

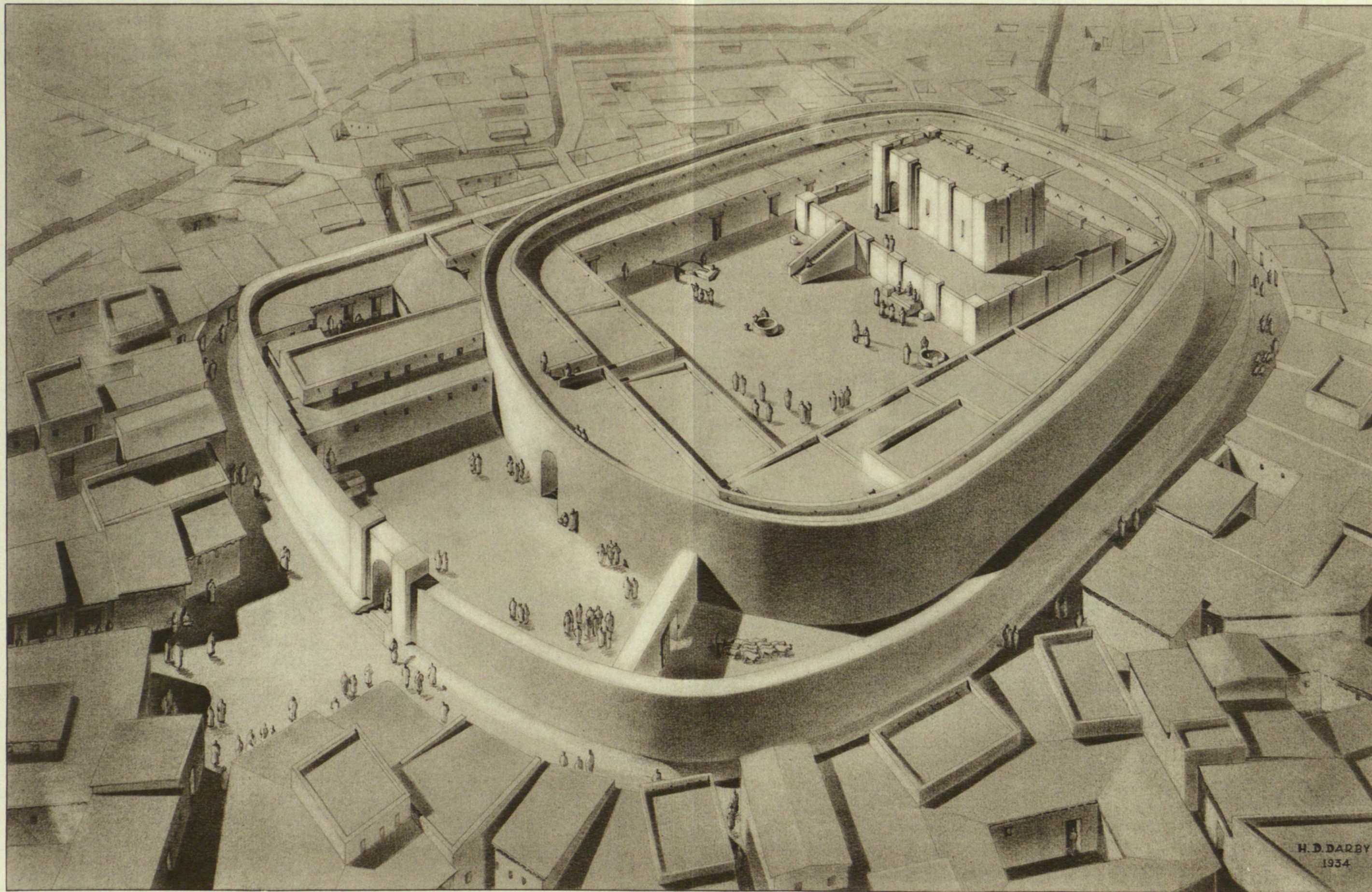
THE UNIVERSITY OF CHICAGO · ORIENTAL INSTITUTE PUBLICATIONS

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THE
TEMPLE OVAL
AT KHAFĀJAH

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H. D. DARBY
1934

RECONSTRUCTION OF THE TEMPLE OVAL COMPLEX OF THE FIRST BUILDING PERIOD

THE UNIVERSITY OF CHICAGO
ORIENTAL INSTITUTE PUBLICATIONS
VOLUME LIII

THE
TEMPLE OVAL
AT KHAFĀJAH

BY PINHAS DELOUGAZ

With a chapter by Thorkild Jacobsen



THIS VOLUME IS ONE OF A GROUP PLANNED TO PRESENT AS A WHOLE THE WORK OF THE ORIENTAL INSTITUTE'S IRAQ EXPEDITION IN THE DIYĀLĀ REGION • THE PROPOSED TITLES ARE:

