LeStrange 1965:388–89; Johns 1931:23).

Beirut was already an important iron producer in 1154 when Idrisi, who prepared an economic digest for his Norman master, Roger II of Sicily, reported that

In the neighborhood-[of Beirut], and belonging to it, is an iron mine, of very good metal and easy to work. They extract from this, ore in quantity, and send it to all parts of Syria (LeStrange 1965:410).

At the time the Crusaders ruled Beirut, but the city fell to Saladin after a seige in 1187 and remained in Arab hands for ten years. The iron mines are located near Baabda, a few kilometers southeast from Beirut, so it is likely that they were already held by the Arabs. When Saladin moved Usama from Beirut to Ajlun in 1184–85.

2) I am indebted to Robert Miller, a graduate student at the Institute of Archaeology in London for this historical material and some of the refe-

rences. A portion of his unpublished manuscript «Ayyubid Iron Industry in the Ajlun District, Jordan» has been used here with his permission.

At any rate, either then or on the fall of the city part of the booty could have been skilled iron-craftsmen. It is not unlikely that these workers were transferred from Beirut to the Ajlun district to begin iron production, perhaps as part of the preparations for the successful campaign culminating in the victory at the battle of Hattin in 1187. Such an early date fits well the circumstances of Usama's transfer and the known demand for iron represented by the treaty between Saladin and the Pisans in 1173. Indeed, no iron would have been forthcoming from the Pisans to Saladin when he renewed hostilities in 1179 against the Crusaders. His new source of iron, the Ajlun district, the technicians to produce it and the governor to oversee it would all have been in place by 1185-87.

The name of the craftsmen imported by Usama may even be commemorated in the name of the village near Ajlun, Kafrinje, i.e. Kafr-Franje, village of the Franks. The name suggests either a European origin (Johns 1931:30), or derivation from a Crusader principality if there is any connection, which is by no means certain, with

the possibility of a link between the iron industry in Beirut and in Ajlun.

It may be then that the Ayyubid smelting operation uncovered this summer at Wardeh is as early as the governorship of Usama of Ajlun, c. 1185.

Whether Wardeh will yield evidence linking it to Roman use or to Iron Age use remains to be seen. The location of the mine and its smelting operation situated as it is so near to Deir Alla and to other sites in the Jordan valley where Iron Age materials have been found lead one to speculate that such links should be pursued.

Further excavation should expand our understanding of the iron technology employed such as the design and use of the furnaces, greater detail on the raw materials and hopefully on the product itself, iron bars or implements made from the refined metal.

Robert A. Coughenour

*Western Theological Seminary
Holland, Michigan 49423*

BIBLIOGRAPHY

- Agricola, G. 1556 *De re metallica*, trans. from first Latin edition by Herbert Clark Hoover and Lou Henry Hoover, 1950. New York: Dover.
- Aitchison, L. 1960 *A History of Metals*. London: MacDonald and Evans; New York: Interscience Publishers, Inc.
- Albright, W. F. 1949 *The Archaeology of Palestine*. Harmondsworth: Pelican, revised edition, 1954.
- Ashtor, E. 1976 *A Social and Economic History of the Near East in the Middle Ages*. Berkeley: University of California.
- Basha, S. H. 1968 *Stratigraphic Accumulation, Origin and Prospection of Iron Ore Deposits at Warda-Southern Ajlun District*. Amman: Natural Resources Authority, Investigation and Research Department, Mineral Laboratory Division.
- Beck, L. 1891-1903 *Geschichte des Eisens*. 5 vols. Braunschweig, Germany: Vieweg.
- Bender, F. 1974 *Geology of Jordan*, trans. M. K. Khdeir, Parker and Wilkening. Berlin and Stuttgart: Gebrüder Borntraeger 1975 *Geology of the Arabian Peninsula, Geological Survey Professional Paper 650-1*. Washington, D.C.: United States Government Printing Office.
- Blake, R. 1930 *Tell Ekweder*. Beirut. Brothwell, D. and Higgs E. (ed.) 1969 *Science in Archaeology*, 2nd edition. London: Thames and Hudson.
- Burdon, D. J. 1959 *Handbook of the Geology of Jordan*. Amman: Hashemite Kingdom of Jordan.
- Carriveau, G. W. 1974 Dating of «Phoenician» Slag from Iberia using Thermoluminescence Techniques. MASCA Newsletter 10:1. The University Museum, University of Pennsylvania Applied Science Center for Archaeology.
- Forbes, R. J. 1950 *Metallurgy in Antiquity*. Leiden: E. J. Brill.
- Franken, H. J. 1969 *Excavation at Dell Deir ,Alla, I, Documenta et Monumenta Orientis Antiqui*, vol. sextum decimum.
- Friend, N. J. 1923 Iron in Antiquity. *Journal of the Iron and Steel Institute*. Carnegie School, Mem. 12:219.
- Glueck, N. 1951 *Explorations in Eastern Palestine*. Annals of the American Schools of Oriental Research 18-19; 25-28. New Haven: American Schools of Oriental Research.
- Johns, C. N. 1931 *Medieval Ajlun. Quarterly of the Department of the Antiquities of Palestine*.
- LeStrange, G. 1975 *Palestine under the Moslems*, reprinted from the original edition of 1890. Beirut. Reprinted New York: AMS Press, Inc.
- McGannon, H. E. (ed.) 1971 *The Making, Shaping and Treating of Steel*. 9th edition. Pittsburgh: United States Steel.
- Mayer, H. E. 1972 *The Crusades*. Oxford: Oxford University Press.
- Paul, S. M. and Dever, W. G. 1973 *Iron. Biblical Archaeology*. Jerusalem: Keter Publishing House, Ltd. 196-99.
- Petrie, W. M. F. 1906 *Researches in Sinai*. London: John Murray 1928 *Gerar*. London: British School of Archaeology in Egypt.
- Rickard, T. S. 1929 «Iron in Antiquity,» *Journal of the Iron and Steel Institute*. London: 129, 323-42.
- Rothenberg, B. 1965 Excavations at Tinneh. Museum Haaretz Tel Aviv, Bulletin F. Sawwan, O. 1965 *Mineralogical Examination of the «Iron Ore» of the Tobas Area*. Amman: Natural Resources Authority.
- Stager, L., Walker, A., and Wright, G.E. 1974 *American Expedition to Idalion, Cyprus: First Preliminary Report: seasons of 1971 and 1972. Supplement to Bulletin of the American Schools of Oriental Research*, 18. Cambridge, Massachusetts: American Schools of Oriental Research.
- Steinberg, A., and Kouky, F. 1974 *Preliminary Metallurgical Research on the Ancient Cypriot Copper Industry. American Expedition to Idalion, Cyprus: First Preliminary Report: Seasons of 1971 and 1972. Supplement to Bulletin of American Schools of Oriental Research*, 18. Cambridge, Massachusetts: American Schools of Oriental Research.
- Thompson, F. C. 1969 *Microscopic Studies of Ancient Metals. Science in Archaeology*. eds. D. Brothwell and E. Higgs. London: Thames and Hudson.
- Torrente, A. 1967 *Considerations on the Present Status of the Prospection for Iron in Jordan*. trans. Akram Karmoul. Amman: Natural Resources Authority, Hashemite Kingdom of Jordan.

- Tylecote, R. F. 1965 *Metallurgy in Archaeology*. London: Arnold, Ltd.

Van den Boom, A., and Lahloub, H. 1962 *Mining in Jordan*. Amman: Hashemite Kingdom of Jordan.

Winnett, F. W. 1962 *Iron. Interpreters' Dictionary of the Bible*, E-J; 725-26. New York and Nashville: Abingdon Press.

1962 *Metallurgy. Interpreters' Dictionary of the Bible*, K-Q, 366-68. New York and Nashville: Abingdon Press.

1962 *Mining. Interpreters' Dictionary of the Bible*, K-Q, 384-85. New York and Nashville: Abingdon Press.

Wright, G. E. 1938 *Iron in Israel*. *Biblical Archaeologist* 1:2:5-8.

Travaux effectués par l’Institut Géographique National de France.

par

M. Gory

(Pls. XX XIII – XXXVIII)

I – Avant-propos

Du 9 au 30 décembre 1969, une mission de l’Institut Géographique National de Paris, constituée de MM. Philippe Hottier, Ingénieur Géographe, chef de mission, Maurice Gory, Géomètre, et Michel Cabane, photographe, a effectué le relevé photogrammétrique d’une vingtaine de tombeaux et monuments et la prise de vue panoramique de la paroi orientale du Jabal El Khubthah, à Pétra. Cette mission opérait dans le cadre du contrat C.L.T. 33 477 signé entre l’UNESCO et l’I.G.N. le 15 octobre 1969. Elle était accompagnée de M. Youssef Alami, Architecte en chef du Département des Antiquités, ainsi que de M. Fawzi Zayadine, alors Inspecteur des Antiquités, et de l’abbé Jean Starcky, conseiller archéologique.

Du 21 mars au 9 avril 1973, je me rendais en congé en Jordanie. Sous les auspices de M. Alami, j’effectuais une reconnaissance poussée de la cuvette de Pétra et des autres sites du Parc National, en compagnie de M. Ghazi Bisneh, Inspecteur des Antiquités.

A mon retour à Amman, était évoqué avec M. F. Zayadine et M. Hussein Qandil, Inspecteurs des Antiquités, l’établissement d’une carte de la région de Pétra à partir d’une prise de vue aérienne qui

pourrait être confiée à l’escadrille de l’I.G.N. Cette carte devant être un outil de travail pour les archéologues et les épigraphistes aurait à répondre à certaines conditions qui feraient l’objet de discussions à venir.

II – Origine et constitution de la mission

Les conversations furent reprises, quelques mois plus tard, entre M. Pierre Lavergne, conseiller culturel, et MM. F. Zayadine et J. Starcky. Ce dernier, qui retournait à Paris, fut chargé de prendre contact avec le service de la Photogrammétrie de l’I.G.N., et un devis de travaux fut définitivement établi en janvier 1974.

Sur subvention du Ministère des Affaires Etrangères du Gouvernement Français (référence 30 C.T.S. du 30 Avril 1974) un ensemble de travaux concernant le site de Pétra était ainsi offert au «Department of Antiquities» du Royaume Hachémite de Jordanie et confié à l’I.G.N.

La première phase consistait en une prise de vue aérienne à l’échelle du 1:10 000 en noir et blanc, doublée d’une prise de vue en couleur, qui sera effectuée le 20 février 1974, par un avion photographe B.171 de l’I.G.N. opérant alors en Jordanie.

1. B. 17 – Avion de bombardement américain connu sous le nom de «Forteresse Volante» durant la seconde guerre mondiale à cause de sa puissance défensive de feu.

La seconde concernait les travaux de terrain nécessaires à l'exploitation de cette prise de vue. Par la note de service 2316 IGN/C du 29 juillet 1975, était décidé l'envoi d'une mission de deux spécialistes du Centre de Photogrammétrie Architecturale et Archéologique qui arriverait à Amman le 30 septembre et se composait de M. Gory Maurice, géomètre principal, chef de mission et de M. Charles Gabriel, géomètre principal.

III – La prise de vue aérienne (Pl. XXXIX)

Centrée sur la cuvette de Pétra, la prise de vue couvre largement le Parc National et s'étend sur une zone de 17 x 17 km environ, superficie que j'avais estimée nécessaire après étude des documents du "Master Plan Of Petra National Park".

Volant à 1500 mètres environ au-dessus du sol, c'est-à-dire à une altitude variant de 2 150 à 3 200 mètres au-dessus du niveau de la mer, l'appareil a pris, à l'aide de deux chambres 15 UAG de 152 mm de focale, 197 clichés à l'échelle moyenne du 1:10.000. Ces clichés du format 24 x 24 cm sont répartis en 11 bandes; ils ont un recouvrement longitudinal variant de 60 à 80%, qui permet un excellent examen stéréoscopique des «wadi» en terrain gréseux. Le recouvrement de bande à bande varie de 5 à 40%. Ce fort recouvrement (habituellement de 5 à 20%) a été demandé à cause de l'encaissement du Siq et de la verticalité des parois rocheuses portant le décor des façades funéraires creusées dans le roc.

Cette prise de vue, effectuée avec une émulsion panchromatique, a été doublée à l'aide d'une troisième chambre par une

prise de vue en couleur Ektachrome de qualité remarquable.

IV – Le programme des travaux à effectuer

Le premier travail qui serait commandé ultérieurement étant un photoplan à l'échelle du 1:10 000 de toute la zone couverte par les photographies, il était nécessaire d'équiper d'un certain nombre de points connus en planimétrie cette zone en vue de son exploitation par T.P.F.R. (Triangulation par Fentes Radiales).

Le second travail envisagé était une carte à l'échelle du 1:2 000 du site de Pétra lui-même et des zones riches en détails archéologiques dont la superficie globale était estimée, après la reconnaissance que j'avais effectuée en 1973, à 25 km²; 5 bandes de photographies couvrant 80 km² seraient donc à équiper de points déterminés en planimétrie et altimétrie pour un traitement par aérotriangulation.

Toute cette triangulation devait être rattachée au système cartographique jordanien dans la mesure du possible. Ces travaux terminés, nous effectuerions le précomplément des photographies de concert avec les archéologues du Département des Antiquités et du C.N.R.S.² de France spécialisés en épigraphie nabatéenne.

Tout monument, tombeau, escalier, citerne, inscription,... antérieurement répertorié, ou découvert au cours de notre passage serait identifié et «piqué» sur les photographies. La toponymie devait également être enregistrée.

2. C.N.R.S.: Centre National de la Recherche Scientifique.

V – Préparation et mise en place de la mission

Avant le départ de France, M. G. Charles avait établi, à partir des photographies, un «croquis expédié» de la région de Pétra où étaient portés sommets et lignes de crêtes, "wadi" et thalwegs, routes et pistes, villages et constructions, ainsi que les limites des couples stéréoscopiques. Ce croquis a été la base de notre schéma de triangulation.

Le matériel technique expédié le 9 septembre et adressé au Service des Antiquités, était dédouané dans les plus brefs délais, et nous attendait à Amman.

M. G. Charles, parti le lundi 30 septembre au matin de Paris-Orly, arrivait par l'avion d'Air-France dans le courant de l'après-midi à l'aéroport de Beyrouth-Khaldé où il me retrouvait: la mission de prise de vues photogrammétriques sur le site du Nahr el Kalb, près de Beyrouth, que je venais d'effectuer pour la Direction des Antiquités du Liban s'était terminée le jour même. Quelques heures plus tard, un appareil de la M.E.A. nous déposait à l'aéroport d'Amman.

Le mardi 1er octobre au matin, présentation de la mission au Département des Antiquités. Malheureusement M. Y. Alami était en stage en Europe et le Dr. Zayadine avait dû partir brusquement la veille pour Beyrouth.

Le lendemain, afin d'obtenir les documents géodésiques nécessaires à notre triangulation, M.H. Qandil nous conduisait à Zarka, auprès du Military Survey Group, où nous fûmes reçus par le Capitaine Ali Mahmoud responsable de la géodésie.

Après exposition de notre travail et de nos besoins, nous pûmes consulter les

cartes, les schémas de triangulation et les répertoires des points géodésiques. Il nous fut toutefois impossible d'obtenir aussi bien les cartes que les coordonnées des points, le capitaine ne pouvant prendre sur lui la remise de documents sans demande officielle de la part du Département des Antiquités.

Une lettre écrite le lendemain et signée par le directeur de ce Département, M. Yacoub Oweis, était alors adressée au Brigadier Général Bassam Qaqish, chef du M.S.G. Les documents ne nous parviendront à Pétra que le 18 octobre, quelques jours après leur arrivée au Département.

Le jeudi 3, je retrouvais avec plaisir le M. F. Zayadine de retour de Beyrouth, et le départ pour Pétra était fixé au surlendemain. Nous quittions donc tous les trois Amman le samedi 5 octobre vers 12 h – le matériel étant parti le matin par pick-up – et en fin d'après midi arrivions sur le site où nous attendait M. Basim Rihani, Inspecteur des Antiquités. Le lendemain matin, ouverture des caisses, déballage et vérification du matériel, qui était intact. L'après-midi, reconnaissance du premier point à «stationner»: les travaux de terrain commençaient le sixième jour de notre séjour de six semaines en Jordanie.

VI – Travaux effectués par la mission

1 – *Triangulation*

18 points de relèvement et 18 points d'intersection, tous connus en X, Y et Z, ont été déterminés à partir de 2 points géodésiques retrouvés sur le terrain – sur les 8 communiqués par le M.G.S. – Les coordonnées de ces points étaient fournies dans le système Palestine Belt Grid.

Ces points de relèvement et d'intersection doivent servir à l'équipement des 5 bandes de photographies qui seront exploitées par aérotriangulation et à celui du montage par T.P.F.R. de toute la couverture aérienne. Pour cette dernière exploitation, le nivellation, c'est-à-dire le calcul de l'altitude, n'était pas nécessaire, mais il a servi de contrôle au calcul planimétrique des points déterminés par deux visées d'intersection seulement.

Nous avons utilisé un théodolite Wild NT2 pour la mesure des angles azimutaux et verticaux et un distancemètre Hewlett-Packard pour celle des distances.

Pour une petite zone dominant le Wadi Araba au Sud du Jabal Harun et qui était d'accès particulièrement difficile, le Département des Antiquités a pu obtenir l'aide de l'Armée de l'Air, qui a envoyé d'Amman un hélicoptère Alouette III pour une journée. Nous avons été déposés avec le matériel au sommet d'un massif et avons pu effectuer les travaux sans perte de temps d'accès et sans fatigue.

2 – Précomplément planimétrique.

En compagnie du Dr. F. Zayadine, auteur de plusieurs études sur l'architecture pétréenne, près de 800 tombeaux ou détails archéologiques répertoriés par E.R. Brünnow et Alfred von Domaszewski dans le tome I de leur ouvrage "Die Provincia Arabia" (1904), et par Gustaf Dalman dans "Petra und seine Felsheiligtümer" (1908) et dans ses "Neue Petra Forschungen" (1912), ont été reconnus, identifiés et piqués sur les photographies.

Au cours de ce travail, ont été corrigées des erreurs qui affectaient ces travaux du

début du siècle quant à la situation planimétrique, la numérotation, la classification ou la dénomination de certains tombeaux.

Bientôt nous rejoignirent l'Abbé Jean Starcky et M. Josef Tadeuz Milik, directeur et maître de recherche au C.N.R.S.: environ 800 inscriptions nabatéennes déjà connues et 200 nouvelles, découvertes au cours de notre prospection du terrain, ont été identifiées et piquées sur les photographies.

Parcourant tous les «wadi» avec des Bédouins résidant sur le site, nous avons aussi récolté une ample moisson de dessins gravés sur les parois rocheuses ou sur le sol, de sépultures, de bétyles et de «néfesh»³, de traces de murs et de remparts, de sources, citernes, barrages, conduites d'adduction d'eau, gisements de silex taillés, ... Toutes ces identifications ont eu pour résultat des photographies criblées de trous d'aiguille dont l'identification présentera aux dessinateurs chargés de la mise au net de la carte archéologique au 1: 2 000 des difficultés auxquelles il faudra penser dès la mise en route de la restitution photogrammétrique.

3 – Toponymie

Lors de nos déplacements sur le terrain, nous avons recueilli auprès des Bédouins et des habitants des quelques villages situés au bord des routes, les noms des sommets et des massifs montagneux, des plateaux, des «wadi» et des sources.

Les noms ont été enregistrés en caractères latins, puis écrits en arabe; cette écriture, faisant foi, servira, avec les articles de T. Canaan⁴, de base à toute transcription de la toponymie.

3. Néfesh: représentation de stèles funéraires.

4. The Journal of the Palestine Oriental Society, IX (1929), p. 136–218; X (1930), p. 178 – 180.

VII – Travaux consécutifs à la mission

1 – Triangulation

Le calcul effectué sur l'ordinateur I.B.M. 370/135 à l'aide du programme de calcul de triangulation de la Photogrammétrie a nécessité l'acquisition d'une documentation que je n'ai pu obtenir qu'au bout de longues et patientes recherches et dont voici la teneur:

1.1 – Le système de coordonnées utilisé pour les besoins civils:

Projection de Cassini.

L'origine du système de coordonnées locales (Palestine Belt Grid) est le point de triangulation de 1er ordre no 82'M près de Jérusalem et de Béthleem, dont les coordonnées géographiques sont:

$$\lambda = 35^\circ 12' 43'' 490 \text{ E}$$

$$\Phi = 31^\circ 44' 02'' 749 \text{ N}$$

et les coordonnées rectangulaires:

$$X = 170 251, 555 \text{ m}$$

$$Y = 126 867, 909 \text{ m}$$

On a ajouté 1 000 000 m aux Y afin d'éviter des coordonnées négatives.

Facteur d'échelle $K_o = 1,000$

Ellipsoïde Clarke 1880 (G.B.) propre à la Palestine.

$$a = 6 378 300, 790 \text{ m}$$

$$\alpha = 1/293,466 307 656$$

Système Palestine 1928 (Eastern Mediterranean Adjustment)

1.2 – Les deux systèmes de coordonnées utilisés pour les besoins militaires.

1.2.1. – Projection Transverse de Mercator.

Système de coordonnées rectangulaires locales (Palestine Transverse Mercator Grid) dont les paramètres sont identiques à ceux de Cassini (même origine du système de coordonnées).

Une table donne les corrections à apporter aux coordonnées pour passer du système civil au système militaire: légère correction des X, les Y n'étant pas modifiés.

1.2.2. – Projection Universelle Transverse de Mercator:

Deux fuseaux sont concernés:

Fuseau 36 – méridien origine 33° E

" 37 " " 39° E

Facteur d'échelle $K_o = 0,9996$.

Ellipsoïde international 1909.

$$a = 6 378 388 \text{ m}$$

$$\alpha = 1/297$$

Système Europe 50

1.3 – L'origine du niveling

Pour tous ces systèmes, le niveling est rattaché au niveau moyen de la mer à Gaza déterminé en avril 1922.

1.4 – Déroulement des opérations de calcul.

J'ai effectué les calculs en plusieurs fois, et en utilisant selon le volume de documentation en ma possession:

1.4.1. – La projection U T M, l'ellipsoïde de Clarke 1880 et les coordonnées

des deux points géodésiques fournies par le M.S.G. dans le premier système militaire.

1.4.2. — La projection U T M, l'ellipsoïde international de 1909 et les coordonnées de ces deux mêmes points dans le second système militaire.

La triangulation actuellement effectuée en Jordanie (en 1974) s'arrête sensiblement à l'alignement de la route Shaubak — Wadi Musa — Tayiba.

1.4.3. — Les coefficients d'une formule d'adaptation de degré 3 déterminés par le Bureau des Calculs de la Géodésie. Sur un échantillon de 32 points, les écarts varient de 7 à 50 cm en planimétrie.

1.4.4. — La transformation des coordonnées géographiques du dôme du Jabal Harun en coordonnées rectangulaires — projection U T M, ellipsoïde international 1909 — et également en coordonnées locales dans le premier système militaire.

1.4.5. — L'adaptation avec échelle libre des coordonnées du calcul 1—4—2 sur trois points: les deux points géodésiques et le dôme du Jabal Harun.

Le coefficient d'échelle est égal à 0,9996 9391 et la modification d'orientation atteint $0^{\circ} 00'03''$.

Les écarts en distance atteignent 23, 62 et 81 cm (sur le dôme).

1.4.6. — Calcul du niveling:

Pour tous ces calculs a été utilisé un coefficient de niveau apparent que nous avons déterminé sur le terrain par visées réciproques aux deux extrémités de côtés mesurés au distancemètre.

J'ai augmenté de 1,00 mètre les cotes issues du calcul 1—4—2 pour qu'elles soient en accord avec celles de la documentation cartographique actuelle.

2 — Précomplétement planimétrique

Il reste à effectuer le collationnement des renseignements recueillis. On gardera telles quelles les inscriptions au crayon noir ou de couleur portées au dos des photographies sur le terrain, afin d'éviter les erreurs qui pourraient survenir lors d'un gommage malencontreux.

3 — Toponymie

Les cahiers de toponymie ont été laissés à M. F. Zayadine lors de notre départ d'Amman afin qu'il puisse les vérifier et corriger les erreurs. Actuellement, les noms font l'objet d'une mise au point tant pour leur exactitude que pour leur transcription.

VIII — Conclusion

Cette mission a duré six semaines, dont près de cinq passées sur le site, une bonne semaine représentant le temps nécessaire aux diverses formalités d'arrivée et de départ.

Les travaux se sont déroulés pendant la seconde partie du mois de Ramadan. Nous avons apprécié l'allongement notable de la journée de travail librement consenti par le chauffeur du véhicule mis à notre disposition, qui est souvent rentré chez lui à Wadi Musa lorsque le soleil était couché depuis longtemps. Avec plaisir, nous avons constaté que les leçons de conduite en tout terrain que nous lui avions données ont été mises en pratique avec succès...

Ils se sont déroulés aussi dans une bonne ambiance de compréhension et de sympathie: M. G. Charles qui ne parlait que quelques mots d'anglais et pas du tout l'arabe, a pu arriver à comprendre et à se faire comprendre par les Bédouins sans éprouver trop de difficultés pour demander et obtenir les renseignements utiles à l'accomplissement de sa tâche.

Des journées de travail commençant à 7 heures et se terminant la nuit venue, souvent harassantes, ont nécessité une certaine endurance de la part des différents personnels qui n'ont pas marchandé leur peine.

Cette collaboration à tous les niveaux et l'attriance exercée sur tous par la Cité rouge et rose au passé prestigieux, a donné des résultats très positifs. Mais cette coopération internationale ne portera tous ses fruits que par la réalisation des autres travaux prévus qui justifient ce premier effort: le photoplan au 1:10 000 et la carte archéologique au 1:2 000.

Maurice Gory
chef de la mission I.G.N. 1974



Etablissement d'un Photoplan

par

M. Gory

(Pls. XXXIX - XL)

I – LE REDRESSEMENT PHOTOGRAPHIQUE

1— Généralités

Avant d'expliquer les différentes opérations que nécessite l'établissement d'un photoplan, il convient de rappeler quelques propriétés de la photographie aérienne.

La carte est la projection à l'échelle du terrain sur un plan horizontal. Négligeant les distorsions de la chambre de prise de vues et l'influence de la réfraction atmosphérique, on peut écrire que la photographie aérienne verticale est la perspective cônique exacte du terrain.

En cas de terrain plat et horizontal et avec un axe de prise de vue rigoureusement vertical, photographie et carte sont identiques.

2 – L'échelle de la photographie

Elle est donnée par la formule

$$\frac{1}{E} = \frac{P}{H}$$

où P est la distance principale de la chambre métrique H la hauteur du point de vue au-dessus du plan du terrain.

Elle n'est donc pas la même dans des plans horizontaux différents. Elle est cons-

tante dans un même plan de niveau et varie avec les différents plans de niveau.

En pratique, lorsque l'on parle de l'échelle d'une photographie verticale, il s'agit toujours d'une échelle moyenne correspondant à un axe de prise de vue rigoureusement vertical et au plan horizontal du terrain d'altitude moyenne ou à un plan d'altitude choisi comme référence.

3 – Déformation de l'image et son redressement

Lorsque l'axe de prise de vue n'est pas vertical, l'image est déformée; l'échelle varie dans un même plan horizontal et les déformations dues au relief s'ajoutent aux précédentes pour donner des déformations résultantes complexes, dont on ne peut définir simplement ni la direction, ni la grandeur.

Le redressement photographique permet de transformer l'image perspective prise avec un axe de prise de vue non vertical en une autre image identique à celle qui aurait été prise avec un axe rigoureusement vertical, et de la mettre à l'échelle; cette opération s'accompagne d'un décentrement du cliché.

4 – Appareils de redressement

Tous les appareils actuels sont automatiques; c'est-à-dire réalisent automatiquement les conditions de redressement et de mise au point. Ils comportent tous:

un porte-objectif et un porte-écran, montés sur un bâti, et une source lumineuse éclairant le cliché par transparence.

Les principaux appareils de redressement sont:

Le S.E.G.-V construit par la firme allemande Zeiss

Le Wild E4 construit par la firme suisse Wild.

5 – Le canevas d'appui

Pour l'exécution du redressement d'un cliché il est nécessaire de posséder au moins 4 points situés de préférence dans chacun des angles, plus un cinquième au voisinage du centre pour contrôle.

Ces points peuvent être:

5.1 – relevés sur une carte ou des plans déjà existants.

5.2 – déterminés spécialement sur le terrain par stéréopréparation.

5.3 – fournis par des calculs d'aérotriangulation analytique.

5.4 – obtenus par T.P.R.R. (Triangulation par Fentes Radiales).

6 – Mode opératoire

6.1 – Report sur une feuille de projection des points du canevas par leurs coordonnées.

6.2 – Introduction d'un tirage contact sur papier plastifié (ne se déformant pas)

sur lequel on a piqué les points du canevas sous stéréoscope, le cliché devant rester vierge.

6.3 – Mise en place de la feuille de projection sur le porte-écran.

6.4 – Réglage approximatif de l'échelle.

6.5 – Mise en coïncidence, par tatonnements raisonnés, des projections des 4 points de canevas référencés sur le cliché et piqués sur le papier plastifié avec les positions correspondantes reportées sur la feuille de projection.

6.6 – Substitution du papier sensible à la feuille de projection et exposition.

6.7 – Processus normal de développement du papier insolé. On peut, dans la pratique, effectuer les cinq premières opérations ci-dessus par séries entières de photographies et noter avec soin les éléments mesurés qui sont introduits à nouveau par le photographe pour l'exposition.

II – LES ASSEMBLAGES DE PHOTOGRAPHIES

1 – Généralités

Le problème réside dans la précision métrique de l'assemblage réalisé par rapport à une carte. Cette précision diminue d'autant plus que l'on s'éloigne de l'hypothèse fondamentale jamais rigoureusement réalisée: terrain plat et horizontal.

2 – Les différents assemblages de photographies

Il faut distinguer:

2.1 – L'assemblage simple qui est une simple juxtaposition faite au mieux des

épreuves-contact d'une couverture photographique (sans canevas, ni mise à l'échelle).

2.2 — La mosaïque qui est un assemblage de photographies toutes amenées à la même échelle moyenne grâce à un canevas obtenue par T.P.F.R. ou un fond de carte agrandi sur papier plastifié invariant à l'échelle du travail.

3 — Classification des mosaïques

Les mosaïques sont définies selon une classification internationale.

3.1 — La mosaïque — noncontrolled mosaic.

C'est l'assemblage simple des photographies.

3.2 — La mosaïque semi-contrôlée — semi controlled mosaic.

L'assemblage est effectué sur un fond de carte plus ou moins ancien ou sur un film à grande échelle.

3.3 — La mosaïque contrôlée — controlled mosaic.

L'assemblage est alors appuyé sur une triangulation spéciale le plus souvent obtenue par T.P.F.R.

3.4 — Le photoplan — photomap.

C'est un assemblage de photos redressées.

A l'I.G.N. la mosaïque contrôlée (paragraphe 3-3) se fait avec des photographies redressées; on peut dire que mosaïque contrôlée et photoplan sont synonymes et l'on y établit de plus en plus de photoplans.

3.5 — L'orthophotoplan — orthophotomap.

C'est la projection de photographies redressées et corrigées des altérations dues au relief sur un film sensible dont on effectuera des tirages. On dissocie l'exploration du modèle (qui se fait sur un Stéréomat Wild B.8) de la confection de l'Orthophotographie réalisée en différé sur un appareil projectif (SFOM) dit «3ème chambre».

4 — Remarques

Il ne faut pas oublier que le redressement n'a de valeur que si l'on demeure près de l'hypothèse fondamentale du terrain plat et horizontal, ou dans des terrasses parallèles planes et horizontales et en procédant par tranches successives de terrain en fonction des courbes, même en terrain accidenté, on reconstituera la projection exacte à la manière d'un plan en relief en tenant compte bien sûr, des cotes des différents points de base du canevas.

5 — Instruments utilisés pour les assemblages, mosaïques et photoplans:

5.1 — Scalpel de chirurgien avec lames de recharge X Acto, couteau n° 1.

5.2 — Piquoirs à vis utilisés dans l'aviation.

5.3 — Règle métallique spéciale avec dispositif de sécurité pour les blessures souvent graves.

5.4 — Stéréoscope pour le report des points.

5.5 — Gabarit pour nadir.

6 – Mode opératoire

On doit obtenir une coupe toujours très serrée et la plus fine possible, et sinueuse pour garder les parties entières sans coupe, autrement dit coupe dans les gris, les bois, le long des routes,...

Des papillons de papier d'emballage en collé sont glissés sous la coupe à l'aide de la pointe du scalpel, puis de l'adhésif blond est fixé sommairement avec un fer chaud sous le montage. Pour l'encollage final le montage sur carton est mis sous presse chauffante à la température de 80° C (176° F) mesurée par un thermomètre.

7 – Les supports

Il existe deux catégories de cartons:

le blanc d'un format de 80 x 120 cm et 1 mm d'épaisseur.

le gris d'un format de 120 x 120 cm et de 3 mm d'épaisseur.

Pour le collage sur latté, bois lisse et horizontal, on utilise la colle Alcamer. Les panneaux de latté utilisés ont une épaisseur variant entre 15 et 22 mm et le format imposé par la nécessité de la reproduction ne doit pas dépasser 95 x 90 cm.

Des résultats expérimentaux ont démontré que le latté sur de grandes surfaces présente des déformations de planéité. Il est de rigueur, si l'on désire éviter les bulles d'air qui se forment dans une atmosphère humide de coller d'abord à chaud le montage sur du carton, puis à froid le carton sur le latté avec de la colle Alcamer, cette dernière opération demandant également à être effectuée sous presse.

Lorsqu'on utilise des tirages sur papier plastifié, on emploie de la colle Gentia ou d'autres colles spéciales pour plastiques.

III – LES PHOTOPLANS

1 – Généralités

L'assemblage de photographies redressées et amenées à la même échelle est établi plus rapidement et à moindre frais qu'une carte régulière. Il conserve toute la richesse d'information de l'image photographique, mais par contre ne donne pas directement tous les renseignements d'une carte, document issu d'une «interprétation» des photographies.

2 – Informations portées sur le photoplan

2.1 – L'hypsométrie.

Le report des courbes issues de cartes ou de levés effectués sur le terrain est exécuté sur astrafoil (support transparent stable) et l'on en tire un film combiné. Il faut un ajustement judicieux des courbes avec le fond planimétrique du photoplan, les courbes apparaissant en blanc sur ce dernier.

2.2 – La toponymie.

De la même manière, les noms peuvent être portés sur un astrafoil et nous sommes ramenés au processus de reproduction analogue à celui du chapitre précédent.

Si l'on désire obtenir l'hypsométrie et la toponymie en même temps, on établit un film combiné du photoplan en demi-teinte, de l'astraloy des courbes et de celui de la toponymie. Il y a risque de flou dans ce cas et une pression forte est indispensable pour assurer une bonne qualité du travail.

2.3. Les autres informations

Un troisième astrafoil peut être surimposé pour obtenir des surcharges variées: limites administratives, pipe lines, lignes électriques, conduites d'eau, réseau routier avec classification des voies, surcharges particulières, signes conventionnels.

D'une façon générale, toute addition ou surcharge apparaît en blanc sur le fond du photoplan.

3 – Reproduction du photoplan

La reproduction des documents s'effectue à l'échelle 1:1 pour obtenir le meilleur résultat. On peut aussi travailler par réduction (coefficients 1:2) ou par agrandissement (coefficients 2:1). Selon la demande, les tirages peuvent être effectués sur bromure brillant ou bromure mat, et sur papier plastifié:

Guilleminot (France)

Kind (U.S.A.)

Bromide High Resolution (Grande Bretagne)

Des reproductions sur films positifs tramés ou films négatifs peuvent être aussi fournis à la demande.

4 – Qualité du montage

4.1 La densité

L'égalisation des densités au voisinage des raccords sur les assemblages, mosaïques et photoplans a posé un problème.

Grâce aux machines électroniques modernes LogEtronic 104 (U.S.A.), Miligan type CP 10 C (Grande Bretagne) ou aux plus anciennes LogEtronic CP 250 ou CP 210, il est aisément d'introduire ces compensations électroniques des densités au service des assemblages de toutes natures.

4.2 – Les plans d'eau.

Il existe un problème particulièrement difficile à traiter, c'est celui des plans d'eau: lacs, rivières, fleuves, bord de mer. Ces surfaces réfléchissent régulièrement la lumière, la ligne de découpage des plans d'eau doit donc être différente de celle des parties terrestres.

Il faut beaucoup de talent artistique à l'opérateur pour réussir à harmoniser le rendu des plans d'eau sur les assemblages photographiques.

Pour ces grandes surfaces des essais fort onéreux réalisés par des retoucheuses photographiques professionnelles n'ont pas donné de bons résultats.

4 – Assemblage de photographies en couleur

Des mosaïques en couleur ont déjà été réalisées. Les tonalités de bande à bande sont très difficiles à harmoniser mais néanmoins de bons résultats ont été obtenus.

M. Gory

Relevé Photogrammétrique à Pétra

par

F. Zayadine et Ph. Hottier*

A la mémoire de mon ami Pierre Lavergne, Attaché culturel de l'Ambassade de France, décédé sur la route du désert et qui a été à l'origine du projet cartographique de Pétra. Sa perte a été douloureusement ressentie dans son pays qu'il a servi jusqu'au dernier moment et par la Jordanie qu'il aimait.

Carrefour important entre l'Arabie, l'Egypte et la Syrie - Phénicie, la cité caravanière de Pétra déploie aux yeux des spécialistes ces nombreux monuments rupitaires sculptés dans le grès tendre et qui manifestent des traditions orientales anciennes auxquelles se juxtapose l'apport de l'architecture hellénistique. Depuis plus d'un siècle, les archéologues de diverses nationalités se sont évertués à exploiter les richesses de ce vaste musée monumental, non sans se heurter à des difficultés souvent insolubles; en effet, contrairement au site nabatéen de Hegra, sur la route de la Mekke, où les inscriptions datées abondent, à Pétra, seules deux façades portent des inscriptions. Devant cette pauvreté épigraphique, les archéologues ne peuvent recourir qu'à l'étude comparative du décor architectural, en s'appuyant sur des relevés minitieux. Or la plupart des études reposent sur des dessins approximatifs, réalisés en 1904 par Brünnow et von Domasewski ou entre les deux guerres par Bachmann et Wiegand. Pour renouveler notre connaissance de ce vaste album architectural, on ne pouvait songer à un relevé direct, à cause de la multitude de ces monuments (environ 800) et à cause des échafaudages coûteux qu'une telle opération aurait nécessité. Le moyen le moins compliqué était sans doute de recourir aux ressources considérables de la photogrammétrie, technique qui a fait ses preuves en

matière de monuments antiques, spécialement en Nubie.

L'initiative en vint de deux archéologues simultanément: de M. Peter Parr, de l'Institut archéologique de Londres et de l'abbé Jean Starcky du Centre National de la Recherche scientifique à Paris. Ce dernier a suggéré en 1968 au Service des Antiquités de Jordanie de demander à l'UNESCO de reporter sur un projet de photogrammétrie la somme de 8000 \$, jadis allouée à un musée des traditions populaires à Jérusalem. Comme la Ville Sainte était sous l'occupation, l'UNESCO a accepté de verser cette somme à ce nouveau projet, mais en la réduisant à 5000 \$. L'Institut Géographique National de Paris (IGN) a été désigné pour mener à bien cette opération à cause de sa longue expérience dans ce domaine, en lui adjoignant comme conseillers techniques MM. Jean Starcky et Fawzi Zayadine. Contrairement à ce que prétend P. Parr¹ dans son article sur les travaux de l'Institut de Londres et de l'*"University College"*, l'expédition de l'IGN, réclamée par le Service des Antiquités de Jordanie était au courant des travaux des spécialistes britanniques et des difficultés qu'ils ont rencontrées. Il a été même entendu avec P. Parr que les ingénieurs de l'IGN ne s'occuperaient que des monuments non relevés par la mission britannique. Et ainsi fut fait, à

* Les détails photogrammétriques sont empruntés au rapport présenté par Ph. Hottier à l'UNESCO. F. Zayadine est responsable des remarques archéologiques.

1. ADAJ, XX (1975) p. 34.

l'exception du Khazneh, que le Service des Antiquités a jugé utile de rephotographier à cause des problèmes infligés à l'équipe précédente par la détérioration d'une chambre métrique.

Le 11 décembre 1969, la mission, constituée de Ph. Hottier, ingénieur-géographe, M. Gory, géomètre et M. Cabane, photographe, assistés de J. Starcky, Y. Alami et de l'auteur s'est mise à l'œuvre à Pétra, pour une durée de trois semaines. Le matériel technique emporté comportait :

- une chambre métrique Zeiss TMK (focal 60 mm, format cliché 9 x 12 cm) et ses accessoires. Cette chambre, à grand champ, légère et maniable, a déjà rendu de grands services.
- une chambre métrique IGN-CA (focale 125mm, format 19 x 19). Cette chambre de plus grand format était nécessaire pour les photographies prises à plus grande distance afin de maintenir une échelle des clichés suffisante.

Après une reconnaissance du site, et l'installation du laboratoire photographique de campagne dans le Rest-House de Pétra, les travaux de prise de vues ont commencé le 13 décembre et se sont poursuivis jusqu'au 27 du même mois. En tout 56 couples métriques ont été enregistrés. Une grande partie des déplacements pouvait se faire, à l'intérieur du site, grâce à une land-rover du Service, et quand cela n'était pas possible, à dos d'âne.

Voici la liste des monuments relevés:

— A l'entrée du Wadi Musa les n°s 9,12, le tombeau aux Obélisques 34, et le triclinium 35.

— Le Khazneh 62 et les monuments de Farasa 244 (Garden Tomb), 228 et 258.

— Dans la façade ouest de Khubtha, Le Palace Tomb, 765, le tombeau corinthien 766, le monument 770 et le tombeau de Sextius Florentinus 763. Mais sans le tombeau dorique (Urn Tomb), relevé par l'équipe britannique.

— Magharet en-Nasara 649, 650 et le Turkmanieh 633.

— Qasr el Bint, le triclinium aux lions 452, le tombeau aux trois urnes 455 et le Deir 462.

— Au nord, à Beidah, les nos 846 et 847.

On a jugé utile de réaliser une prise de vue panoramique de Khubtha.

La mission a pris soin de «prébaliser» les plus gros monuments, c'est-à-dire de les équiper de cibles qui donnent sur les photos des images très nette, très bien pointables dans les appareils de restitution; et, toujours pour les gros monuments, la prise de vue se complétait d'une triangulation des cibles et des prises de vue, ce qui facilite considérablement l'exploitation en atelier.

Pour le panorama, nous avons également relié par triangulation les 6 points de prise de vue; les 3 couples ainsi réalisés doivent permettre de tracer la projection orthogonale sur un plan vertical de tout ou partie de la paroi orientale qui comporte, comme on le sait, une grande abondance de tombeau inextricablement enchevêtrés.

Travaux de Restitution:

Les travaux livrés sont des élévations et des coupes; l'échelle de tracé sur les plans est de 1/100 (0,01 p.m.). Ces plans sont livrés sur film stable cronaflex; pour le Deir, une réduction sur film au 1/250 (0,004) a été ajoutée pour en faciliter l'édition.

Remarques sur la restitution:

Les tracés ont été effectués à l'appareil de restitution par gravure sur une «couche à tracer» (double couche: couche inférieure transparente, couche supérieure opaque); deux «pointes» ont été utilisées pour la gravure: la plus épaisse pour le tracé des parties épargnées par l'érosion, la plus fine pour le reste, ainsi que parfois (cas du Deir) pour les parties situées en arrière du plan moyen de la façade. Nous n'avons point jugé utile de toujours reproduire dans son fin détail ce qui n'est proprement que dégradation, par exemple toutes les dentelures d'une fissure. Une restitution n'est pas une photographie, mais un document métrique donnant une information triée et classée qui doit être utilisée conjointement avec des documents photographiques. On ne s'étonnera pas non plus du tracé de certaines coupes (le Deir en particulier); il reflète les malfaçons des architectes antiques: l'art architectural de Pétra est tout d'apparences, c'est un décor.

Autres travaux: Redressements, Stéréogrammes, Diapositives

Redressements

Nous avons, afin d'attirer l'attention sur cette possibilité, incontestablement intéressante pour le site de Pétra, réalisé deux redressements, l'un pour la façade du Deir, l'autre pour celle du Triclinium n° 34 (nous avons laissé subsister au dessus du Triclinium le tombeau au Nefesh, mais on prendra garde, conformément à ce qui est expliqué ci-dessous, qu'il n'est pas possible de faire sur ce dernier des mesures de même précision que sur le Triclinium). Rappelons que les redressements sont des documents photographiques où sont possibles, comme sur un plan, des mesures; mais c'est évidemment, du point de vue métrique, un docu-

ment beaucoup moins parfait qu'une restitution:

— en premier lieu, pour que les mesures soient possibles sur toute l'étendue de l'objet photographié, il faut que cet objet soit à peu près plan: si l'objet présente du relief, il s'introduit des erreurs d'autant plus importantes que le relief est plus grand;

— en outre, il n'est pas question de faire apparaître, sur ce document, les parties cachées lors de la prise de vue (alors qu'en utilisant plusieurs prises de vue, on peut toujours théoriquement réaliser une restitution graphique complète).

Un redressement combine donc, de façon il est vrai imparfaite, les qualités propres à la photo et au plan. Il est relativement peu coûteux.

Les redressements que nous livrons sont, pour le Deir, à l'échelle de 1/250 (0.004 p.m.) et, pour le Tombeau aux Obélisques à l'échelle de 1/100 (0.01 p.m.).

Stéréogrammes

Un stéréogramme, on le sait, est un couple monté de deux photographies permettant, au moyen d'un petit appareil très courant appelé stéréoscope, de voir en relief l'objet photographié (avec l'habitude, on peut même se passer de stéréoscope); on comprend tout l'intérêt de ce mode de présentation encore insuffisamment employé en architecture, ne serait-ce que pour l'édition.

Nous avons réalisé quelques planches de stéréogramme concernant le Deir et le Tombeau aux Obélisques (avec le Triclinium), à savoir:

— un stéréogramme d'ensemble pour chacun de deux monuments, se représen-

tant sous la forme d'un triptyque: pour la vision stéréoscopique le volet gauche doit être associé à la moitié gauche du volet central, et le volet droit à la moitié droite du même volet central.

— des stéréogrammes de tailles plus petites (5 x 5 cm) comportant les parties de ces deux tombeaux qu'on a jugé intéressant d'isoler.

Bien entendu, il ne s'agit là que d'échantillons; l'ensemble des couples pris à Pétra permettrait d'en établir beaucoup d'autres.

Diapositives

Des diapositives de certaines restitutions ont été effectuées; elles permettent d'examiner les travaux faits par projection ou à l'aide d'une visionneuse. Ce sont des négatifs: les tracés apparaissent en blanc sur fond noir.