FOUR ANCIENT TOWNS IN THE DIYĀLĀ REGION
PRIVATE HOUSES AND GRAVES IN THE DIYĀLĀ REGION
THE TEMPLE OVAL AT KHAFĀJAH (OIP LIII)
PRE-SARGONID TEMPLES IN THE DIYĀLĀ REGION
THE GIMILSIN TEMPLE AND THE PALACE OF THE RULERS AT TELL ASMAR (OIP XLIII)
OLD BABYLONIAN PUBLIC BUILDINGS IN THE DIYĀLĀ REGION
SCULPTURE OF THE THIRD MILLENNIUM B.C. FROM TELL ASMAR AND KHAFĀJAH (OIP XLIV)
MORE SCULPTURE FROM THE DIYĀLĀ REGION
CYLINDER SEALS FROM THE DIYĀLĀ REGION
POTTERY FROM THE DIYĀLĀ REGION
WEIGHTS FROM THE DIYĀLĀ REGION
MISCELLANEOUS OBJECTS FROM THE DIYĀLĀ REGION

TO
THE MEMORY OF
EDWARD CHERA
AN INSPIRING SCHOLAR AND FRIEND
WHO FIRST CONTEMPLATED EXCAVATIONS
AT KHAFĀJAH

FOREWORD

When the Temple Oval at Khafājah was discovered, the archaic Ishtar Temple at Assur represented all that was known about the appointments of an Early Dynastic shrine. Since that time the Sin Temple, the Nintu Temple, and two small sanctuaries at Khafājah, the Abu Temple at Tell Asmar, the Shara Temple at Tell 'Aqrab, and the Ishtar Temple at Mari have been excavated. But the Khafājah Temple Oval still retains a unique position; it is there alone that we find reflected the function of the shrine not only as a center of worship but also as a center of social life.

The patient analyses of Father Deimel in his numerous articles in *Orientalia* have disclosed the curious organization of Early Dynastic communities. Resources and labor were pooled; tools and raw materials were supplied from a common store; harvests, herds, and the products of handicrafts were at the disposal of those who had assumed executive functions on behalf of the community. The center of each group as well as the visible sign of its coherence was the temple; it was here that the grain was stored, the lists of tasks drawn up, and the rations distributed.

The badly denuded ruins of the Temple Oval at Khafājah derive from one of those crystallization points of ancient life. However strongly our imagination may be stimulated by the ingenious synthesis of textual information, only the actual ruins can give substance to our vision. Texts and building remains here combine to evoke the past with a completeness but rarely vouchsafed us. We now know the magazines where agricultural implements were stored, the workshops of the stonecutters, and the guardrooms. We can behold the scale upon which architecture was conceived, compare the space allotted to secular life and to the service of the gods, and visualize the setting in which moved the writers of the texts studied by Deimel. Those who have not visited these ruins will find in the reconstructions a well founded approximation of the original structure to guide them. The frontispiece shows the shrine as the center on which roads converge, visible from a distance, rising above the houses of the community. Studying the drawings, plans, sections, and partial elevations of Plates II–XII and Figures 56, 64–65, and 100–108, the reader will be able to move in his imagination throughout the remarkable edifice where the needs of earthly existence were met in a perspective of greater depth.

The recovery of this complete image of a sanctuary has been a work of painstaking attention paid to an almost endless mass of detail. Much of it seemed meaningless at the time; some of it baffles our understanding even now. But the completeness and above all the justification of the reconstructions which we are able to present in this volume are the result of the perseverance with which every small detail was investigated with regard to its cause and its place in the architectural history of the building. The credit for this achievement is in the first place due to Mr. Delougaz, who conducted these investigations and herewith publishes the result.

While it is still true that the Temple Oval is unique in having preserved for us in its completeness the plan of such a center of communal life, its peculiar shape is no longer unparalleled. At the conclusion of our work in Iraq, Mr. Delougaz went to the one other site where an Early Dynastic shrine placed on a massive elevation of brickwork was known to exist. Assisted by Mr. Seton Lloyd and using our own trained workmen, he succeeded in proving within a few days the existence of a temple oval at al-'Ubad (see pp. 140 f.).