Notes archéologiques

Les relevés photogrammétriques constituent, on le sait, des archives métriques d'une précision difficilement atteinte par un relevé direct. Mais on ne doit pas oublier que ces documents nous livrent les monuments dans l'état de conservation au moment de la prise de vue. Or la raison qui a poussé le Service des Antiquités à réclamer la réalisation d'un tel projet était la dégradation lente ou la destruction subite de certains monuments sous l'effet des éléments naturels. On se souviendra qu'une tombe datée par une inscription grecque a été emportée, au début du siècle, par un torrent impétueux, à la sortie du Siq. L'arc monumental qui ornait l'entrée du même défilé, n'existe plus aujourd'hui. Ainsi, certaines façades, exposées à l'érosion comme le tombeau corinthien (Pl. LII) livrent des

documents trop incomplets pour ne pas nécessiter l'intervention d'un architecte et d'un dessinateur qui complèteraient les relevés à partir des éléments existants. Dans ce cas, la publication, pour être objective, devrait présenter une bonne photographie, la restitution phogrammétrique et le dessin complété. Ainsi le lecteur se fera une idée exacte des problèmes posés par les monuments et pourra étudier avec précision les moulurations dont l'étude est de première importance dans le cas des édifices classiques. Malheureusement, les coupes que nous présentons souffrent de nombreuses détériorations dont la nature est coupable. Nous décrivons ici quelques façades à titre d'exemple en soulignant l'apport de la photogrammétrie ou ses défauts.

1. Tombeau aux Obélisques et Triclinium N° 34 (Figs. 2-3).

Ce tombeau assez original, à l'entrée du site inaugure la série des façades rupestres qui ornent les falaises gréseuses de Pétra. Les quatre stèles pyramidales qui surmontent le caveau funéraire sont aujourd'hui d'inégale hauteur, celle de l'extrême gauche atteignant 7m, y compris la base.

A l'arrière-plan, dans la paroi rocheuse, dans l'axe de la porte de la chambre funéraire, et entre les deux stèles du milieu, une niche flanquée de deux pilastres, abrite le relief d'un personnage, debout sur un socle et drapé d'un manteau dont il retient les plis par la main droite. La tête a été probablement mutilée par des iconoclastes et les autres détails ne sont pas perceptibles. Mais une photo prise au téléobjectif livre plus d'éléments. Cette statue qui fait des quatre stèles l'équivalent de la personne humaine (*nefesh* en nabatéen) et dont l'importance

SITE OF PETRA

TOMB Nr 12



Elevation

Photography : december 1969

Plotting : june 1972

Centre de Photogrammétrie
Architecturale et Archéologique



FIG. 1

TOMBEAU AUX OBELISQUES N° 35

OBELISK TOMB

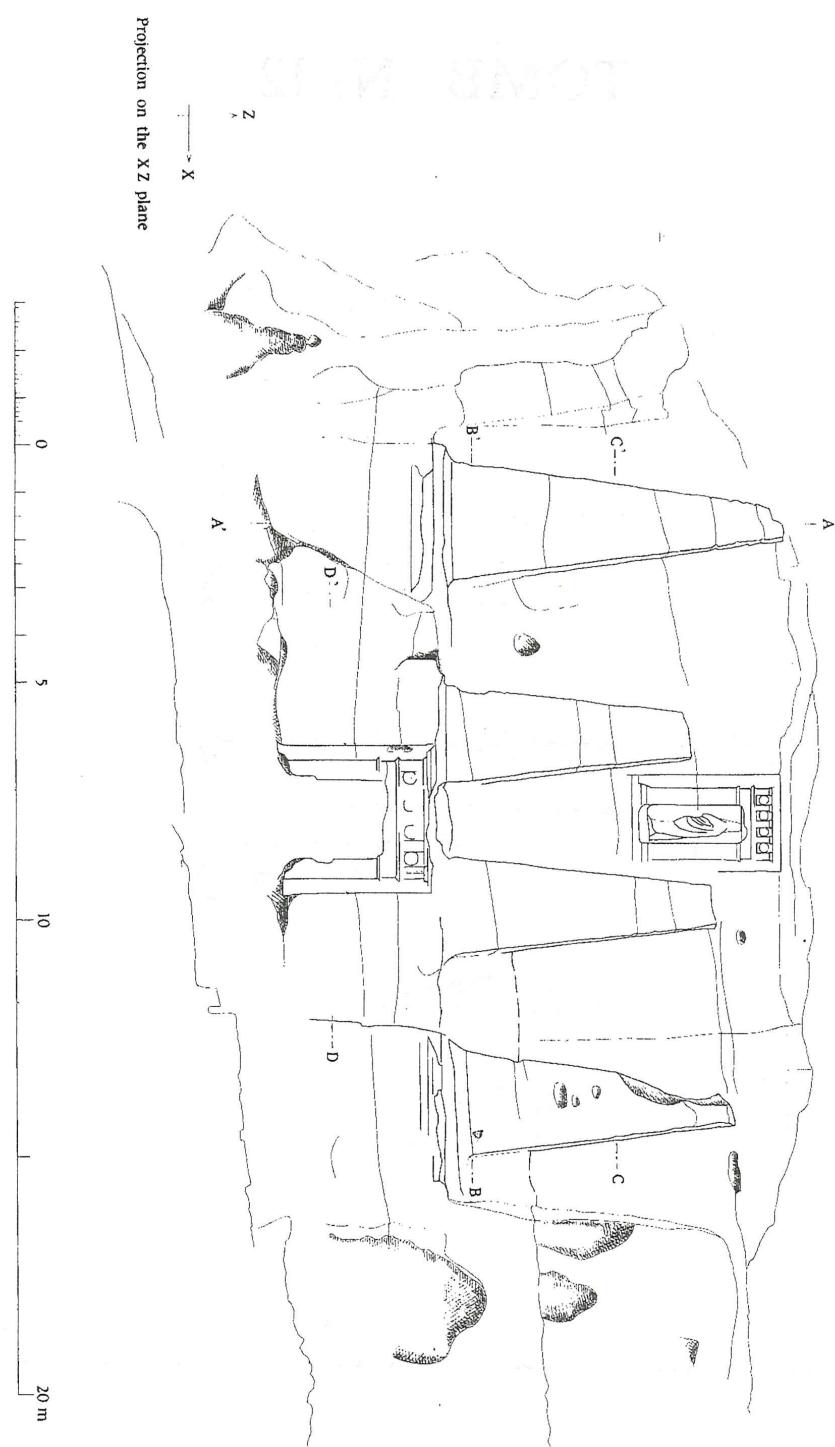


FIG. 2

Photography : december 1969

Plotting : march 1970

Elevation

Prises de vues : décembre 1969

Restitution : mars 1970



TRICLINIUM N° 34

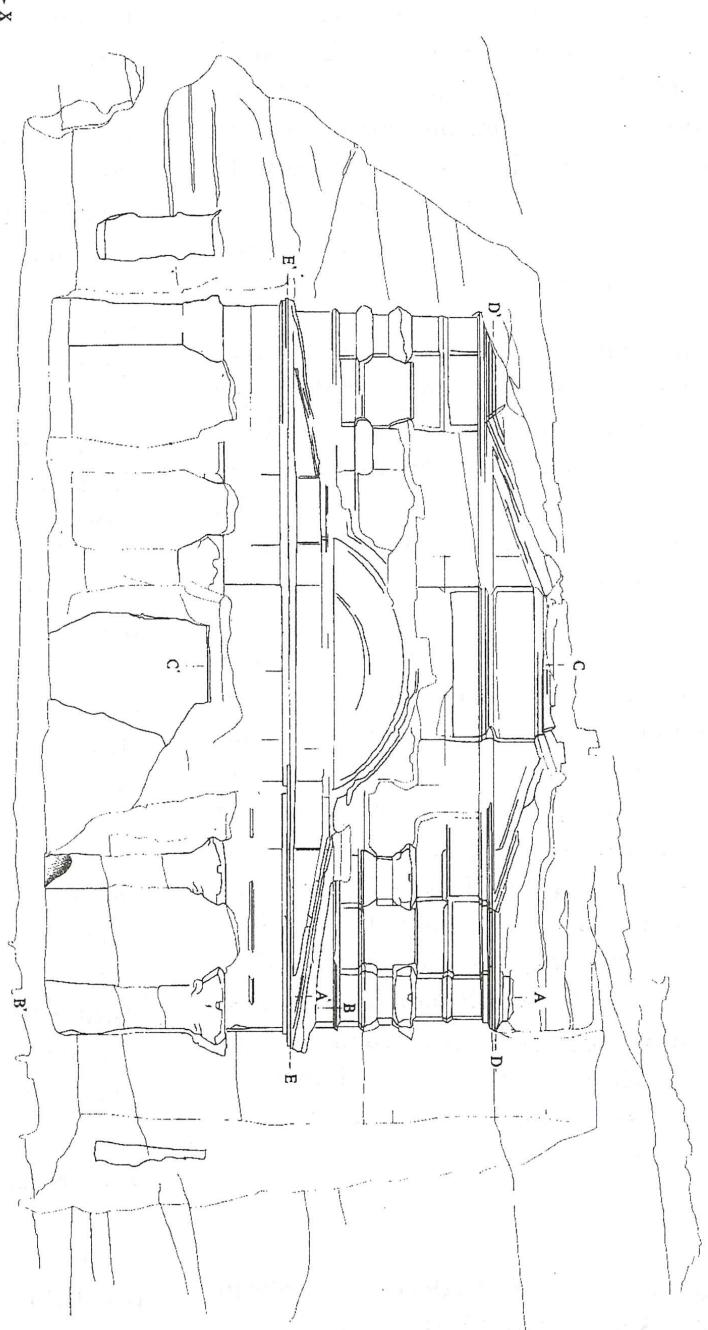


FIG. 3

Photography : december 1969
Plotting : march 1970

Elevation

Prises de vues : décembre 1969
Restitution : mars 1970



ne saurait être exagéré,² n'a pas été reproduite dans le dessin de von Domaszewski. Il est fâcheux qu'un ouvrage récent³ sur Pétra ait reproduit dans son inexactitude le dessin de *Die Provincia Arabia*, bien que G. Dalman ait déjà corrigé l'erreur. De plus, la coupe D—D, montre que la porte du caveau est dans un renfoncement et qu'il n'existe pas de pilastres, prolongeant les stèles sur la façade du monument. Cette illusion d'optique a été sévèrement corrigée par la restitution.

Le triclinium n° 34, au décor baroque (Fig. 3) n'est pas nécessairement d'époque romaine comme on l'a souvent répété. Dans l'ensemble, ses éléments architecturaux se retrouvent sur les stucs qui ornaient les murs extérieurs du Qasr el-Bint. Mais il est certainement plus tardif que ce dernier, les pilastres étant doublés de quarts de colonne comme sur des façades datées de la deuxième moitié du premier siècle. Par contre, le monument aux quatre stèle qui le surmonte, n'est pas d'époque hellénistique, comme on l'a cru. Une inscription grecque et nabatéenne, lue par J.T. Milik (voir plus loin) date de Maliku II (40–70 A.D.), ce qui placerait dans le courant du 1er siècle après J.C., les activités nabatéennes dans cette région de la capitale nabatéenne. Il est vrai qu'une salle taillée par Aslah daterait du 1er s.av.J.-C., mais il s'agit d'un complexe cultuel, d'ailleurs sans aucun décor architectural.

2. Magharet En-Nasara (649) et le Tombeau 770 (Streaked Tomb). (Figs. 4—5).

Le premier de ces deux monuments se distingue par une rangée de quatre pilastres nains dans l'attique qui sont pour moi la

2. F. Zayadine, Perspective, Essays in Memory of Paul W. Lapp (1971) p. 57—73.

réduction d'une loggia comme sur la Porta Marzia de Pérouse de l'époque d'Auguste ou le propylon du temple d'Athéna à Pergame, datant du 2ème siècle av.J.C. Des boucliers rappelant ceux du propylon hellénistique sont sculptés entre les deux pilastres centraux. Là où von Domaszewski a nettement dessiné des faces humaines entre les deux derniers pilastres, la restitution de l'IGN ne montre que des armures, d'ailleurs très mal conservées; le même motif se retrouve sur le propylon de Pergame. Par ailleurs, l'architecte de "Die Provincia Arabia" n'a pas remarqué les quarts de colonne qui doublent les pilastres de la porte, détail important qui pourrait suggérer la 2ème moitié du 1er s. de notre ère pour ce monument.

Des négligences sembleront déparent le dessin de P.A. (fig. 173) qui restitue le No 770. Ici, l'auteur qui a omis les quarts de colonnes pour le monument précédent, en a par erreur décoré les pilastres d'angle de notre façade. Pour la frise de pilastres nains, il a omis la corniche qui joint en leur milieu ces supports symétriques aux colonnes. Or cette corniche est une réminiscence évidente de la loggia de Pergame et de Pérouse, et donc un lien frappant avec l'architecture hellénistique. Par contre, la restitution ne marque pas le renforcement de la niche centrale.

3. Le Khazneh et le Deir: (Pls. XLI-XLVI).

Depuis le "Voyage de l'Arabie Pétrée" par Laborde et Linant (Paris, 1830), plusieurs architectes se sont acharnés sur le Khazneh, pour en livrer des relevés plus ou moins corrects, le plus exact étant certainement celui réalisé par l'architect Newton (1910) avec l'aide de G. Dalman⁴. Mais

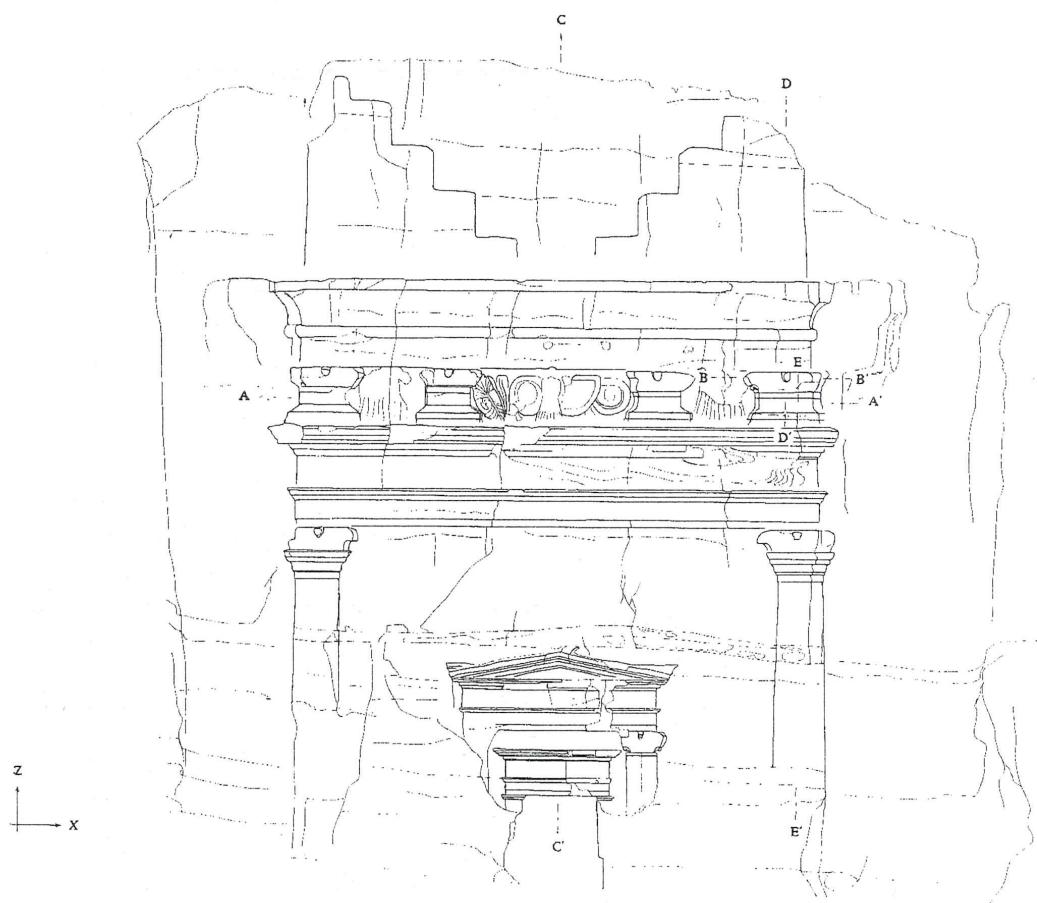
3. Iain Browning, Petra, London (1974) fig. 12.

4. PEF (1911) p.95—107.

Magharet-en-Nasarah

MAGHARET - EN - NASARAH TOMB Nr 649

SITE OF PETRA



Photography : December 1969

Plotting : June 1972

Elevation

FIG. 4

STREAKED TOMB Nr 770

SITE OF PETRA

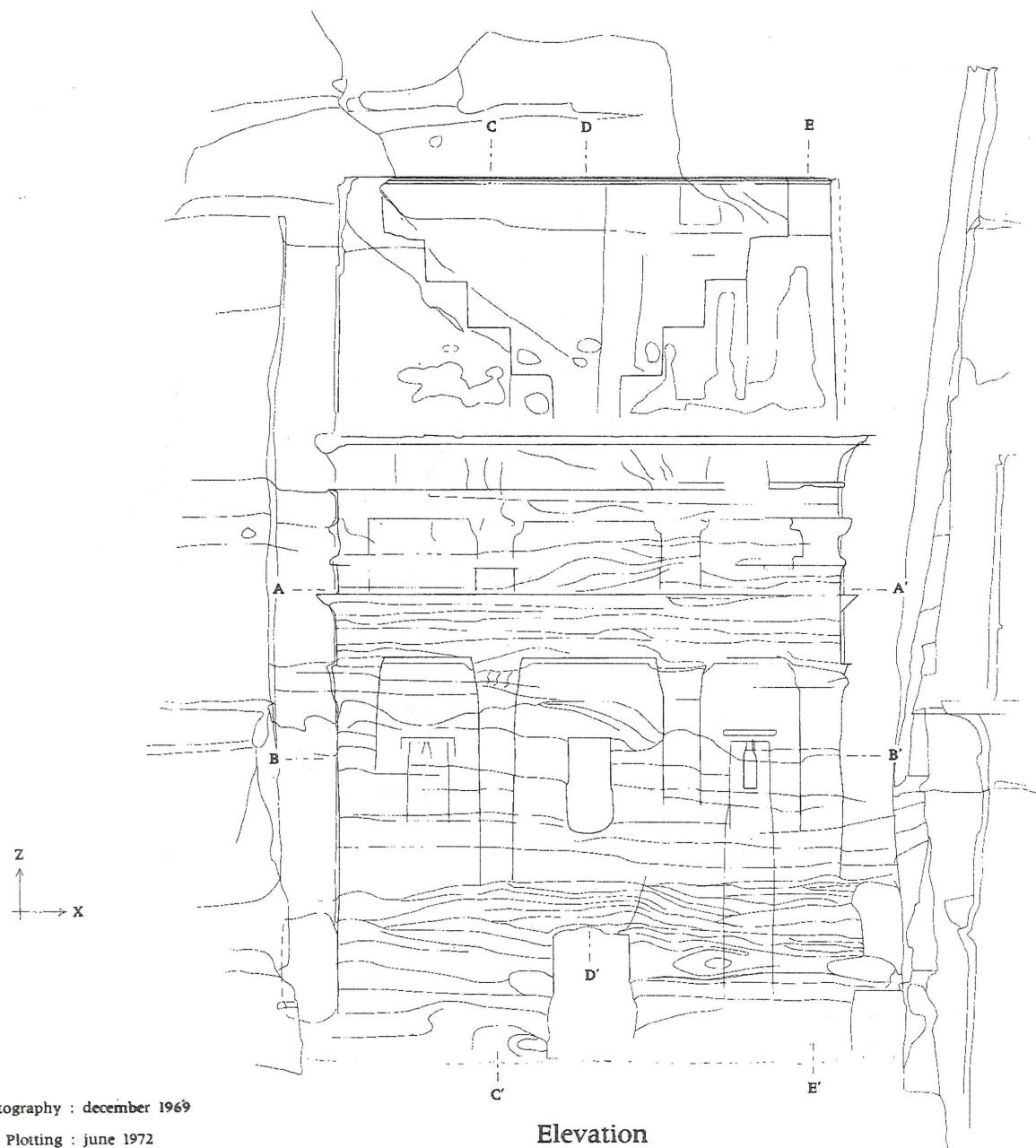


FIG. 5

même ce dernier relevé n'a pu éviter certaines erreurs dues aux moyens de fortune que les deux archéologues ont utilisés. Voici quelques mesures qui rendront mieux compte de l'élévation du monument:

Le podium a 1,50m de haut, les colonnes inférieures 12,65m avec un chapiteau de 1,50m et un entablement de 2,75m. Pour l'étage que Dalman n'a pu mesurer avec précision, nous obtenons les dimensions suivantes:

Hauteur des colonnes: 9,10m, le chapiteau étant d'un mètre, contre 8,95 dans le relevé de Newton. Le toit de la tholos atteint 7,90m et l'ensemble de l'étage est haut de 19,70m pour la partie inférieure. Si l'on restitue la partie brisée de l'urne de la tholos, nous obtenons deux parties symétriques et égales. L'entablement sous la tholos est de 2,40m contre 2,90m chez Newton. La restitution plus exacte de l'Isis-Tyché au centre de la tholos que le dessin de Newton doit permettre des comparaisons qui aideront à serrer de plus près la date du monument. Des précisions semblables pourront être obtenues par le décor des chapiteaux de l'étage inférieur et la frise sous le fronton (Pl. XLII), dont les rinceaux rappellent les œuvres alexandrines. Il faut regretter cependant que les bases de colonnes de la tholos ne soient pas nettement profilées.

La restitution du Deir dépasse en précision tous les relevés précédents. Notons que les coupes sont plus précises parce que la conservation du monument est presque parfaite. La coupe (Pl. XLVII) montre que la partie centrale est incurvée, détail qui pour A. di Vita⁵ est l'indice d'un baroque romain. Mais je ne pense pas que ce monument qui peut être un temple à la mémoire

d'Obodas le dieu, dont l'arcosolium à plate-forme rappelle le temple récemment dégagé par Ph. Hammond, soit plus tardif que l'époque de Rabel II (76–106).

4. Restitution Panoramique de la façade ouest de Khubtha: (Pl. XLVIII–LI).

L'intérêt de cette restitution est de nous procurer une vue d'ensemble à l'échelle de ces monuments variés et majestueux de Pétra que l'on croit à juste titre sculptés pour la famille royale des Nabatéens. J'ai déjà noté qu'en 1896, Gray Hill avait découvert une inscription nabatéenne au nom de 'Uneishu, ministre de Shuqailat II (70–71). Par les fouilles de 1973⁶, il a été prouvé que l'endroit de la découverte était le tombeau 813 et non 808 de Brünnow. Un portique à colonnes doriques et un triclinium donnent une valeur spéciale à ce monument officiel et peuvent préciser la date d'autres structures semblables, en particulier celle du tombeau dorique (Urn Tomb):

Ce monument d'une allure majestueuse a été converti en cathédrale en 447 par l'évêque Jason. Pour accéder à l'esplanade décorée d'un portique dorique, l'évêque a fait construire devant son église un escalier monumental, soutenu par des voûtes que le Service des Antiquités est en train de restaurer, non sans quelques erreurs. Les fouilles récentes au bas de cet escalier, du côté nord, ont livré des monnaies byzantines dont l'une est de Justinien. D'ailleurs, les Nabatéens avaient prévu un petit escalier sur le côté sud qu'on peut distinguer sur la restitution de l'IGN. La façade qui possède une frise de bustes déjà signalée par P. Parr⁷, se distingue par un fronton

5. A. DI Vita, MEER, LXXX (1968) p. 76–77.

6. ADAJ, XIX (1974) p. 135ff.

7. PEQ (1968) p. 10–11.

inscrit sur un attique, indice d'une influence orientale, ce que l'on ne voit plus sur le tombeau de Sextius Florentinus (Pl. LII) datant de l'époque d'Hadrien.

Il est à regretter qu'une restitution semblable n'ait pas été exécutée pour l'ensemble des monuments de Pétra. Mais les enrichissements archéologiques que nous venons de signaler sont suffisants pour récompenser l'effort des spécialistes de

l'IGN, que nous tenons à remercier au nom du Service des Antiquités et de tous les savants qui s'intéressent à Pétra. Notre gratitude va aussi à l'Abbé Jean Starcky qui a été un conseiller et un guide infatigable de tous ces travaux. Nous espérons publier dans un ouvrage d'ensemble ces restitutions qui marquent une date dans l'histoire archéologique de la capitale nabatéenne.

F. Zayadine et Ph. Hottier

Ti. Iulius Iuliamus Alexander, Gouverneur d'Arabie

par M. Sartre

Une inscription nouvellement trouvée à Gérasa non loin du théâtre sud de la ville porte le nom du gouverneur d'Arabie Tiberius Iulius Julianus Alexander. Grâce à l'amabilité du Département des Antiquités de Jordanie, il m'est permis de présenter ce texte.

Base cylindrique complète munie d'un pied ébréché à gauche et d'un double couronnement. (Fig. 1). Le couronnement supérieur est brisé en plusieurs endroits. Le texte occupe la partie supérieure du dé et couvre la moitié de la circonférence. Quelques lettres, d'une écriture différente, apparaissent sur la bordure du couronnement supérieur. Dimensions: diamètre maximum: 68; hauteur totale: 120; hauteur du dé: 74; hauteur des lettres: 6 à 7; interligne: 0,5 à 1.

Le texte principal ne présente aucune difficulté et se lit comme suit:

Τι(βερίον)’Ιουλιον Ιουλιανὸν
Αλέξανδρον πρεσβευτὴν
Σεβαστοῦ ἀντιστράτηγον
ἡ πόλις
ὅμονοίας ἔνεκεν

«La cité (honore) Tiberius Iulius Julianus Alexander, légat impérial propréteur, pour la concorde (qu'il a fait régner)».

Sur le bandeau supérieur: AE [env. 6 1.] μ. Je ne peux rien proposer pour ce fragment.



FIG. 1

Cette dédicace à l'accusatif accompagnait peut-être une statue placée sur la base mais l'honneur pouvait se limiter à l'inscription. On note avec intérêt que le gouverneur est honoré ὅμονοίας ἔνεκεν que je comprends comme le fait d'avoir fait régner la bonne entente soit entre les geraséniens eux-mêmes soit entre Gérasa et les cités voisines. La Concorde entre les cités est une

vertu fréquemment exaltée¹. Qu'on fasse gloire ici au gouverneur de l'avoir établie ou rétablie n'a rien de surprenant: la Concorde qui règne à Gerasa résulte de l'exercice d'une qualité éminemment appréciée chez les gouverneurs: la Justice². On loue ici non les qualités propres de Tibérius Iulius Julianus Alexander mais les résultats de celles-ci. Notons enfin que la Concorde apparaît plusieurs fois dans les inscriptions de Gérasa³.

On connaît par un papyrus de Nahal Hever⁴ Iulius Julianus, gouverneur d'Arabie le 12 Octobre 125. L'allure générale du monument de Gérasa permet de la dater de la première moitié du IIe siècle et il me semble à peu près certain que le personnage honoré ici est le même que celui qui tient ses assises à Pétra à l'automne 125. Sans doute ne peut-on éliminer totalement la présence à la tête de l'Arabie de deux gouverneurs partiellement homonymes à quelques années d'intervalle mais la vraisemblance suggère qu'il s'agit bien du même homme. En conséquence, Ti. Iulius Julianus Alexander dut être gouverneur de l'Arabie en 125 (et peut-être plus tôt) et rester en place jusqu'en 127 au plus tard, année où T. Aninius Sextius Florentinus se trouve attesté à ce poste⁵. L'inscription de Cérasa peut être placée à cette époque et on serait tenté de songer aux débuts de la légation de

Ti. Iulius Julianus Alexander en raison de l'absence de mention du consulat qui accompagne généralement cette fonction si une autre date n'était pas proposée pour le consulat de ce personnage⁶.

Un homonyme⁷ dont les étapes la carrière, telles qu'elles sont suggérées par la notice de la PIR², sont pour le moins incertaines doit être mis en parallèle avec le gouverneur d'Arabie. La seule donnée certaine atteste sa présence à Rome en 118 comme membre du collège des Frères Arvales⁸. Pour le reste, on a tenté de l'identifier au légat de légion Alexander qui combattit en Mésopotamie avec Frucius Clarus en 116⁹ et qui fut peut-être collègue de celui-ci comme consul suffect la même année. Mais on remarquait que le cognomen principal du frère Arvale de 118 ne semblait pas être Alexander mais Julianus¹⁰ et le rédacteur de la notice de la PIR² pensait en conséquence que le collègue d'Erucius Clarus pouvait être C. Iulius Alexander Berenicianus¹¹. L. Petersen, avec des arguments supplémentaires, adoptait cette solution¹².

Notre inscription permet de clarifier la situation. A moins que le gouverneur d'Arabie ne soit un homonyme, inconnu par ailleurs, du frère Arvale attesté en 118, il est très probable qu'il s'agit du même homme. En conséquence il ne saurait être consul en

1. L. Robrt, Hellenica IV, p. 108 et n. 3
2. Id., Ibid., p. 99-100.
3. C.B. Welles in C.H. Kraeling, Gerasa, No 2, 3, 4, 5, 15.
4. H.J. Polotsky, The Greek Papyri from the Cave of the Letters, IEJ, 12, 1962, p. 259; Y. Yadin, The Nabataean Kingdom, Provincia Arabia, Petra and En-Geddi in the Documents from Nahal Hever, Ex Oriente Lux, 17, 1963, p. 237; H.J. Polotsky, Three Greek Documents from the Family Archive of Babatha, Eretz-Israel, 8, 1967, p. 47 (en hébreu; résumé anglais p. 69*).

5. Cf. en dernier lieu, Y. Yadin, 1.1., p. 238.
6. Cf. plus bas.
7. PIR² I 142.
8. CIL VI 32374 (= Dessau, 5028), 32375.
9. Dion Cassius, 68, 30, 2: ἔσλω δὲκαὶ ἡ Σελεύκεια πρὸς τε Ἐρυκίου Κλάρου καὶ πρὸς Ἰουλίου Ἀλεξάνδρου ὑποστρατήγων, καὶ ἐκαύθη.
10. On a cependant Ti. Iulius Alexander Julianus en CIL VI 32374 et Ti. Iulius Julianus Alexander en 32379.
11. PIR² I 141.
12. L. Petersen, Iulius Julianus, Statthalter von Arabien, Klio, 48, 1967, p. 166, No 1.

116 puisque la date la plus haute pour son consulat ne peut être que l'année suivante son entrée en fonction comme gouverneur d'Arabie, vers 124-125. Du même coup, c'est bien C. Iulius Alexander Berenicianus qui fut collègue d'Erucius Clatus en Mésopotamie et, peut-être, dans le consulat (à moins qu'il ne s'agisse d'un Alexander inconnu). Même si le consulat d'un Alexander en 116 n'est pas pris en considération (il est en effet incertain), on admettra difficilement qu'il ait fallu près de 10 ans à un homme pour passer de la légation d'une légion au gouvernement de l'Arabie, celui-ci s'obtenant normalement peu après ou immédiatement après celle-là.

L. Petersen¹³ a avancé la possibilité d'identifier le gouverneur d'Arabie qu'elle ne pouvait connaître que sous le nom de Iulius Iulianus avec un proconsul d'Asie de 145-146, connu sous son seul cognomen de Iulianus¹⁴. Elle suggérait également qu'il pouvait s'agir de Ti. Iulius Iulianus Alexander et proposait en conséquence un cursus que l'on peut résumer ainsi¹⁵ : en 118, il est à Rome, puis à partir de 124-125 (et peut-être plus tôt) en Arabie comme gouverneur, jusqu'en 127 au plus tard. Son consulat se placerait en 129 ou 130 où l'on connaît le couple consulaire Iulianus et Castus par une tuile d'Ostie¹⁶. Il est habituel que le gouverneur d'Arabie gère son consulat in absentia pendant son séjour à Bostra; cependant T. Haterius Nepos¹⁷, attesté comme gouverneur en 130, n'est consul qu'en 134 ce qui pourrait fournir un parallèle pour Ti.

13. Id., *ibid.*, p. 162-167.

14. PIR² I 76.

15. Je ne reprendrai pas ici le détail de l'argumentation de L. Petersen.

16. H. Bloch, *Bolli laterizi e la storia edilizia romana*, Rome 1947, p. 281 et 329; le même personnage, id., 1.1., p. 156; cf. PIR² I 75.

17. PIR² H. 30; RE Suppl. XIV, s.v. Haterius 9.

18. CIL XIII 5974; L. Petersen, 1.1., p. 164; cf. PIR² I 78.

Iulius Iulianus Alexander; cependant on ignore si Ti. Haterius Nepos n'était pas encore à la tête de l'Arabie en 134 ce qui rend le parallèle moins évident. Un peu plus tard, sans doute vers 133, Ti. Iulius Iulianus pourrait être légat en Germanie Supérieure¹⁸, enfin proconsul d'Asie en 145-146. Il apparaît épisodiquement à Rome aux réunions des frères Arvales, entre 122 et 138¹⁹, puis au début du règne d'Antonin le Pieux²⁰, en mai 145²¹ c'est-à-dire à la veille de son départ pour l'Asie, dans les années 150 enfin²².

Tout n'est pas également assuré dans cette reconstitution et on peut discuter en particulier l'identification du légat d'Arabie avec celui de Germanie Supérieure et avec le proconsul d'Asie²³ mais les débuts de la carrière me paraissent maintenant sûrs: le gouverneur d'Arabie de 125 est très vraisemblablement le personnage qui est à Rome en 118, ce qui exclut pour celui-ci à la fois sa légation de légion en Mésopotamie et son consulat en 116.

W. Eck²⁴ estime que Ti. Iulius Iulianus Alexander (ou Iulius Iulianus, gouverneur d'Arabie, qu'il se refusait à confondre ce qui implique qu'il ne s'était pas rendu aux raisons de L. Petersen) pouvait être le même que Ti. Iulius Iulianus, *curator aedium sacrarum et operum locorumque publicorum*²⁵, attesté sous Hadrien ou Antonin le Pieux. Cette magistrature s'exerçant généralement à la sortie de charge du consulat, Ti. Iulius Iulianus Alexander, s'il

19. CIL VI 2079, 4 et 32378.

20. A. Pasoli, *Acta fratrum Arvalium*, Bologne 1950, p. 36, No 68.

21. CIL VI 32379.

22. A. Pasoli, 1.1., p. 37, No 70.

23. La seule mention du cognomen Iulianus peut paraître de peu de poids.

24. W. Eck, RE Suppl. XIV, s.v. Iulius 290 a.

25. CIL VI 31718.

s'agit bien de lui, serait dans cette fonction, à Rome, vers 131-133, entre son consulat et sa légation de Germanie Supérieure.

En définitive, si l'on adopte les propositions de L. Petersen et les miennes, il faut opérer des fusions en série entre les différentes notices de la PIR². Le gouverneur d'Arabie Ti. Iulius Iulianus Alexander, ignorée de celle-ci (puisque inconnu à la date

de parution de ce fascicule) est le même personnage que ceux répertoriés en PIR² I 142, probablement aussi en PIR² I 75 (consul en 129 ou 130) et 76 (proconsul d'Asie), moins sûrement en PIR² I 78 et par W. Eck dans la RE Suppl. XIV s.v. Iulius 290 a.

Maurice SARTRE
Lyon, Avril 1976



The Amman Airport Excavations, 1976¹

by

Larry G. Herr

With the new runway and apron extensions in construction at the Amman Airport threatening to cover more of the area around the airport «temple» with asphalt, funds were supplied by the Department of Civil Aviation under His Excellency Sharif Ghazi and permission was given by the Department of Antiquities under Mr. Yacoub Oweis for a short salvage excavation from Aug. 18–30 directed by this writer with Lawrence T. Geraty as Project Advisor and Nazmieh Ridha as the Department of Antiquities representative. Thanks must go to Mr. Kenneth Fenske on loan to Alia from Pan American Airlines who introduced us to the urgency of the project, and to Mr. Yusef Alami whose support smoothed the way for us.

Most of the equipment and some of the staff were taken over from the Hesban excavation, just concluded, while the rest of the staff came from the foreign community in Amman.

The goals of the project were three-fold:
1. To investigate the area surrounding the «temple» for any signs of other structures or occupation. 2. To gain as full a picture as possible of the ecology of the region during Late Bronze times. 3. To discern any possible hints regarding the function of the building.

Since previous excavations had completely excavated the «temple» building itself, we concentrated all our work outside the structure. One long trench made up of

three 2 X 5 m. squares was laid out to the north of the temple, east of the trenches dug by Hennessy in 1966. During a previous visit to the site we had noticed some stones that seemed to be aligned and seemed to corner about five m. to the north of the «temple». We now hoped to investigate this possibility by intersecting what we thought might be a south wall of another building. In the square nearest the temple we re-investigated the foundation trench of the «temple» hoping to gain sealed ecological material. We found nothing here to negate Hennessy's conclusions as to the stratigraphy of the «temple». Square A. 3, farthest from the temple building soon reached virgin soil and seemed to lie beyond the remains we were seeking in Square A.2. To uncover the rocks that were found in A.2 it was necessary to expand two more meters to the east and to open a new square on the west. When this was done an irregular rock-tumble was uncovered, lying on virgin soil with two north-south running lines of stones having the appearance of walls, but which may only have been structuring lines for what we would propose to have originally been a structured rock pile for a purpose discussed below. No E–W walls or surfaces connected these stone lines.

Within this pile of uncut field stones stratigraphically connected with the «temple» sherds were found from vessels similar to those found within the «temple», that is, local and imported Late Bronze Age wares. Mycenaean and Cypriot base-ring

1. For a full bibliography of previously published materials on the airport «temple» see V. Hankey,

«A Late Bronze Age Temple at Amman,» in *Levant* VI, p. 131, note 4.

vessels were evident but not nearly as frequent as the local wares. Many fragments of calcite vessels imported from Egypt as well as bowls carved from basalt-like rocks such as gabro were found in ample numbers. On bronze arrowhead or dagger was discovered within the rock debris.

We also laid out a trench one meter wide by 12 meters long extending to the east from the southeast corner of the «temple». This was done to connect the «temple» with a 160 meter long trench dug to a constant 60 meter depth by the airport construction engineers. With this we were able to connect the virgin soil beneath the temple with the virgin soil in the trench and prove that the «temple» was isolated from buildings at least on its eastern and northern sides.

A third trench was laid out to the south to check for any indications of structures in that direction. The pattern found here was that found in the other sectors as well where the finds were deeper and more frequent close to the «temple» but steadily diminished the farther we moved away from it until they completely disappeared.

Investigation of other trenches and bulldozing activity of the runway builders proved to us that there remains no sign of any other occupation in the vicinity of the «temple» during the Late Bronze Age. Frank Koucky's geological investigations, however, found signs of human occupation stratigraphically beneath the «temple» in the north. Analysis of some of the flints found may indicate that there was a small neolithic site at the airport. No pottery or other artifacts beside flints were found in this material.

Part of the lure of the site for us was the fact that it was a one-period site having the

possibilities of shedding much light on the ecological environment of LB central Trans-Jordan. We thus took pollen samples from all sealed loci, and froth-floated a sample from every soil locus for seeds and micro-fauna. All bones and shells were saved as well. Unfortunately, the high alkalinity of the soil has probably destroyed much of the organic materials originally within the soil.

While in Amman, a preliminary analysis of the bone material was made by Prof. Boessneck of the München Zooarchäologische Institut with most interesting results. 95% of the bones by weight and number were human, all showing definite signs of burning. Not one of the animal bones seems to have been burned, however, When this is put together with the fact that the stones of our rock pile showed frequent signs of burning on one side of the stone we are led to suggest that the function of the stone pile was that of a large pyre for the burning of human bodies. Since most of the human bones seem to have been from adults, the picture is not one of child sacrifice, but more probably that of cremation.

It should be noted in this respect that the large numbers of fine ceramic vessels, bronze weapons, and gold jewelry found in previous excavations can be considered typical tomb furniture of the time. The «temple» building itself may thus have been a ritual center for the ceremonies connected with the dead and their burial as well as a repository for the prospective tomb furnishings. Seen in this light the problems of recognizing the temple's isolation become mute since nomadic tribes or settled groups from nearby (Amman is now known to have had a Late Bronze settlement) could easily have kept it up as well as supplied it. One would also be led to

suggest that there may be some LB tombs in the immediate area, perhaps buried far underground.

Under the aegis of the Department of Antiquities and the Department of Civil

Aviation, the site is being reconstituted and set up as a tourist attraction for airplane passengers as they enter and leave the apron area of the airport.

Larry G. Herr



New Epigraphical Material from the Harra Region of Jordan

by
Vincent A. Clark.

The desert of northeastern Transjordan — a sea of basalt boulders, extending into Syria to the North and into Saudi Arabia to the South, ceasing abruptly to the East where the gravel flats and mud pans run up against the basalt, while to the West the basalt gradually gives way to the more fertile land of the Jordanian hills.

This basalt region, known as the Harra, is of a most desolate and forbidding aspect; broken only occasionally by dry wadi courses, mud flats and low hills and ridges and inhabited only by scattered families of bedu, a few government employees and oil pipeline workers. Scanty rain provides sparse pasturage from which the flocks eke an existence but permanent water supplies are rare.

It is in this region, an area most hostile to man, that are to be found countless thousands of inscriptions in the South Arabian dialect known as Safaitic, along with a lesser number in Aramaic, Greek and Arabic.

During the course of a recent visit to Jordan the writer was fortunate to be able to visit the Harra briefly on a number of occasions and there to make copies of about 500 previously unrecorded Safaitic inscriptions. These came from a number of widely separated areas: from near Jebel el-Aritein¹, from Murabb es-Suwei'd² and from a number of sites on the eastern edge of the basalt on the Qā' Abū el Husein and the Qā' el-'Arqadiya³. The thirty-three texts found at Jebel el-Aritein are, with the exception of the eleven found by the Princeton University expedition at Umm el-Jamal,⁴ the most westerly group of Safaitic texts from Jordan as yet known.

While pursuing this research the writer was housed in great comfort at the American Centre of Oriental Research in Amman, under the directorship of Dr. James A. Sauer. Thanks must be expressed to Dr. Sauer for his invaluable assistance and advice, to the United States Ambassador to Jordan, Mr. T. Pickering, who conveyed the writer on a rapid survey of the eastern edge

1. Map reference: Jordan 1: 50 000, Sheet 3354II, El-Aritein, 034582.

2. Map reference: As above, Sheet 3454I, Wadi el-'Abd, 547738 and 549736.

3. Map reference: As above, Sheet 3654III, Qā' Abū el-Husein, 163598, 118516 and 093519.

4. The inscriptions from Umm el-Jamāl are unusual in that they were found inscribed on building remains at the site of the former Nabataean and Roman city and provide the only known instance of Safaitic texts being found in the context of a settlement. It is quite probable that these texts were inscribed by bedouin who were in the employ of the Roman garrison at this caravan city.

of the Harra on August 22nd⁵, and to the Jordanian Department of Antiquities, especially to Mr. Yaqub Oweis and to Dr. Yusef Alami, who kindly provided a four-wheel drive vehicle and a guide during the writer's first visit to the area on May 3rd — 4th, and finally to Mr. Dick Dorset, who was kind enough to provide his services and that of his motorcycle for two days of epigraphical gleaning at Murabb es-Suwei'd.

The inscriptions collected during this stay in Jordan are to form part of a Ph.D. dissertation at the University of Melbourne, Australia and will be published in due course.

The Safaitic inscriptions are to be found engraved on boulders and rock outcrops on natural landmarks and on and around burial cairns, which were erected over the dead in this region⁶. Generally these cairns are located on a slight prominence and were constructed of a large number of basalt boulders of about head size, piled up over the burial to form a large, rectangular shaped cairn. The largest seen by the writer was perhaps seven metres square and three metres high,

Large concentrations of these cairns are to be seen along the eastern border of the Harra, along the top of the low ridges which mark the eastern extent of the

basalt. In view of this fact it has been suggested that these cairns were so located as to serve as «lighthouses» along the basalt coast to guide the caravans moving from North to South along its edges.⁷ While it is most probable that the ancient caravans did deliberately elect to follow the easier route over the gravel plains and mud pans, using the edge of the basalt as a guide, it is most unlikely that they deliberately chose to bury their dead there as a conscious guide to navigation. Rather they would have followed the dictates of expedience, it being easier to inter the dead on the edge of the basalt rather than further into it or on the gravel flats (where the graves could be eroded or otherwise disturbed.) In due course the resulting cairns would naturally have become landmarks.

While it is true that large numbers of texts are to be found along the eastern edge of the basalt it must be kept in mind that large numbers have also been found elsewhere, at Jawa, in the Jebel Druze region of Syria, at the Cairn of Hani', on the Tapline road, and at Murabb es-Suwei'd (by the writer); these last three areas are in the very heart of the Harra. It would seem then that the entire region was once inhabited by the Safaitic bedouin and that the high incidence of inscriptions which has been remarked along the eastern edge of the Harra⁸ may in fact be the result of a

5. During this trip the eastern edge of the Harra was explored from H₄ to the Saudi Arabian border, an area which, until now, had only been examined in the area of the Baghdad Highway at Qasr Burqū and around the Wadi Muqat. The expectation expressed by W.G. Oxtoby (see note 7) that the areas to the South of the Wadi Muqat would yield many thousands of inscriptions has proved correct as, in addition to those copied by the writer at Qā' Abū el Ḥuṣein and Qā' el Arqadiya, inscriptions were seen by the

hundreds at every site stopped at during this trip. Undoubtedly there are many more to be found in Saudi Arabia also; naturally enough this could not be verified.

6. See G. Lankester Harding, «The Cairn of Hani'», in Annual of the Department of Antiquities, Jordan, II 1953, P. 8f.

7. W.G. Oxtoby, «Some Inscriptions of the Safaitic Bedouin», (American Oriental Society, New Haven, Connecticut, 1968), P. 33—34.

8. Ibid.

no reason to assume that the script fell into disuse in the second or third centuries A.D. as was once hypothesised. Presumably the region remained inhabited until the Muslim Arab conquest and it is unreasonable to assume that the Safaites should have so degenerated as to have lost the art of writing. The later form of the Safaitic script is, as already noted, the most evolved form of the South Semitic script and no other script or dialect seems to have come into general use in the area until the appearance of Kufic Arabic. It is possible, and indeed probable, if we accept that Safaitic continued in use until the Muslim conquest, that the two scripts co-existed for a time until the earlier one fell into eventual disuse. Obviously the bedouin did not find the Arabic script to be a suitable medium for carving on stone as the incidence of Arabic inscriptions is rare. Today most of the region's bedouin are illiterate.

If indeed the Safaitic script was employed until the beginning of the Muslim era this would account in part for the large numbers of inscriptions which are to be found. Spread over a period of some six centuries it can be assumed that the population of the area need not have been unusually large to produce such a quantity of texts. If, however, we accept a time span of only three or four centuries we must assume that the Safaites were rather prolific authors. Even assuming a time span of six centuries their output is surprising, despite the graffiti nature of most of the inscriptions.

Finally the composition of the texts. Most are no more than the author's name, together with his genealogy for one or two

generations, although six or seven generations are by no means unusual. Others also provide the name of the writer's tribe, clan or family¹³ or provide some details of his activities at the time such as the grazing of flocks or his comings and goings in the desert, while a large number record the author's grief at the death of a relative or friend. Some are clearly of religious significance, seeking help, protection, happiness, plunder and so on from the gods. These deities include Allat and Lat, Rudā and Ruday, typical gods of the South Arabian pantheon. Others such as Ba'alsa-mīn and Dhushara were probably borrowed from the Nābatāeans or the Palmyrenes while the provenance of the deity named Yitha', a god often invoked, is a matter for some speculation, with some hopefully identifying him with the Christian Jesus¹⁴. If this is so then the name has been borrowed without any of the trappings of Christianity as there is absolutely no evidence that would suggest that these bedouin were Christian or even influenced by their beliefs. Lastly, as noted, a few texts refer to historical events.

Considered individually these inscriptions appear to offer a meagre and unrewarding field for study but considered as a whole and placed in an historical, linguistic and archaeological context they provide valuable information about those people who once lived, traded and fought in this desolate land. Much more is still to be learnt about them and it is to be hoped that future research will be a well considered attempt to study not merely the inscriptions but the entire context in which they are found.

Vincent A. Clark

13. See G. Lankester Harding, «The Safaitic Tribes», in *Al-Abhath* XXII, Nos. 3&4, Dec. 1969.

14. F.V. Winnett, op. cit., P. 16, discussion on *SIJ* 63.

More Safaitic Texts from Jordan

M.C.A. Macdonald

and

G. Lankester Harding

Of the present group of texts the first twenty-two are said to have been collected in the region of Qasr Burqa' north of the Baghdad road near H 4, and are now in the Amman Museum. Nos. 23 and 24 are in the Irbid Museum and are said to have come from the Mafraq area. We are greatly indebted to the outgoing Director General of the Department of Antiquities of Jordan, Mr. Y. Oweis, and to his successor Dr. A. Hadidi, for permission to publish them, and to Mr. Yusef al-Alami and other members of the Department for their never-failing help and interest in all that concerns the past of Jordan.

A confirmation of the provenance of the first twenty-two texts is provided by the fact that, of the nine stones brought in, two had been seen and copied by Winnett and Harding in that area in 1959–60, and form nos. 1273–1275 and 3912 of the forthcoming publication of nearly 4000 texts from that area. A closer and more leisurely examination of the remarkable drawing of no. 3912 revealed details which had been missed in the field, so, in this respect, it is fortunate that it was one of the stones brought in. This shows yet again how a comparatively brief examination – even by one who is well accustomed to copying from the original rather than dealing only with photographs or drawings – can result in the missing of important details and it emphasizes the necessity for a reliable photograph. However, on such expeditions time is usually limited, and a copy or photograph must be taken while

one has the opportunity, even if the light is far from satisfactory: a return to the same spot usually being out of the question. Neither stone is published here as they form an integral part of the full publication, now in the press.

A unique feature of the group is the presence of two minute Nabataean texts, one very short and one long, on the stone bearing nos. 6–14. The short text appears between nos. 6 and 12, while the long is between nos 6 and 11. Mr. J.T. Milik is now preparing the texts for publication. Their size and position, squeezed in as they are among the Safaitic texts, suggests that they were inscribed after the texts around them. Their presence is therefore of great importance in providing one of the very few pieces of external evidence we have for the dating of Safaitic inscriptions, since on palaeographical grounds a date can be assigned to the Nabataean texts thus giving us a *terminus ad quem*, at least for the Safaitic texts 6, 11 and 12.

The engraving of nineteen out of the twenty-four texts is done by the scratching technique, using a very fine and obviously tough, pointed tool of some kind. The writing of texts 9, 10, 12 and 13 is very small indeed, yet the letters are on the whole very well formed. However, the smallest and finest of all are the Nabataean texts which are practically invisible in some places. Nos. 15–21 are deeply cut, suggesting rubbing by a point in contrast to the light scratching of the rest. The whole

question of the methods of engraving these graffiti is in need of carefull study, preferably by someone with a good knowledge and experience of cutting inscriptions on stone — i.e., a professional stone engraver.

The names have been left unvocalised in view of the great number of vocalisations possible and the uncertainly of any of them.

No. 1: Amman Museum registration no. J 13213.

*l qdm ' bn nsh_r bn qdm bn [w wj] m
l ddh ' l mfny*

By QDM' s. NSHR s. QDM s. [and he grieved] for his paternal uncle, for MFNY.

The ' of *QDM*' and the N of *NSHR* are clear both on the original and on the photograph, but neither name has been encountered before. The N of *NSHR* could be dittography from the *bn* preceding it, but the ' of *QDM*' seems definitely to be intentional. Unfortunately the stone is broken at one end so that we have no way of knowing who was the father of *QDM*. The restoration of *wwjm* seems certain in view of its recurrence in no. 2. That there is a relationship between the authors of 1 and 2 is suggested by the fact that *MFNY* is the paternal uncle of the author of no. 1 and the maternal uncle of *QDM* of no. 2, assuming, of course, that both texts are referring to the same *MFNY*. For the interpretation of *ddh* see HCH no. 13.

QDM is found in Saf. and Tham. with one example in Sab. (HIn p. 478)

MFNY is found only in Saf. (HIn . 559).

No. 2: Registration no. J 13212.

*l qdm bn swdn bn m'z w wjm 'l h_{lh} 'l
mfny d'l df*

By QDM s. SWDN s. M'Z. And he grieved for his maternal uncle, for MFNY, of the tribe of DF.

See the remarks on no. 1.

SWDN is found mainly in Saf. with one example in Had. (HIn p. 335).

M'Z is found in Saf. and Tham. with one example in Sab. (HIn p. 554).

Nos. 3 to 5 are on the same stone, registration no. J. 13211.

No. 3

*l qdm bn swdn bn m'z bn tlm bn nqfn
bn ſ' l bn rbn d'l df' wr hlt d y'wr.*

By QDM s. SWDN s. M'Z S. TLM s. NQFN s. ſ'L s. RBN of the tribe of DF. Blind, O Lt, whoever effaces.

By the author of no. 2, though here with a greatly extended genealogy. In no. 4 his son *M'Z* takes his pedigree back as far as *TLM* and it looks at first glance as though this *TLM* is the son of ſ'L. However this is impossible since *TLM* is shown clearly in no. 3 to be the son of *NQFN* and it is obvious that both texts are referring to the same person since both have an identical list of his descendants. Thus it must be *NQFN* who is the son of ſ'L, despite the somewhat ambiguous position of the *bn*. The syntax at the end of the text is unusual both in the absence of any connective between the tribal name and the curse, and in the position of the deity after the verb in the latter. However, for parallels to the invocation cf. C 1936 which ends: *w'wr hlt wnq't bw(d)d¹ ld y'wr hsfr*, though it

1) As usual Ryckmans reads this as *bwqd*, but the *d* is quite clear on the plate.

should be noted that this is immediately preceded by another invocation, and NST no. 3 which ends: *wgnmt ld d'y w'wr d'sr d hbl*.

TLM is found mainly in Saf. with one uncertain example in Tham. (HIn p. 147)

RBN is found mainly in Saf. with three Tham and one Qat. examples. (HIn p. 267)

S'L is found only in Saf. (HIn P. 349)

NQFN occurs only once before, in Saf., WH 1922 (HIn p. 597)

No. 4

l m'z bn qdm bn swdn bn m'z bn tlm.

By M'Z s. QDM s. SWDN s. M'Z s. TLM.

By a son of No. 3; see commentary above.

No. 5

l h(lm) bn h(yy) bn n'mn w wjd sfr qdm f ndm

By H(LM) s. H(YY) s. N'MN. And he found the writings of QDM and was sad.

The text is very faintly scratched and the stone badly worn in some places. The first two names are far from clear. The first could be *hlm* as suggested above, though only the *h* is at all clear, and *hrw* or *hsr* are also possibilities. Of the second name, again only the first letter is really clear, and even this could be' though it is closer to a *h*; the name could be *hlh*, *hny* or *hly*. The horizontal stroke which on the photograph appears to join the bottom of the last two letters is in fact a small unevenness of the stone. Of the possibilities suggested for the first name, only *hlm* is attested: of those

suggested for the second only *hyy* is unattested. The word *wjd* is curiously written, the upright stroke of the *d* extending upwards into the left side of the *j*, and the word was first read as *jdd*. However, the second *w*, seems quite clear and 'renewing' the writing does not seem a practical proposition, particularly as the statement is followed by *w ndm* as so often after the discovery of another's writings. It is reasonable to suppose that the *QDM* referred to is he of nos. 2 and 3.

N'MN is most frequently found in Saf. with examples in Lih., Had., and Qat.; it is also known as the name of a place or building in Min., Qat., and Sab. (HIn p. 594-5)

Nos. 6 to 14 are on one stone, registration no. J 13206. No. 6, apparently the first to be inscribed, spreads over two faces in large, clear letters. The remainder of the texts are small but mostly clear. Nos. 7 and 8 are on one face with the beginning of no. 6; nos. 9 to 13 are on another face with the end of no. 6, and no. 14 is on one end of the stone.

No. 6

lys lm bn 'n'm bn q'sn bn shr d'l wrqn w sty b h 'bl f hlt slm w jd df mjdt

By YSLM s. 'N'M s. Q'SN s. SHR of the tribe of WRQN. And he wintered with the camels. So, O Lt, (give) security and Jd Df (give) abundance.

A straightforward text with no problem. *Mjdt* = Ar. Mâjidah, 'plenty, abundance', see Munjid p. 747, 3; Qamus al Muhīt I p. 336, and Hava p. 708, 2.

'N'M is found in Saf., Tham., Lih., Min., and Sab. (HIn p. 80)

SHR is found mainly in Saf., with two examples in Tham. (HIn. p. 312)

Q'SN is found only in Saf. (HIn. p. 485)

YSLM is found in Saf., Tham., Min., and Sab. (HIn. p. 671)

No. 7

l šmt bn gt bn slm d'l hzy w wjd 'tr'lh f b's..

By ŠMT s. ĠT s. SLM of the tribe of HZY. And he found the traces of his folk; and he was sad....

The *z* of HZY is faint on the photograph but clear on the original. The phrase '*tr'lh*' has not been found before in this exact form, though the discovery of traces of an '*l*' is by no means unknown: see e.g. C 1679: *w wjd 'tr'l df...*; C 2843: *w wjd 'tr'l kn...*; and C 2721: *w wjd sfr'l d'f w'l qsm...*. In view of the uncertainty of the exact social grouping implied by the word '*l*' (see HST pp. 3-5), we have translated it by the vague 'folk'. It is possible that *hlh* should be read instead of '*lh*', which would produce a much more common phrase. Since, however, the stone has been removed from its context and we have no way of knowing what other inscriptions were in its vicinity, the question of whose traces the author of this text actually found must remain open. The letters which follow are much more faintly scratched than the rest of the text and are in places almost invisible. There are traces of one or possibly two letters after *b's*, but they are too faint to read with any degree of certainty. After this the stone is completely blank, the surface being too rough to inscribe.

SLM is found in all dialects except Had. and Qat., but chiefly in Saf. (HIn. p. 325)

ŠMT is found in all dialects except Qat., but chiefly in Saf. (HIn. p. 356)

GT is found only in Saf. (HIn. p. 45)

The tribe of HZY is found only in Saf. (HIn. p. 194), and so far only at the Cairn of Hani' (HCH 105 and 162) and at Jawa, twenty kilometres to the north-west (see SIJ 295, 319, 320, etc.). It is possible that the author of SIJ no. 319 is a brother of the author of the text under discussion.

No. 8

l hnn bn 'dr'l bn jbyn d'l mrt w nzr

By HNN s. DR'L s. JBNYN, of the tribe of MRT. And he kept watch.

As is often the case with members of the 'mrt tribe, this text is written in one of the versions of the 'square' script, though nos. 10 and 12 show that members of this tribe did not use this script exclusively. See also HCH nos. 191 and 194, C 2947 for 'mrt texts in the 'square' script.

JBNYN is new, through JBNY is found in Saf. (HIn p. 152).

HNN is found chiefly in Saf., with four examples in Tham. (HIn p. 206)

DR'L is found chiefly in Saf. with two examples in Lih. and one in Tham. (HIn p. 412)

MRT as a tribal name is found only in Saf., but as a B name it occurs also in Qat. and Sab. (HIn p. 437 and HST p. 14)

No. 9

l 'qrb bn hn' bn m'n bn h[n]' bn šhtr

By 'QRB s. HN' s. M'N s. H[N]' s. ŠHTR

A son of no. 11. The stone is absolutely unmarked between the h and the ' of the fourth name, and since in view of no. 11 the name can only be *hn'* one must assume the *n* was omitted by accident.

ŠHTR is found only in Saf. (HIn p. 341)

'QRB is found mainly in Saf. with examples in Lih., Tham. and Qat. (HIn. p. 427).

- M'N has the same distribution (HIn. p. 556).
- HN' is found mainly in Saf. with examples in Lih., Tham. and Min. (HIn. p. 65).

No. 10

*l m'n bn s(rm'l d) 'l 'mrt w qss f hlt w ds'r
slm*

By M'N s. S(RM'L of the) tribe of MRT.
And he tracked. So, O LT and DSR (give)
security.

Only the first letter of the second name is really clear. The second and third letters could also be *b* and *r* respectively, after which there is space for three letters. However, at this point the stone is so badly worn that any attempt at a reading must be mainly guesswork. It is even possible that the second name consists of only two letters (e. g. SB or SR, both of which are attested in Saf., HIn p. 365 and 370), and that this is followed by *bn* and a third name also consisting of two letters. Only the tail of the *d* is visible on the stone, but the context makes the restoration certain. It may be noted that the tail is of the 'hooked' variety.

The last two words of the text are extremely faint but quite clear on the original. The beginning of the text, up to the end of the first name, is enclosed by three lines dividing it from nos. 9 and 11 and running along the outer edge of the stone.

SRM'L is found twice in Saf., both times in WH (HIn p. 371)

No. 11

*l hn' bn m'n bn hn' bn šhtr w 'wr b 'bl
f h(w) jd df slm w mjdt w 'wr m hbl m'l
hwq*

By HN' s. M'N s. HN' s. ŠHTR and he was in danger of being plundered because (he had) many camels. So O JD DF (give) security and abundance, and blind whoever damages, spoils, effaces.

A difficult text. The letters are all perfectly clear, but several of the expressions are new and somewhat obscure. The position of the phrase *w 'wr b 'bl* between the last name and the invocation makes it difficult to read it as anything but *w 'wr b 'bl*. However, a IVth form of '*wr*' appears to be so far unattested in North Arabian. The translation offered above is based on Arabic '*wr* IV, one meaning of which Kazimirsky gives (vol. II, p. 404) as 'se trouver dans le danger d'être pillé ou assassiné', and taking *bi* in the sense of 'on account of' and '*bl*' as *âbil* meaning 'many camels' (Lane p. 9, 2). This translation is by no means entirely satisfactory, but none of the other meanings of '*wr* IV seem appropriate to the context.

Immediately after this it seems that *f h jd df* must be read. It would appear that the writer first wrote *w* for *j* and then, realising his mistake, tried to erase the *w*.

For *mjdt* see no. 6. What follows is not easy to interpret. The phrase '*wr m hbl*' is clear and, although it does not seem to have occurred in this exact form before, several variants of it have been found, e.g. C 1186: ... *w wr l mn hbl* and NST 3: ... *w wr d̄sr d hbl*; cf. also C1087 and SIJ 841, where *hbl* takes an object. The next phrase is by no means clear, though it seems probable that it is a continuation of the curse. On this assumption, the translation offered above, based on Ar. *ma'ala* 'to spoil' (Sal. p. 989), and *hawwaqa* 'to efface (a word)' (Hava p. 150, though this usually takes '*alâ* + object) gives appropriate sense, though the lack of conjunctions produces extremely peculiar syntax.

For the names see no. 9.

No. 12

l gnm bn šmt d̄l' mrt w qss f h lt slm

By GNM s. ŠMT of the tribe of MRT.
And he tracked. So, O LT, (grant) security.

The *š* of the second name here takes a very unusual form.

GNM is found in Saf., Tham. and Qat. (HIn p. 458).

No. 13

l m'n bn hn' bn m'n bn hn' bn šhtr

By M'N s. HN's. M'N s. HN' s. ŠHTR

Another son of the author of no. 11.

No. 14

l bnt bn dhd

By BNT s. DHD

BNT is found mainly in Saf. with examples in Lih., Tham. and Qat. (HIn p. 119)

DHD is found mainly in Saf. with one example in Min. (HIn p. 385)

It should perhaps be noted that it is unusual to find on one stone texts by members of at least three different tribes. There are three texts by members of the 'MRT tribe (nos. 8, 10, 12) and one each by members of the WRQN (no. 6) and HZY (no. 7) tribes, as well as four texts which do not mention a tribe.

Nos. 15 to 20 are on one stone, registration no. J 13210. It is a collection of very brief texts in an approximation to the 'square' script. Some of the letters are particularly angular (notably *b*, *h*, *d*, *s*, *k*, and *l* with its short horizontal stroke at right angles to the vertical one) and the *b* of *bkrt* in no. 20 is virtually South Arabian in shape. On the other hand *r* in all the texts (with the possible exception of that in the second name of no. 16, which is anyway partially erased; (see notes on that text) is the shallowest of curves, at times almost indistinguishable from the common form of *l*. It is entirely without 'hooks' and were it not for the context in such words as *bkrt* it would be hard to decide whether the square or the curved shape represented *r*. Finally it is noteworthy that the script of all six texts is so similar that, although four different persons are mentioned in them (assuming that the DRBT of nos. 15, 17 and 20 are the same person), it seems highly probable that they were all inscribed by one hand.

Nos 15 and 16 which are on one face of the stone are enclosed by a roughly drawn border.

No. 15

l drbt bn hz By DRBT s. H(Z)

The stone is chipped at the end of the text, obscuring most of the last letter, but

what is left is sufficient to make the reading *z* almost certain.

HZ is known only from SIT 67 and WH 902 (HI p. 220)

DRBT is found only in Saf. (HI p. 220).

No. 16

l hbs bn ('k)bn By HBS s. ('K)BN

The stone is particularly badly rubbed over the lower part of the second letter of the second name, and its value is not absolutely certain. It was at first read as *r*, (the name *jrbn* is found once in Saf.: WH 219), but closer examination showed the remains of the side stroke characteristic of *k* and this reading was confirmed by comparison with the *k* in no. 18 and the examples of *r* in all the other texts. It is difficult to decide whether the first letter of this name is *j* or 'more especially since there are no other examples of either letter on this stone. However, since no such name as *jkbn* is known and there is at least one example of *'kbn*, albeit in Thamudic (JS 579), we have read the latter.

HBS is found in Saf., Tham. and Sab. (HI p. 173).

No. 17

l drbt By DRBT

Although the stone is slightly chipped over the first letter of the name, it can still be quite clearly seen. For the name see no. 15.

No. 18

l mtl h bkrt

By MTL is the young she-camel

The first five letters of this text are somewhat rubbed, but are still quite clear.

MTL is hitherto unattested, though *MTYL* is found in Saf. (HI p. 527).

No. 19

l drh bn bnt. By DRH s. BNT.

For *BNT* see no. 14.

DRH is found chiefly in Saf. with one example in Tham. (HI p. 239)

No. 20

l drbt hbkrt

By *DRBT* is the young she-camel

This text is written inside the drawing of the camel, and since only one camel appears on the stone it would seem that both *MTL* of no. 18 and *DRBT* lay claim to it. The other possibility is that the *l* at the beginning of either no. 18 or no. 20 is to be translated as 'for' rather than 'by', and that one of the two drew the camel for the other.

No. 21 is on a stone by itself, registration no. J. 13209.

*l msk bn 'bjr bn mqtl bn lb't w wjd sfr
'mh f wjm*

By *MSK* s. *'BJR* s. *MQTL* s. *LB'T* and he found the writing of his grandfather, so he grieved.

The writing referred to must be on another stone.

The 'magic sign', consisting of seven dots, has been carved between the first and second lines of the text.

'BJR is found only in Saf. (HIn p. 9)

LB'T is found mainly in Saf. with examples in Tham. and Qat. (HIn p. 508)

MSK is found mainly in Saf. with examples in Lih., Min. and Sab. (HIn p. 545)

MQTL is found mainly in Saf. with examples in Tham. (HIn p. 560)

No. 22 is also on a stone by itself, registration no. J. 13207.

l kst bn tm bn s'd bn tm bn šhl bn tm bn mfny w 'srq hnq't f h lt slm

By KST s. TM s. S'D s. TM s. ŠHL s. TM s. MFNY. And he went east (to) the water. So, O LT, (grant) security.

The reading *nq't* is not absolutely certain since the ' could be read as *w*. However, *nqwt* does not seem to have any meanings appropriate to this context. It therefore seems better to read *nq't*, and we have translated it by 'water' since the context is too vague to make possible a choice between the various Arabic words to do with water which come from the root *nq'*. The most suitable is probably *naqi'ah* which Kazimirsky (Vol. II, p. 1330) translates as 'sol tendre où il y a de l'eau stagnante'. *Naqi'ah*, 'an animal slaughtered for a guest: a feast', seems a somewhat less likely possibility.

TM is found chiefly in Saf. with a few examples in Lih. and Tham. (HIn p. 136)

SHL is found only in Saf. (HIn. p. 342)

S'D is found chiefly in Saf. with three Tham. examples (HIn p. 372)

KST is found only in Saf. (HIn p. 500)

For MFNY see no. 1.

Nos 23 and 24 are on one stone which is in the Irbid Museum: the stone is thought to have been brought in from the Mafraq area.

No. 23

*l 'qrb bn s'd'l bn 'kmd bn s'b bn mn' w
'lf f h b'lsmn gnyt w swy d'l bkr*

By 'QRB s. S' D' L s. 'KMD s. S'B s. MN'. And he became weak. So, O B'LSMN, (grant) riches and strength. Of the tribe of BKR.

Several features of this text make it difficult of interpretation. Firstly, no distinction is made between *b* and *r*, and it is thus impossible to tell whether the fourth name should be read *S'B* or *S'R*. The former has been chosen since it is well attested in Safaitic (HIn p. 372) while the latter has not yet been found, but the text would equally well support either reading. The same is true of the tribal name which could be either *BKR* or *RKB*. Neither has yet been found as a tribal name in Safaitic, though the latter is found once as a C2 name in Sabaeen (HIn p. 285), and the former is well-known as a tribal name in the Islamic period. Both are found as personal names in Safaitic. One should also note the unusual form of the *k* in both 'KMD and the tribal name.

Secondly, the position of *bn MN'* is very curious and there seems no way of deciding whether it is to be read after 'KMD or *S'B*.

Thirdly, the phrase *w 'lf* is usually translated 'and he fed, or foddered (animals)', and such a translation fits very well a context such as that of LP 722 where the word is followed by *h m'zy*. However, where 'lf is not followed by an

object this translation is much less satisfactory, and one would prefer an intransitive meaning. Arabic 'alafa can, of course, mean 'he drank copiously' (see Kazimirsky, vol. II p. 342; Munjid, p. 525; Lane, p. 2131, col. 2). On the other hand, we have preferred, in view of our interpretation of *swy* (see below) to take the meaning 'became weak': cf. the Aramaic 'allēf' 'to be overcome with weakness' (Jastrow, p. 1085 col. 2).

Fourthly, the meaning of *swy* is by no means clear. The translation 'a tomb' seems unlikely in this context, while to translate it as a verb 'and he made a tomb' (after SIJ 90) would produce the extremely unusual structure of: Name + sentence + invocation + sentence + a tribal name. It would therefore seem better to translate *swy* as part of the invocation and we suggest taking it as a noun meaning 'strength', cf. Arabic *sawin* 'strong'.

The abrupt ending with the tribal name, after the invocation, is unusual, though not unknown, and shows clearly that it can only apply to the writer since no one else is mentioned in the text.

The 'magic sign' consisting of seven strokes has been scatched along one edge of the stone next to *B'LSMN*.

'KMD is found only in Saf. (HIn p. 62)

'S'D'L is found in Saf., Tham., Min., and Sab. (HIn p. 318)

S' B is found only in Saf. (HIn p. 372)

MN' occurs only in Saf. (HIn p. 568)

For the tribal name *BKR/RKB* see the discussion above and HIn. pp. 114 and 285.

No. 24

l (sm)n (b)n (h)t w swy

By (SM)N (so)n of (H)T. And he made a tomb.

The writing of this text is casual in the extreme, almost careless. The first letter of the first name could be *s* or *h*, while the second could be *m*, *j* or even an enlarged ' (cf. the 'of *b'lsmn* in no. 23). If what follows is *n bn*, then *b* is indistinguishable from *l*. If, on the other hand it is the magic sign (though in most cases dots or circles are used rather than strokes) we are left with no connection between the first part of the text and the second. The next letter could be *h*, *y* or even *s*. *H* has been preferred to the paleographically slightly more likely *y* in the transcription above because *HT* is attested in Saf. while *YT* has not so far been found in any dialect. In the absence of any clues from the context for the translation of *swy* we have given the usual one.

SMN is found in Saf., Tham. and Sab. (HIn p. 330).

HT is found only in Saf. (HIn. p. 607)

INDEX

- 'bjr bn mqtl, p.n., 21
 'bl, sub., 6, 11
 'tr, sub., 7
 'srq, v., see šrq
 'wr, v., see 'wr
 'kmd bn s'b, p.n., 23
 'l, sub., 7?
 'n'm bn q'sn, p.n., 6
- b, prep., 6, 11
 b's, v., 7
 b̄lsmn, d., 23
 bkr? t.n., 23, or rkb?
 bkrt, sub., 18, 20
 bnt bn dhd, p.n., 14
 f. drh, 19
- tm bn s'd bn tm bn shl
 bn tm bn mfny, p.n., 22
- tlm bn nqfn, p.n., 3
 f. m'z, 4
- jbnyn f. 'dr'l, p.n., 8
 jd df, d., 6, 11
- hbs bn 'kbn? p.n., 16
 hzy, t.n., 7
 hlm? bn hyy? p.n., 5
 hnn bn 'dr'l, p.n., 8
 hwq, v. II, 11
- hbl, v., 11
 h(z) f. drbt, p.n., 15
 hl, sub., 2, 7?
 hyy? bn n'mn, p.n., 5
- dd, sub., 1
 drbt, p.n., 17, 20
 bn h(z), 15
 drh bn bnt, p.n., 19
 dšr, d., 10
- 'dr'l bn jbnyn, p.n., 8
 'qrb bn s'd'l. p.n., 23
 bn hn', 9
- 'kbn? f. hbs, p.n., 16
 'l, prep., 1, 2
 'lf, v., 23
- 'm, sub., 21
 'mrt, t.n., 8, 10, 12
 'wr, v.I, impv., 3, 11
 y'wr, impf., 3
 v.IV, "wr, perf., 11

distorted impression brought about by the fact that this area is so much easier of access than are other areas where texts may be found and to which as yet few epigraphic expeditions have been made. An extensive survey is needed to determine the extent and density of the Safaitic inscriptions and so to learn something of the demography of the region in the early centuries of our era.

The question now arises as to the period of time spanned by the Safaitic inscriptions, a problem which is difficult to resolve owing to a lack of dateable inscriptions and to the obscurity of many of the historical references which are to be found. In fact such references comprise only a minute fraction of the total inscriptions known (some 13 000 texts). The earliest appearance of Safaitic is generally held to have been in the 1st Century B.C., in a square form of script, closely related to the Old South Arabian monumental scripts and probably directly influenced by them. Later the Safaitic script evolved into its more usual form, which is the most evolved of all the South Semitic scripts.

A number of texts in this old style of writing are cited to lend support to a date

in the 1st Century B.C. for the appearance of the Safaitic. For example, SIJ 688⁹ was written — snt nzz 'lyhd — «in the year of the struggle with the people of the Jews» — perhaps a reference to the Arab revolt against Herod the Great between 23 and 14 B.C., while ISB 57¹⁰ was written — snt mlk rb'l — «in the year of King Rabb'il» — a possible reference to an eventful year in the reign of the Nabataean ruler Rabb'il I¹¹.

This square form of script is rather rare and was probably employed by the first of the Safaitic peoples to move northwards from Arabia into the borderlands of the regions dominated by the Romans, Parthians and Nabataeans. A number of these early texts refer to hmdy or hmd, once thought to have been the Persians (or Medes), a source of some confusion. It has since been conclusively proved that the hmdy were the Parthians¹², a people who shared power with Rome in the area from the first century A.D.

Unfortunately there are very few historical references to be found in the inscriptions in the later style of script and consequently it is difficult to be precise when speaking of the eventual disappearance of the Safaitic script. In fact there seems to be

9. F.V. Winnett, «Safaitic Inscriptions from Jordan», (University of Toronto, 1957), P. 95.
10. W.G. Oxtoby, op. cit., P. 47.
11. In 87 B.C. Rabb'il I defeated the army of the Seleucid Antiochus XII. Oxtoby (P. 47) while citing ISB 57 as evidence for the appearance of Safaitic in the first century B.C. suggests that the king in this inscription was Rabb'il II, a monarch who ruled from 71–96 A.D.! The possibility that it was indeed this ruler must be entertained, in which case the date for the appearance of the Safaitic script must be advanced into the first century A.D.. It must also seriously be considered that the Rabb'il referred to here may not have been a Nabataean king at all.

In fact A. Jamme, in a postscript to his «Safaitic mlk, 'Lord' of the Tribe» (Orientalia 39, 1970, P. 511) disagrees entirely with Oxtoby's interpretation of mlk rb'l while proposing an alternative, and fanciful, translation of the end of the text: qss snt mlk rb'l *— «and he was a narrator the year he has possessed Rabb'il». However the verb qss here means «to have revenge, to retaliate» while the author has gone to extraordinary lengths to attempt to prove his preconceived notions that mlk does not mean «king» in Safaitic.

12. Beatrice G. Zichy-Woinarski, «Parthians or Persians?», (Athesis submitted for the degree of Ph.D. at the University of Melbourne, 1973), P. 169–172.

described, the last of which is the most recent and the deepest with a depth of about twenty feet. It is here that the most numerous inscriptions were found.



Well preserved inscriptions have been found to indicate the presence of a small town, just to the south of the main site, at the time of the first visit. This town was probably the result of the Roman conquest of the area. It was called Morabb es-Swei'd.

FIG. 2.—Two inscriptions from Morabb es-Swei'd.

Such an ancient town probably dates back to the days of the Nabataeans, who were known to have built such structures, as well as the Romans, who also had a hand in the construction of the town.



FIG. 1.—A cairn at the edge of the Qā' Abu el Huṣein, with the gravel flats in the distance, about seventy Safaitic inscriptions were found on this cairn.

On the right, and just eastward of the cairn, a large number of Safaitic inscriptions were found on a large rock. These inscriptions are very difficult to read, but they appear to be in good condition.

On the left, and just westward of the cairn, a large number of Safaitic inscriptions were found on a large rock. These inscriptions are very difficult to read, but they appear to be in good condition.

On the right, and just eastward of the cairn, a large number of Safaitic inscriptions were found on a large rock. These inscriptions are very difficult to read, but they appear to be in good condition.



On the right, and just eastward of the cairn, a large number of Safaitic inscriptions were found on a large rock. These inscriptions are very difficult to read, but they appear to be in good condition.

FIG. 3.—An inscription from the Qā' Abu el-Huṣein showing a sun disc and a human figure holding a bow and arrow. The text reads: «By Malikat son of Jadhil».

gt₁ bn slm, p.n., 7
gnm bn šmt, p.n., 12
gnyt, sub., 23

qdm, p.n., 5
bn..... 1
bn swdn, 2-4
qdm' bn nshr, p.n., 1
qss, v., 10, 12
q' sn bn shr, p.n., 6

kst bn tm, p.n., 22
1b't f. mqtl, p.n., 21
1t. d., 3, 6, 10, 12, 22

m, rel. pron., 11
 mtl, p.n., 18
 mjdt, sub., 6, 11
 msk bn 'bjr, p.n., 21
 m'z bn tlm, p.n., 3, 4
 bn qdm, 4

R. SWO

m'n bn srm'l? , p.n., 10
 bn hn', 9, 11, 13
 mfn̄y, p.n., 1,2
 f. tm, 22
 mqtl bn lb't, p.n., 21
 mn' f.? s'b, p.n., 23

ndm, v., 5
 nshr bn qdm, p.n., 1
 nzr, v., 8
 n'mn f. hyy?, p.n., 5
 nq't, sub., 22
 nqfn bn š'l, p.n., 3

ht? f. smn? p.n., 24
hn' bn m'n bn hn' bn šhtr, p.n.,
9, 11, 13

wjd, v., 5, 7, 21
wjm, v., 1, 2, 21
wrqn, t.n., 6

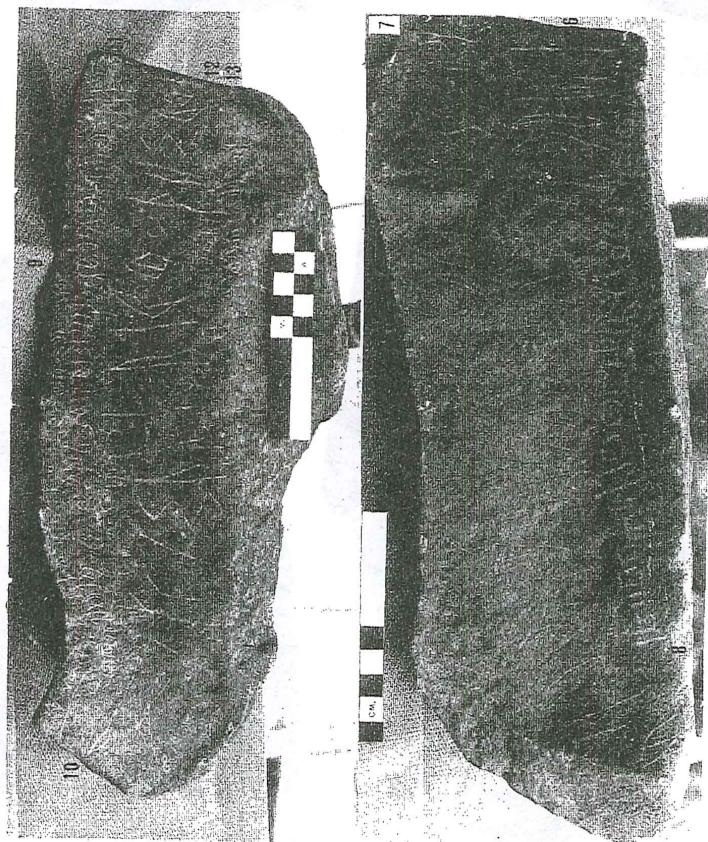
yslm bn 'n'm, p.n., 6
v'wr. v., see 'wr.

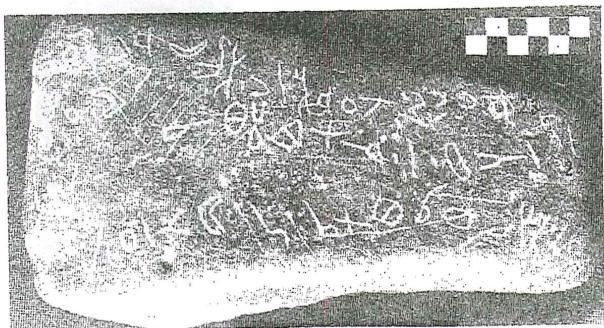
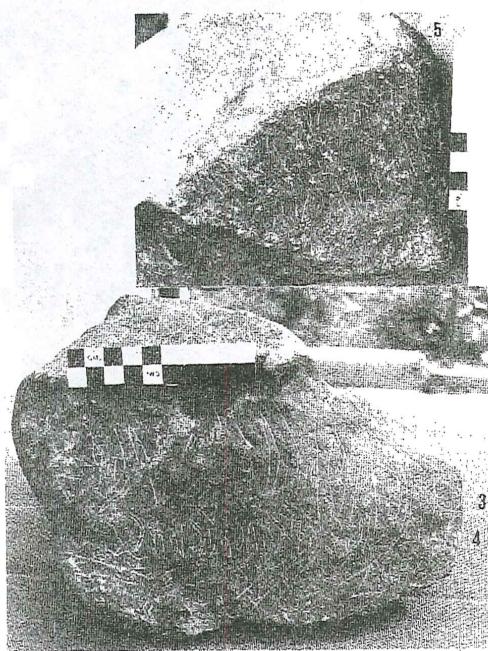
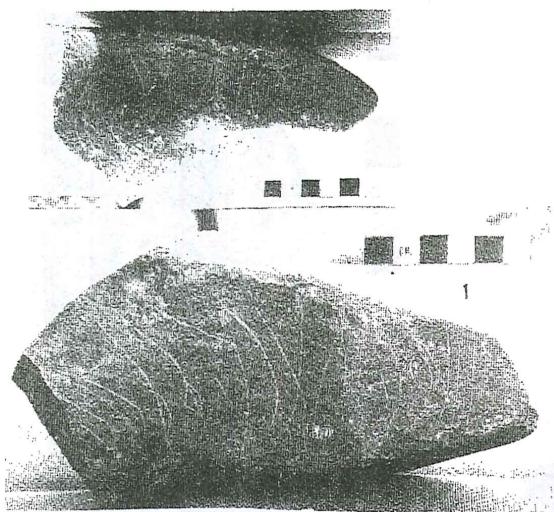


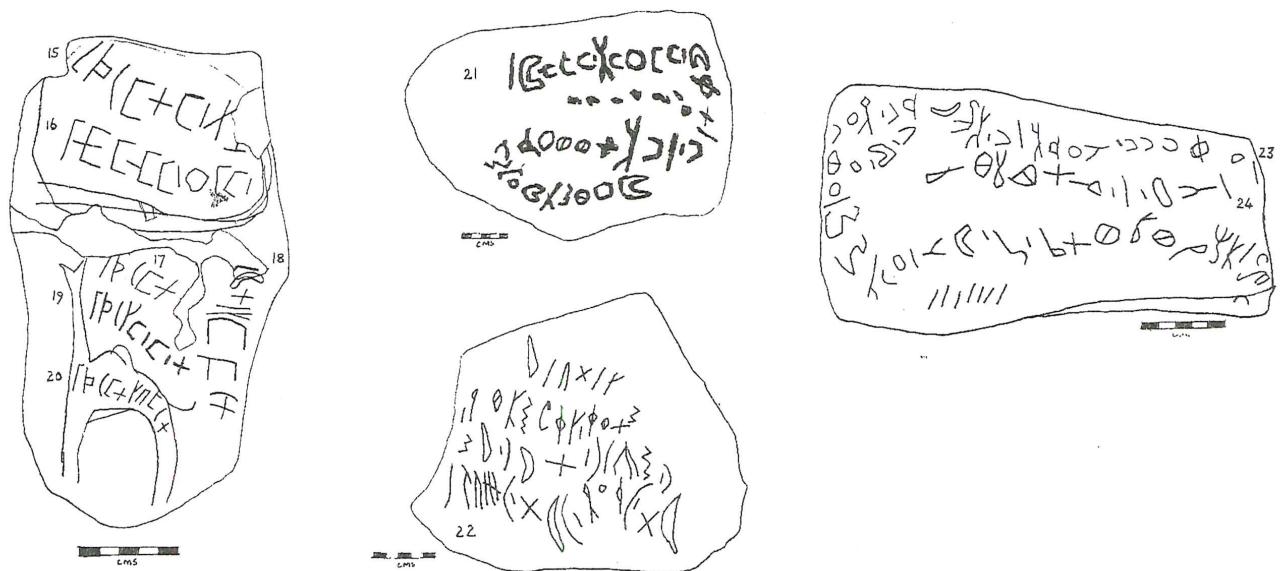
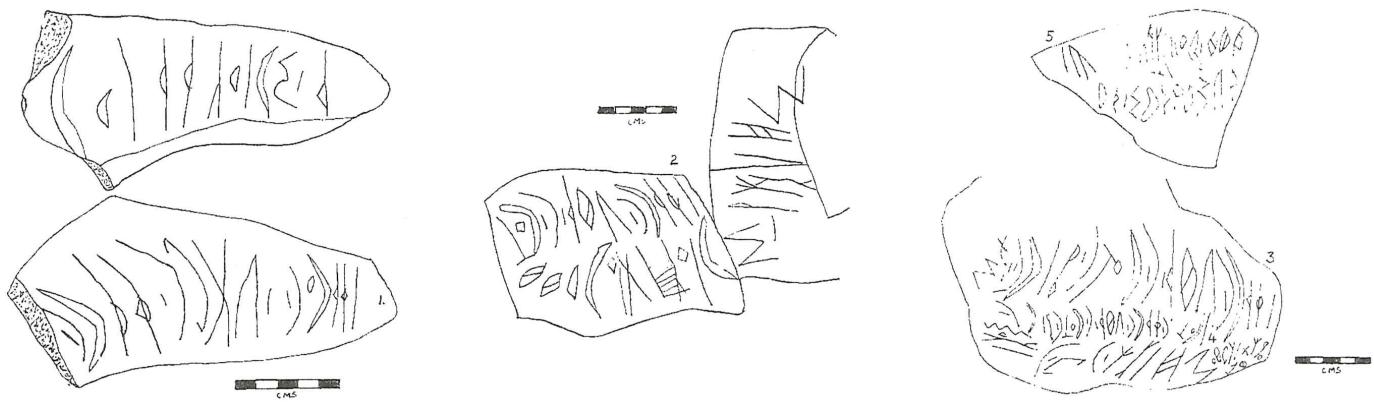
ABBREVIATIONS.

Ar.	Arabic.	NST	G.L. Harding, New Safaitic Texts, in Annual of the Department of Antiquities of Jordan, vol. I
C	Corpus Inscriptionum Semiticarum, pars quinta. <i>Inscriptiones Saracenicæ Continens.</i>	p.n.	Proper Name.
d.	Deity	perf.	Perfect.
f.	Father of	prep.	Preposition
Had.	Hadrami	Qâmûs al	4 Vols, Cairo, 1938.
Hava	J.G. Hava, <i>Al-Faraid, Arabic-English Dictionary</i> , Beirut, 1970.	Muhît	
HCH	G.L. Harding, <i>The Cairn of Hani', Annual of the Department of Antiquities of Jordan, vol. II</i>	Qat.	Qatabanian.
HIn.	--Index and Concordance of Pre-Islamic Arabian Names and Inscriptions, Toronto, 1971	rel.pron.	Relative Pronoun.
HST	--The Safaitic Tribes, in <i>Al-Abhath, XXII</i> , Beirut, 1969.	s.	Son of.
impf.	Imperfect.	Sab.	Sabaean.
impv.	Imperative.	Saf.	Safaitic.
Jastrow.	M. Jastrow, Hebrew, Aramaic, English Dictionary, New York, 1967.	Sal.	H.A. Salmoné, <i>Arabic-English Dictionary</i> , London, 1889.
Kazimirski A de B. Kaimirski, <i>Dictionnaire Arabe-Française</i> , Paris, 1860.		SIT	G.L. Harding, <i>Safaitic Inscriptions from Tapline</i> , in Annual of the Department of Antiquities of Jordan, vol. XVII.
Lane	E.W. Lane, <i>Arabic-English Lexicon</i> , 8 vols. London, 1863.	sub.	Substantive.
Lih.	Lihyanite.	Tham.	Thamudic.
Min.	Minaean.	t.n.	Tribal Name.
Munjid	Al-Munjid fi al-lugah, Beirut, 1973.	v	Verb.
		WH	Winnett and Harding, 50 Safaitic Cairns, in the press.









Two New Latin Inscriptions from Jordan – 1976

by
David L. Kennedy

In the course of a short visit to Jordan in the summer of 1976, I was able to record a number of new Latin inscriptions¹, two of which I present here.²

1. Two fragments of a broken milestone on the south side of the *via nova Traiana* 100 mètres west of the point where the Roman road crosses the Mafraq—Zerka road. Exposed in a pit on the edge of a field, at the site of mile XXII from Bostra. Sandstone drums, 60 cms. in diameter with a rim at the top (64 cms. in diameter). Inscribed shaft height = 8 cm; 1 2–7 = 6 cm. Nine inscribed lines. Figs. 1, 2.

IMPCAESARI
IMPPFVAL (sic)
DIOCLETIANO
PFINVICTOAVG
IMPCMVAL
MAXIMIANOAVG
PFINVICTOAVG
XXII
KB

As far as I am aware, this stone has not previously been published. Butler, in his

1911 discussion of the road, noted that milestones had been traced from Bostra as far south as mile XXI and again from Amman northwards as far as mile XXIV, but that the intervening section had yet to be examined.³ There can be no doubt that this is one of the stones formerly standing at mile XXII; most miles had more than one stone and it is probable that others still remain buried in the field.⁴

The text here is to be dated to the joint reigns of Diocletian and Maximian, 285–92. Lines 1 and 2 are best explained as an error on the part of the lapicide. It should have read *Imp. Caes. Val./Diocletiano/...* or some such variant; alternatively, line 2 should have read: <*Aurel*> Val.⁵ The remainder of the text is unambiguous, culminating in the milage, clear in Greek, restorable in Latin, of 22.

Imp (eratori) C[aesari] (or) C[aes (ari)] Val (erio)/< Aurel (io)> Val (erio) / Diocletiano / P (io) F(elici) Invicto Aug (usto) / Imp (eratori) M(arco) Val (erio) Maximiano A[ug(usto)] / P(io) F(elici) Invicto Au [g (usto)] / XX[II] / KB.

1. I am most grateful to the Department of Antiquities of Jordan for their ready co-operation and great help in assisting me to gain access to sites and material. Thanks are also due to Mrs. C.-M. Bennett, Director of the British School of Archaeology at Jerusalem, who suggested the visit, and to Mr. Yousef al-Alami for permission to publish these texts. The visit itself was in part financed by generous grants from the Craven Committee and Meierstein Funds.
2. For other texts see: Bennett and Kennedy, 'A New Roman Military Inscription from

Petra', Levant, X (forthcoming); Kennedy, 'Legio VI Ferrata, the annexation and early garrison of Arabia: a new military inscription from Jordan', (forthcoming).

3. H.C. Butler, Publications of the Princeton University Archaeological Expeditions to Syria in 1904–5 and 1909, III, A, 2—Appendix, 'Trajan's Road from Bosra to the Red Sea', xi–xii.
4. Ibid., xvii–xxviii.
5. Cf. e.g. ibid. xx, IVb; xxi, Vb; xxii, VIb.