FOREWORD

A separate volume of our publications will deal with the other Early Dynastic temples which we excavated. The exceptional character of the Temple Oval among the other shrines in our concession accounts for its being the subject of a special volume. The objects found here can, however, best be studied in conjunction with those of a similar nature which we found elsewhere. They are enumerated in the catalogue appended at the end of the text, and the reader should thus be able to identify them in the volumes where the sculptures, the cylinder seals, the pottery, and the miscellaneous objects found by us are published respectively.

H. FRANKFORT

ACKNOWLEDGMENTS

Members of the Iraq Expedition and of the staff of the Oriental Institute in Chicago contributed in various capacities to this volume.

Dr. Conrad Preusser discovered and partly excavated the Temple Oval during our first campaign at the site. It was due to his extreme caution that no great damage was done during the initial and very difficult phase of the excavation, and that such damage as occurred could be recognized and amended later.

The photographs reproduced are the work of Dr. Preusser (1st season), Dr. Neilson C. Debevoise (2nd season), Dr. Calvin W. McEwan (3rd season), and Count Alexander zu Eltz (4th season), in the field, and of Mr. L. W. Hough of the Oriental Institute Museum staff in Chicago.

The objects catalogued at the end of this volume were recorded in the field by Dr. and Mrs. Preusser (1st season), Dr. Debevoise (2nd season), Mrs. McEwan (3rd season), and Count zu Eltz (4th season). Mr. Harold D. Hill undertook the exacting work of checking the find-spots of all the objects catalogued and assigning them to their respective periods.

The recording of the architectural remains in the field was done by Dr. Preusser and Mr. Hamilton D. Darby (1st season), Mr. Hugh S. Braun (2nd season), and Mr. Darby (all subsequent seasons). The general map of Mound A (Pl. II) includes certain parts which were excavated under the auspices of the Joint Expedition of the University Museum (Philadelphia) and the American Schools of Oriental Research and were surveyed by Mr. Bartow Müller.

Dr. Thorkild Jacobsen, who contributes a chapter to this volume, was responsible for deciphering all the inscriptions found by the Iraq Expedition, including those from Khafājah.

Mr. Seton Lloyd contributed the plan and section of the temple oval at al-Ubaid. All other drawings published in this volume are the work of Mr. Darby. Their number and quality show better than can be expressed in words how large a share he contributed to this publication.

Dr. Henri Frankfort, in addition to constant interest and encouragement during the progress of the excavations, was good enough to read through the first draft and the final typescript of this volume and on both occasions had some valuable suggestions to offer. The form in which the typescript and illustrations reached the editorial office of the Oriental Institute was to a considerable extent the result of Miss M. A. Chubb's forethought and care. Dr. Adolph A. Brux, assistant editorial secretary, edited the volume with the care and attention to detail for which the Institute's editorial department, under Dr. T. G. Allen, is so well known, and Miss Ruth C. Wilkins of the same department contributed the indexes.

To all those mentioned above the writer wishes to express his sincere gratitude for their generous and valuable assistance.

P. DELOUGAZ

CHICAGO
July 26, 1939

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LIST OF ABBREVIATIONS

- AJ* The antiquaries journal (London, 1921—).
- OIC* Chicago. University. The Oriental Institute. Oriental Institute communications (Chicago, 1922—).
- OIC* No. 13 FRANKFORT, HENRI; JACOBSEN, THORKILD; and PREUSSER, CONRAD. Tell Asmar and Khafaje. The first season's work in Eshnunna, 1930/31 (1932).
- OIC* No. 16 FRANKFORT, HENRI. Tell Asmar, Khafaje, and Khorsabad. Second preliminary report of the Iraq Expedition (1933).
- OIC* No. 17 FRANKFORT, HENRI. Iraq excavations of the Oriental Institute, 1932/33. Third preliminary report of the Iraq Expedition (1934).
- OIC* No. 19 FRANKFORT, HENRI, and JACOBSEN, THORKILD. Oriental Institute discoveries in Iraq, 1933/34. Fourth preliminary report of the Iraq Expedition (1935).
- OIC* No. 20 FRANKFORT, HENRI. Progress of the work of the Oriental Institute in Iraq, 1934/35. Fifth preliminary report of the Iraq Expedition (1936).
- OIP* Chicago. University. The Oriental Institute. Oriental Institute publications (Chicago, 1924—).
- OIP* XIV LUCKENBILL, DANIEL DAVID. Inscriptions from Adab (1930).
- OIP* XLIV FRANKFORT, HENRI. Sculpture of the third millennium B.C. from Tell Asmar and Khafājah (1939).
- SAOC* Chicago. University. The Oriental Institute. Studies in ancient oriental civilization (Chicago, 1931—).
- SAOC* No. 4 FRANKFORT, HENRI. Archeology and the Sumerian problem (1932).
- SAOC* No. 7 DELOUGAZ, P. I. Plano-convex bricks and the methods of their employment. II. The treatment of clay tablets in the field (1933).
- ZA* Zeitschrift für Assyriologie und verwandte Gebiete (Leipzig, 1886—).