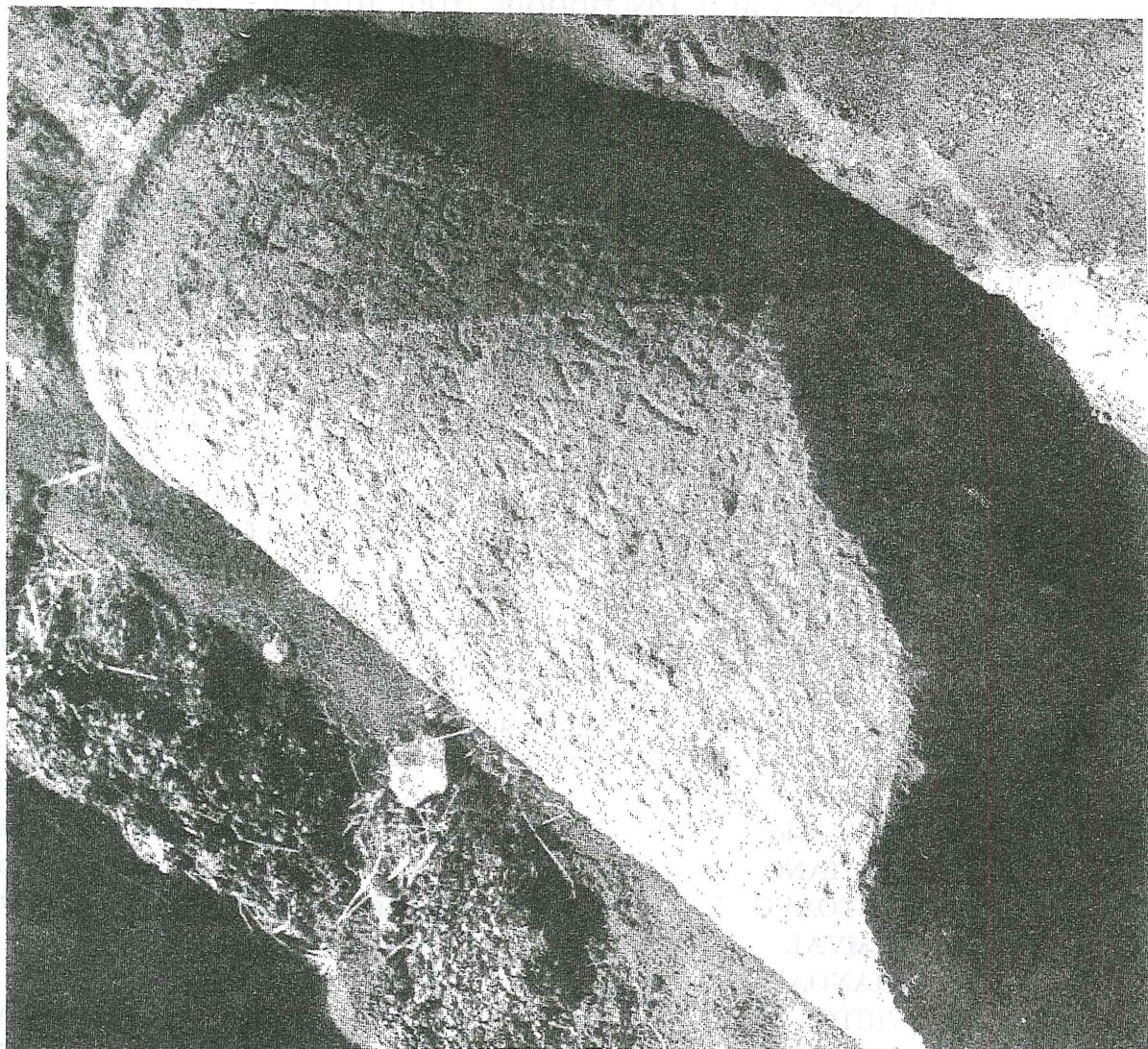


Fig. 1. — Roman milestone.



Fig. 2. — Roman Milestone.

The stone lay in a pit and I was unable to turn it over. Since many of the Diocletianic inscriptions on milestones along this road are simply cut on the rear side of the existing stone, it is probable that the hidden face here is also inscribed.⁶ Most frequently, the re-used shaft was of the Severan repair — presumably the earlier stones were already pushed down and it was easier and preferable to re-inscribe the more recent, and still standing, stone; Butler illustrates a Severan milestone at mile XLVIII which is of the same style as here: a well-shaped shaft with a rim round the top.⁷

The next modern village along the *via nova* towards Amman (Philadelphia) has another shaft and some fragments; probably those of mile XXIII. At least one of these, though badly mutilated, bore an inscription, but I had no opportunity at that time to attempt a reading. Vestiges of the road itself, quite clear as far as the edge of the village, are lost among the houses and were not obvious on the slopes on the other side.

It is hoped to carry out a fuller inspection of the road and stones between miles XXI and XXIV in 1977.

David L. Kennedy



-
6. *Ibid.*, xx, IVb; xxi, Vb; xxii, VIb etc.
 7. *Ibid.*, ix.

A Nabataean Inscription from Beida

by

F. Zayadine

At Beida, near Petra, Nabataean graffiti are scratched on the whitish cliffs of Wadi el-Amti (Fig. 1), north of Siq el Bared, well known for its fragmentary fresco. The site was sketched and described by Brünnow¹ who recognised in the flat center of the Wadi, traces of a large caravanserai. In the eastern ridge, at the entrance of a cave, (probably a triclinium) measuring 5,95 by 6,90m and whose doorway is decorated by two engaged pilasters (Fig. 2), are engraved several Nabataean inscriptions. Since one of them is of special interest and has been erroneously deciphered by previous explorers,² it deserves to be reconsidered. The text, consisting of two lines, is about 73 cm long and the letters average 8–10 cm in height (Fig. 3–4). Because of the irregular surface of the sandstone, the inscription was hard to photograph and read.

Text:

dkrwn tb [w] sl [m] lḡnmw rb

mrzh' ww'lw brh

Translation:

In pious remembrance and peace to
Ganamu, the Symposiarch and his son Wa'ilu.

Interpretation:

L.1: Though partly worn, the beginning of the inscription can be restored from similar Nabataean inscriptions. The names Ganamu and Wa'ilu (1.2) are known from the Petra and Hegra graffiti and can be compared to modern Arabic Gānem and Wā'el.³

L.2: *rb marzeħa* corresponds to the Greek *symposiarchos*, and the *marzeħa* was a reigious association (*Thiasos* in Greek) generally led by a priest as it was common at Palmyra. A *thiasos* of Obodas the god, probably Obodas I (around 90 B.C.) is commemorated by an inscription near the Deir⁴, which could be the sanctuary of this deified Nabataean king. At Avdat⁵, in the Negev, a *marzeħa* of Dhu-Shara, the god of Gaia (modern Wadi Musa) is mentioned.

According to Strabo, 13 members participated to the symposia of Petra, a tradition which recalls Christ and his 12 disciples celebrating the Last Supper.⁶ It is indeed an evidence of cultural and reigious contacts between the Nabataeans and the inhabitants of the area at that period.

1. Die Provincia Arabia, I, N° 843. G. Dalman, (*Petra und seine Felsheiligtümer*, 1908 p. 346), refers to it as « Wadi Lanti ».
2. CIS, II, 1, N° 476.
3. See J. Cantineau, *Le Nabatéen*, II Paris (132) p. 88, 133.

4. G. Dalman, *Neue Petra—Forschungen* (1912) p. 92, n° 73.
5. A. Negev, IEJ, 13 (1963) p. 13–117.
6. Geography, XVI, 4, 26.
7. See F. Zayadine, in S. Horn *Festschrift* (Forthcoming), where the date of the graffiti is not indicated.

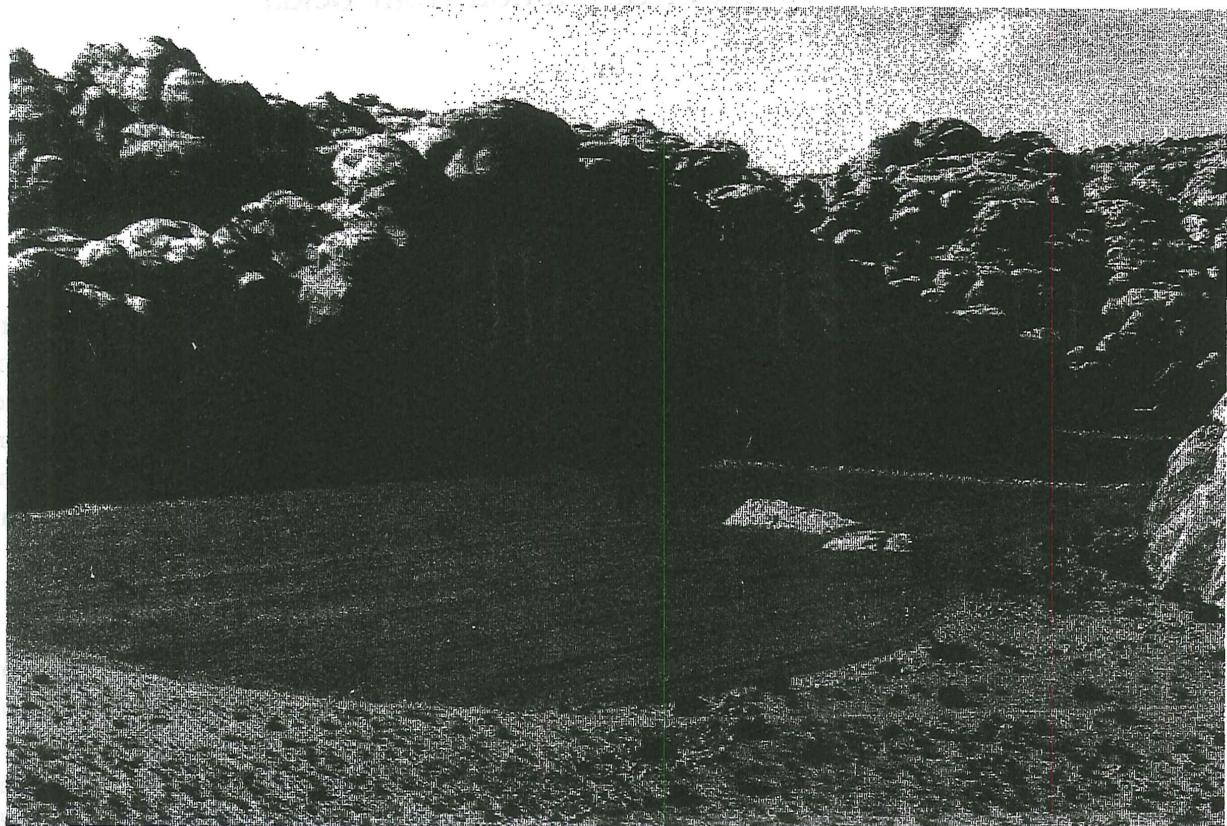


Fig. 1. — General view of Wadi el Amti, (looking N).



Fig. 2. — Entrance to the cave.

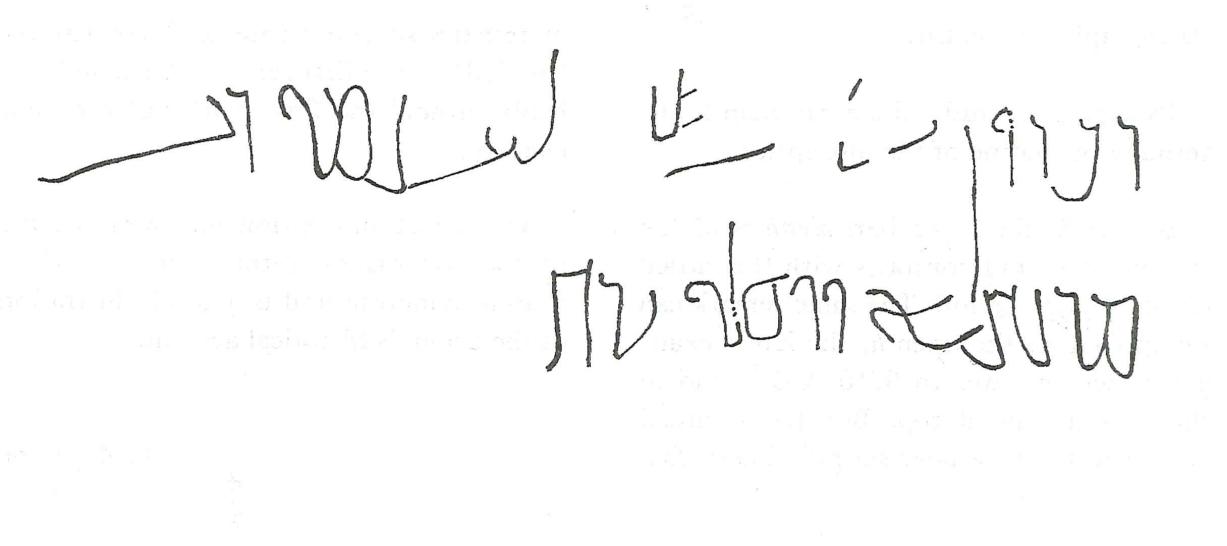


Fig. 3. — Facsimile of the inscription.



Fig. 4.— Nabataen inscription of Wadi el Amti.

Paleography and dating:

Paleographic study alone can help to determine the dating of the inscription:

In line 2, the three bars *aleph* is of the archaic type and contrasts with the closed *aleph* of later period. The same remark can be applied to the open *h*, the latest example of which dates to 9/10 A.D.⁸, and to the *h* with gabled top. But the rounded *mem* belongs to a later script⁹. These cha-

racteristics suggest a date not later than the first half of the first century A.D., and probably around the first quarter of the same century.

This short inscription indicates the use of the triclinia of Petra as centers of religious symposia and is a good illustration of the Strabo's historical account.

F. Zayadine



8. J. Starcky, *Hommage à Dupont-Sommer*, Paris (1971) p. 153.

9. J. Starcky, RB 73 (1966) p. 237; Dict. de la Bible, Sup. VII, Fig. 696.

Une inscription bilingue nabatéenne et grecque à Pétra.

par

J.T. Milik

Dans la partie du wâdi Mûsa qui précède directement le Sîq à Pétra et se nomme Bâb es-Sîq, en face du «tombeau aux obélisques» Br35, sur un pan de grès qui est perpendiculaire au torrent, à la hauteur de l'angle est du tombeau, à environ 5m du sol se trouve une inscription nabatéo-grecque

d'environ 3,50m de long, gravée profondément en grandes lettres (peintes probablement en ocre à l'origine); elle se niche dans un champ déprimé qui avait été préparé avec peu de soin, et est actuellement ravagée en majeure partie par des traînées dues à la pluie.



Cette bilingue avait été déjà photographiée en 1897 par un certain abbé Bouillon qui a communiqué l'image à Ph. Berger, chargé alors de la partie araméenne du Corpus Inscriptionum Semiticarum.¹ En 1960 P. Parr m'a montré l'inscription et j'en ai fait la copie à main levée avec un premier essai de déchiffrement. La lecture a

pu être vérifiée et améliorée grâce à des photographies couleur prises par Schottle en 1960. Starcky dès 1965, Zayadine dès 1969, grâce enfin à la révision directe du document en 1974. (Fig. 1)

MQB[R'] DNH BN[H] 'BDMNKW BR)
KYS BR

1. GRAIBL XXV, 1897, p. 286; cf. C464.

SLY [BR] TYH[W...LNFSH] W(') HRH
W'HR
HM L'[L]M L LM(YN SNT...)
LMNKW BHYW

Ἄβδομα [νχ] ος[-AX] αίον [επ] ολησ[ε]
[μ] γημέτο [ν ἐαυτ] ω κα [ι νι]οι[ς]

«1. Ce tom[beau] a été construit par 'Abdmankû fils de] 'Akayus fils de 2. Sullai [fils de] 'Utaih, [..., pour lui-même, sa po] stérité et leur postérité 3. à deux, à tout jamai[s, en l'an...] de Mankû, de son vivant. 4. Abdma[nch] os fils de [Ach] aios [a f]ai [t le 5. t]ombea[u pour lui-mêm]e e[t pour ses f]il[s].»

Lignes 1 et 4.

Le terme maqbarâ est d'emploi plus rare en araméen nabatéen que maqbartâ ou qabrà; il se rencontre cependant à Sî' dans le Hauran, L2 R805. Dans la même région à Umm eg-Gimâl se retrouve un exemple de construction syntaxique pareille à celle du

début de notre texte: (... dn) h' bd 'bd'bd, «c(e...) (l') a fait 'Abd'ubdat», L42 R2064, au lieu de la formulation habituelle: dnh mqbr' dy bnh. Un exemple de sujet avec pronom démonstratif postposé, le pronom relatif étant pourtant présent dans la phrase, est fourni par la dédicace du sanctuaire rupestre au Sidd el-Mreriyyé du wâdi es-Siyyagh: 'lht' d' 'sy dy 'bdw, «cette déesse (qui est) Isis l'ont faite»². Tous ces syntagmèmes sont corrects du point de vue araméen. Alternativement, dans la bilingue du Bâb es-Sîq on peut restituer bn[hy], obtenant ainsi une construction propre à la syntaxe arabe, attestée par la bilingue nabatéenne (arabisante) et thamoudéenne de Hégra: dnh qbrw sn'h, «ce tombeau, l'a fait», S17 C271³.

Le premier nom du fondateur du tombeau n'est conservé, en bonne partie, que dans la section grecque du texte; exactement la même transcription se retrouve dans une épitaphe grecque de 'Abdé ('Avdat) au Négev⁴. La restitution me paraît bien assurée, un second candidat

2. J.T. Milik et J. Sarcky, ADAJ XX, 1975, p. 121.

3. La même phrase se trouvait peut-être dans une dédicace abîmée, S159: [...] sn ['h] š'd'lhy. Une reprise du sujet par le suffixe pronominal, nonobstant le pronom relatif, se lit sans doute dans une dédicace qui flanque un bétyle du Gebel Ram. Je la déchiffre comme suit: ¹nsbt 'lt 'lht' rbt' [dy 'b] bsr, [dy] 'b d w h ² [t] y m 'l h y nr [...]w] 'hkw³ ['lymy ['fkl ['byrh...]] sn̄t [...], "1 La stèle d'Allat la grande déesse [qui réside à] Bosra [que] l'ont [f]aite ² [T]aim'allâhí, NR. [...] et] 'Ahakkû, ³ [s] serviteurs du [gr]and prêtr[e, au mois de...] en l'an [...]"; suivent quatre lignes de proscynèmès; R. Savignac, RB XLIII, 1934, p. 574 (le premier éditeur n'a lu que 'lt 'lht à la première ligne). A en juger par le premier nom propre, et le nom de métier au pluriel, il s'agit des mêmes quatre desservants du

temple de 'Iram qui ont fait graver la dédicace qui se trouve de l'autre côté du même bétyle; 1.c., p. 411. Celle-ci est du mois de shebat et probablement de l'an 15, à comprendre de l'ère de l'Eparchie, 120/121 après J.-C. Dans le temple même un fragment de dipinto comporte [...]. bnwhw š [...] "... l'ont construit Ša '[dū, exempli gratia,...]; Savignac, RB XLIV, 1935, p. 269.

4. A ḫ ρ [η λ ī a] Mo u λ χ η A β δ o μ a ν χ o v τ o ū κ a i A λ o λ a i φ o v, de l'an 117 de l'Eparchie, 222 de notre ère; une bonne photographie de cette inscription dans Bible et Terre Sainte No 40, juillet-août 1961, p. 8. Le premier nom sémitique, plutôt qu'à Mulh ou Mulh, correspond à Mulk, «Royauté» (Basileia), qui abrège un nom théophore tel que le nabatéen mnk'ltw, thamoudéen et safaitique mklt, ou bien le safaitique mkl, tandis que le surnom transcrit 'lhlyfw.

onomastique nabatéen pour cette place, à savoir Αβδομανος 'bd'mnw, transcrit aussi Αβδομανος), étant décidément trop court.⁵

L'anthroponyme, du type que j'appellerai basiléophore⁶, 'Abdmankû, «serviteur de (l'un des rois nabatéens appelés) Malichos», se retrouve à quelques pas de notre inscription sur deux stèles déterrées à l'entrée du Sîq⁷; puis, de l'autre côté du wadi, à el-Madras dans la chambre Br40 D89, graffite C451; avec la graphie 'bdmlkw, dans le haut du wâdi Farasa Est, C402,2 = 403; dans le wâdi el-Kharrûbât, C432; au Deir, près de Br456(?), dans un inédit; au wâdi el-Mu'eisra el-Gharbiyé, D49C426B; dans la dédicace du Sidd el-Ma'agîn (ou Sidd el-'Ağûl) D28 R1401.

En dehors de la capitale nabatéenne citons le stratège 'bdmnkw à Umm er-Rasâs, C 195. Ensuite un autre stratège de ce nom

5. Je me permets de citer ici un joli dipinto bilingue du sanctuaire de Ram où revient justement ce nom propre: à droite,
¹ [dkrt'] lt [w w]hb'hy dy mtqr' 'bd'mnw
 br 'bd'mnw² [br] 'ylw [br] 'bd'bdt br qynw
 fyny bny à gauche, ³ Mvησ ϑη
 Ovaβαλλας ὁ κ ai⁴ Aβδομαν[ο]ς
 A β δ o μ a ν o v⁵ τ o v
 Aιαλ o [v φ] a i [ν] η σ i o ο
 'aρχ(ιτέκτων). ¹ «Qu'[A]llat [se
 souvienne de Wa]hb'allâhî surnommé
 'Abd'ummânû fils de 'Abd'ummânû² [fils de]
 'Ayyâlû [fils de] 'Abd'ubdat fils de
 Qainû, originaire de Fainân, constructeur³—
 Ouaballas surnommé⁴ Abdomanos fils de
 Abdomanos⁵ fils de Aialos, Phainésien,
 arch(itecte)»; Savignac, RB XLIV 1935, p.
 263 No gr. 1 et p. 265 No nab.⁵ (l'éditeur a
 dissocié ces deux textes). Le même artisan,
 sous son nom de tous les jours (le sobriquet),
 apparaît dans un groupe de collègues qui
 laissaient leur proscynème dans les parages
 du temple:¹ dkrt'lt bny' fr² wtymw
 whdnw w'bd'mnw btb,¹ Qu'Allat se
 souvienne des constructeurs Farâ, Taimû,
 Haddâmû et 'Abd'ummânû en bien»; id., RB
 XLII, 1933, p. 418 No 9 (l'éditeur a pris

à Hégra, S34 C224; là aussi un sculpteur qui avait tracé sa signature trois fois: S140 C230 = 254, S76, MS109; un particulier à el-Mazham, Ph² 423az; à Hamrâ el-Sikka, Bo17; même nom, mais gravé incomplètement (le kaph restant sans sa barre supérieure, d'où matériellement 'bdmnnw), à el-Furgé, S353. Dans la Syrie méridionale un 'bdmnkw sur l'autel de Dmeir, C161; un 'bdmlkw sur une stèle funéraire de Bosra, L74 R2095; un 'bdmnkw (n et k incertains) sur une stèle de Summâqiyât, L8. A l'heure actuelle nous connaissons donc seize Nabatéens (ou plus exactements «nabatéographes») qui portaient le nom de 'Abdmankû; y ajouter deux autres qui s'appelaient Taimmankû (tymmnkw dans un inédit du wâdi Abû 'Olleiqa Sud au sud de Pétra, et tymnkw dans un inédit de Sarbût el-Rashida dans la Hismâ, Ph 366bc) et un troisième nommé whbmnkw, encore dans Abû 'Olleiqa Sud.

bny' pour un nom propre). C'est encore notre architecte, je pense, qui a fait graver son nom en thamoudéen, toujours dans les mêmes environs: 'bd'mn, G.L. Harding, Some Thamudic Inscriptions from the Hashimite Kingdom of the Jordan, No 57A. La généalogie à cinq générations qu'était Abdomanos doit remonter jusqu'au moment de la sédentarisation de sa famille dans le célèbre centre minier de la Araba, donc au tournant de notre ère, le principal dipinto du temple datant de l'an 41E = 146; RB, 1935, p. 265. Dans ce cas le nom du premier ancêtre avait été choisi exprès par ses parents, car qain signifie «forgeron, mineur, fondateur, etc. «Je me demande si le premier constructeur mentionné dans le proscynème ne serait pas d'origine pétréenne; en effet son nom est rarissime et ne se rencontre qu'une seconde fois, à Pétra, à l'intérieur du tombeau Br524.

6. Cf. Milik, LA IX, 1958-9, pp. 354-5, et X, 1959-60, pp. 148-50.
 7. Starcky, ADAJ X, 1965, p. 47 Nos 4 et 5; sur la deuxième stèle restituer à la ligne 2 [br] bd]mnkw.

Parmi les noms nabatéens «royaux», prime nettement le groupe ayant trait au dieu Obodas: vingt cinq 'bd'bdt, seize tym bdt dont un Tha[emoobdas]/Θαυμοοβδας, l'un des deux légats nabatéens à Rome sous le règne de Rabbel II⁸, un whb'bdt et un 'ws'bdt. Les rois Arétas ont permis les créations onomastiques suivantes: 'bdhrtt, quatorze fois, une 'mthrtt, un 'hrtt ('Ahhâritat, «frère d'Arétas») et un nšybhrtt («parent d'Arétas»), les deux derniers noms provenant d'el-Madhbah, entre les oasis de Khaibar et de Taima, Ph261p. Les rois Rabbel ont fourni huit 'bdrb'l et un tymrb'l, tandis que la reine Khald a donné un 'bdhldw, un tymhldw et une 'mthldw.⁹

Le patronyme de notre 'Abdmankû, le nom grec 'kys/Aχαῖος, se rencontre quatre fois: à Pétra même dans le wâdi el-Mu'eisra el-Gharbiyé, D50 R1409, et au Qattâr ed-Deir; en Arabie Saoudite, à Qubûr eg-Gindî, S228, et dans l'oasis de Dédan, S211 MS41.

- 8. A. Degrassi, *Bulletino della Commissione archeologica comunale di Roma* LXXIV, 1951-2, pp. 34-37.
- 9. Le titre générique des rois nabatéens mr'n('). «Notre seigneur», apparaît dans le nom propre 'bdmr'n qui se trouve gravé dans une chambre du wâdi Farasa Ouest, située probablement entre Br249 et 273. Il me semble qu'un autre porteur du même nom, sur un ostracon araméen des IV / III siècles provenant de la région de Rafia, était lui aussi un Nabatéen; éd. Y. Naveh, *Leshonenu* 37, 1973, pp. 270-4.
- 10. G. Kawerau et A. Rehm, *Das Delphinion in Milet* (Th. Wiegand, *Milet III 3*), 1914, pp. 387-9 (partie nabatéenne par M. Lidzbarski) et pp. 263-5 (partie grecque par Rehm). Cf. Ch. Clermont-Ganneau, *RAO VII*, 1906 pp. 305-29, et *VIII*, 1924, p. 144 et pl. VI; R1100; J. Cantineau, *Le nabatéen*, II, 1932, pp. 45-6.

Ligne 2

Le nom du grand-père, šly, est un dérivé hypocoristique de schème quttai (plus rare que qattai) d'un des anthroponymes provenant de la racine šlm «être sain et sauf». Il était porté, vers la fin du 1er siècle av. J.-C., par le célèbre épitope d'Obodas III, šly/Συλλαῖος, lequel, pendant son dernier voyage à Rome en l'an 10-9, a laissé une inscription bilingue au Delphinion de Milet¹⁰ et une seconde dans un temple oriental (sanctuaire C) du mont Cynthe à Délos¹¹. Dans la deuxième moitié du 3e siècle de notre ère est le patronyme du šly/Σολλεῖος «précepteur» du roi lakhmide Gadhimat el-Abrash, L44 C192. Entre ces limites se logent vingt-quatre Nabatéens, de même que, sous la graphie šly, sept Safaites (H327).

L'anthroponyme 'tyhw, si vera lectio, est un diminutif d'un nom rare que je n'ai copié qu'une seule fois à Abû 'Olleiqa Sud, 'thw; une seule fois aussi en thamoudéen,

- 11. Cf. R. Roussel et M. Launey, *Inscriptions de Délos*, 1937, No 2315; les éditeurs n'ont pas reconnu le type précis de l'écriture sémitique. En feuilletant une fois ce volume j'ai cru y reconnaître l'alphabet nabatéen et sur l'estampage, communiqué aimablement par l'Ecole Française d'Athènes, j'ai pu lire, et compléter à l'aide de la dédicace précédente, cette inscription fort évaneide:
 1['bd šly 'b]lm[lk' br tymw] 2[nbty] lwh'
 ldws[r' 'lh] 3 [gy"']¹ hyy 'bdt
 ml[k'].⁴ [wd' byw]lm 5 bšbt šnt 20⁵
 Συλλ[λαῖος] 6Δού[σαρει] 7τὸ
 δε[λλαῖον], «¹[A fait Šullai frère du] r[oi]
 fils de Taimu] ²[le Nabatéen] la tablette en
 l'honneur de Dûša[râ dieu]] ³[de Gaiâ
 pour le salut de 'Ubdat le ro[i]]⁴ [Et cela au
 jour] 5 de shebat en l'an 2[1] (février 8
 av. J.-C.) ⁵Syl[laios]⁶ à Dou [sarês]⁷ la
 ta[blette].

'th H405, qui peut d'ailleurs se vocaliser, à l'arabe, 'atâh «lunatique, imbécile» ou bien en tant qu'un schème qutail qu'on prononçait 'utêh ; le safaitique 't'h, H404, pourrait représenter un double diminutif qutayil qu'on aurait prononcé 'uta'ih.

Lignes 2/3

Le terme 'hr dans le sens de «postérité, descendance» revient régulièrement dans les grands textes de fondation funéraires de Medain es-Sâleh, dans des expressions telles que 1h w'lhrh, lnpslm w'hrhm, yldh w'hrh, wldhm w'hrhm, etc. On l'a supposé d'origine lihyanite (C197), mais dans cette langue 'hrt s'emploie à côté de vocables qui ont une signification plus abstraite: rthwš'dh w'hrth, «(pour) sa prospérité, son bonheur et son (bon) avenir»¹²

La coupe d'un mot en passant d'une ligne à l'autre, l'autre est inhabituelle dans l'épigraphie nabatéenne. Cf. pourtant, p. ex. kr/mw dans un graffiti d'el-Tuveir, C346; 'lh/' dans une dédicace rupestre du wâdî Ram.¹³ On a toutefois respecté ici la coupe morphologique entre le substantif et le pronom suffixal, le suffixe qu'on pourrait appeler «lourd», puisqu'il se prononçait humm ou peut-être même, tout comme dans l'hébreu qumranien et samaritain, humma.

Ligne 3

La formule renforcée de l'expression «à jamais» (normalement l'lm ou 'd l'm), telle qu'on l'a ici, l'lm 'lmyn, «pour l'éternité des siècles», se lit dans une épitaphe hébreenne, S8 C197, ligne 9¹⁴. A la ligne 4 de

12. Jaussen et Savignac, *Mission*, II, p. 438 No 75; voir aussi les numéros 46 (p. 377), 62 (402), 63, (403), 84 (455), 85 (456).

13. Savignac, *RB* XLIII, 1934, p. 576 No 11.

la même inscription se lit bhywhy, «durant sa vie», avec une nuance d'emploi particulière. Le même usage sémantique attesté dans notre bilingue se rencontre dans deux inscriptions funéraires de Hauran, C186 et R2126.

L'inscription de Bâb es-Sîq date du règne de Malichos II, donc des années 40 à 70 de notre ère.

L'omission de la titulature officielle mlk' / mlk nbtw, «le roi, roi des Nabatéens», est assez surprenante. Je n'en connais que trois autres cas: dans un texte de fondation à Hégra, S37 C222 (bsnt 17 lmnk); dans un graffiti d'el-Madhbah, Ph261q (šnt 118 (1) hrtt); dans un graffiti de Suqeiq edh-Dhi'b, S32 (bsnt 36 lrbl).

Ligne 5.

Il n'y a pas de place, apparemment, pour les articles τό et τοῖς.

En guise d'appendice au commentaire à la bilingue de Bâb es-Sîq, où apparaît un nom grec, je donne la liste des anthroponymes grecs qu'on trouve transcrits dans les inscriptions nabatéennes. Je translitere la lettre sémitique p par f, mais sans préjuger de la prononciation nabatéenne 'dqs sur un autel de Buseira; J. Starcky chez C.M. Bennett, *Levant* 7, 1975, p. 16: peut-être Εύδικος; alternativement on peut lire 'rqs. Sur la prononciation e— du grec eu— cf. Estechi sur la stèle funéraire latine-nabatéenne de Rome C 159, nom qui provient de Eustachius.

'fls à Pétra près du lion de Farasa; (?) fls ou (t)fls au Qattar ed-Deir; 'fl(s) à el-Bârid,

14. Une autre expression intensifiée de «pour toujours», 'lm 'd l'm dans une épitaphe de l'oasis d'el-Gôf, MS 16,2.

C482; près de Hegra, à Mazham et à Maq'ad al Gindi, signe un certain tymw br 'fls, S176 et 243, tandis que dans le deuxième endroit son père signe son nom en caractère grecs Αφλος S/gr.13; à Hégra même un autre 'fls, en C239. S73 MS96, et un autre encore à Shuqb el-'Ağuz B0157. Ce nom propre n'est sans doute qu'un hypocoristique grec des noms théophore en l'honneur d'Appollon, notamment Ἀπολλῆν. Un Apollus trace son nom, en tant que sculpteur, sur un autel ayant la forme d'une base de colonne et comportant une inscription nabatéenne, qui provient de Umm Qeis.

'flwnys à el-Bared et à el Madras dans la salle Br 40 D 89, inscription C446: Απολλωνιος. La popularité des noms propres s'attachant au dieu Apollon vient de son identification au dieu sémitique Nébo (Milik, *Dédicaces*, pp. 159 et 163) ou avec 'al-Kutbâ, «le Grand Scribe». Justement dans la même colline de Pétra on a relevé le nom de tym'lktb' tracé quatre fois; Milik et Starcky, *ADAJ*, XX, 1975, pp. 116-9. Dans la même salle d'el-Madras où se lit 'flwnys revient un 'bdnbw, «serviteur de Nébo», lequel, d'une façon significative, exerçait le métier de scribe, sfr'; un 'bdnbw (C477) et zydnbw étaient membre d'un thiase qui se réunissait dans le triclinium Br842 de wâdi el-'Amî à Beida; un 'bdnbw laissa sa signature dans une salle du wâdi Farasa Ouest.

'Frtws sur une stèle de Bosra.

'fyts dans le thiase mentionné d'el-'Amî, C478:

'kys = dans l'inscription bilingue de Bâb es-Sîq, et 'kys ailleurs.

'l [...] ks dans le tombeau D442¹e, dans la montagne à gauche du wâdi ed-Deir près du sommet; la lettre abîmée est peut-être un yod.

'lks' deux fois dans le wâdi Abû 'Olleiqa Sud, de même que

'lksys dans un épitaphe de Hégra, S8 C197, tous les deux dérivés de Ἀλέξανδρος. 'krws' deux fois dans le wâdi es-Siyâgh: Χρύσα.

'ngsdms dans un tombeau trouvé près de Dhât Râs; F. Zayadine, *Syria XLVII*, 1970, pp. 131-32: Ἀναξίδημος. La graphie indique la prononciation, plus ou moins 'An-gasidemos.

'ntbs au «Mont du théâtre» à Pétra près du triclinium D212: Ἀντίβιος ou Ἀντίβας.

'rsksh dans le texte funéraire hégréen J24 C213: Ἀρέσκουσα.

'rstwn, fils de hrwd', au Mont du théâtre, C406: Ἀρίστων.

'rstyns à l'ouest de Hegra, J301 et 302: Ἀριστῖνος.

'rybs à Hegra, J56 MS92: Ἐύρυβιος ou Ἐύρυβας, ou Ἀρύβας.

'skds là-même, J170: Ἀσκίδην.

'tdrws au wâdi el Mu'eisra el-Gharbiyé, C426D: Ἀντίδωρος.

'tyks sur un autel de Salkhad, L23 R2051: Εὐτύχης ou Ἀυτιόχος. Un Eutyches nabatéen à Rome, C 159.

'wdyms à Hégra, J57 C235: Εύδαιμας oup Ἐνδαιμος plutôt que Εὔδημος.

'wfrns sur une stèle de Bosra et dans un texte de fondation de Hégra, S32 C214 (nom d'un éparque, père d'un stratège);

'wfrnys à l'ouest de Hegra, S310: Εύρωνιος.

'wklywn à Hamrâ es-Sikka, Bo17: Εὐκλειων ou Εὐκλέων.

'ysymn = Eisíōn à Madaba, Syria, 1958, p. 244-5.

dms br hl[n] br dms = [Δη]μᾶς “Ελλην [ος], originaire d'un village sur le territoire de Ammân-Philadelphie ('mny['] dy mn byt 'm[wn] = Ἰμουμηνός), dans la dédicace de Zizia S392 et gr. 21, et un dms sur une stèle funéraire de Bosra, L87 R2108.

dmsy, fils du stratège Rabîb'el, à Hégra, S84 C287: hypocoristique, probablement du schème qattai, Damsai, du nom.

dmsfs, père d'un stratopédarque d'el-Ğôf (Starcky, RB LXIV, 1957, pp. 196-215) et du signataire du graffite MS3 (également d'el-Ğôf), ce fils devenant plus tard stratège de Hégra, S40 C234: Δαμάσιππος.

dmtrys = [Δη] μήτροις dans une épitaphe de Ġamarrîn près de Bosra; Milik, Syria, XXXV, 1958, p. 242.

dnbys à el-Bârid: Δανούβιος. Inédit.

dnys sur deux stèles à l'entrée du Sîq; Starcky, ADAJ X, 1965, pp. 48-9; tdms br dyn[ys] à Qattâr ed-Deir, D68; dyn[ys] membre du thiase cité du wâdi el-Amtî; dynys trois fois à Abû 'Olleiqa Sud; dyn [ys] à 30 km à l'est de Hégra MS24 et 25; dynys à Abû Quei' dans le désert oriental d'Egypte, ML58. C'est une forme raccourcie de Dionysios, la correspondance étant assurée par une bilingue funéraire palmyréenne où l'on lit dynys=Διονύσιος; A. Bunni, AAS VII, 1957, p. 29. Un diminutif de Denîs/Dînîs se retrouve à mon avis dans le nom dyny qu'avait relevé le P. Savignac, S185 (Gebel Ethlib), S249 et S266 (Maq'ad

el-Ğindî); de même dans le nom dyn de S282 et 283 (même région). Il est vrai cependant que les dyny et dyn, ou bien ryny et ryn, pourraient se réclamer d'étymologies sémitiques.

dqls à Mahzan el-Śindî S279 C314D, et dqls à Hégra même, S120: Διοκλῆς.

dsy[s], S174 C318 Ph² 423m, et dsys, Ph² 423p (frère du précédent), à el-Mazham: Δωσαῖος.

dydwrs, chef des cavaliers, dans une dédicace de la ville de Pétra; Starcky, Hommages à A. Dupont-Summer, 1971, pp. 151-9; un dydrws dans Br40 d'el-Madras: Διόδωρος.

dygns à 30 km à l'est de Hégra, MS31: Διογένης.

dymds à l'ouest de Hégra, S290, et un whb'l surnommé dywmgs à 'Ezrâ dans le Hauran, C186: Διομήδης.

dynss à Maq'ad Ġindî, S257. Le dalet initial avait été haplographié graphiquement avec le resh du dkyr qui précède le nom: Διονύσιος. Voir aussi plus haut, dnys.

dys au Mont du théâtre, S407 + 410 début: Διος.

flfs sur une stèle de Bosra et flfs br tdsy sur une stèle du village de Remmona: -φίλιππος.

fn̄ts au wâdi Menîh el-Heir en Egypte,

LM 77: Πόντος.

frwn, père de 'rws: Φέρων, si c'est un nom grec.

ftrys br trfts sur une stèle du Siq¹⁵: Πετραῖος. Le nom sémitique de Pétra, rqmw, qui revient justement dans cette épitaphe, est attesté aussi trois ou quatre fois, à Pétra et à Hegra, comme anthroponyme.

fybs à el-Bârid: Φοῖβος.

glsy au Gebel Ethlib, S113 C295: dérivé de Γελάσιος.

grgys patronyme de deux frères au Qattâr ed-Deir: Γεώργιος.

hfklis br kyrys au Gebel en-Nmeir près de la cella du dieu Obodas, C379: Ἰπποκλῆς.

hfrkywn à Khashm 'Airain, si le déchiffrement de la copie Ph 297d est bon, égal à Ἰππαρχίων.

hfstywn à Hégra, S29 C201: ἩΦαιστίων

hln = Ἐλλην, voir plus haut sous dms. Le nom ywn, «Grèce», se lit une fois parmi les innombrables graffites de Abû 'Olleqa Sud. hlys à el-Furğé, S349: Ἡλιος.

hnfls à el-Bârid et h[n]fls, non loin de là au point Br834, C446:?

15. Starcky, RB LXXII, 1965, pp. 95-7, et ADAJ X, 1965, pp. 44-6: ¹d' nfş prys br ²trfts wyqr'd/ry ³hwh brqmw dy myt ⁴bgršw wqbyr tmh dy ⁵'bd lh tymw rbnh. A la ligne 2 l'éditeur coupe et lit wyqr 'ry, et traduit les lignes 1-4: «fils de Threptos et il est honoré parce qu'il a été à Raqmu, (lui) qui est mort à Jerash». A mon

hrwd', nom du père de 'rstwn, dériverait de Ἡρώδης, mais la lecture n'est pas sûre.

kyrys, père de hfklis: Χαῖρις ou Χαῦρις.

mds au wâdî el-Mu'eisra el-Gharbiyé: Μέδης. Le nom sémitique mdy: deux fois (dont une C450) dans la salle Br40 d'el-Madras; nom propre mdy: aussi en lihyanite et safaitique.

mgs à Ethlib, S98: Μέγας plutôt que Māyos.

nqtys, S106C303: Νικήτιος.

nyqmks, S104C306A: Νικόμαχος.

nyqys, S110 C297: Νικίας, tous ces trois graffites provenant aussi d'Ethlib.

nyrks sur une stèle de Bosra: Νέαρχος.

qrqs encore dans le thiase d'el-Amtî et aussi à Maḥzan el-Ğindî, S270 C314A: Κρόκος. Le nom sémitique «Safran», z'frn, se rencontre près du Lion de Farasa.

qzms, nom d'un particulier qui a signé à la fois dans le wâdî el-Kharrûbât, C433, et à Qattâr ed-Deir, D58: Κοσμας, souvent, aussi orthographié Kóζμας.

smwn br twms, membre du thiase d'el-Amtî, C473: Σίμων. En réalité le signataire affectait la forme grecque de deux noms sémitiques sm'wn et t'wm', ce dernier attesté sur la pierre de Mu'arribé, Syria, 1958, p. 243.

Il faut couper et lire à la ligne 2: wyqr' dy, chercher dans le verbe la signification «arriver» qu'on retrouve dans l'hébreu qr' et qrh, et d'une certaine façon dans le qr' syriaque, arabe, etc., considérer hwh comme un participe, et traduire: «et il est arrivé que tout en résidant à Pétra il mourut à Jérash».

srgs à Khureibé près de l'oasis d'el-Ela (Dédan): Σέργιος.

tdms, voir dnys: Θεοδάμας.

tdsy, voir flfs: diminutif de tdsy à Hégra, S71, et au Gebel Ethlib, C228: Θεόδοσιος.

tdy à Hégra, S90 MS78, et C257 MS126: hypocoristique de Théodore, Théodose, etc. Θαδδᾶος.

tfls à el-Bârid, C480: Θεόφιλος. Voir encore 'fls.

trfts, voir ftry: Θρέπτος¹⁶.

twds à Ram (Savignac, RB, 1933, p. 418 No 10) et au Gebel Kharazé-Ratama (Milik, Syria, 1958, p. 250): Θευδᾶς.

twms, voir smwn: Θωμᾶς.

tyns à Abû 'Olleiqa Sud: Θεονᾶς.

trs et twrs dans le haut wâdi Farasa Est, trs au Siyyâgh et dans le wâdî el-Mu'eisra esh-Sharqié; probablement la signature d'un même esclave: Τύρος.

zw[yls] ou zw[ls]=[Z] ωιλου dans la dédicace de Sion, C160.

Etant donné la grande rareté d'inscriptions nabatéennes du 3^e siècle de notre ère, il n'est pas étonnant qu'on ne trouve guère d'Aurelii dans l'épigraphie nabatéenne, bien fréquents p. ex. dans les épigraphes palmyréniennes, après la constitution Antoninienne de 212. Je n'en connais qu'un seul exemple, provenant de Abû Darag à 73km au sud de Suez: šlm 'wr̩ls² hryšw br³ 'wšw, «Salut Aurélius Harîsû fils de 'Aušû», ML 24 = 46¹⁷.

J.T. Milik

16 Le terme $\vartheta\rho\epsilon\pi\tau\circ\varsigma$ n'exprime peut-être pas la patronymie dans le sens strict du mot, mais sera ici épithète et br trfts serait à traduire approximativement par «fils adoptif», puisque le terme grec désigne un enfant recueilli et élevé dans une famille, quelle qu'y soit sa condition juridique; cf. p. ex. L. Robert chez N. Firathi, Les stèles funéraires de Byzance gréco-romaine, Paris 1964, p.

162; J.-P. Rey-Coquais, IGLES VI, Paris 1967, p. 131 note 1. La stèle de es-Siq a été bien érigé par le père nourricier de Pétraios, rbnh (matériellement rbbh); cf. rbw = $\tau\rho\circ\varphi\epsilon\circ\varsigma$ dans L41.

17 Cantineau a enregistré 25 noms nabatéens d'origine grecque dans son lexique, Le nabatéen, II, pp. 55-158 et 214-219, contre 77 de notre liste.

ABRÉVIATIONS

- Bo Carnet de R.G. Bogue, un géologue américain, compagnon de Philby en 1953.

Br R.E. Brünnow et A. von Domaszewski, Die Provincia Arabia, I, II, III, Strasbourg 1904, 1905, 1909.

C Corpus Inscriptionum Semiticarum, parts II (Inscriptiones Aramaicae), sectio 2 (Inscriptiones Nabataeae), Paris 1893.

D G. Dalman, Petra und seine Felsheiligtümer, Leipzig 1908, et Neue Petra-Forschungen und der heilige Felsen von Jerusalem, Leipzig 1912.

H G.L. Harding, An Index and Concordance of Pre-Islamic Arabian Names and Inscriptions, Toronto 1971.

L E. Littmann, Nabataean Inscriptions, dans Semitic Inscriptions, dans Syria, Publications of the Princeton University Archaeological Expeditions to Syria in

EDUCATIONAL *and other educational institutions*

- 1904-1905 and 1909, Division IV,
Leyde 1914.

E. Littmann et D. Meredith, 'Nabataean
Inscription from Egypt', BSOAS XV,
1953, pp. 1 ss et XVI, 1954,
pp. 211-246.

J.T. Milik et J. Starcky, Inscriptions
nabatéennes chez F.V. Winnett et W.L.
Reed, Ancient Records from North
Arabia, Toronto 1970, pp. 141-160.

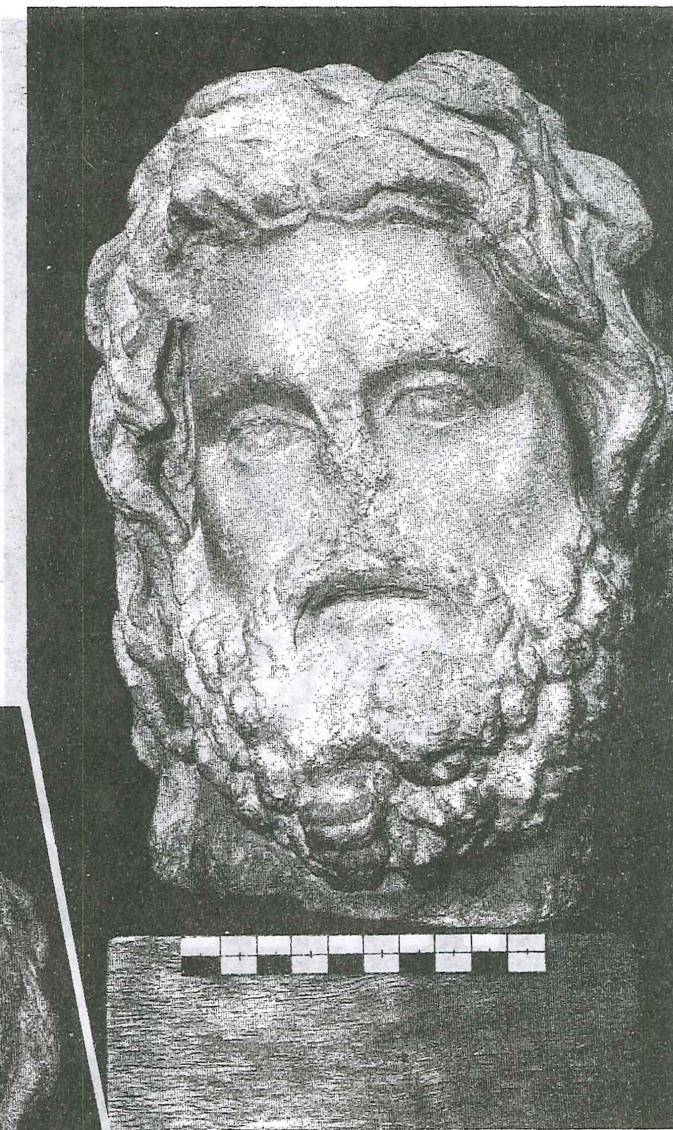
2 Carnets de H. St. John B. Philly de
1950-51 et 1953.

Répertoire d'épigraphie sémitique publié
par la Commission du Corpus Inscriptio-
num Semiticarum, Paris 1900.

R. Savignac dans Jausseen et Savignac,
Mission archéologique en Arabie
(mars-mai 1907), [I], II, Paris 1909,
1914.

PLATES

Pl. I,1 — Amman, National museum.



Pl. I,2 — Amman, National museum.



Pl. II,1 — Amman, National museum. — 11.11



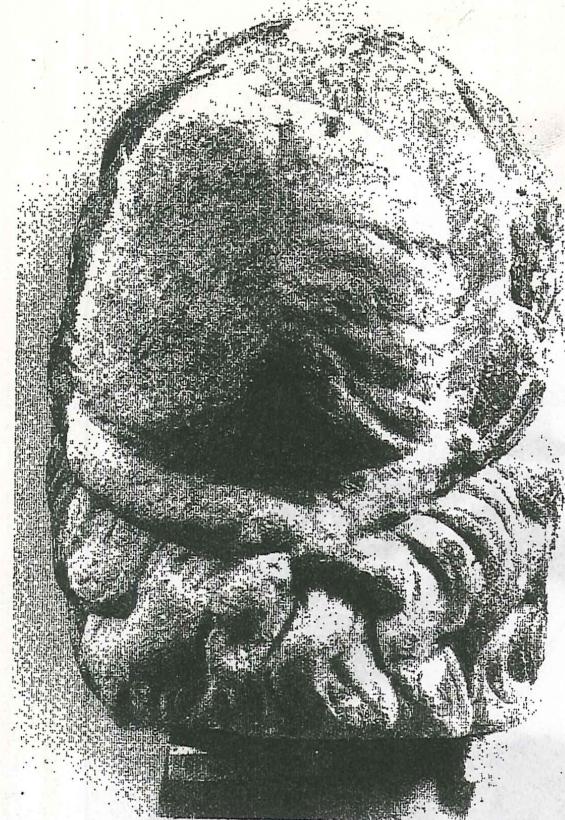
Pl. II,2 — Amman, National museum. — 2.1

scavi di Foligno - 1.VI.48



Pl. III — Foligno, Museo Civico.

Pl. IV,1 — Foligno, Museo Civico.



Pl. IV,2 — Foligno, Museo Civico.



Pl. IV,3 — Foligno, Museo Civico.

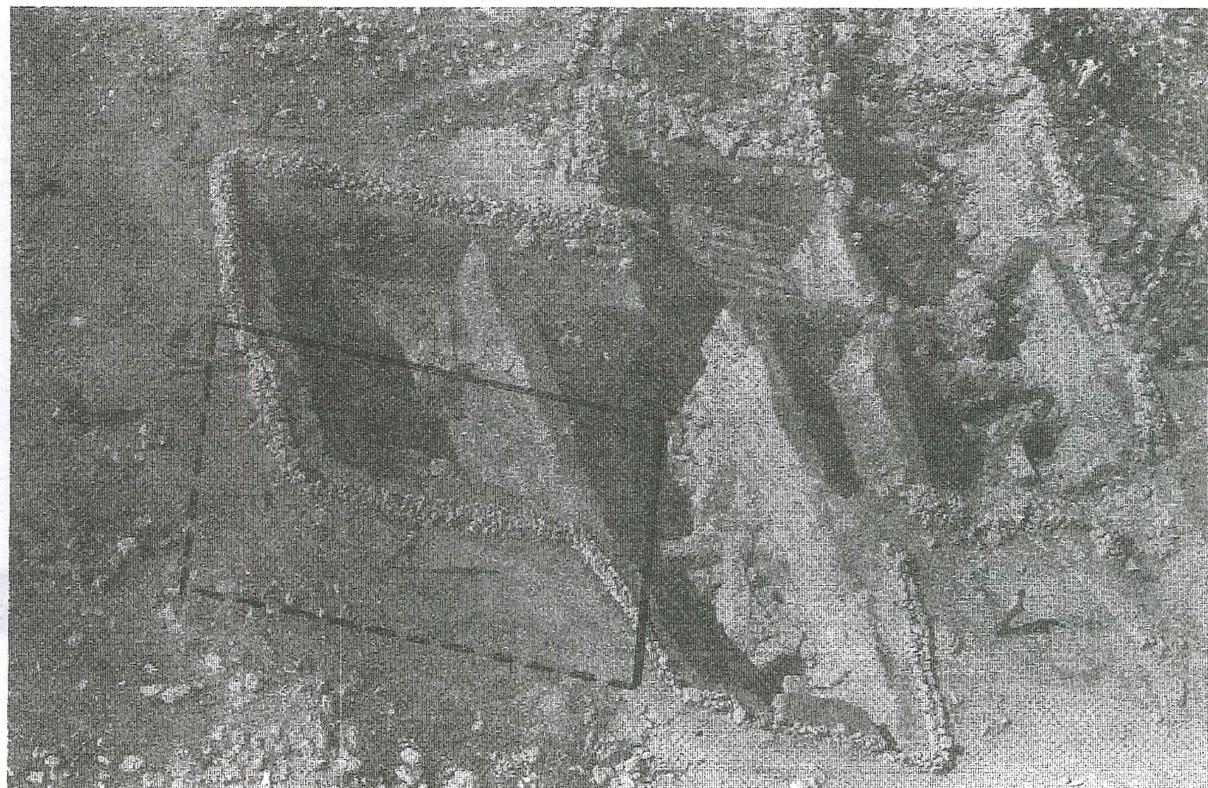


Pl. V — Istanbul, Archäologisches Museum.

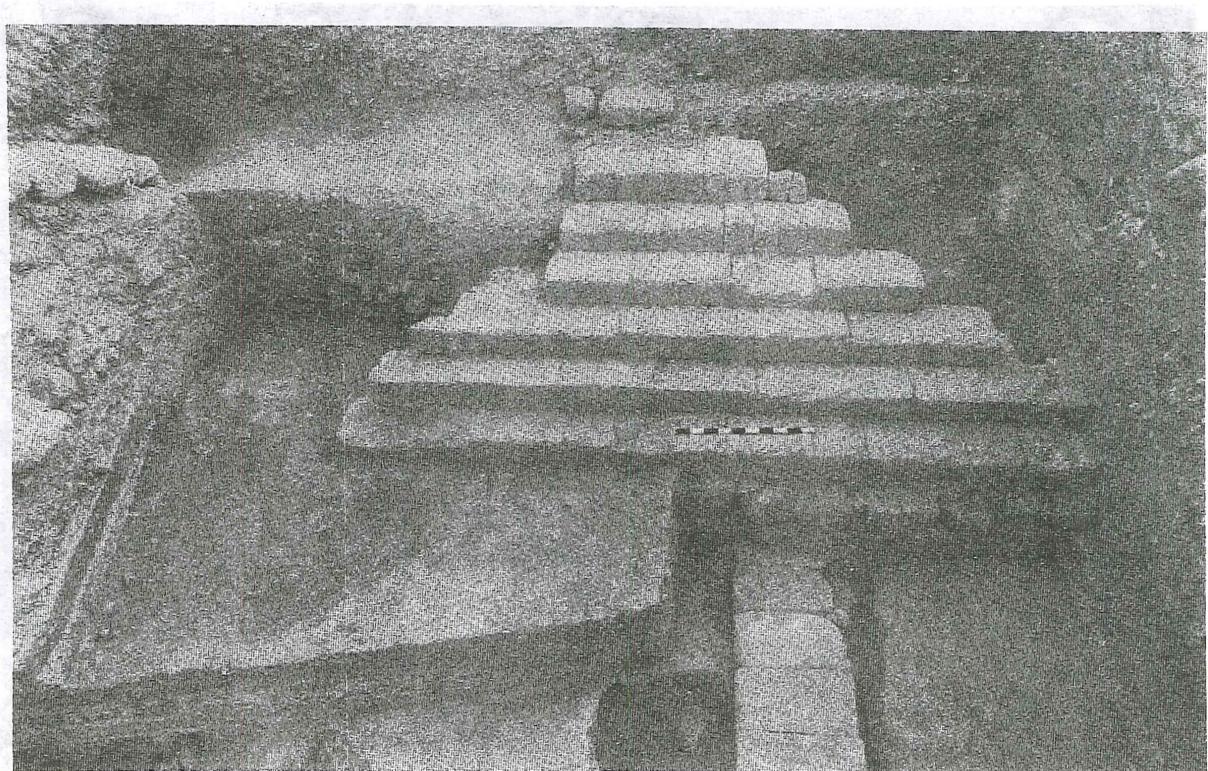
— 159 —



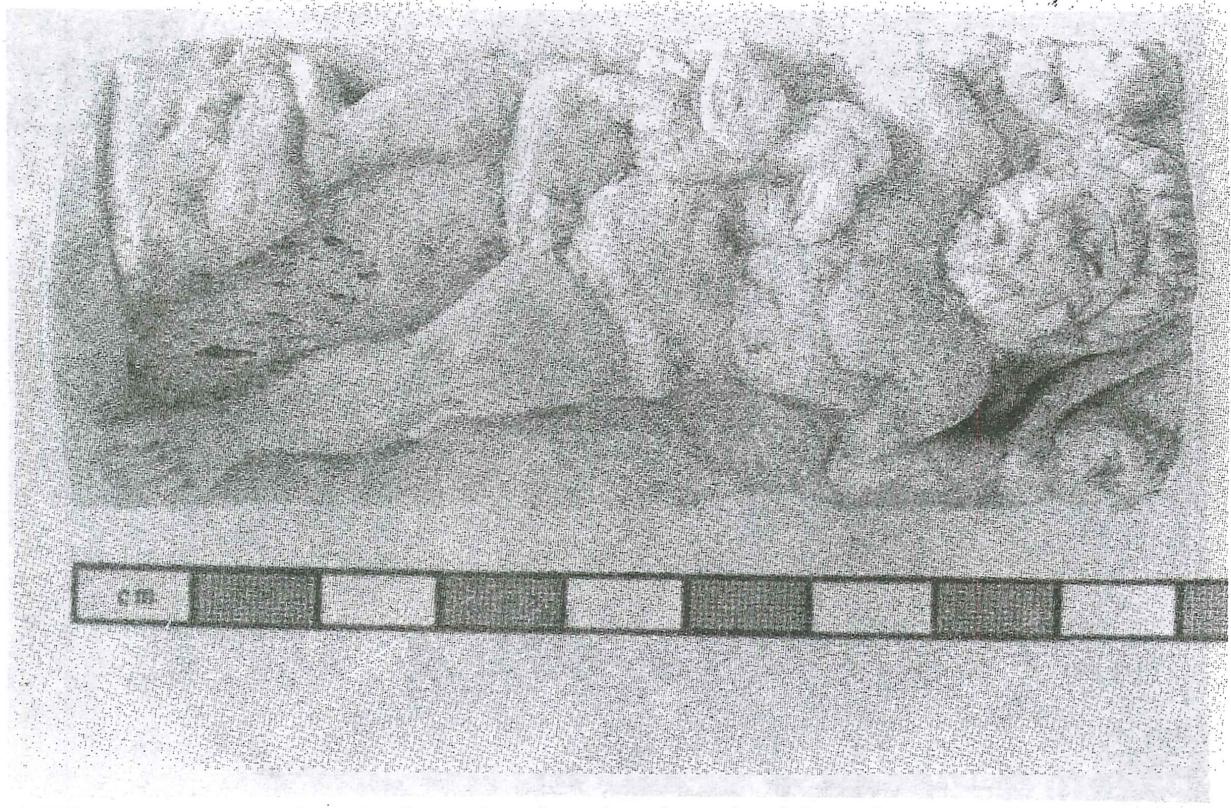
— 4 —
Pl. VI — Istanbul, Archäologisches Museum.



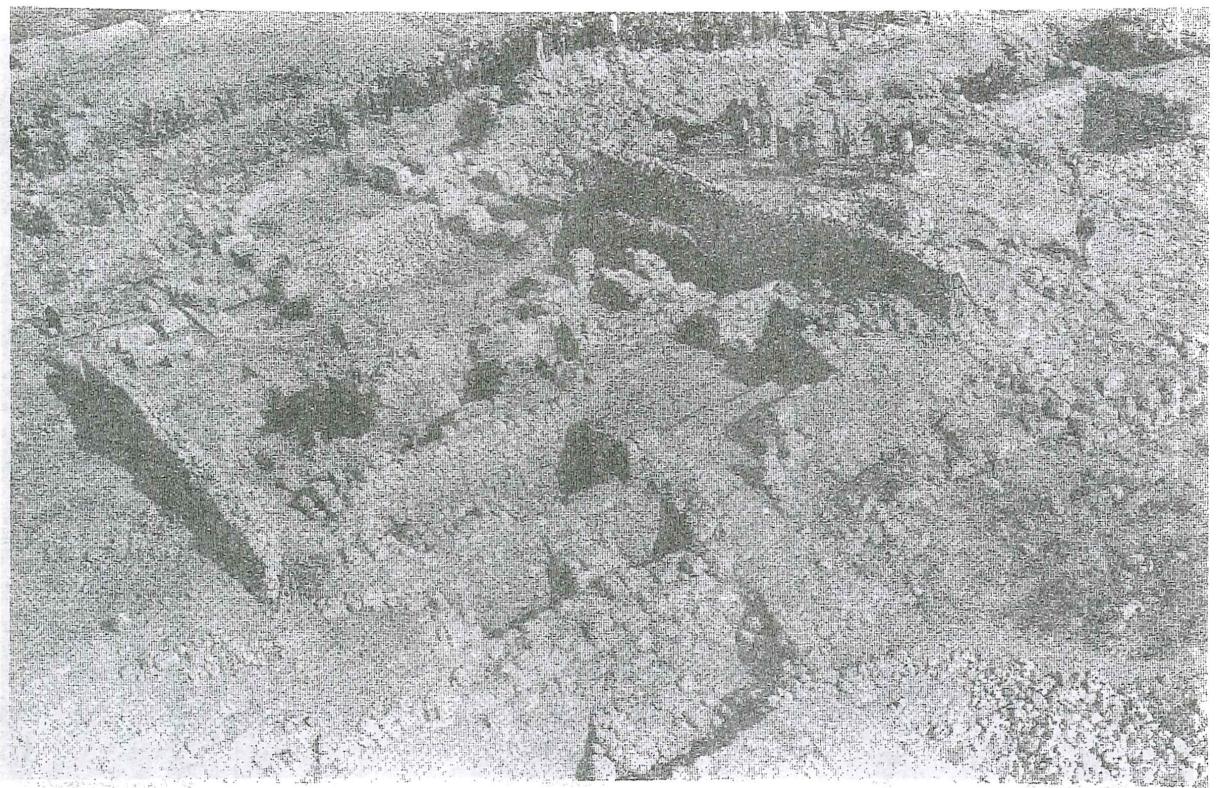
Pl. VII,1 — An aerial view of Areas B and D looking north with the extent of The Iron Age reservoir dotted in.



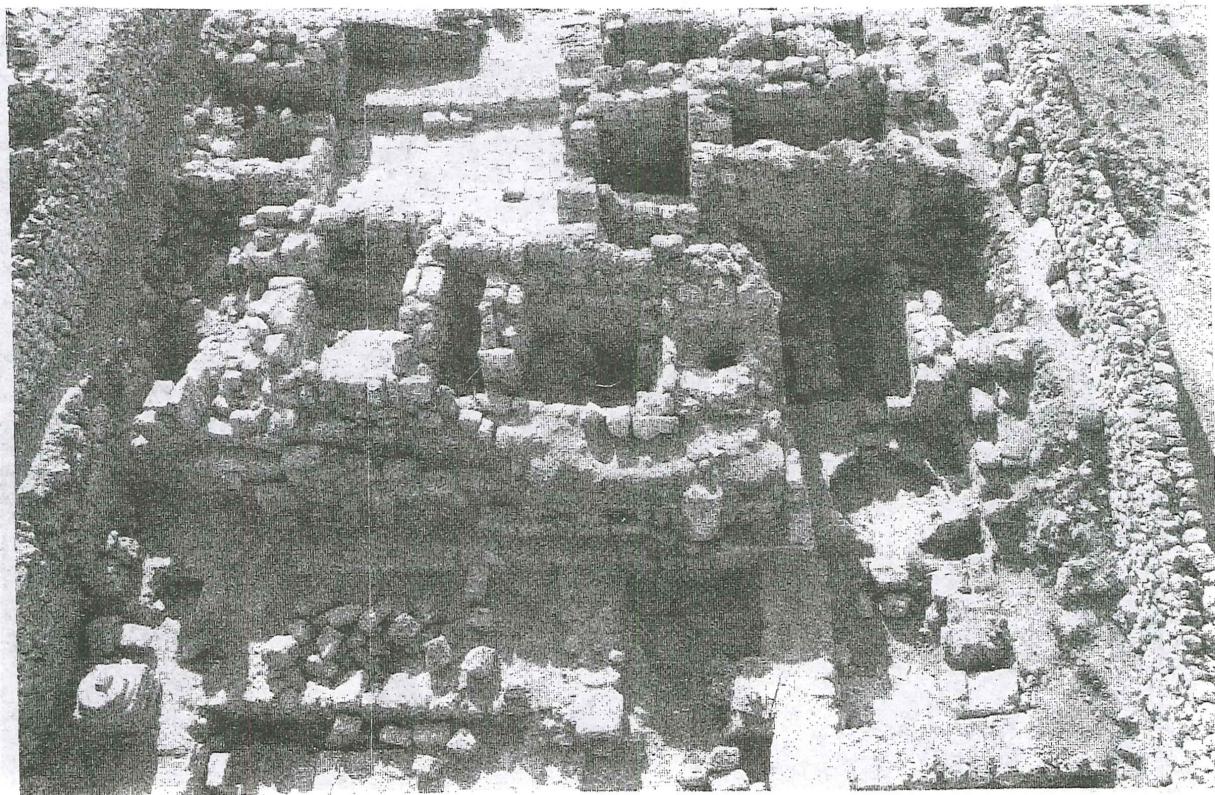
Pl. VII,2 — Westward continuation of Late Roman stairs (upon which Prometheus plaque was found) associated with roadway soil layers (seen in section).



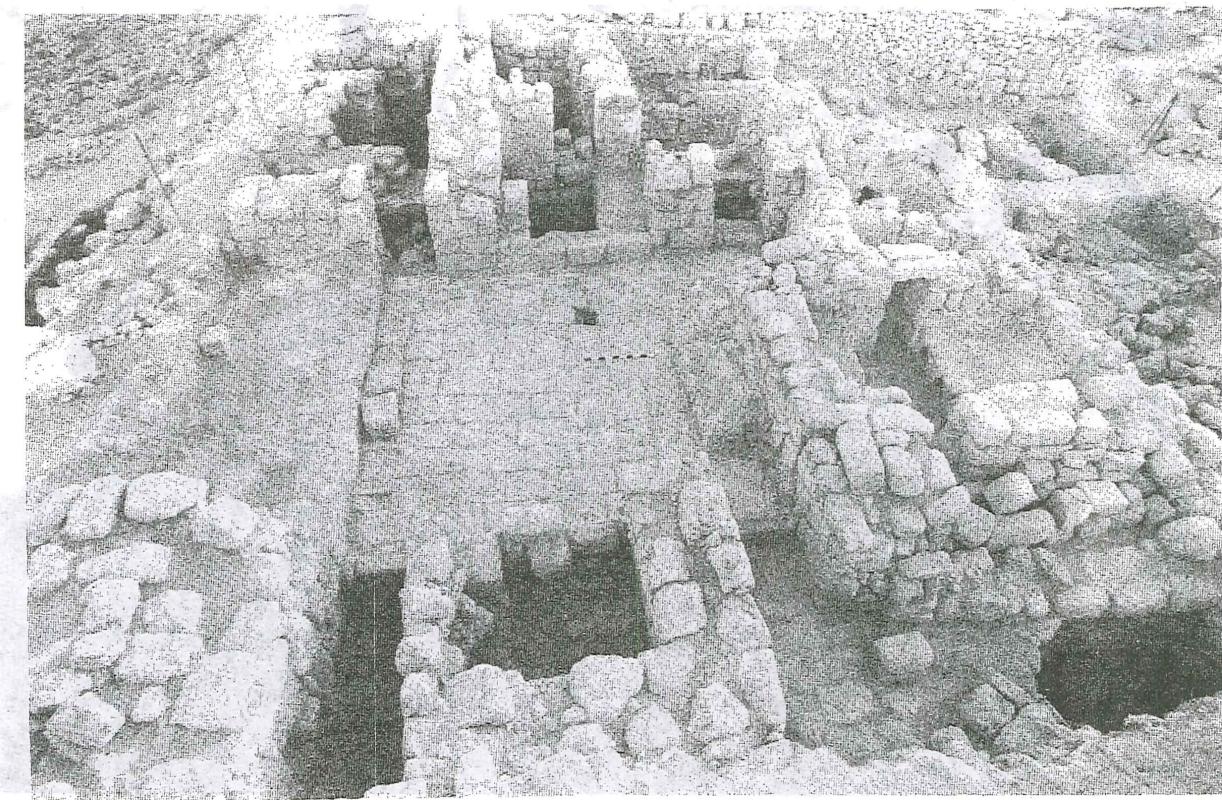
Pl. VIII,1 — Ivory plaque depicting Prometheus bound to the rocks while a vulture eats out his entrails.



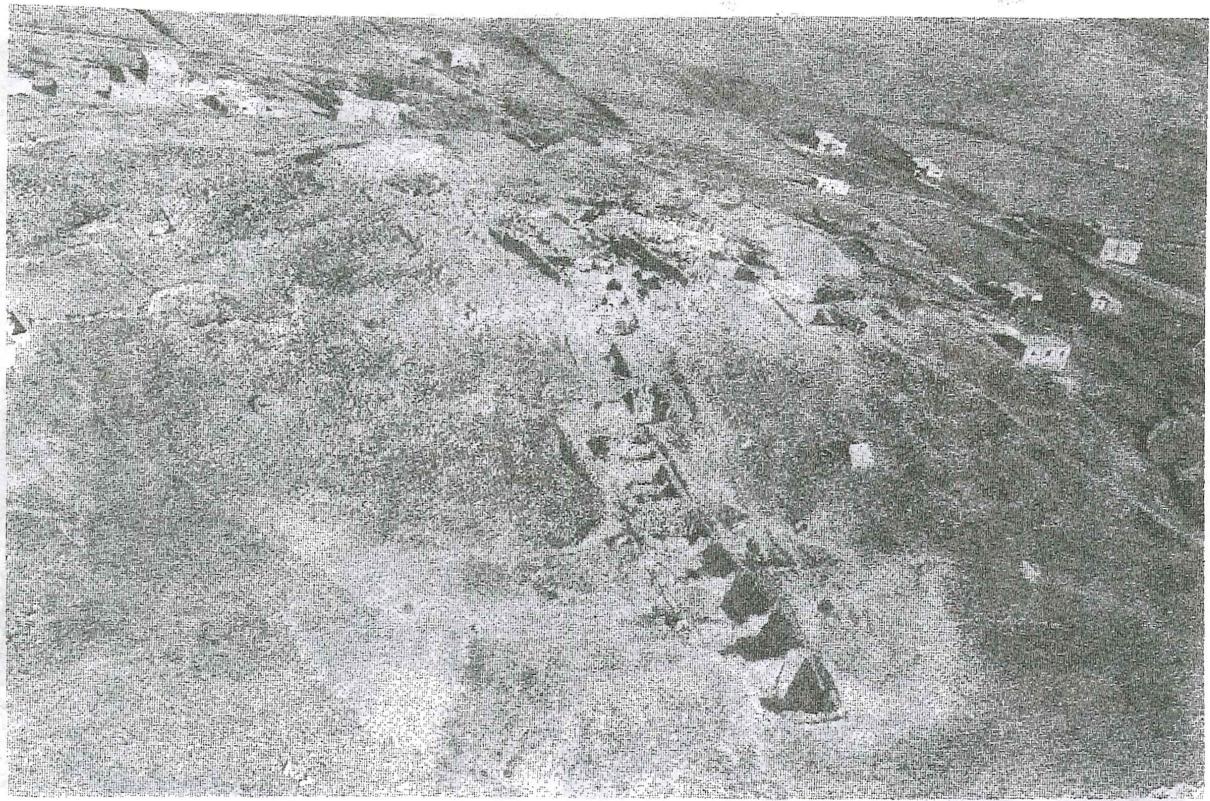
Pl. VIII, 2 — An aerial view of Area A looking southeast.



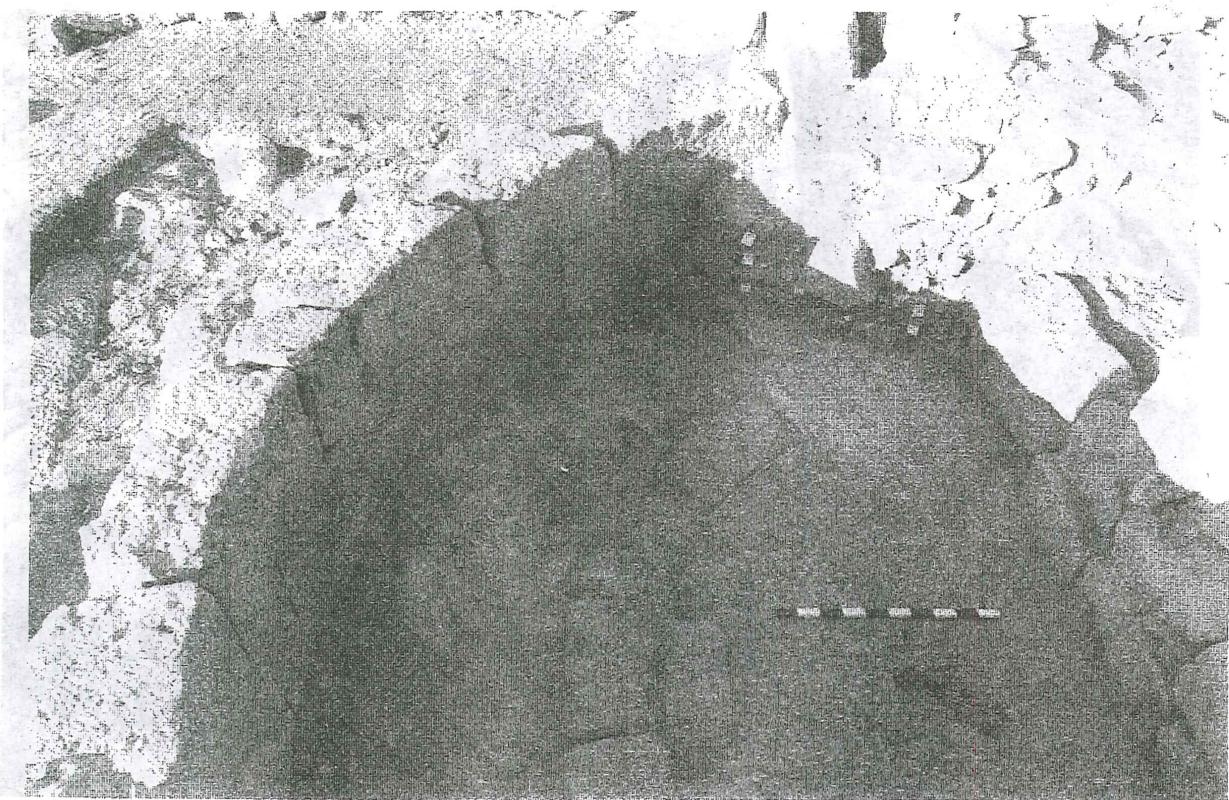
Pl. IX,1 – The Mamluk bath complex overlying the Late Roman temple foundation. *Archaeol. - I, X, 19*



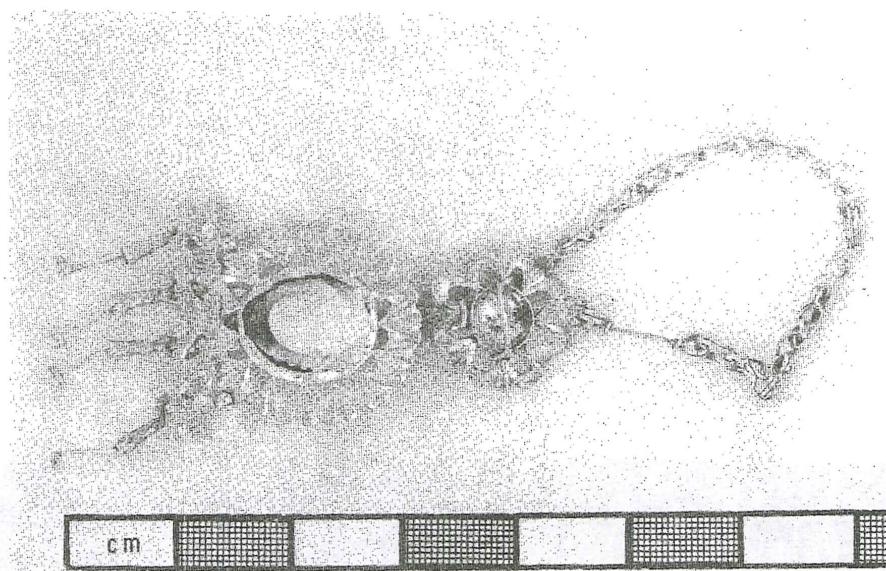
Pl. IX,2 – The Mamluk courtyard complex in Area A located to the west of the bath. *Archaeol. - I, X, 19*



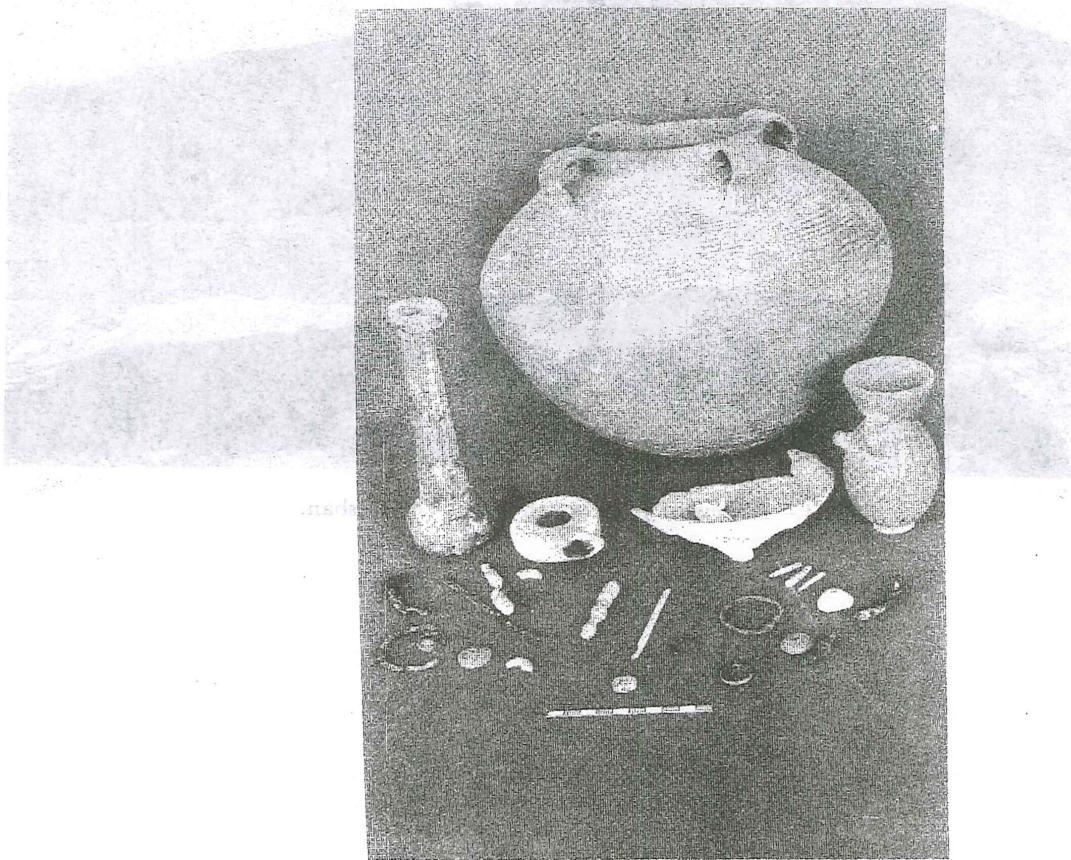
Pl. X,1 — An aerial view of Area C connecting up with Area A in the acropolis. *[faint text in the background]*



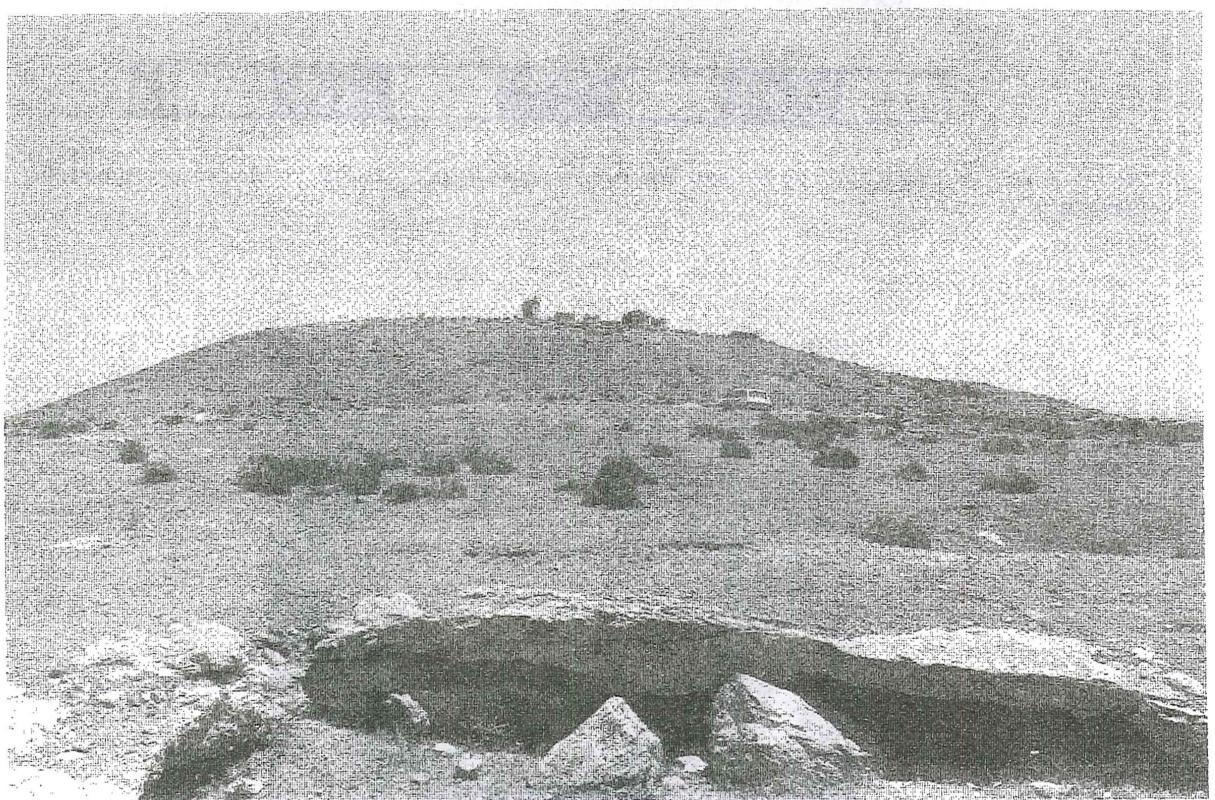
Pl. X,2 — The apse of a newly-discovered Byzantine church just to the north of the acropolis. *[faint text in the background]*



Pl. XI,1 — A gold earring from Late Roman Tomb F.27, inset with a pearl and a blue cameo-type relief of a woman's head.

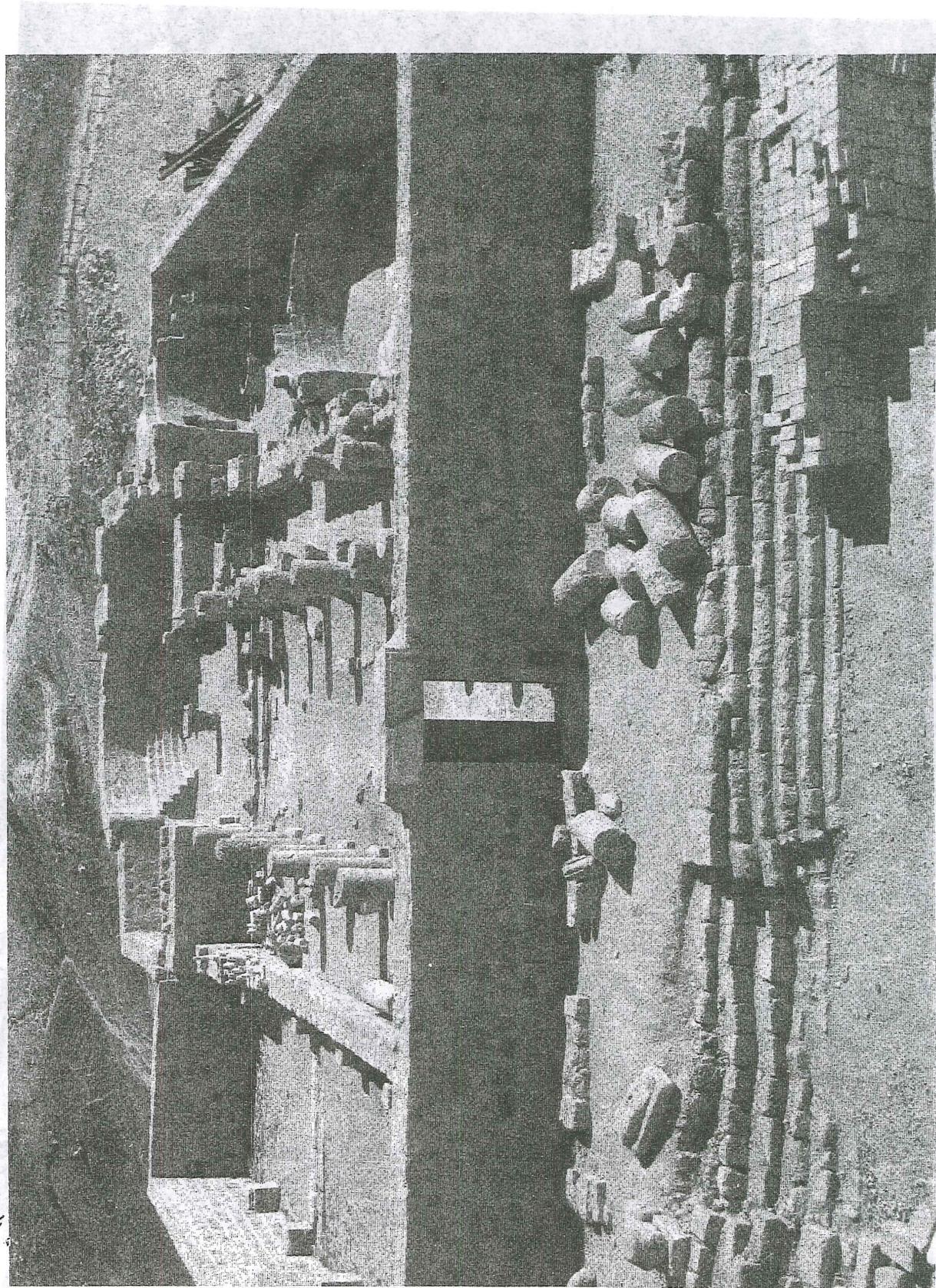


Pl. XI,2 — A few of the objects which came from Loculus 1 of Tomb F.31 including a 4-handled Early Roman pot containing a cremation burial, a spouted Nabatean juglet, an alabaster bowl, a Herodian lamp a glass bottle, and an Egyptian scarab.

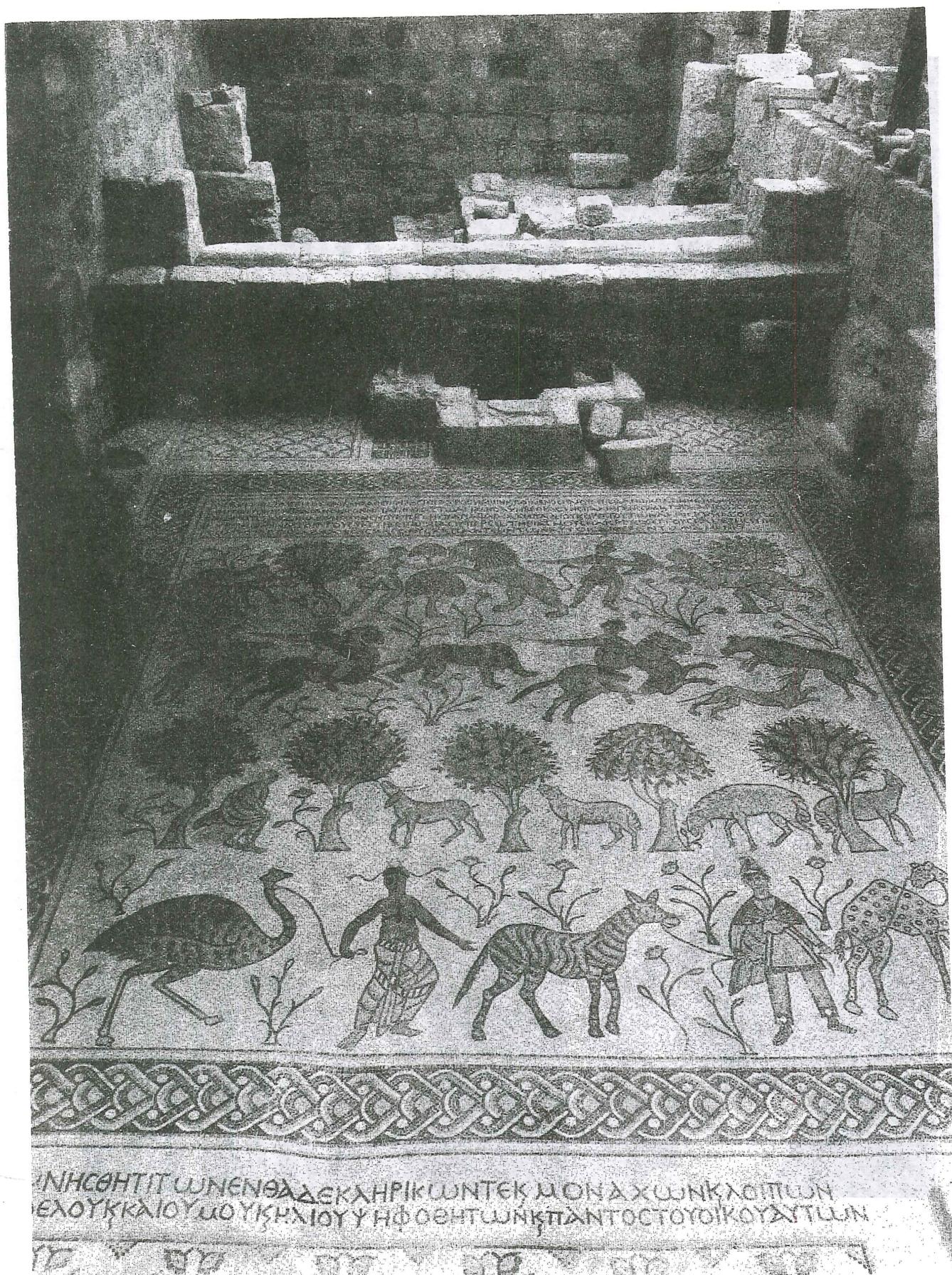


Pl. XII — A view of Jalul, southeast of Tell Hesban.

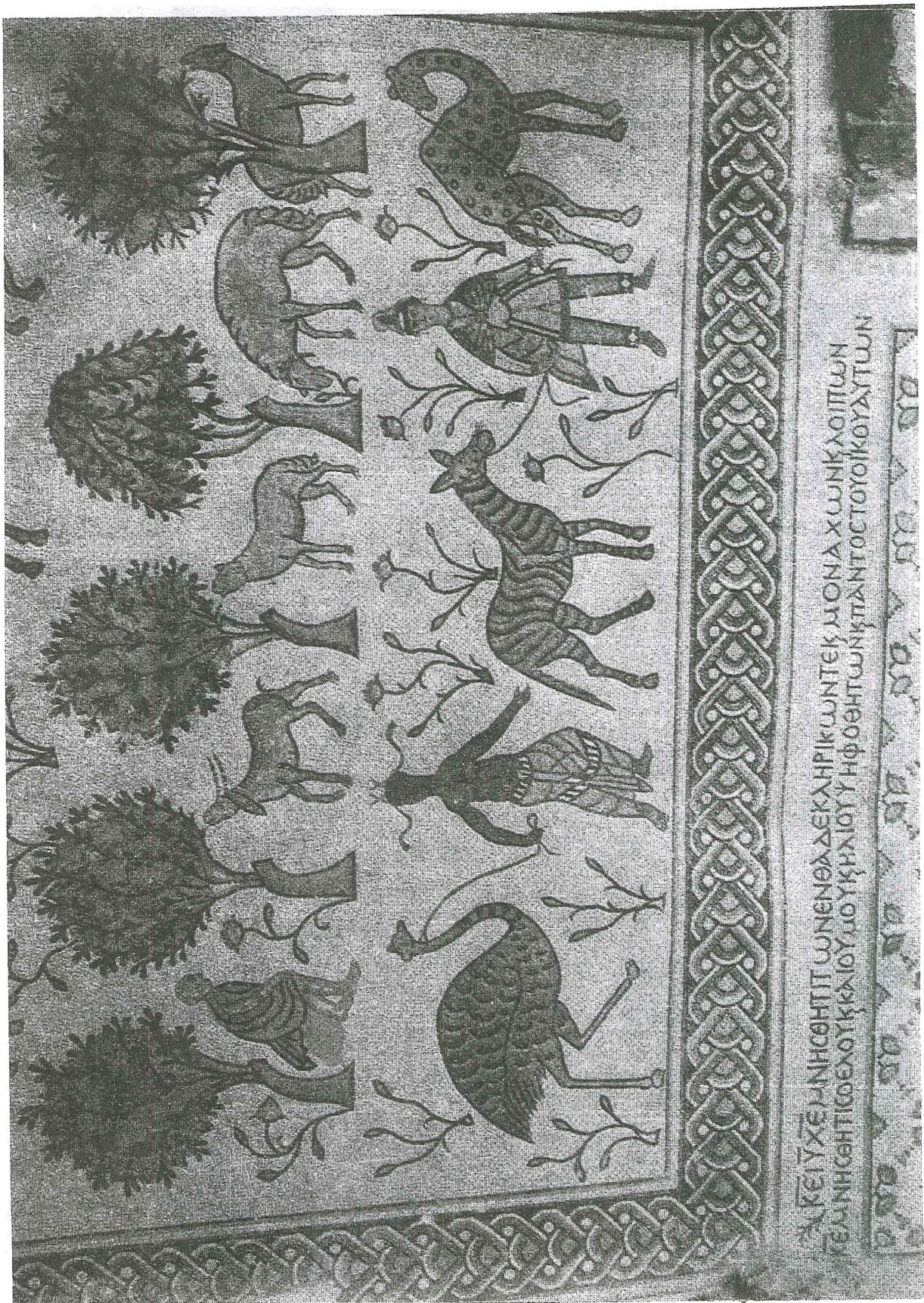
Pl. XII — A view of Jalul, southeast of Tell Hesban. The hill is prominent in the background, rising above the surrounding landscape. The foreground is relatively flat and open.