INTRODUCTION

In the annual preliminary reports of the Iraq Expedition as well as in some articles published in the periodical press the progress of the excavations at Khafājah and the main results obtained each season have been regularly if briefly outlined.¹ Thus the general characteristics of the building with which we are concerned in the present volume will not be new to readers familiar with these earlier publications. In a final publication dealing with only one building it is, of course, possible to devote more attention to detail than in preliminary reports which, being periodical accounts of the activities of the whole expedition on various sites or on different parts of each site and thus covering different historical periods, had naturally to be confined to the more general aspects of each season's results. However, the present publication is not intended to be merely a more detailed account of facts. We shall endeavor to offer also interpretations of the facts observed, and it will be noted that in some respects our interpretations now differ considerably from those we accepted while the excavations were still in progress. Moreover, the method of presentation is different; for in this volume we follow the history of the building from earlier to later times, that is, from a date preceding its foundation through the various stages of building, the different occupations, and the successive rebuildings down to the latest period of its existence of which any remains are extant. The annual reports, on the contrary, following the progress of the excavations, began with the upper, later layers and proceeded to the earlier remains, thus reflecting a reversed historical sequence.

A general idea of the site, the position on it of the building with which we are concerned, the relation of this building to other architectural remains, the general characteristics of the building, and the various stages of its clearing as outlined in the preliminary reports will be of considerable help to the reader in understanding certain details in this volume. Hence for those who are not familiar with these reports we deem it best to give in the first chapter a short description of the site together with a summary of the progress of the excavations.

Although the Temple Oval was completely excavated² by the end of the fourth campaign (1933/34), the preparation of the present publication was necessarily somewhat delayed, for the intervals between the seasons in the field had to be devoted to the recurrent routine work of dealing with the archeological material obtained during each campaign. In the meantime the area of excavations had been gradually enlarged, and the additional excavations outside the Temple Oval (especially those of the Sin Temple and the space between it and the Temple Oval, which contained several layers of building remains and burials of different periods) produced valuable evidence which threw more light on the early history of the site as a whole; consequently the Temple Oval may now be related in space and time to other well defined remains at Khafājah. During the time that further elapsed between the preparation of this volume and its publication the writer had the opportunity to verify his theory about the

¹ Cf. *OIC* Nos. 13, pp. 60-112; 16, pp. 58-79; 17, pp. 63-80; 19, pp. 32-39; 20, pp. 15-17; *Illustrated London News*, Oct. 8, 1932, pp. 526-29 and 552; July 22, 1933, p. 123; June 9, 1934, pp. 910-13; Sept. 14, 1935, pp. 430-32; Sept. 26, 1936, pp. 524-26; Nov. 13, 1937, pp. 840 f.; Dec. 3, 1938, pp. 1026-29 and 1080; Dec. 10, 1938, pp. 1083 and 1091-94; Dec. 17, 1938, pp. 1144-46.

² "Completely excavated" means in this case only that the excavations were carried on to such an extent as to reveal the whole of the obtainable plan of the buildings, as far as they were preserved, and to acquire all the necessary details for disentangling the different building periods. It does not mean, however, that all of the later remains were removed. The ruins as they appear (cf. Fig. 5) are a conglomeration of different periods, and it is only in the plans and sections that these periods are brought out separately.

existence of similar buildings elsewhere by proving that the platform of the Ninhursag Temple at al-ʿUbaid was also situated within a large oval inclosure (see pp. 140 f.). Consequently this type of building is no longer an isolated phenomenon, but should perhaps be considered as representing a definite stage in the history of architectural development in early Mesopotamia.