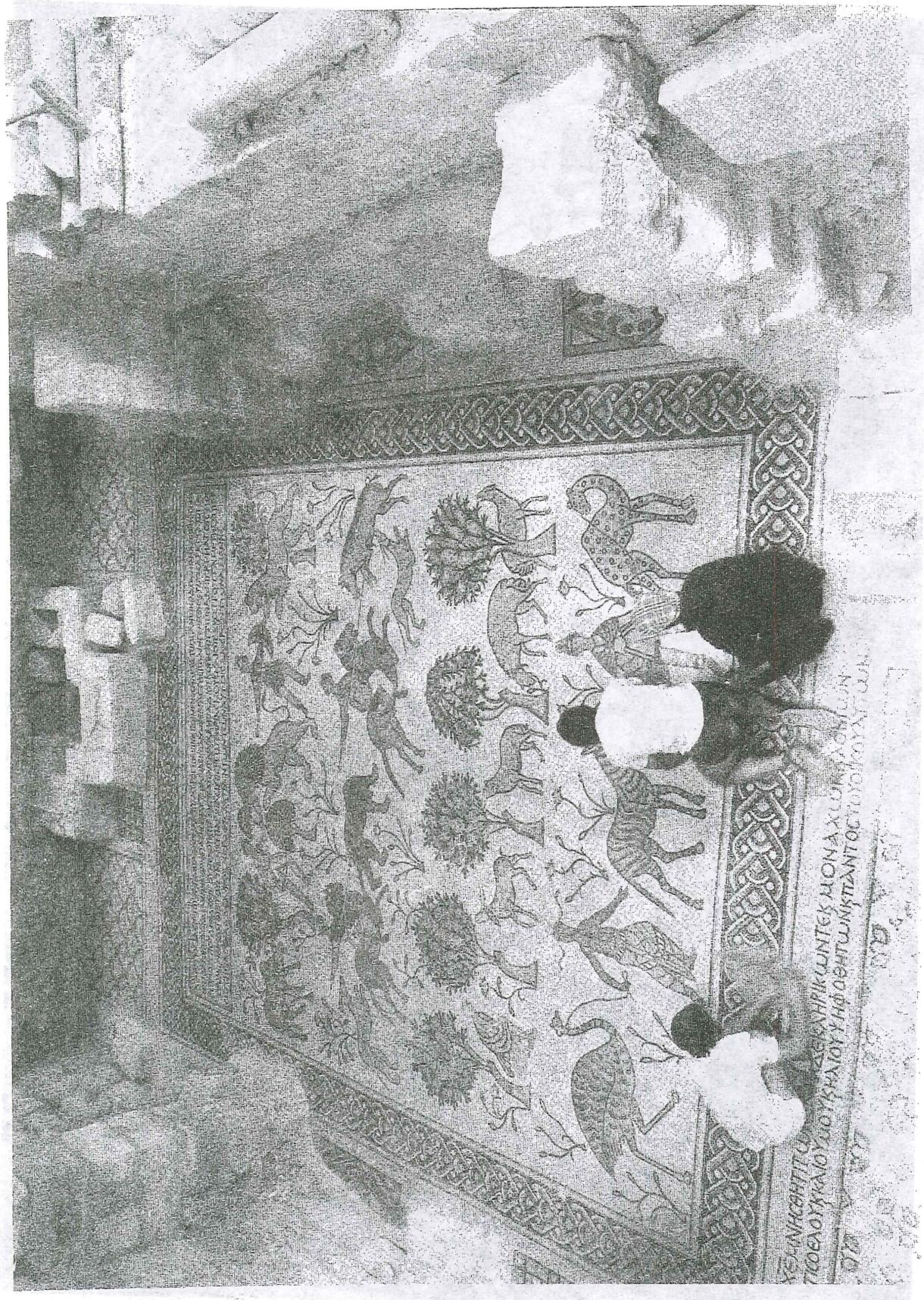
PI. XIII — General view of the
church of Mt. Nebo.



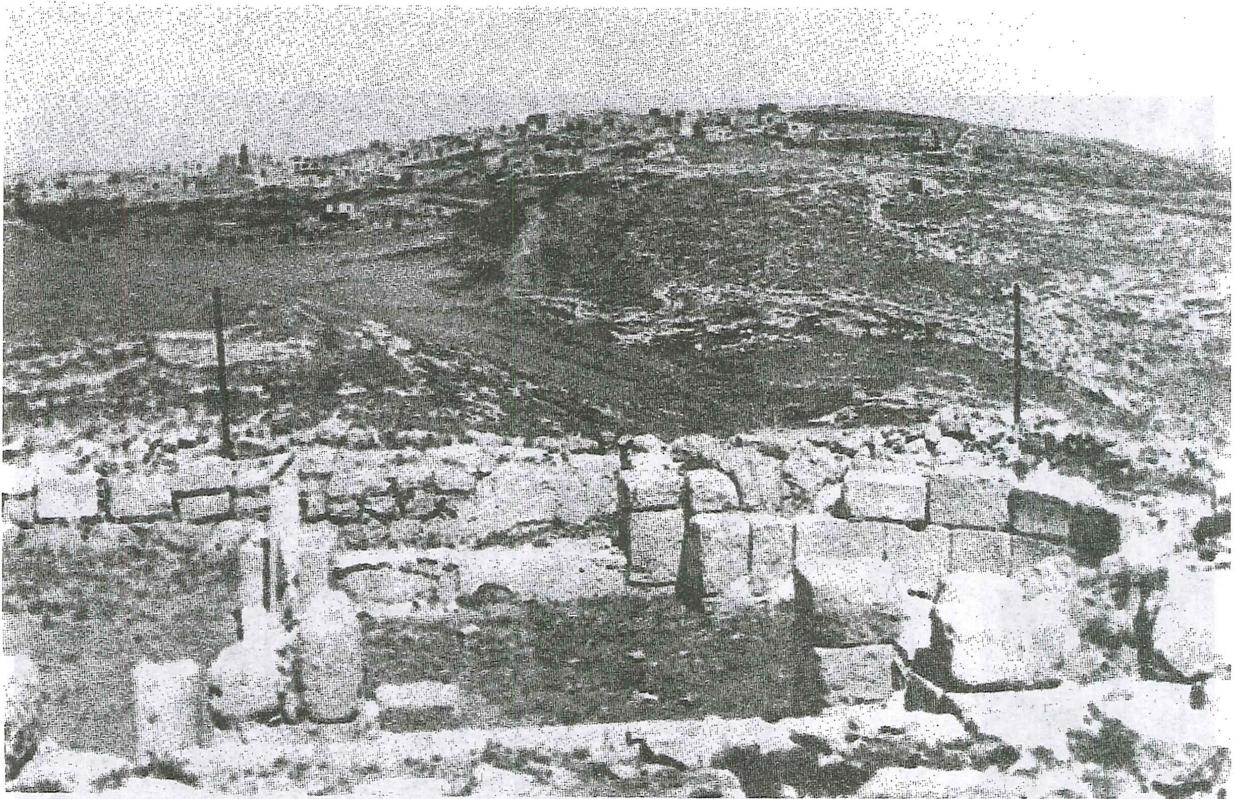
Pl. XIV — The earlier baptistry in the northern aisle.



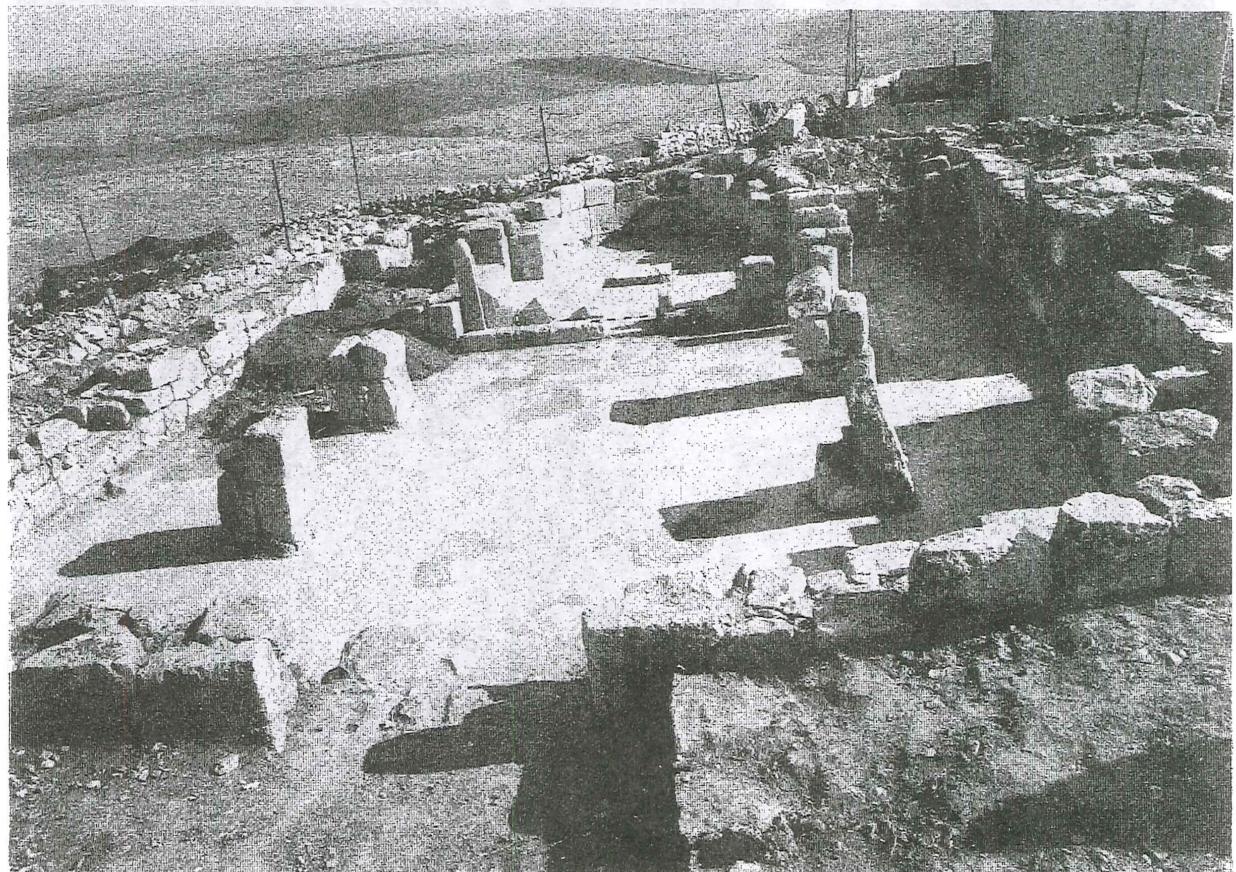
Pl. XV — Mt. Nebo, lower part of the central panel.



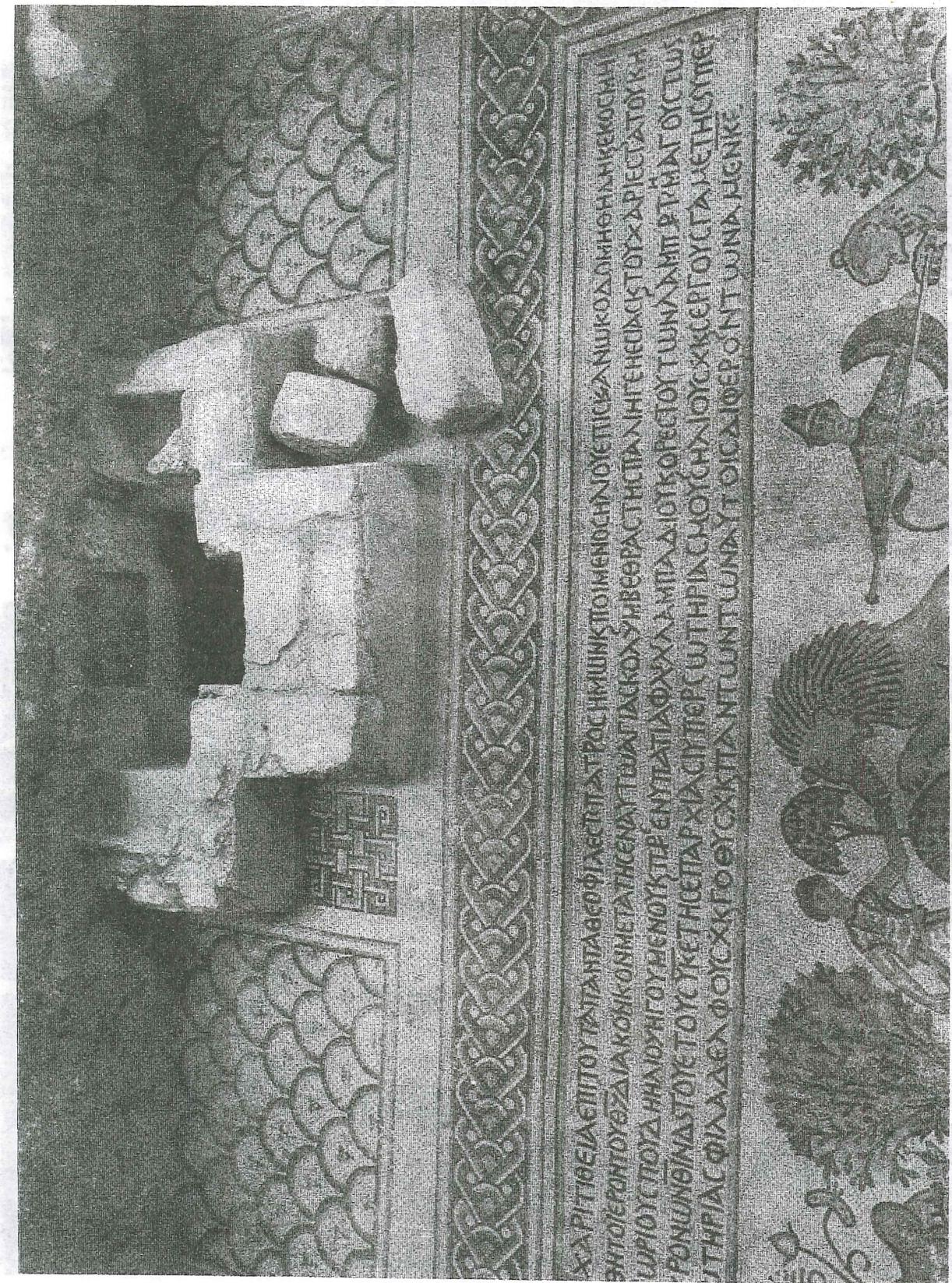
Pl. XVI — Mt. Nebo, general view of the mosaic in the northern aisle.



Pl. XVIII,1 — The church of ed-Deir; in the background the town of Ma'in.



Pl. XVIII,2 — General view of ed-Deir



Pl. XVII — The earlier baptistry and the dedication.

Digitized by srujanika@gmail.com - 2011/2/19



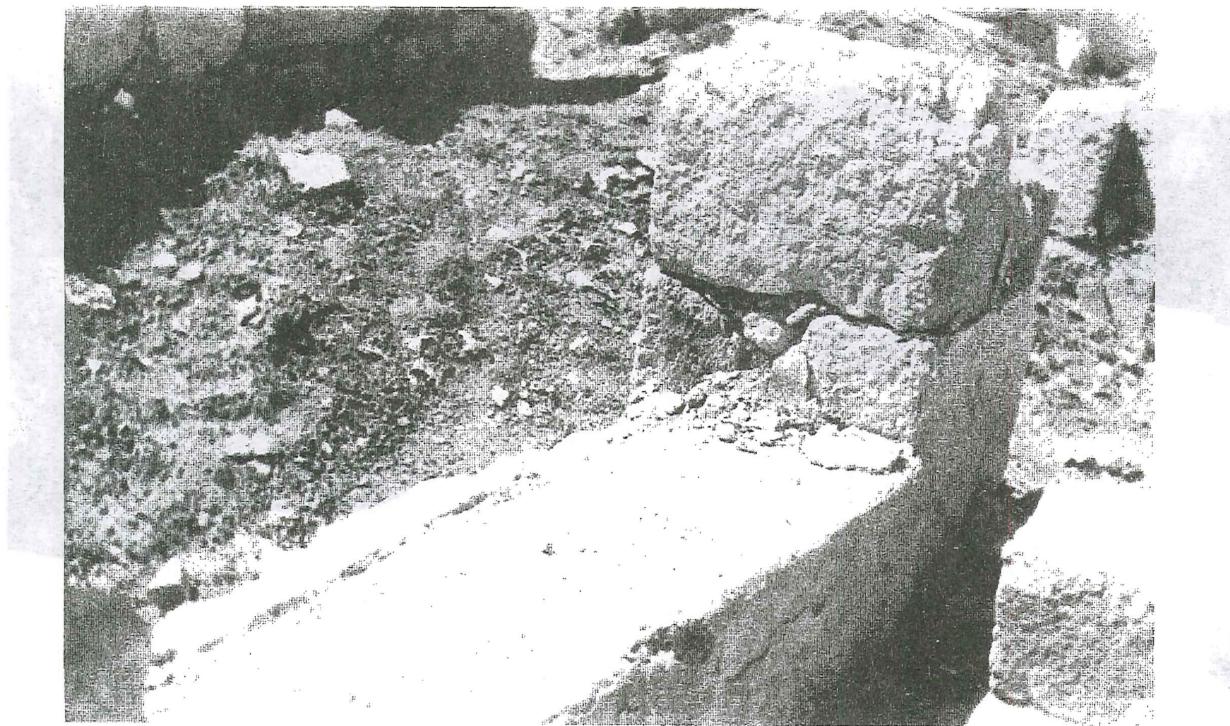
Pl. XIX,1 — Tile fragments scattered in the ruins.



Pl. XIX,2 — The main door to the church and the two entrances leading to the side rooms



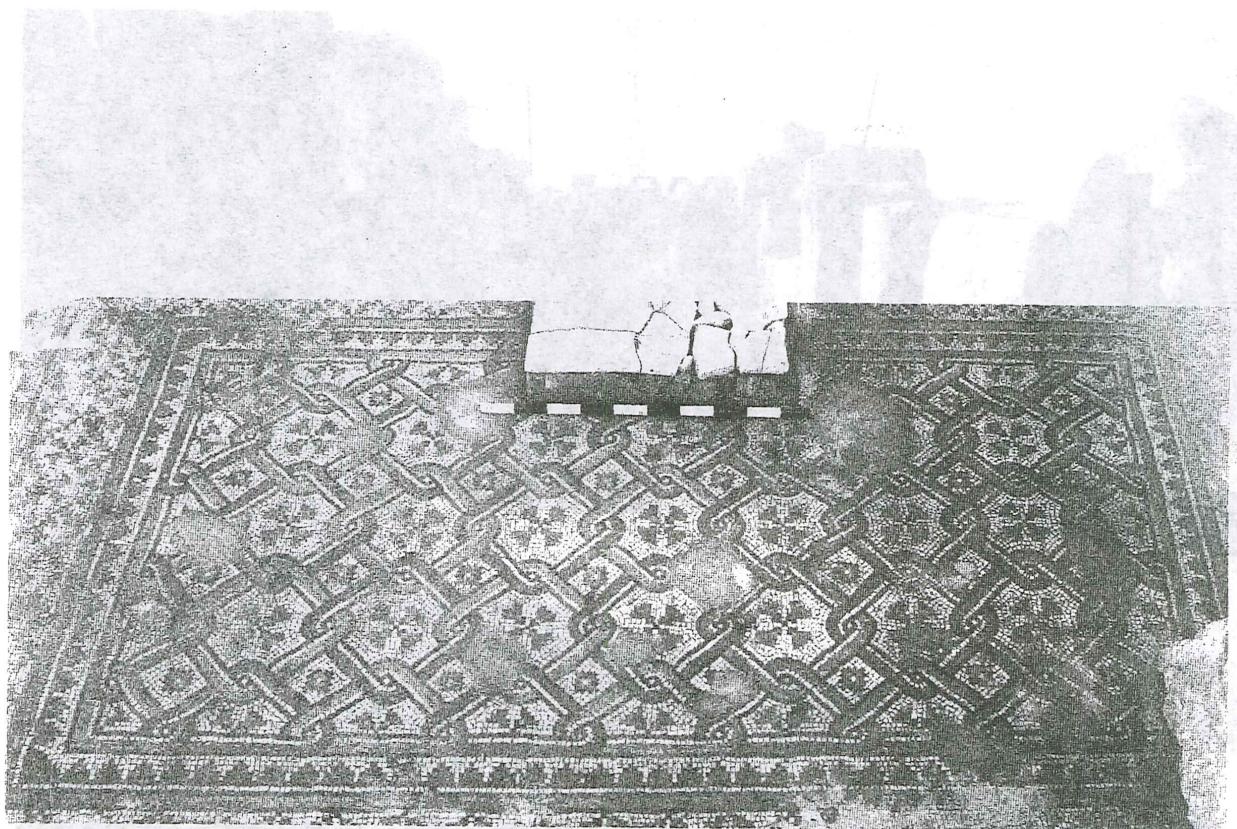
Pl. XX,1 — Pilaster and fragments of the balustrade at the entrance of the presbytery.



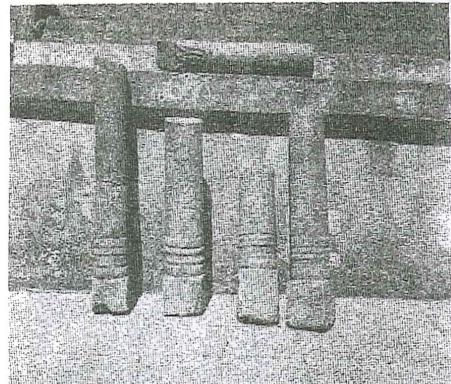
Pl. XX,2 — The southern plastered wall of the presbytery.



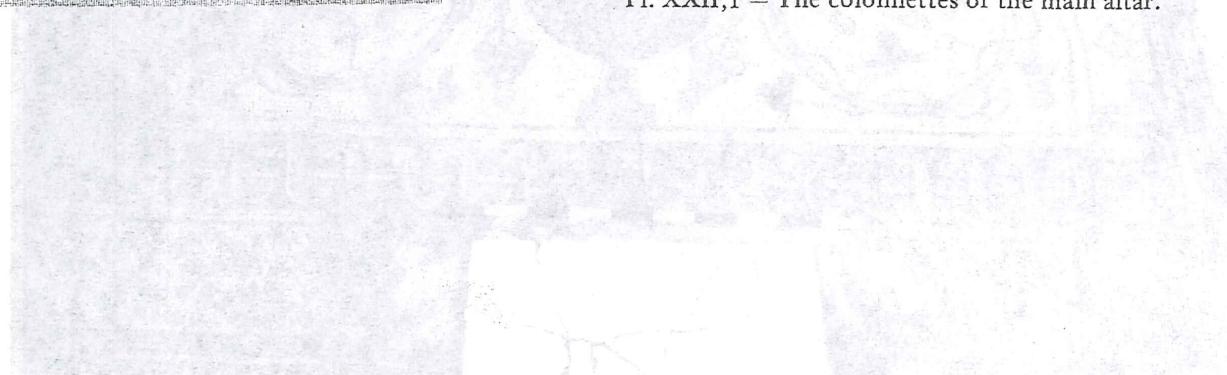
Pl. XXI,1 — Mosaic of the apse with the altar.



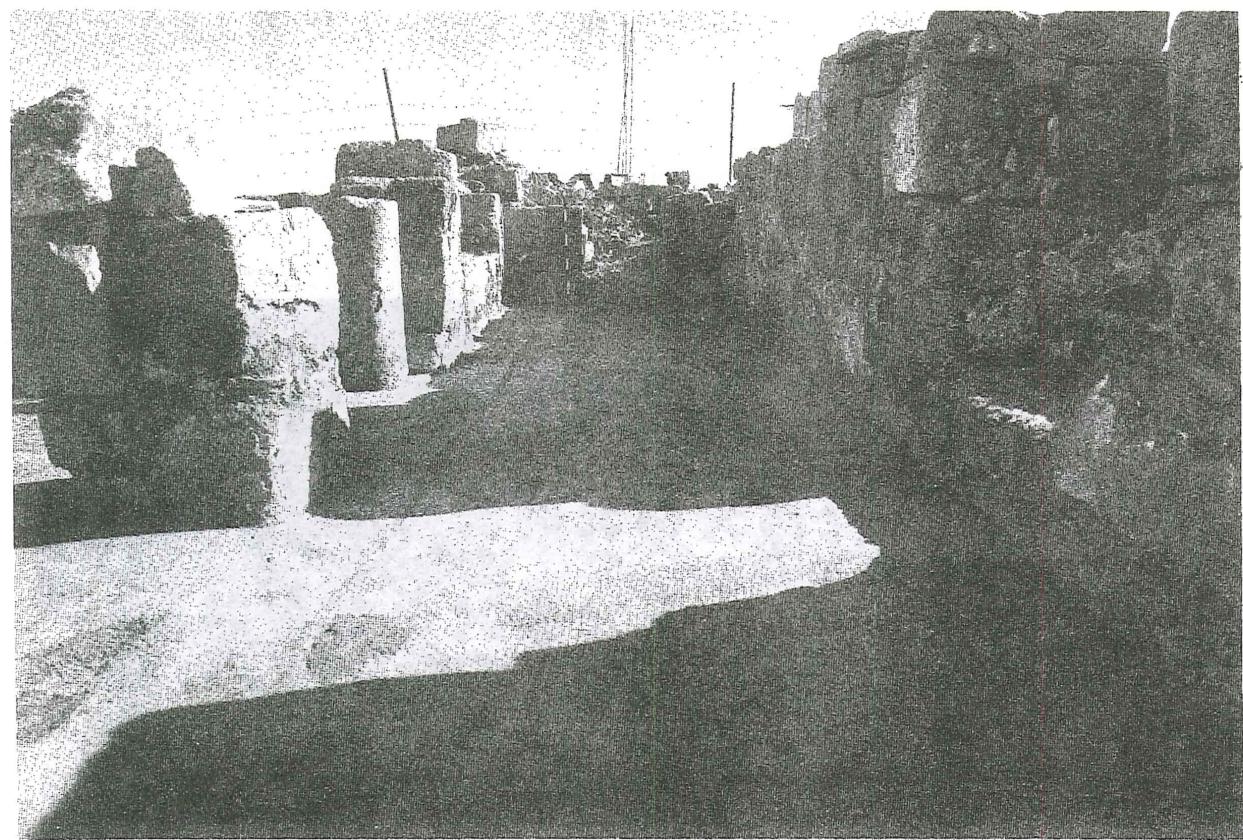
Pl. XXI,2 — Panel in front of the altar.



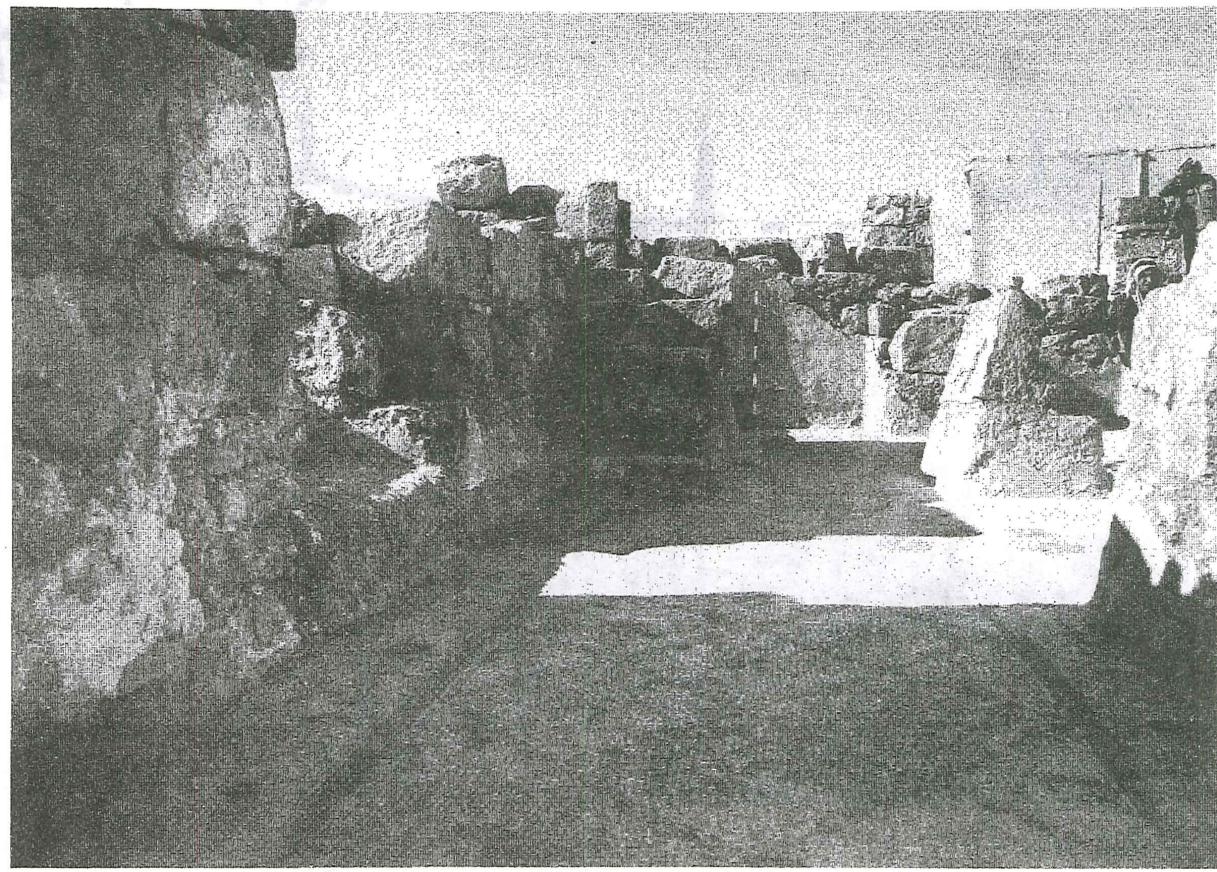
Pl. XXII,1 — The colonnettes of the main altar.



Scavi della cripta sotto la chiesa di S. Maria - 1.12.1939



Pl. XXII,2 — The central nave. Notice the column against the right pilaster.
Scavi della cripta sotto la chiesa di S. Maria - 1.12.1939



Pl. XXIII,1 — The southern nave from E. Note the four steps leading to a small platform.



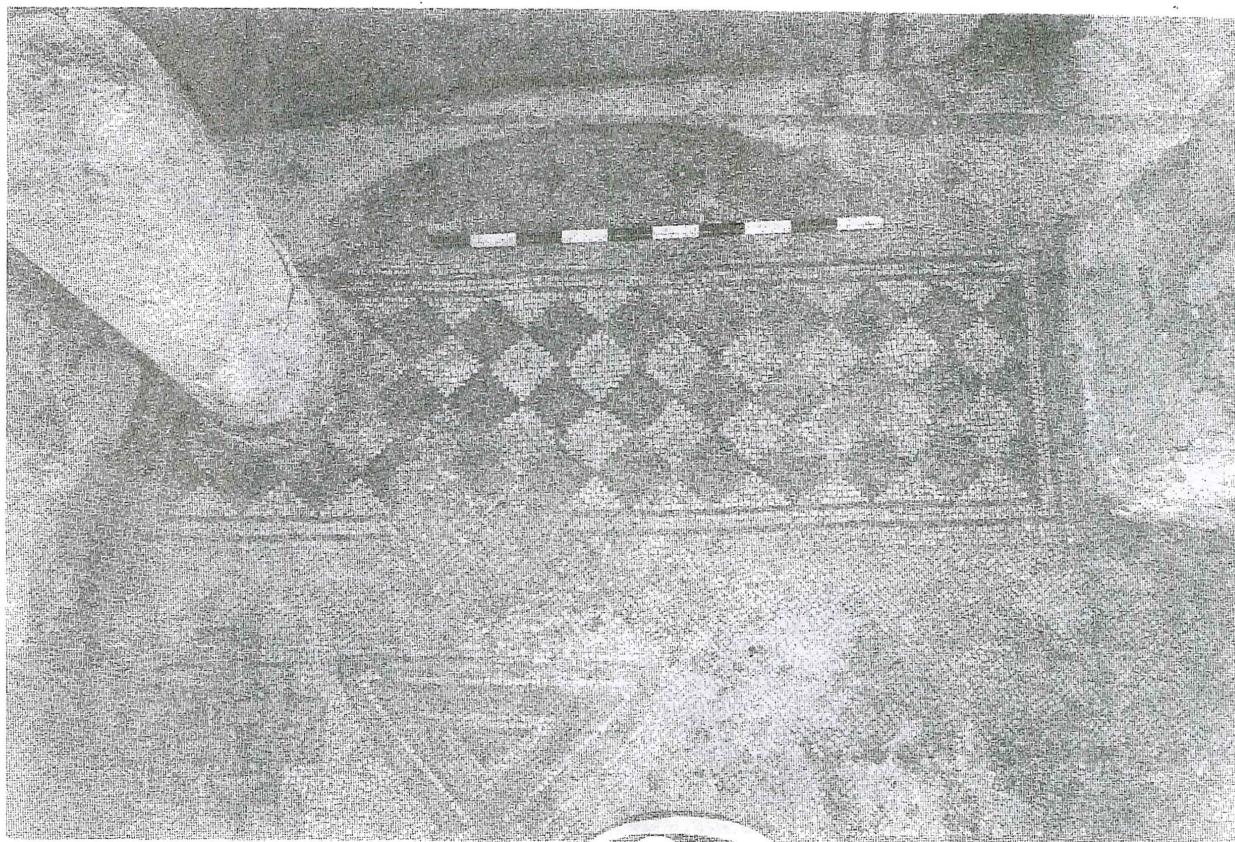
Pl. XXIII,2 — The southern nave and room B. Note the wall added in a later period.



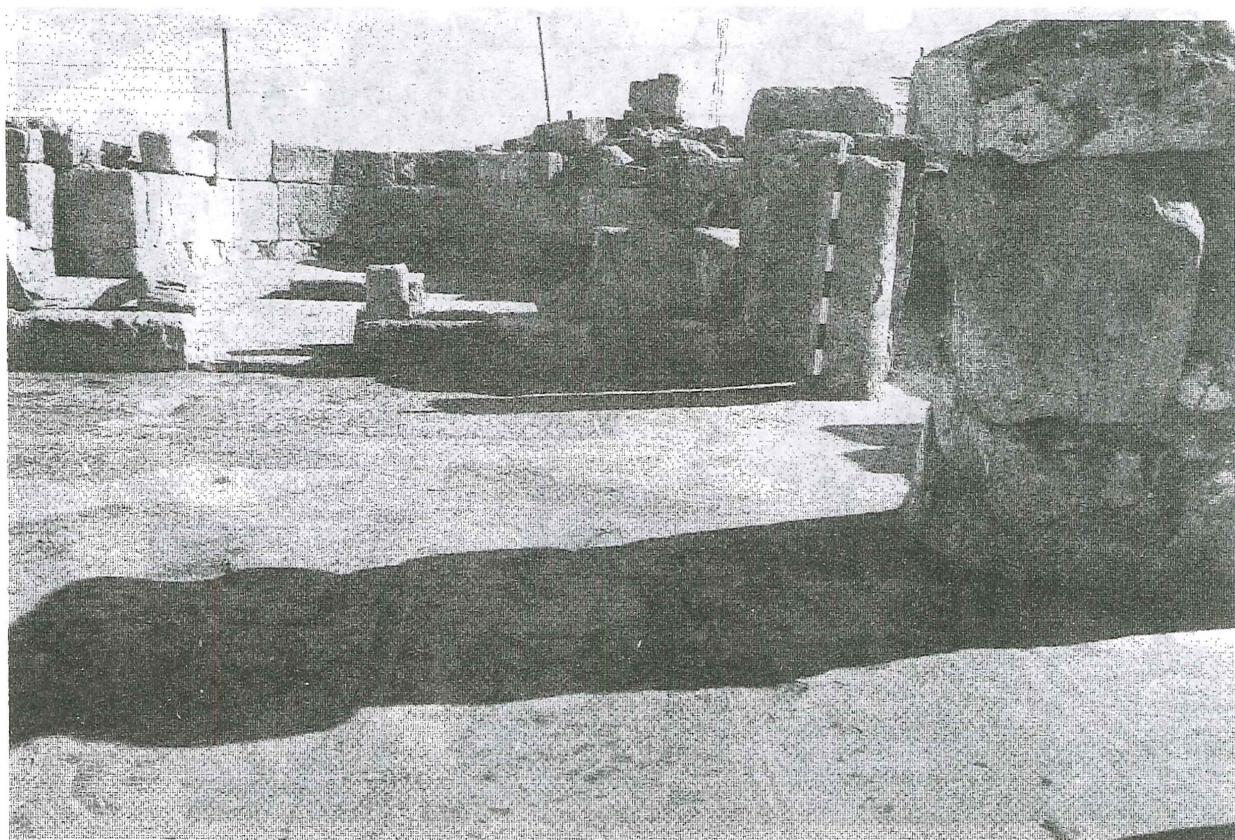
Pl. XXIV,1 — Traces of red fresco on the wall of the apses, imitating a carpet's fringe.



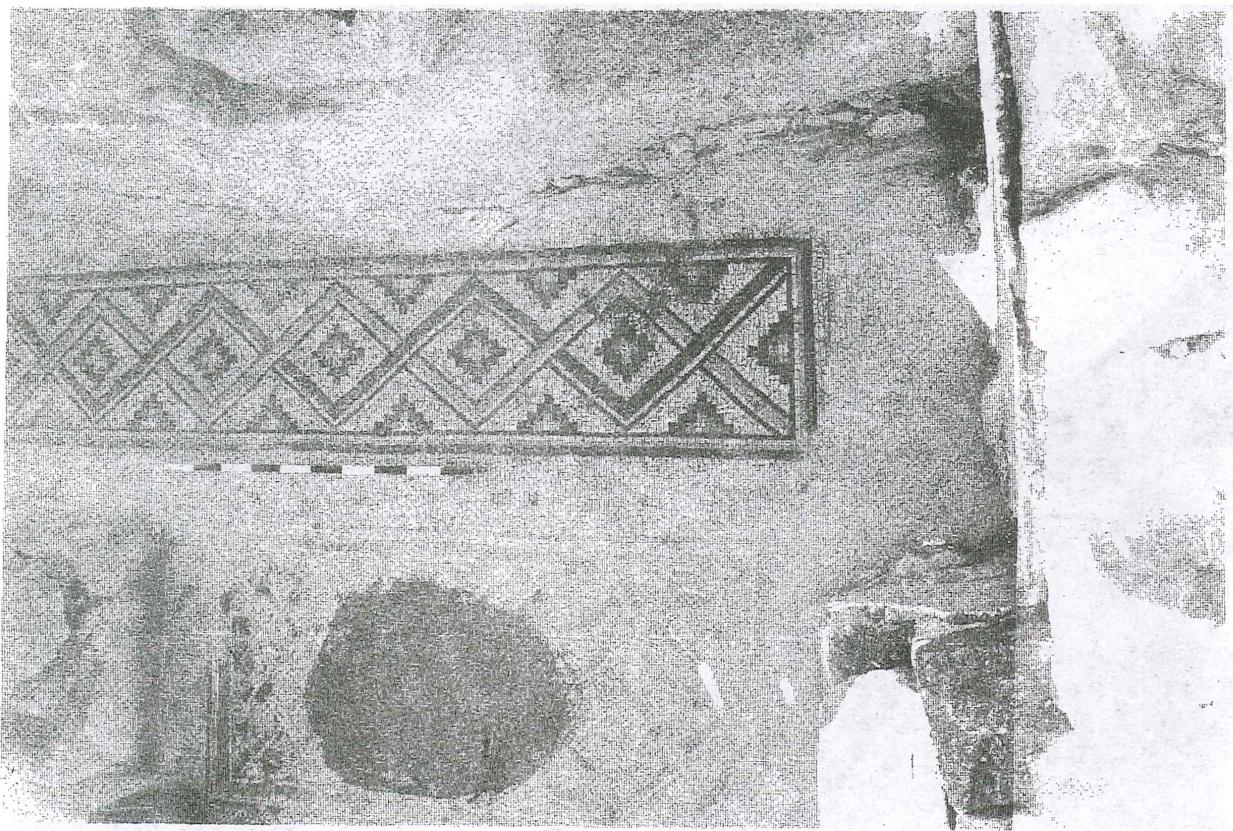
Pl. XXIV,2 — Traces of colored frescoes on a stone.



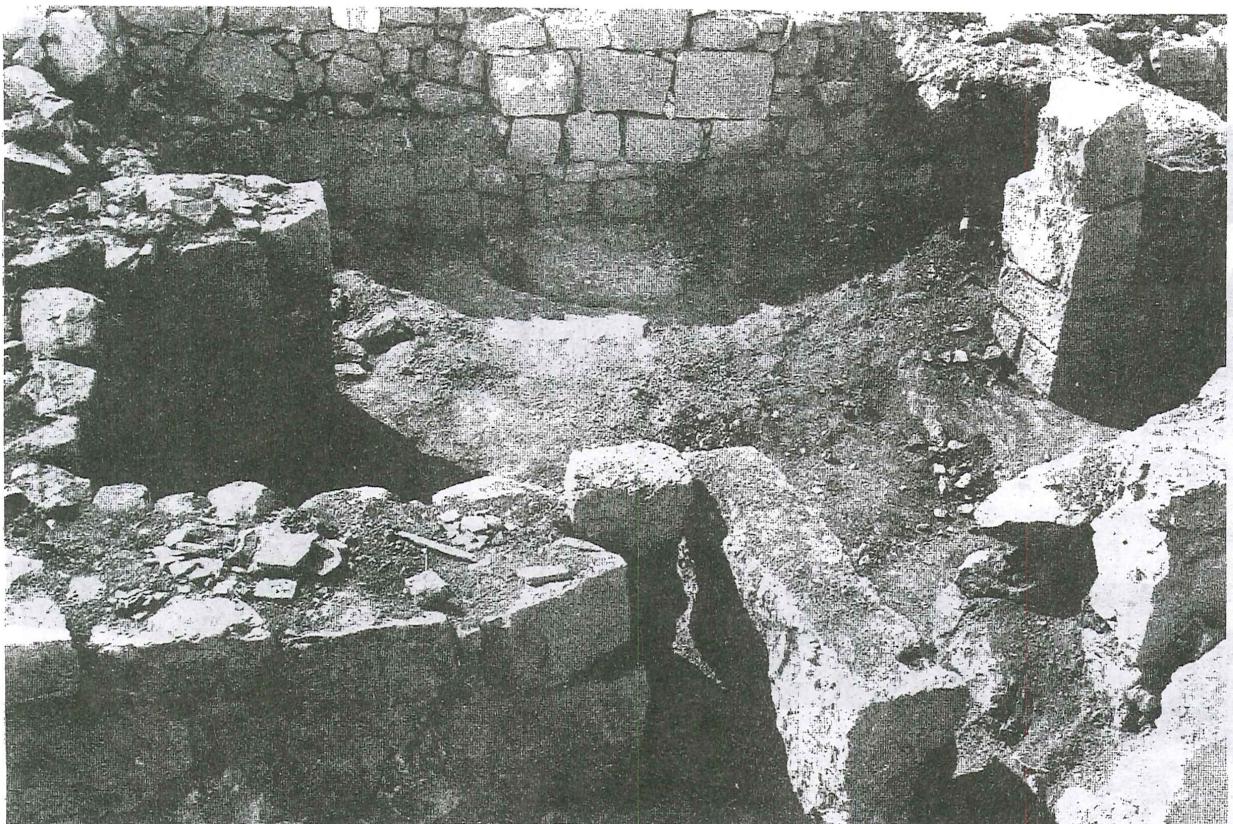
Pl. XXV,1 — A geometrical pattern between the first and second pilaster of the church in the southern aisle.



Pl. XXV,2 — The mosaics of the southern aisle.



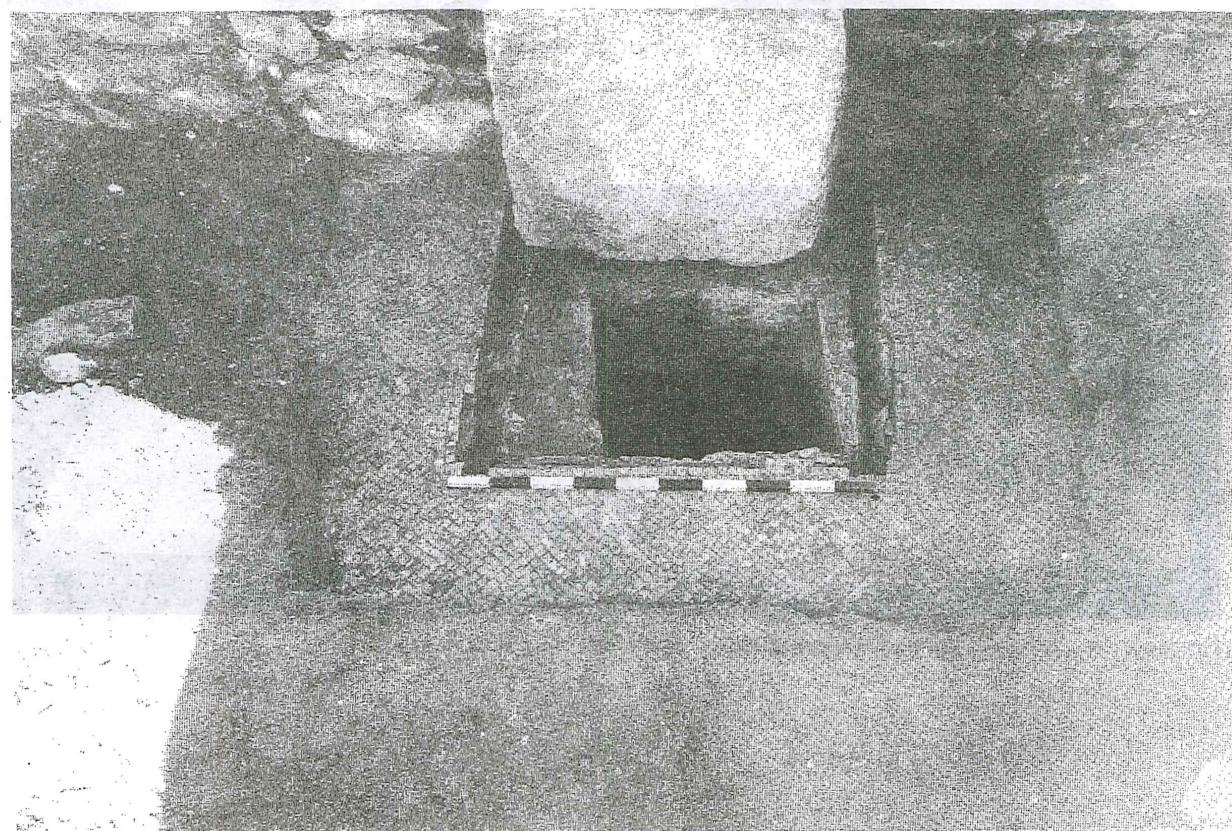
Pl. XXVI,1 — Geometrical pattern on the S—W corner of the church.



Pl. XXVI,2 — Room A against the southern wall of the church.

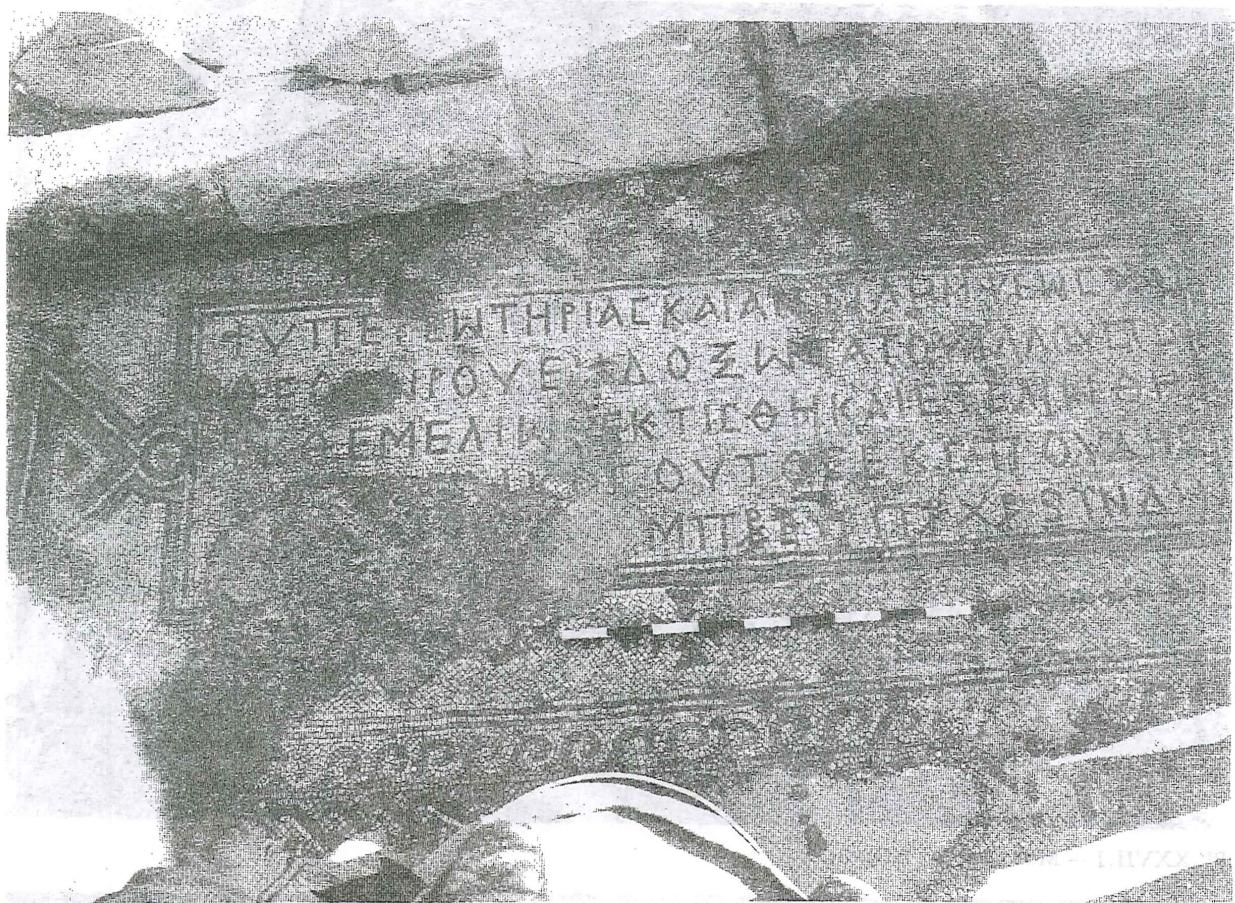


Pl. XXVII,1 — Mosaic floor in room B.

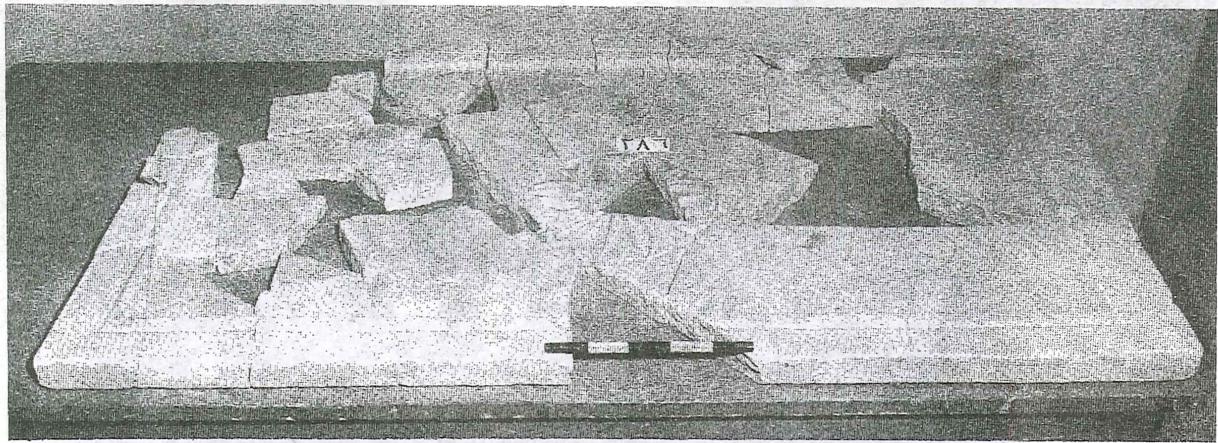


Pl. XXVII,2 — The funeral chapel along the southern wall.

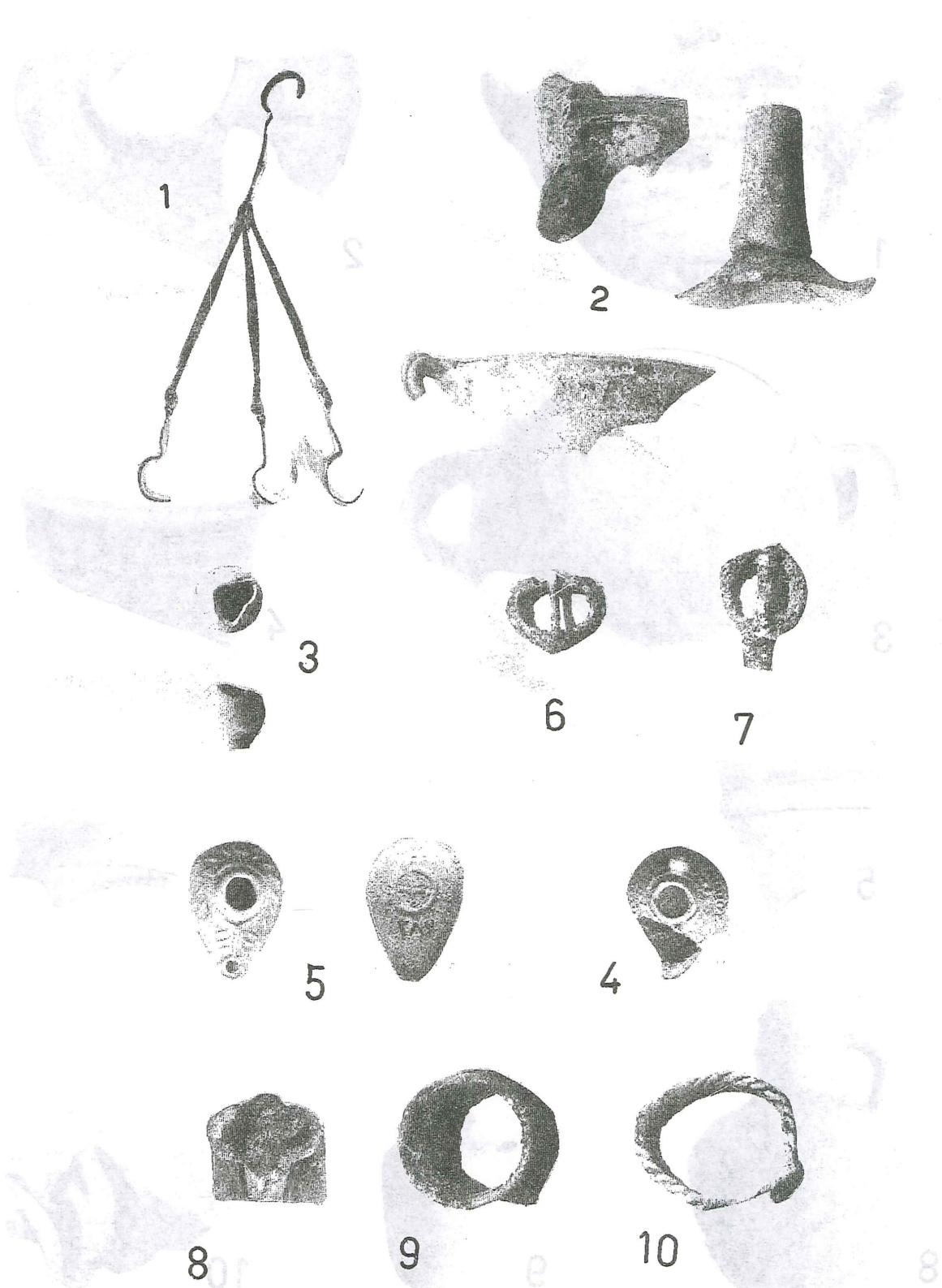
presibery.



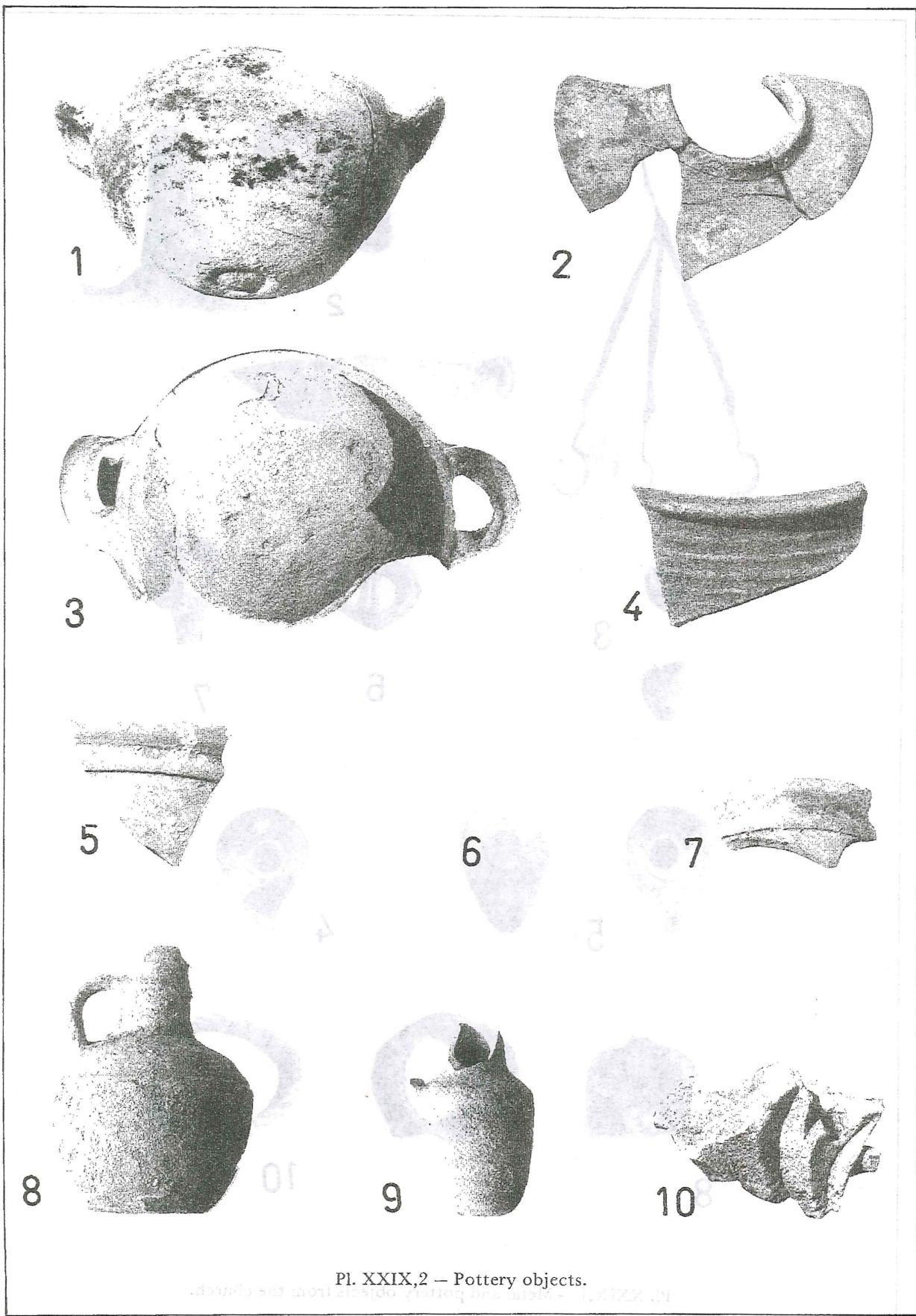
Pl. XXVIII,1 — The «*Tabula ansata*» with the inscription outside the presibery.



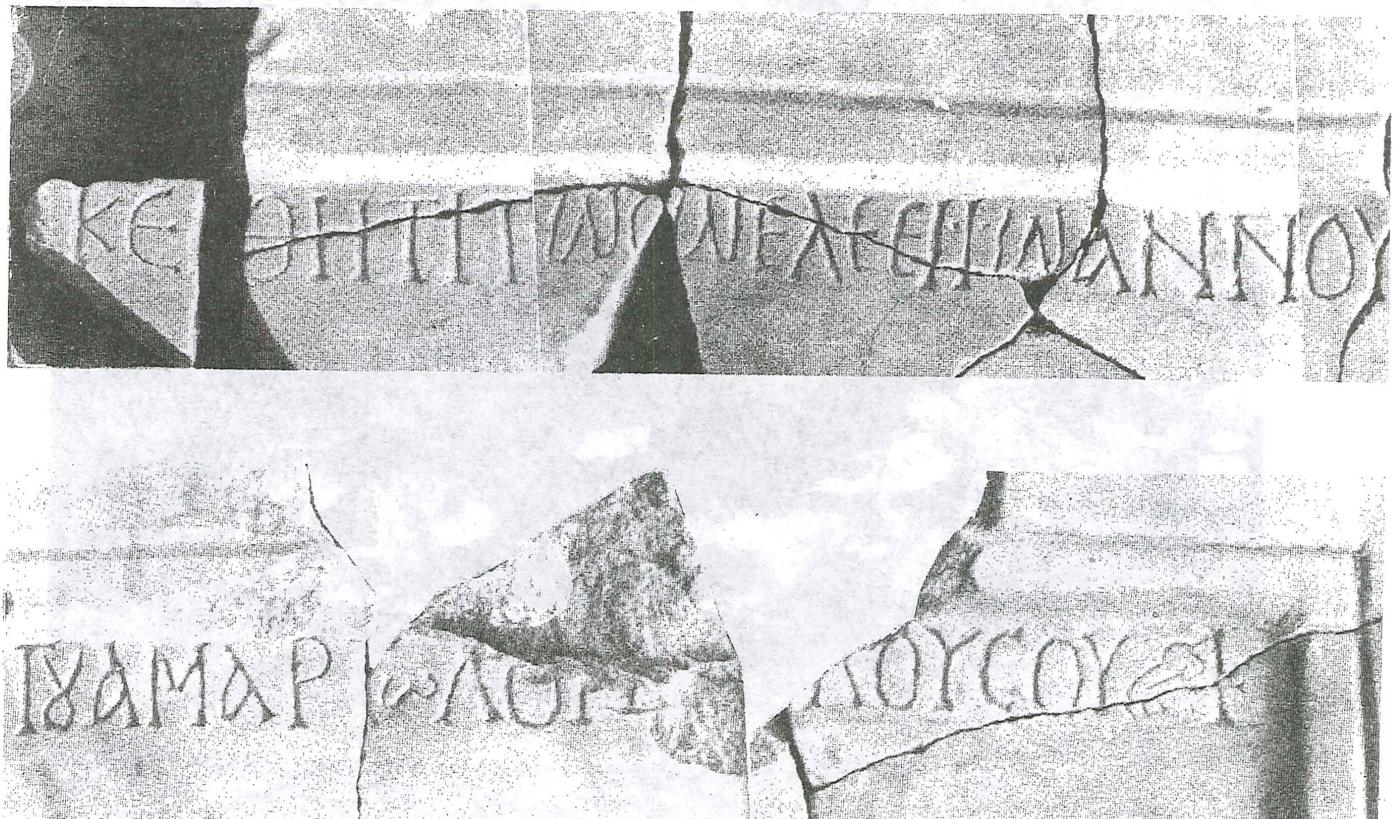
Pl. XXVIII,2 — The marble balustrade, now in the Madaba Museum.



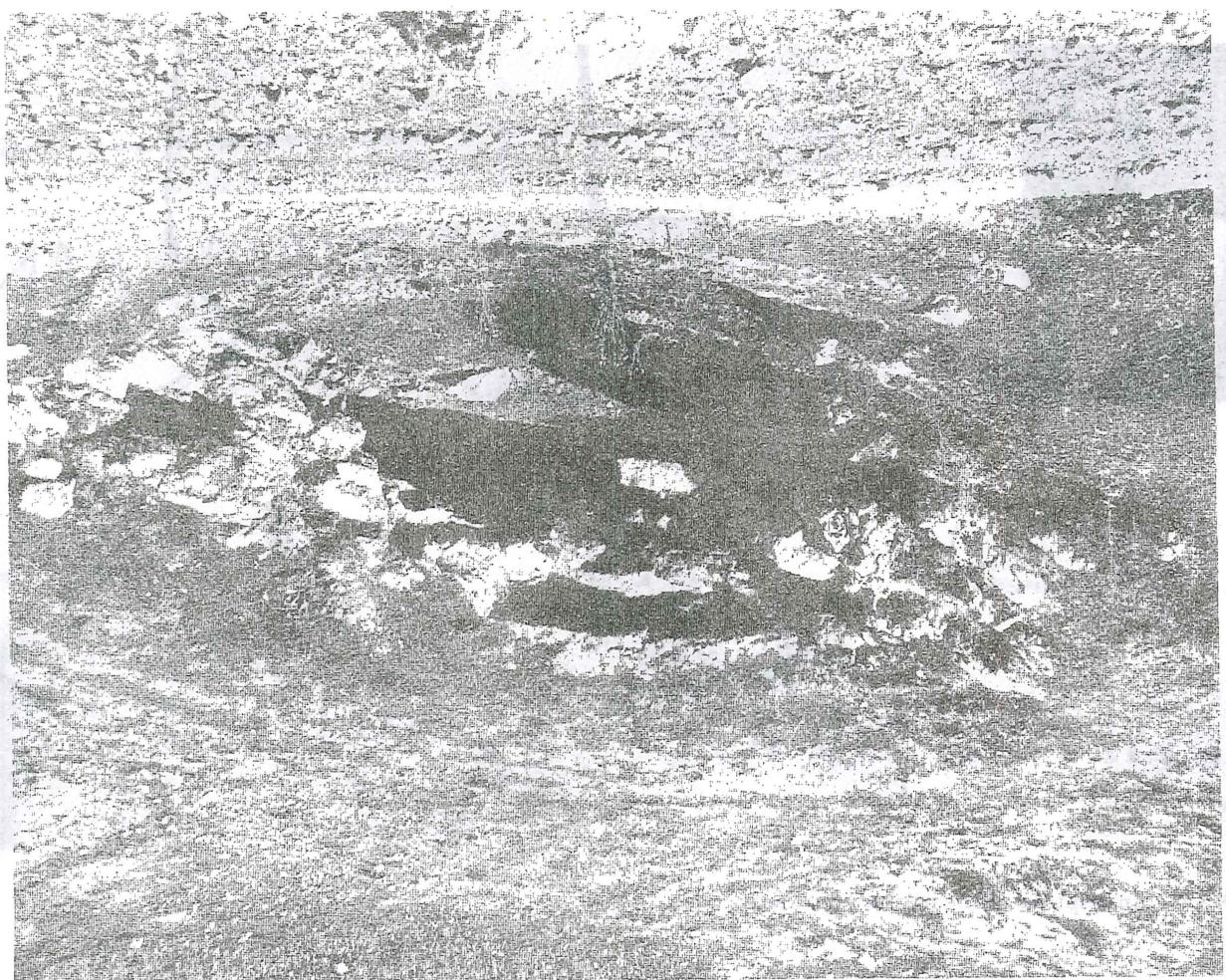
Pl. XXIX,1 — Metal and pottery objects from the church.



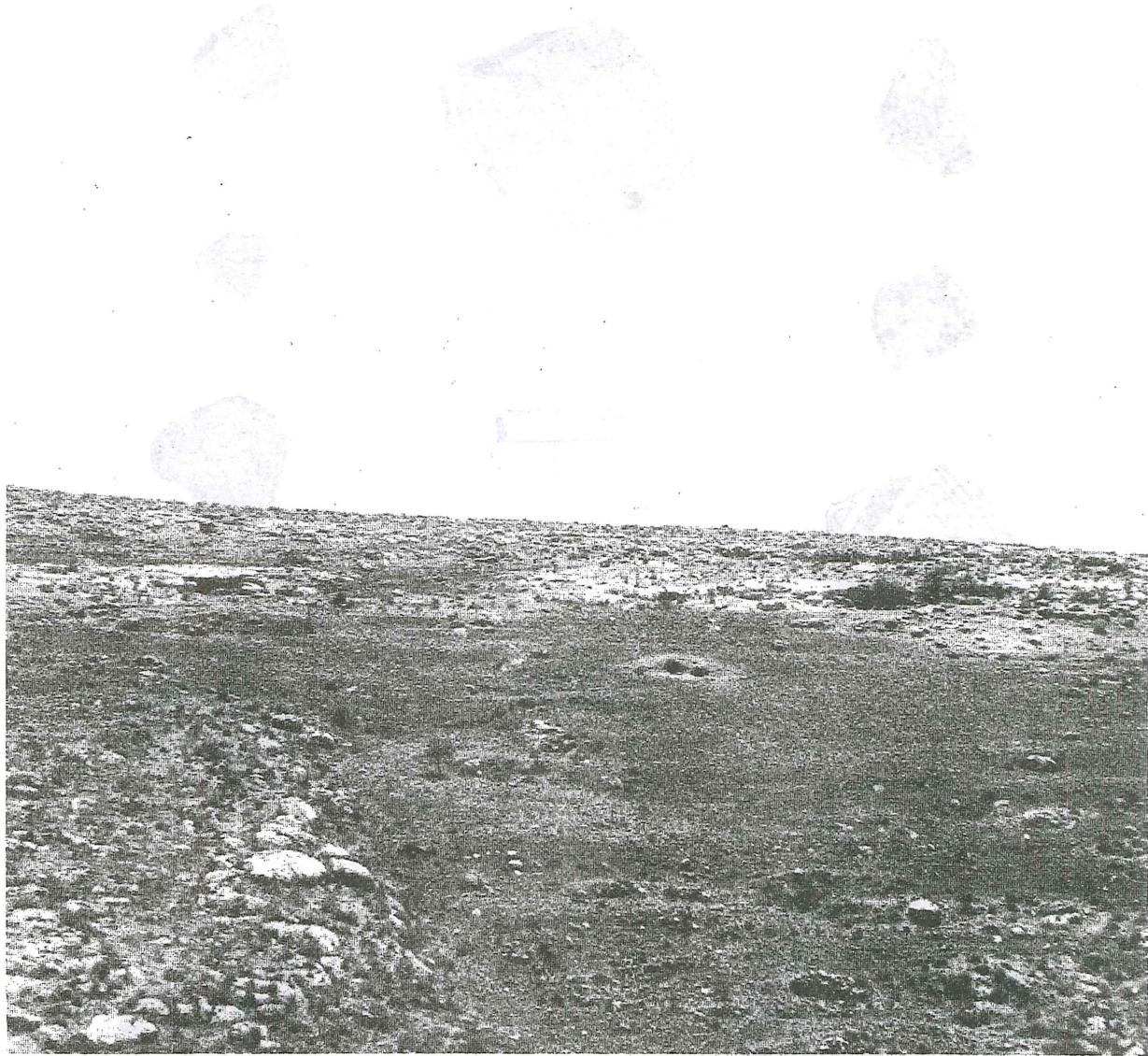
Pl. XXIX,2 — Pottery objects.



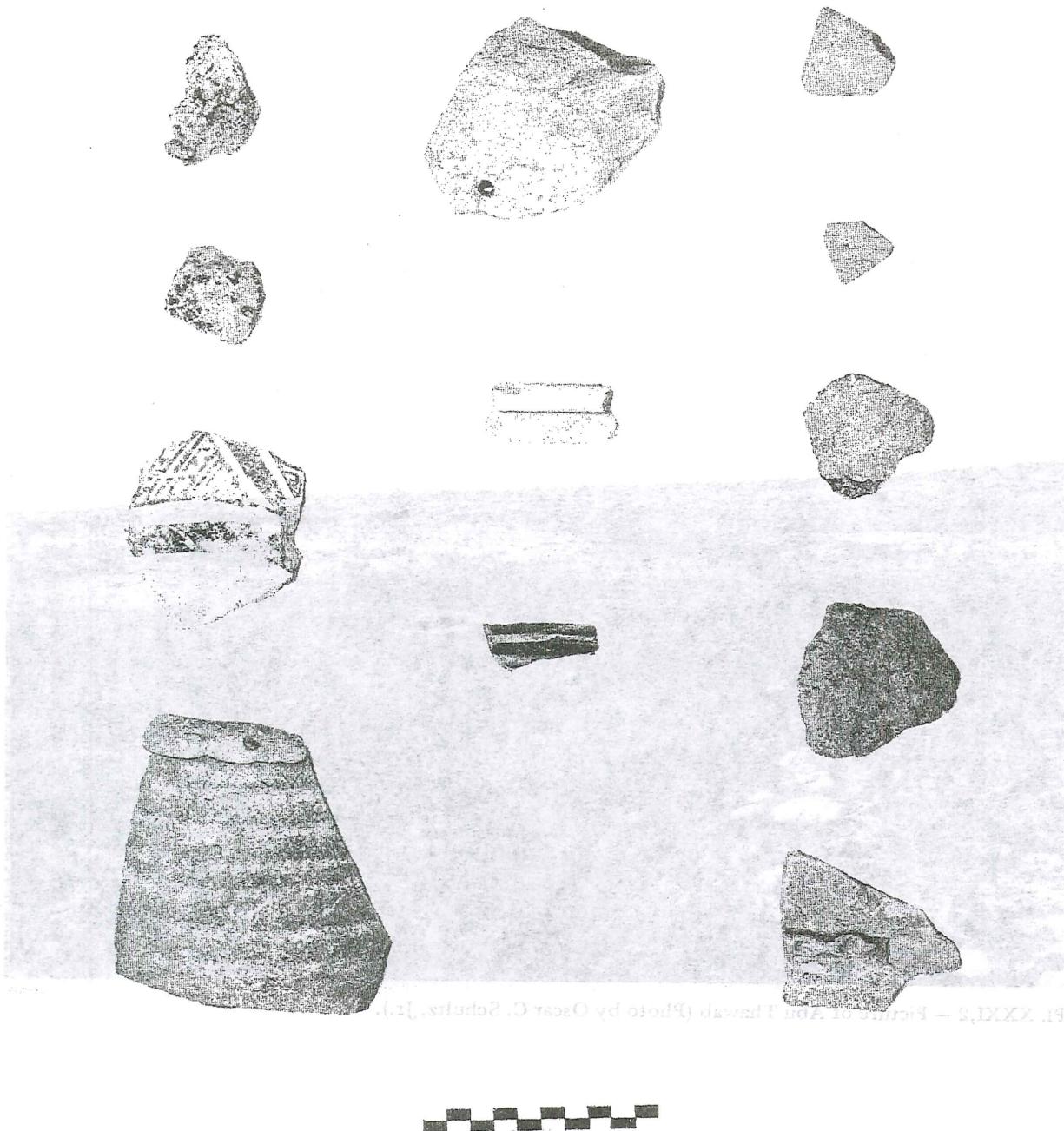
Pl. XXX — Inscription of the marble balustrade.



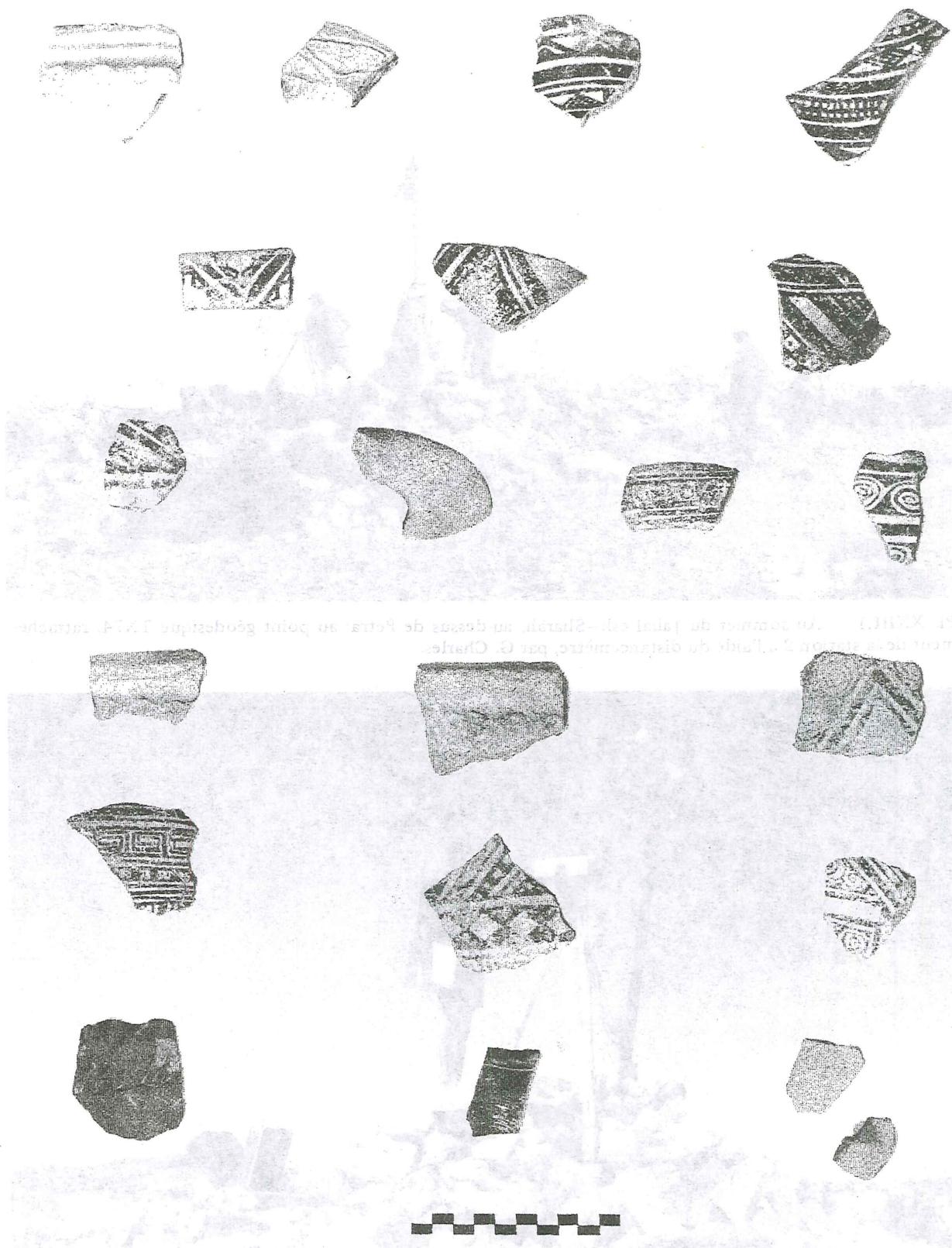
Pl. XXXI,1 — Picture of Mugharat el-Wardeh (Photo by Oscar C. Schultz, Jr.).



Pl. XXXI,2 — Picture of Abu Thawab (Photo by Oscar C. Schultz, Jr.).



Pl. XXXII,1 — Potsherds from Wardeh (Photo by Tom Dykstra). Top to bottom — right column — Roman body sherd, Byzantine body sherd, two ceramic crucible sherds, Ayyubid jar decoration; middle column, Mamluk sherds; left column, iron slag from test excavation, Ayyubid body sherd, Mamluk «sugar pot.».



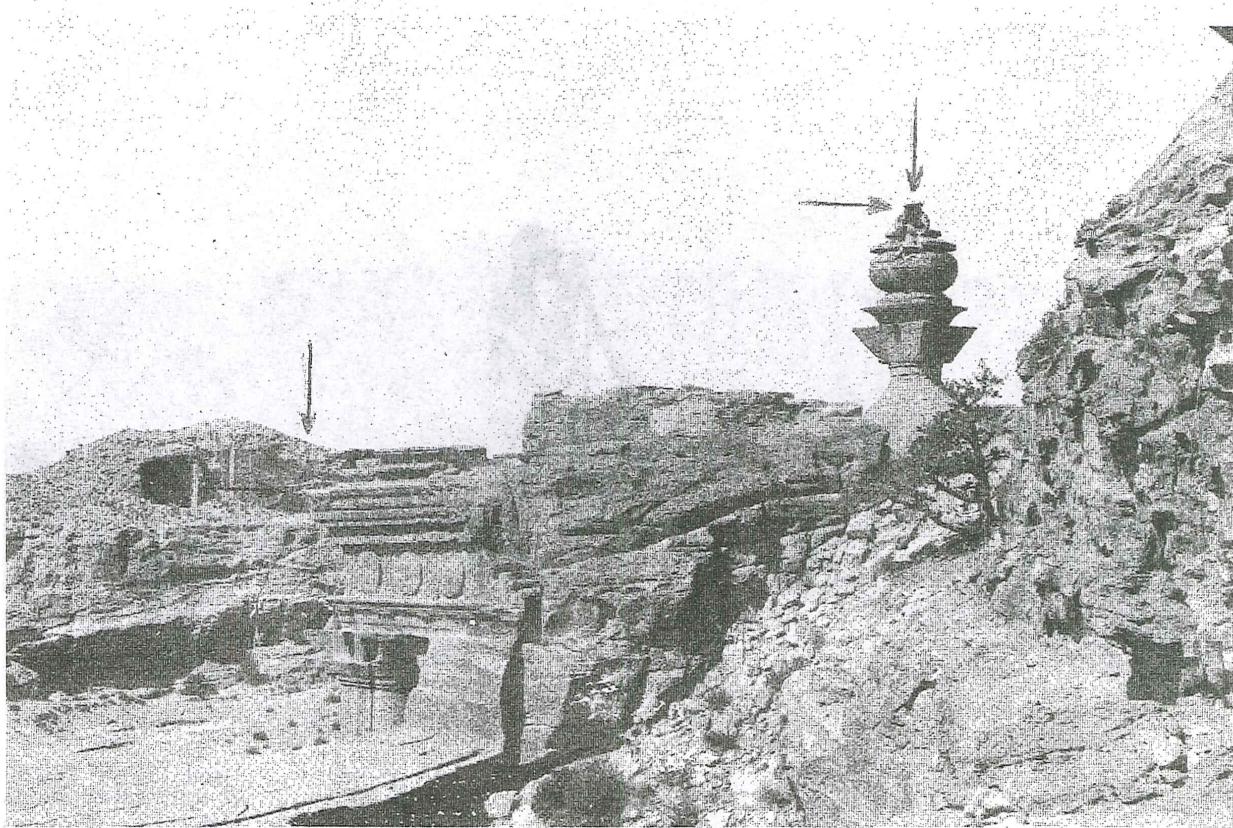
Pl. XXXII,2 — Potsherds from Abu Thawab (Photo by Tom Dykstra). Bottom row L-R, Umayyad black ware incised shoulder with fluted rim; Umayyad ware with combing pattern; two Iron I body sherds; all other sherds Ayyubid Mamluk.



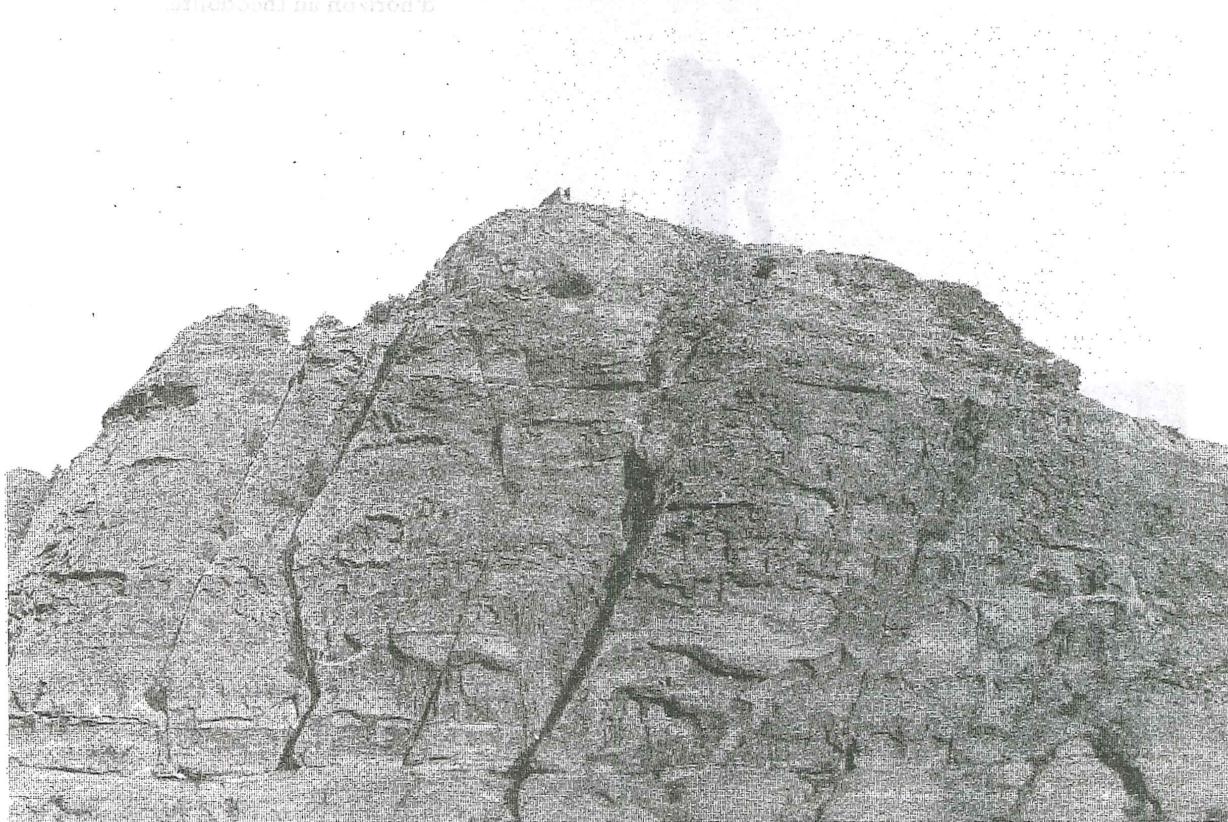
Pl. XXIII,1 — Au sommet du Jabal esh-Sharâh, au-dessus de Pétra: au point géodésique TN74, rattachement de la station 2 à l'aide du distancemètre, par G. Charles.



Pl. XXXIII,2 — Construction de la balise de la station 2 du relèvement n° 102.



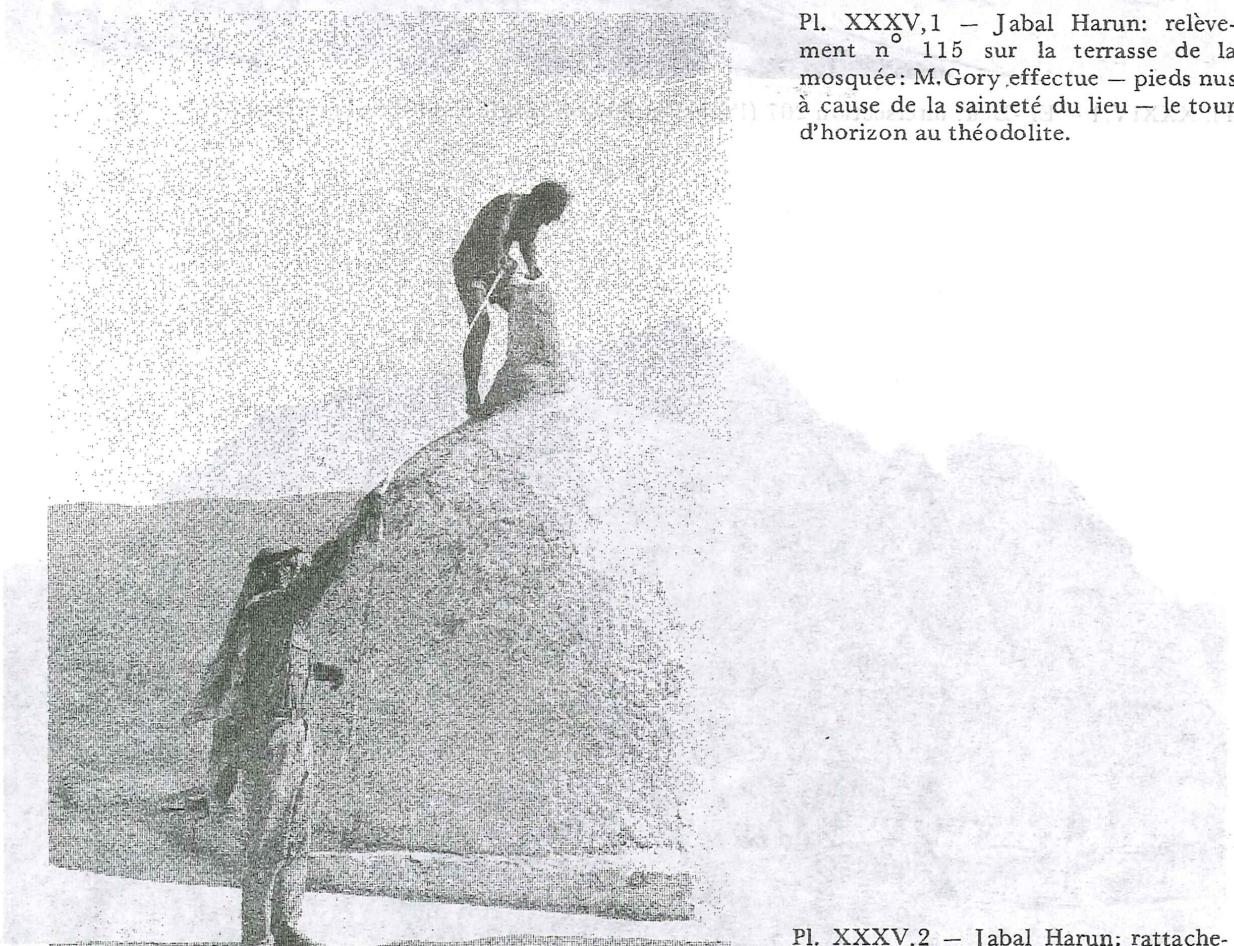
Pl. XXXIV,1 — El-Deir: intersection 207 (l'urne) et 207 bis (angle sud-est de la terrasse).



Pl. XXXIV,2 — Jabal Harun: au sommet la mosquée dont le dôme avait été déterminé par une ancienne triangulation.

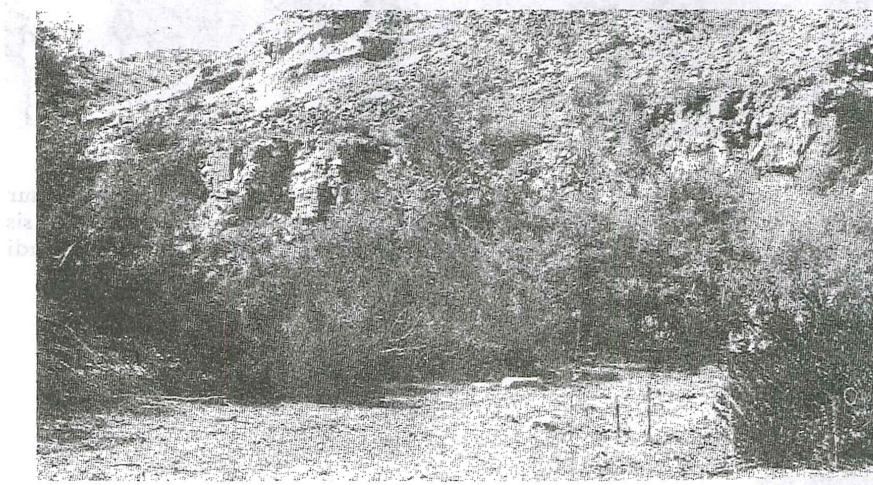


Pl. XXXV,1 — Jabal Harun: relèvement n° 115 sur la terrasse de la mosquée: M. Gory effectue — pieds nus à cause de la sainteté du lieu — le tour d'horizon au théodolite.

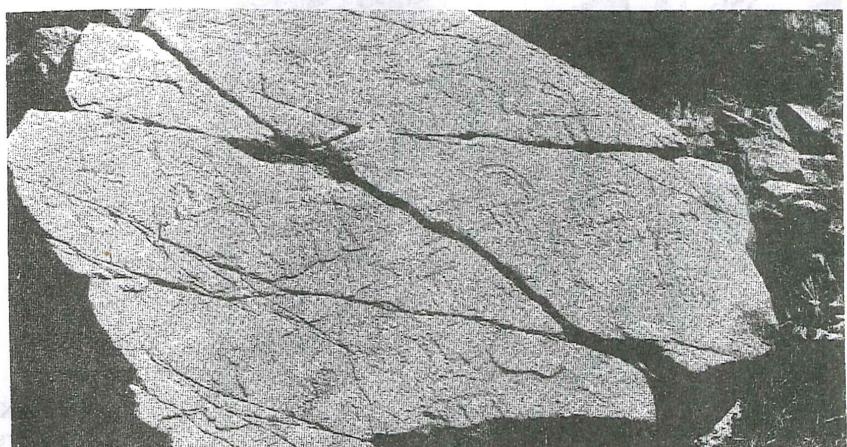


Pl. XXXV,2 — Jabal Harun: rattachement du dôme de la mosquée à la station de relèvement.