The various appointments of this edifice made it clear at an early stage in its excavation that it was a temple rather than a secular building. Any doubt that might still have remained at the time the excavation was completed was entirely dispelled by the decisive parallelism with the Ninhursag Temple. Since a carved macehead found in one of the rooms bears a dedicatory inscription to Inanna (see pp. 99 and 148 f.), it is likely that the temple was consecrated to the worship of this goddess. However, as we are mainly concerned with the architectural aspects of this building, we prefer to retain the purely descriptive name "Temple Oval" rather than ascribe the temple to a definite deity on the basis of a single inscription.

An edifice of this scale, for which no parallel existed at the time of its excavation, which was constructed of a very peculiar building material, with several building periods and occupation levels represented and intermingled within a very small height, and which in general was very poorly preserved, naturally presented certain problems for an excavator with respect to both general method and special digging technique. Some of these difficulties and the ways adopted in dealing with them were mentioned in the preliminary reports,³ but will be excluded from the present report to the extent that they have no bearing on the discussion of the actual remains.

As to the building material: The whole Temple Oval was built at all periods of sun-dried plano-convex bricks, baked bricks being used only in cases where waterproof material was necessary, such as drains, wells, etc. As very little was known of buildings made of this material until recent years, the writer found it justifiable, after his first season in Khafājah, to summarize and publish his observations on plano-convex bricks and the methods of their employment.⁴ Subsequent campaigns, during which plano-convex bricks became much more familiar to us, not only in Khafājah but also at Tell Asmar and Tell ʿAqrab, have confirmed most of these observations and added, therefore, some weight to our previous conclusions.

³ E.g. *OIC* No. 16, pp. 58-61.

⁴ *SAOC* No. 7.

I

THE SITE AND ITS EXCAVATION

THE SITE

Khafājah is located on the left (east) bank of the Diyālā River, some 15 miles north of its confluence with the Tigris. We believe that of modern scholars Henry C. Rawlinson was the first to take an archeological interest in this site, for he identified it with ancient Opis.¹

In 1928 the late Dr. Chiera, then field director of the first expedition sent by the Oriental Institute to Iraq, succeeded in tracing to this site some of the fine pieces of Sumerian sculpture that were in the possession of antiquity dealers in Baghdad. Independently Mr. Sidney Smith, at that time director of antiquities in Iraq, also succeeded in locating the mounds from which these statuettes came, and he recommended that a permit to excavate should be granted to the Oriental Institute.

The principal mounds of this site are shown on a sketch map, based on a tachymetric survey, drawn by Dr. Preusser and Mr. H. D. Darby during the winter of 1930/31 (Pl. I). Although this is not an actual contour map, as the lines do not represent the geometric elevations, and although the boundaries given are only approximate, it nevertheless gives an adequate idea of the site. It includes an area of 1,200×1,800 meters, the whole of which is divided into 20-meter squares oriented toward the magnetic north. These squares are identified by a letter and a figure except for the first five squares to the west and the last five to the east, which are identified by a double letter and a figure.² The highest points of the four main mounds are marked "A," "B," "C," and "D" respectively, which letters are also used to name the mounds. The elevations of the mounds above the plain were: A, approximately 4 meters; B, nearly 6 meters; C, 5 meters; and D, 4 meters.

The ruins exposed on the surface of each of these mounds could be dated even before excavations began by the types of potsherds and bricks found on them, and such evidence proved that the earliest ruins were to be found on the surface of Mound A. This mound, located in the northeastern part of the site in squares t-BB 14-60, is separately shown on a larger-scale map (Pl. II), on which the excavated ruins also appear. A more detailed description of the site and a discussion of its ancient name or names will be found in another volume of this series, entitled *Four Ancient Towns in the Diyālā Region*. A description of the architectural remains excavated on the different mounds will appear in still other volumes of this series, entitled *Private Houses and Graves in the Diyālā Region*, *Pre-Sargonid Temples in the Diyālā Region*, and *Old Babylonian Public Buildings in the Diyālā Region*.

THE PROGRESS OF EXCAVATION

In the beginning of 1930 a concession for the excavation of Khafājah as well as other sites in the Diyālā region was granted by the Iraq Government to the Oriental Institute, and in the autumn of the same year excavations were begun.

¹ Cf. George Rawlinson, *The History of Herodotus* (4 vols.; New York, 1861-64) I 253, n. 8.

² This notation is somewhat different from that at first adopted by Dr. Preusser, in which 2 letters and 2 numbers were used to identify a square, as the whole area was first divided into 100-meter squares and then subdivided into 20-meter squares; cf. *OIC* No. 13, p. 60 and Fig. 19.

THE TEMPLE OVAL AT KHAFĀJAH

FIRST SEASON

Part of the first campaign (1930/31) had, of course, to be devoted to preliminary organization, such as the building of a small house and a survey of the site. Even before excavations began, Mound A especially attracted our attention, since it was clear from the surface indications that the ruins it contained were earlier than those of the other mounds and belonged to a period of great historical interest. Furthermore, deep holes marking the activities of illicit diggers were a certain proof of the presence of valuable archeological objects, for they had obviously been the source of the Arab finds. Consequently the part of the mound disfigured



FIG. 1.—ROBBERS' HOLES ON MOUND A BEFORE EXCAVATION WAS BEGUN

by these holes was chosen to be excavated first. Figure 1, showing the appearance of the site before excavation was begun, gives an idea of the extent of the robbers' activities. To begin with, several regular trenches were dug by Dr. Preusser at the summit of the mound. Fragments of plano-convex brickwork as well as the character of some objects found in graves in these trenches soon proved that the surface layers of this part of the site were pre-Sargonid and roughly contemporaneous with the "A" cemetery at Kish.³ At a lower part of Mound A, in square M 44, a few comparatively large and regularly cut stone slabs that were lying on the surface attracted the attention of Dr. Frankfort, and, since every piece of stone has to be imported into this part of the country, he rightly presumed that their presence must indicate a building of some importance in the vicinity. In a trench cut by Dr. Preusser near these slabs a structure of baked plano-convex bricks was soon discovered. This, called at first a

³ *OIC* No. 13, pp. 107-11.

THE SITE AND ITS EXCAVATION

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“circular basin”⁴ and referred to now as M 44:2,⁵ served in its turn as a starting point for more careful excavations in this area (Fig. 2). Several baked-brick or bitumen-lined drains which were found in connection with this structure were followed toward the northeast until some



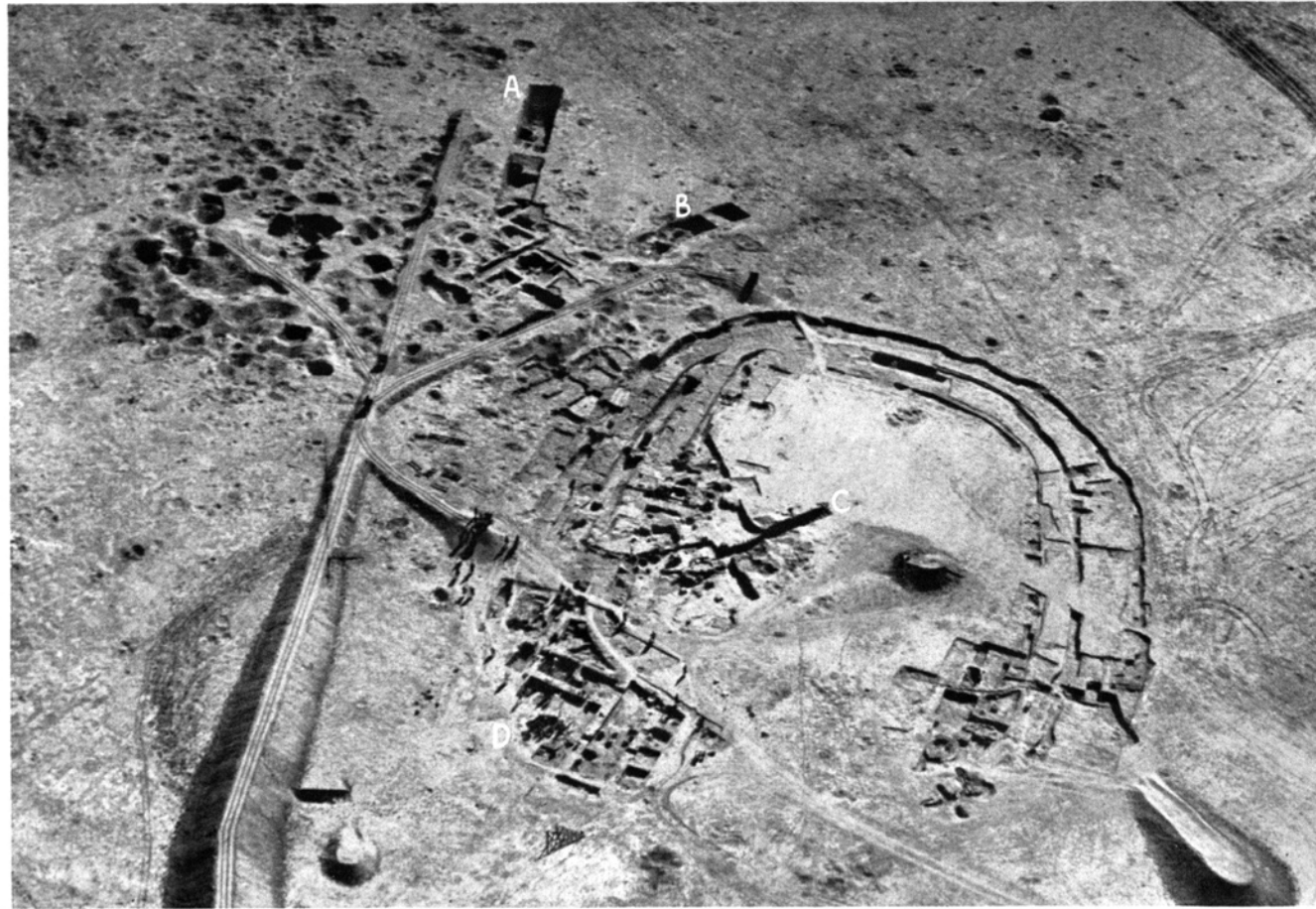
FIG. 2.—THE BEGINNING OF THE EXCAVATION OF THE TEMPLE OVAL, SHOWING THE CIRCULAR BASIN M 44:2 IN THE FOREGROUND AND, IN THE CENTER, TRENCH M 45:1, WHERE THE EXCAVATIONS STARTED