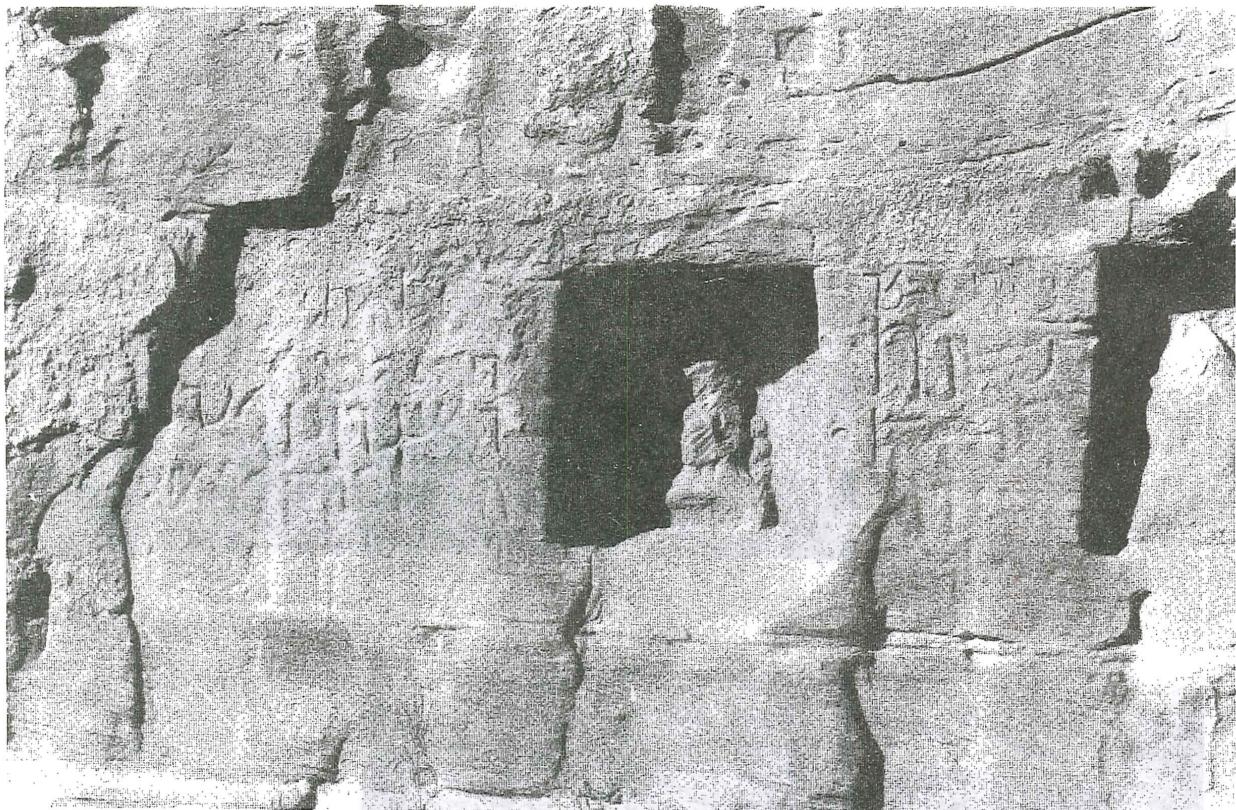
Pl. XXXVI,1 — L'hélicoptère de l'Armée de l'Air vient de nous déposer au point de relèvement n° 118.



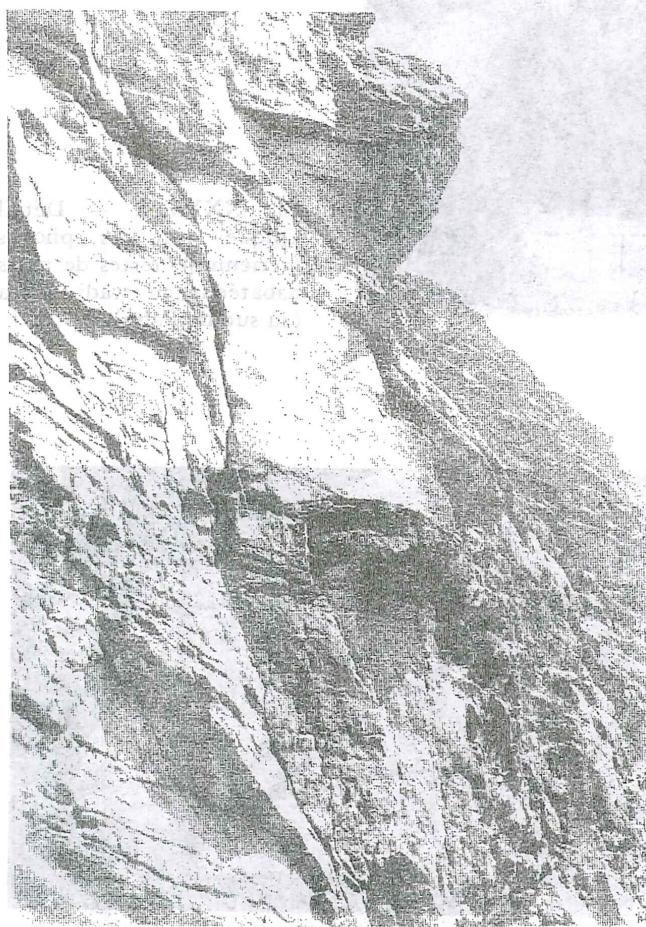
Pl. XXXVI,2 — Détail « piqué » sur les photos (aériennes): restes de murs nabatéens au wadi Sabra (au sud de Pétra).



Pl. XXXVII,1 — Détail « piqué » sur les photos: bouquetins gravés sur un rocher au sol, au wadi Siyagh.



Pl. XXXVII,2 — Inscription « pique » sur les photos: dédicace nabatéenne à Isis trônant dans une niche (secteur du wadi Siyagh).



Pl. XXXVIII,1 — Autel entre deux palmiers; dessin gravé très haut dans le wadi Siyagh et « piqué » sur les photos.



Pl. XXXIX — Vue aérienne du centre de Pétra. *el is alliy al ab suwad al mithl al araqiyyah min al-khalil* — AK. 14



Pl. XL — Vue aérienne de Pétra. Le centre de la ville et le massif d'Umm el-Biyarah. (à gauche). *40038.48*

SITE OF PETRA

EL KHAZNEH

НЭЙХАНЯ 18



Photography : december 1969

Plotting : december 1972

Elevation

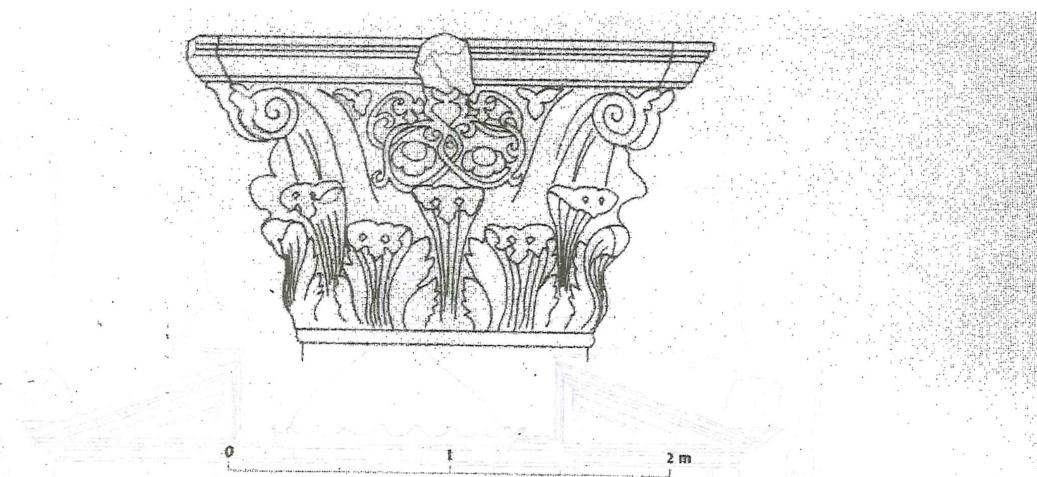
IGN - Institut Géographique National

Pl. XLI

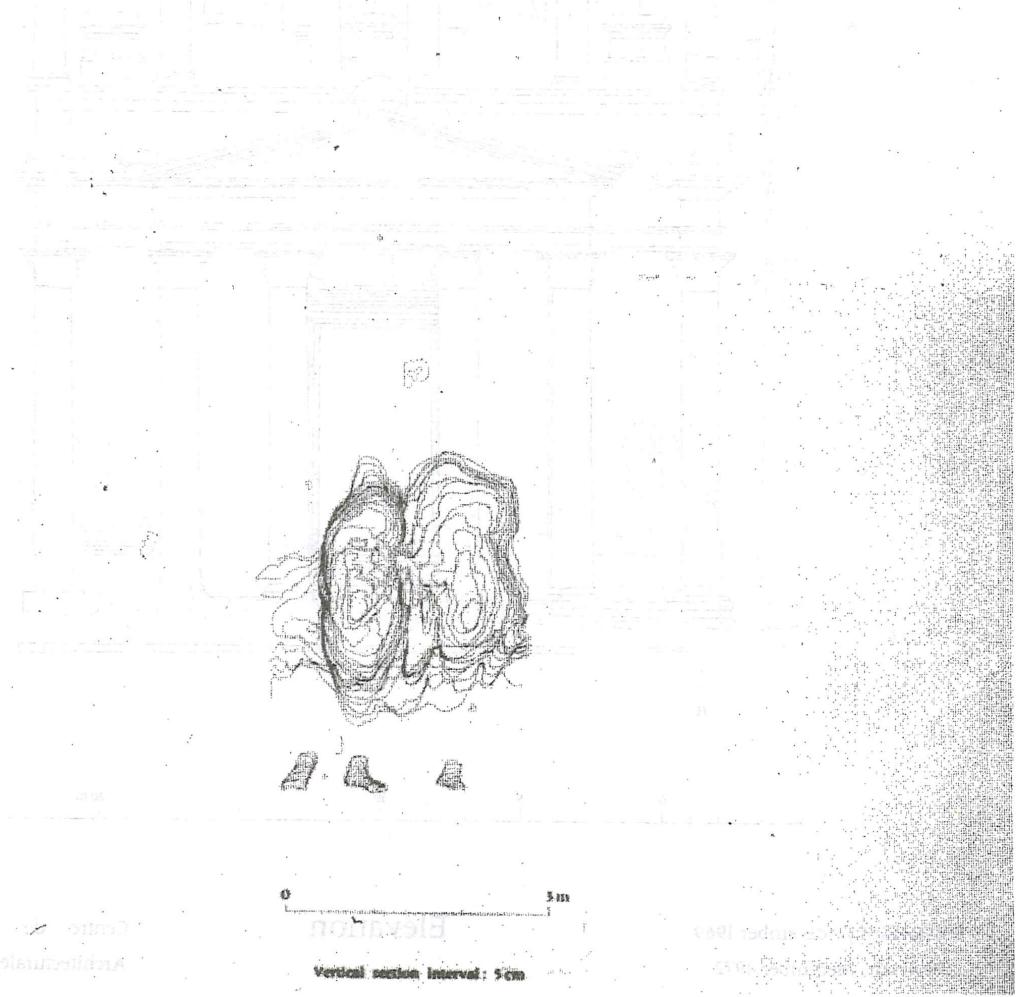
Centre de Photogrammétrie
Architecturale et Archéologique



EL KHAZNEH

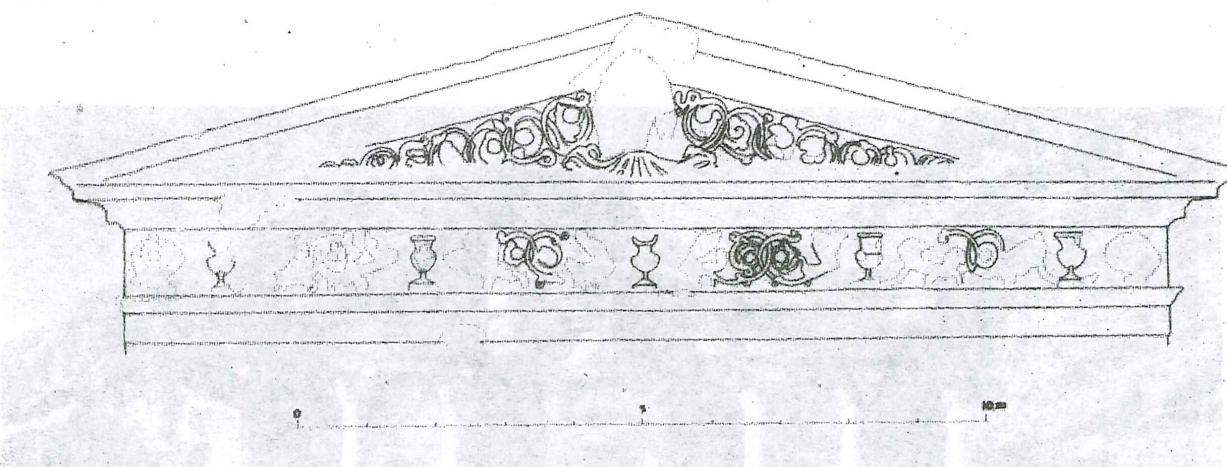


2nd Corinthian capital from the right side (lower order)

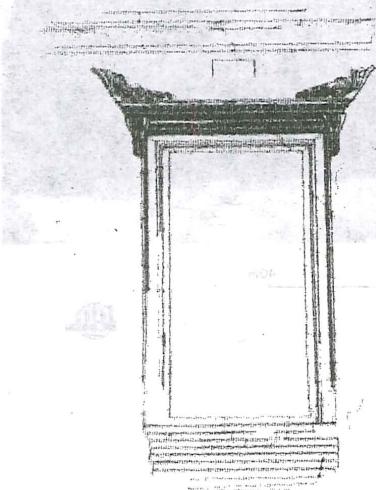


Pl. XLII

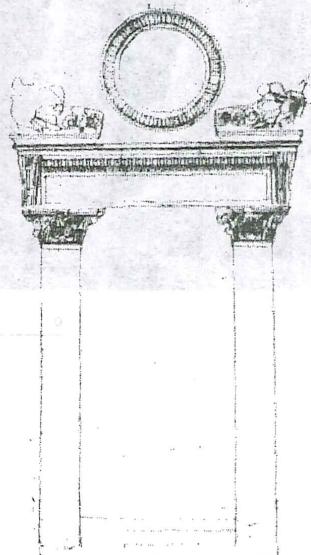
EL KHAZNEH



Tymanum and frieze

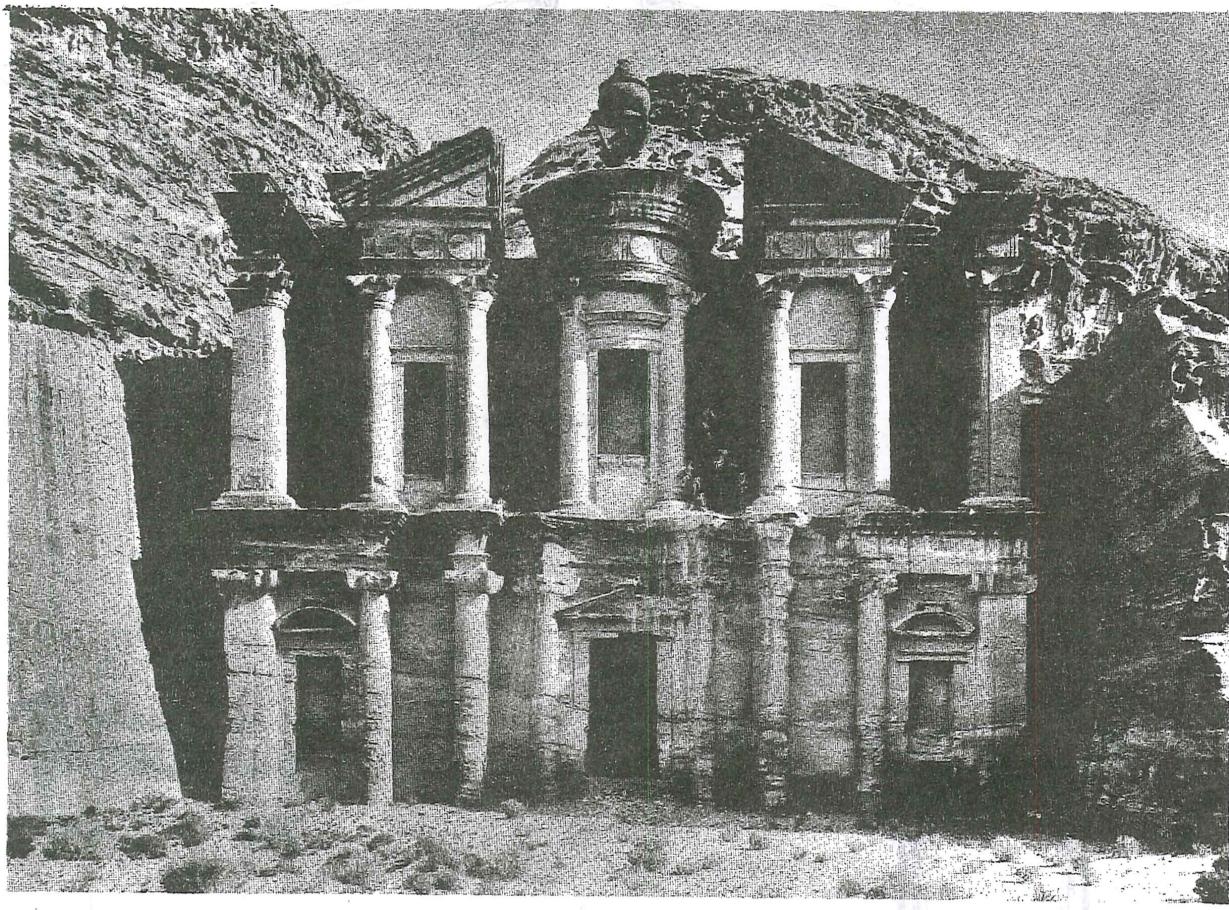


Central door



Right lateral door

EL KHAZNEH



0 10 20 30 40 m

Ed Deir (Site de Pétra)
Redressement photographique



Pl. XLIV, 1

Digitized by Google

Digitized by Google

PL XXII

- 200 -
- 801 -

SITE DE PETRA



Photography : décembre 1969

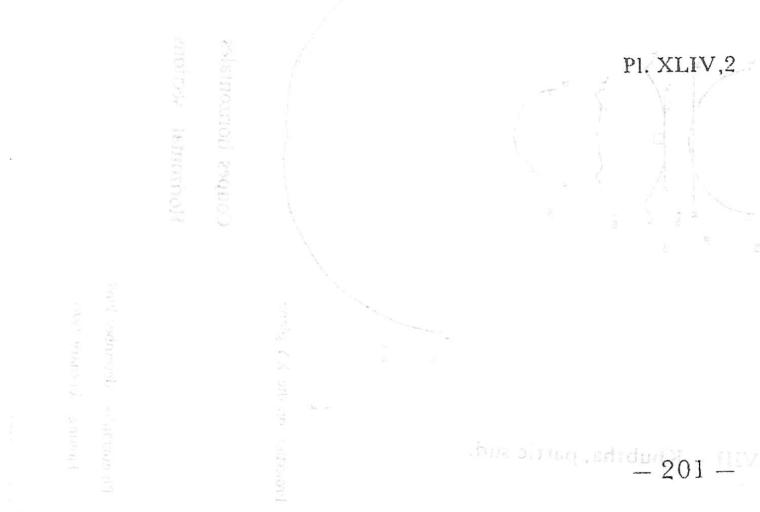
Plotting : février 1970

Prises de vues : décembre 1969

Restitution : février 1970



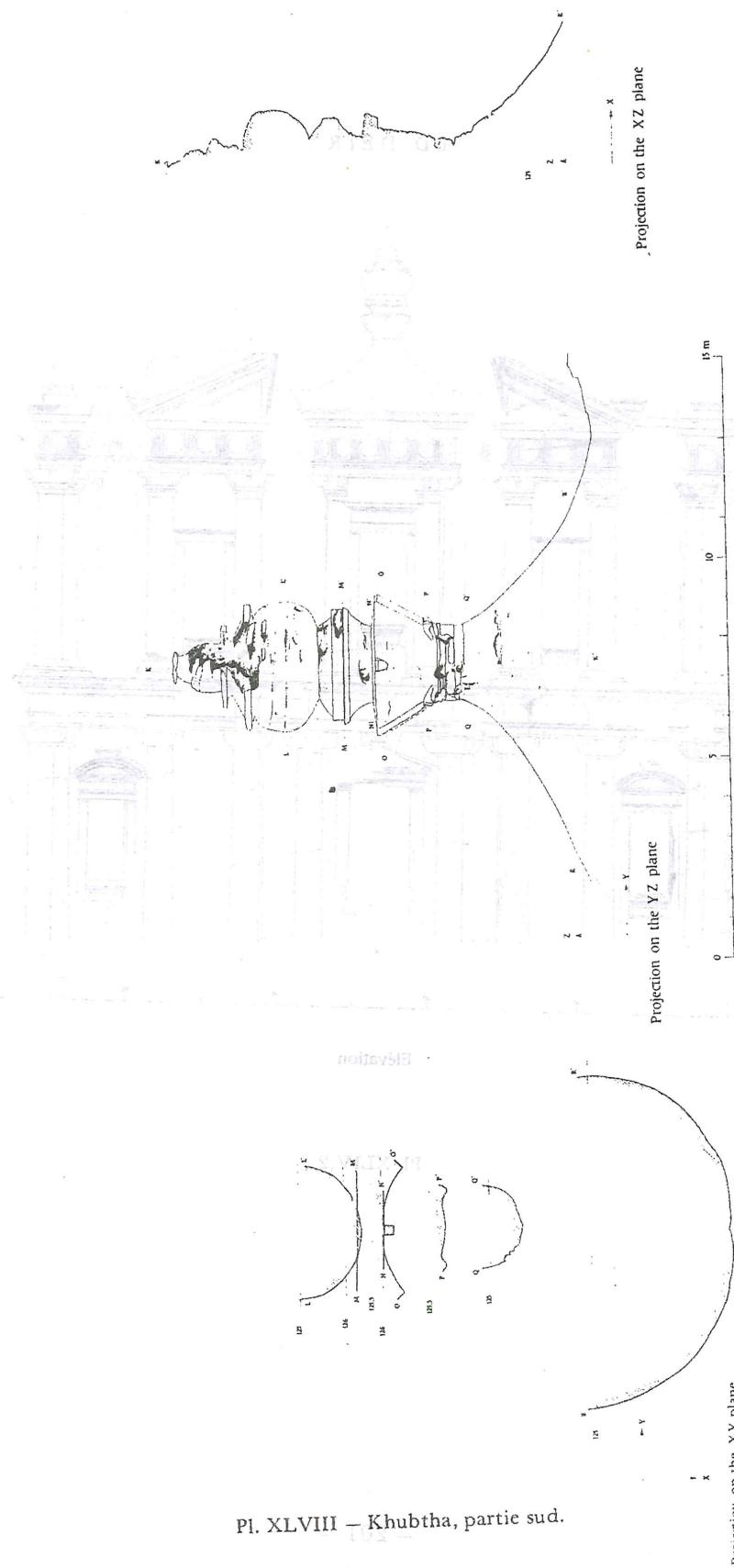
Pl. XLIV, 2



SITE DE PETRA

ED DEIR

Urne



Pl. XLVIII – Khubtha, partie sud.

Zayadine

Prises de vues : décembre 1969

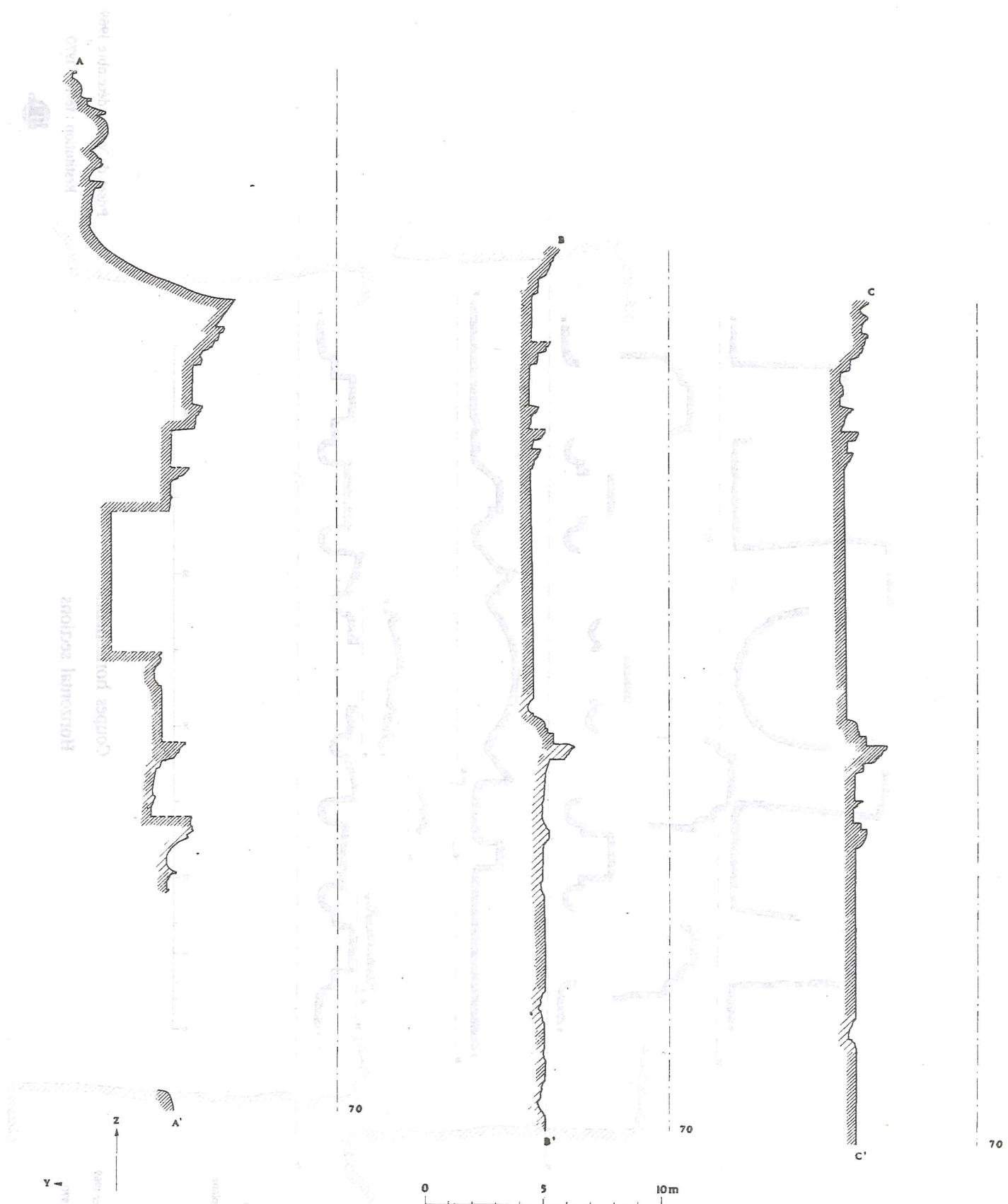
Restitution : février 1970



KARIM SOBEK

Photography : December 1969
Plotting : February 1970

ED DEIR



Photography : december 1969

Plotting : february 1970

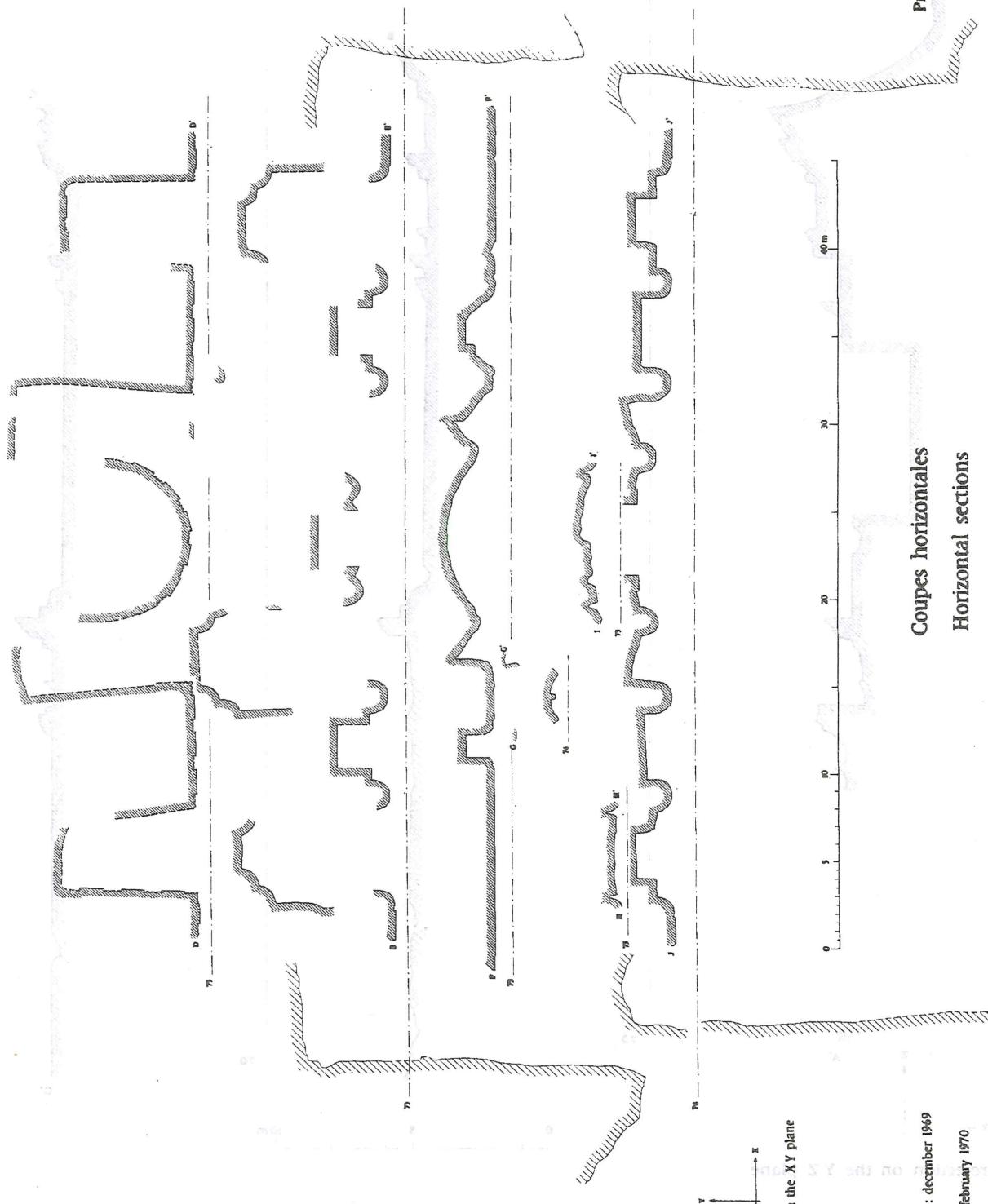
Coupes verticales

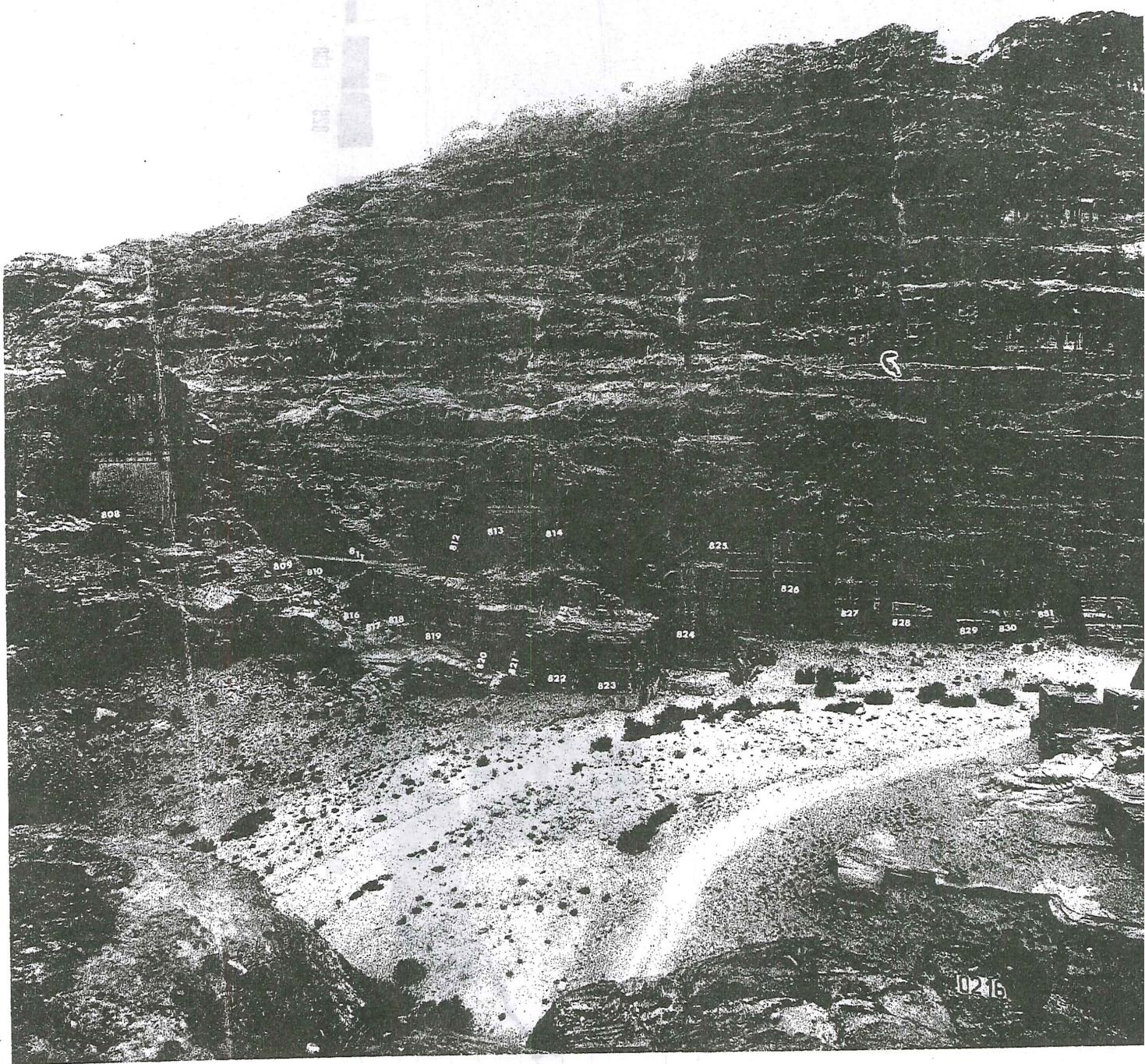
Vertical sections

Prises de vues : décembre 1969

Restitution : février 1970



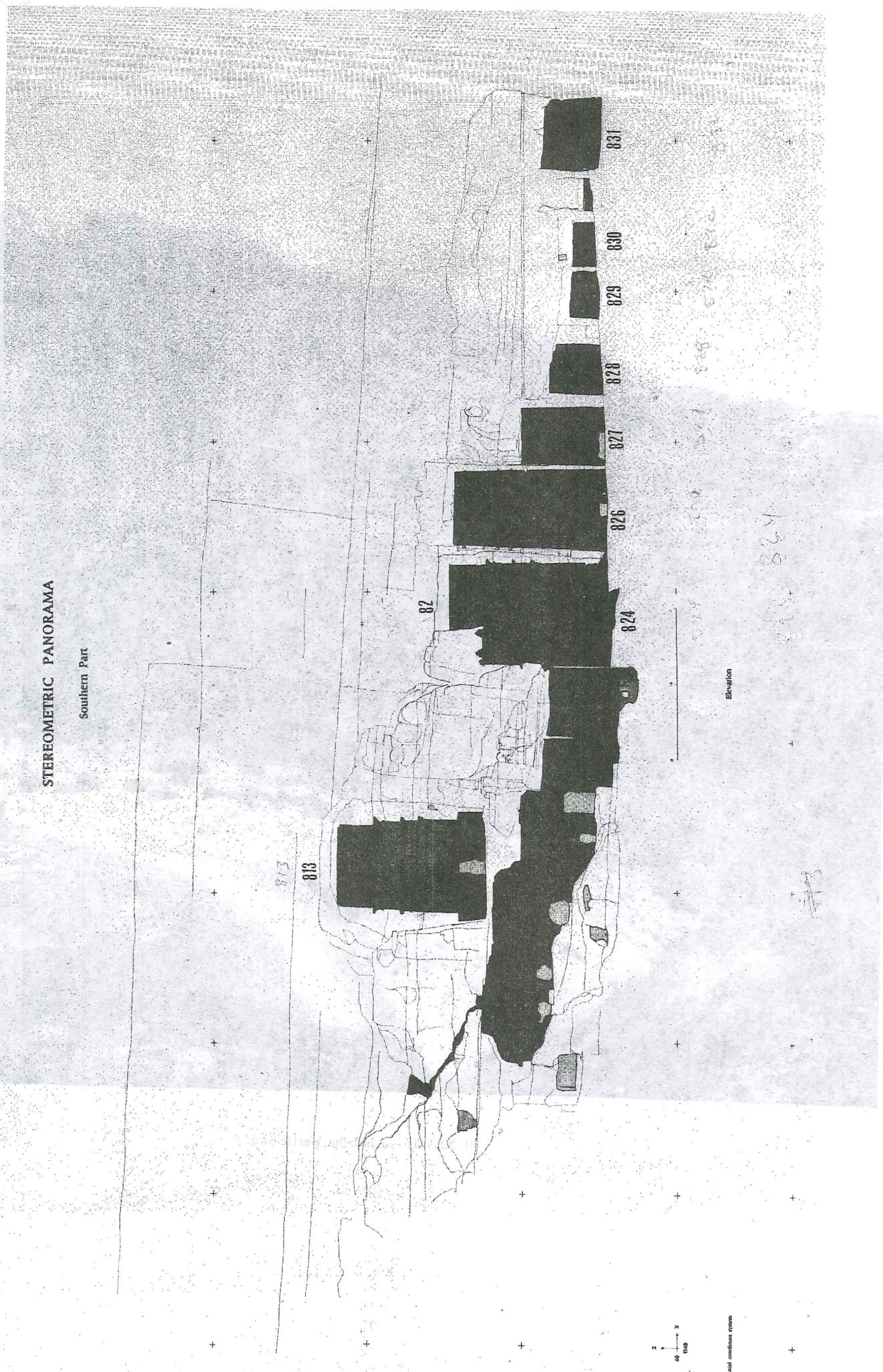




Pl. XLVIII — Khubtha, partie Sud.

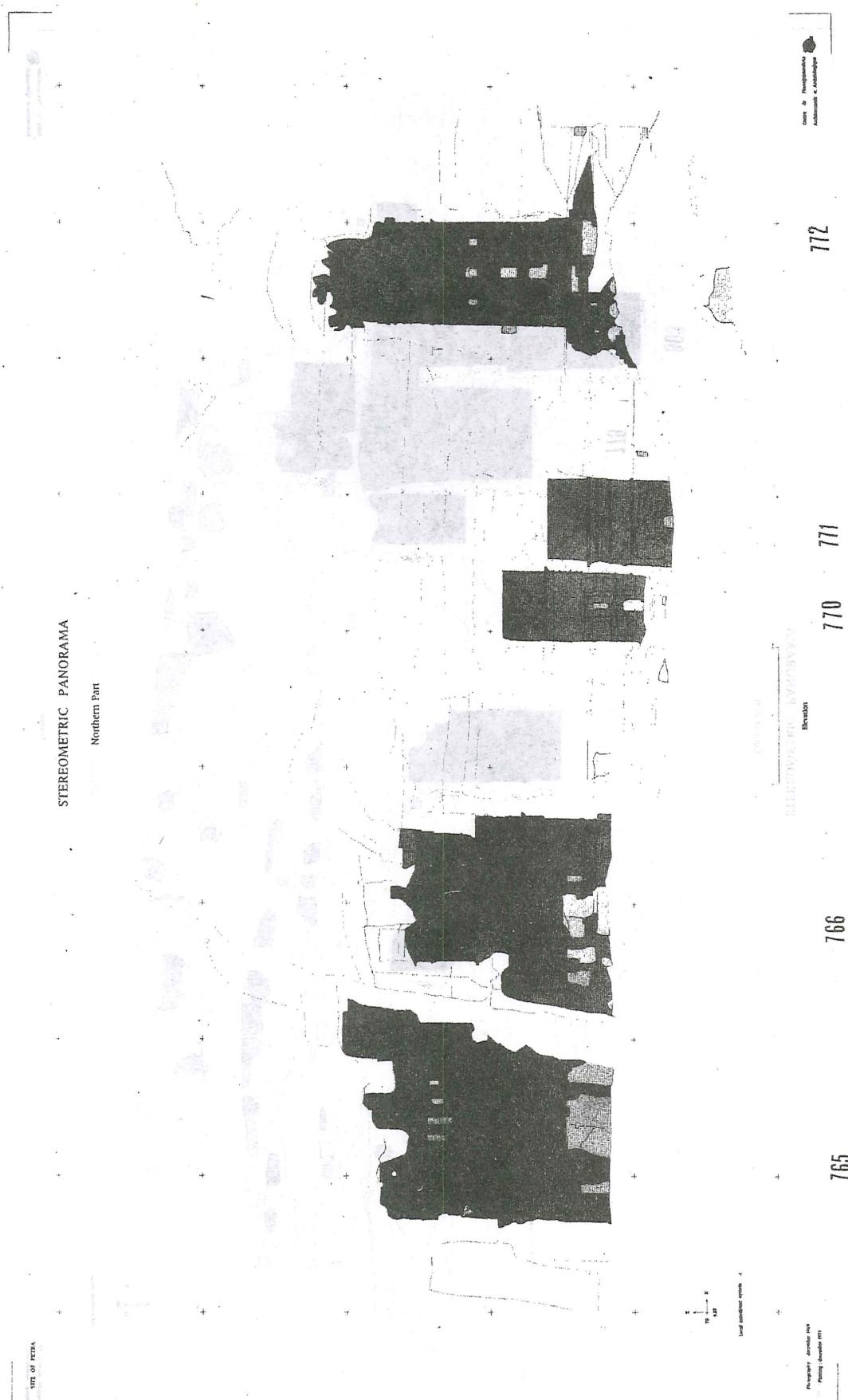
STEREOMETRIC PANORAMA

Southern Part





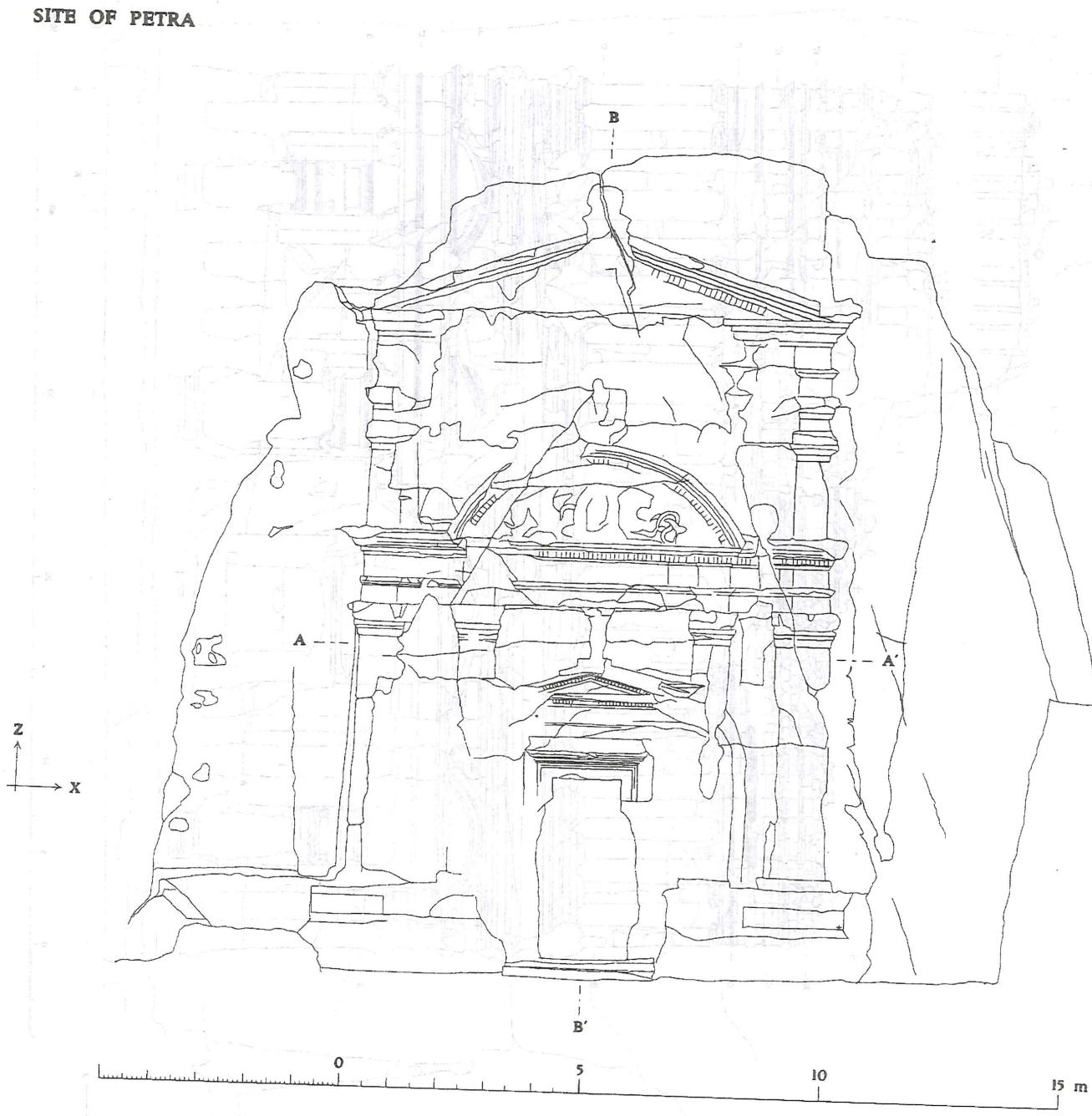
Pl. L — Khubtha, partie centrale.



Pl. LI — Khubtha, partie Nord.

SEXTIUS FLORENTINUS TOMB N_r 763

SITE OF PETRA

TOMB NO. 763
TOMB OF SEXTIUS FLORENTINUS

Photography : December 1969

Plotting : June 1972

Elevation

Pl. LII

PALACE TOMB N^r 765
TOMBEAU A ÉTAGES