To the left of this in the background can be seen one of the stone slabs which had led to excavating this part of the mound.

masonry of unbaked bricks was encountered in square M 44. Further investigations showed that the unbaked bricks were plano-convex in shape and formed a wall of considerable thick-

⁴ *Ibid.* pp. 70–72.

⁵ In the beginning of the second campaign a system of locus numbers was introduced similar to that adopted by the Iraq Expedition at other sites. The site being divided into 20-meter squares, the loci in each square were numbered from 1 upward. Thus M 44:2 means locus No. 2 in square M 44. A locus number may be attributed to any part of the excavation that has certain characteristics of its own—a room, a grave, a drain, a basin (as in this particular case), etc. Very often two or more loci coincide on the *plan*. In such cases they can be distinguished by their *different levels* on a cross section. However, in cases of rooms with different floor levels the same locus number is usually retained for the same room as long as there is no change in the actual plan of the room. Objects found in such rooms are recorded with their corresponding floor levels or with the geometric levels when necessary. The geometric level is arbitrary, as a certain point of the excavation was arbitrarily given the level of +40.00 meters (which is not, however, very far off from the actual height of this part of the plain above sea-level). Two concrete pillars set at corners of squares M 46 and H 46 respectively served as fixed points for all leveling operations. The levels of all architectural features and of the most important finds were recorded in relation to these fixed points by means of a precise leveling instrument.



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FIG. 3.—AIR PHOTOGRAPH OF KHAFĀJAH, TAKEN AFTER THE SEASON 1930/31

THE SITE AND ITS EXCAVATION

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ness. Thus the thick inner inclosure wall of the Temple Oval was found and traced from a point near M 44:7 (Pl. XI) toward the southeast. Near by the outer inclosure wall was located, and both walls were traced up to square K 45 to the west and N 44 to the north. At the north corner "House D,"⁶ whence came the bulk of the objects found in the first season, was found and partly excavated, and in addition a few rooms adjoining the Temple Oval in squares N 44, K 45, and K 46 were also cleared.

An air photograph (Fig. 3) gives an idea of the results of this first campaign. In the upper left corner the robbers' holes can be seen; to the right of them are the two regular trenches (*A* and *B*) in which some graves and fragmentary walls were found. The middle right-hand part is occupied by the Temple Oval, and approximately in the center of it a dark line running diagonally (*C*) marks the trench in M 44 that led to the excavation of this building. To the left and above this trench a certain area, including the "macehead room" N 44:1, has been excavated, while the regular walls seen to the left and below it in the middle foreground (*D*) belong to the partly excavated "House D." The Decauville railway lines are to be seen to the left of the Temple Oval running from the background to the edge of the photograph.

SECOND SEASON

The following season, which was exceptionally short (January–March, 1932),⁷ was devoted to the excavation of the space inclosed within the Temple Oval as well as to the completion of the excavation of the western part of the inclosure wall itself, where work had been abandoned at the end of the first season. The results were the determination of the true course of the uppermost preserved wall, described in *OIC* No. 13 as the "hooked wall."⁸ Inside the Temple Oval we found four thinner straight walls forming a series of rooms between them and the inner inclosure wall. In the space inclosed by these thinner walls a buttressed platform, built solidly of sun-dried bricks, was cleared. In front of the platform an open space approximately 35×40 meters was identified as a courtyard. To the northwest of this courtyard an elaborate entrance was excavated and established as having belonged to a later period than the part of the Oval excavated in the first season. The rooms around the courtyard produced the majority of objects found during the second season.

THIRD SEASON

Part of the third season (November, 1932—March, 1933) was devoted to the disentangling of the complicated remains of the different periods of the Temple Oval. This resulted in the exposure of an earlier platform, earlier floor levels in the courtyard and in the rooms around it, and an earlier gateway in K 44. In addition a large area of private houses in the immediate neighborhood of the Oval was excavated. These lay northeast, north, and northwest of the Oval. They included a well planned area of private houses inclosed by a thick wall,⁹ which probably served as a fortified quarter. Some of the private houses west of the Oval contained graves, and the character of the objects from these established a clear connection at this period between Khafājah and other Sumerian sites, particularly Ur and Kish. Figure 4, when compared with Figure 3, gives an idea of the extent of the excavations on Mound A after the third season. This air photograph was taken from the northeast. In the middle foreground

⁶ This annex was named "House D" by Dr. Preusser and was referred to thus in all successive reports. Although this name suggests the existence of houses "A," "B," and "C," it is not so, as the "D" stands for nothing more than the initial of a workman who was the first to find an object in this area in the first season and who is certainly not aware of the honor done to him.

⁷ *OIC* No. 16, p. vii.

⁸ Cf. *OIC* Nos. 13, pp. 86–88, and 16, pp. 72 f.

⁹ *OIC* No. 17, p. 70, Fig. 60.



FIG. 4.—AIR PHOTOGRAPH OF KHAFĀJAH, TAKEN AFTER THE SEASON 1932/33

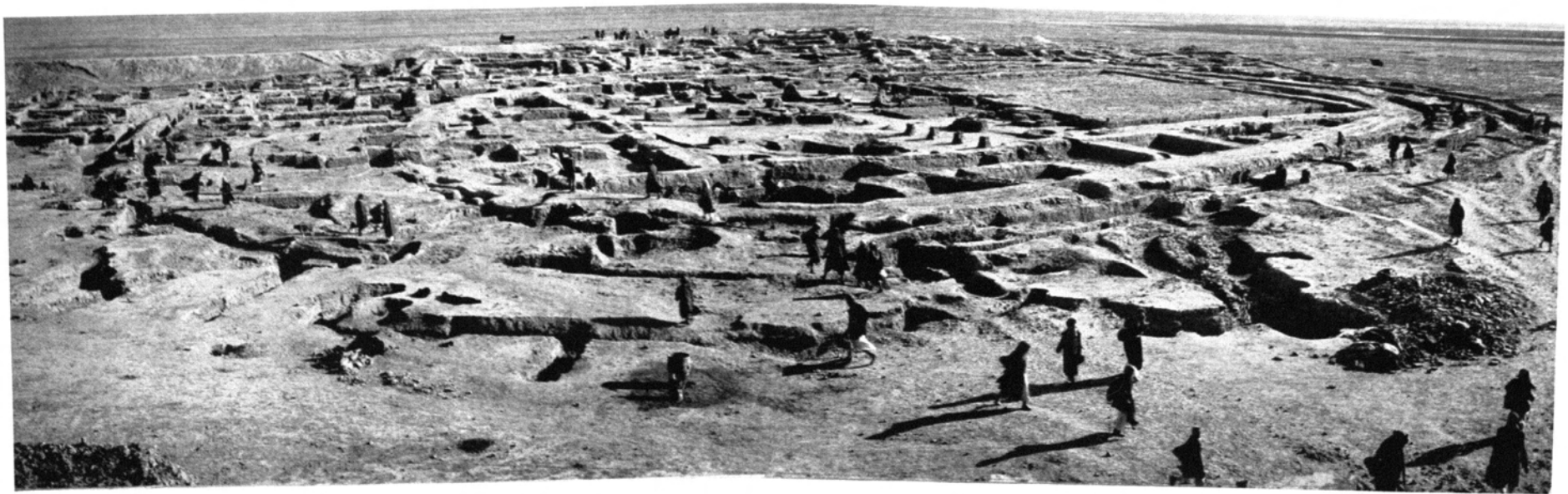


FIG. 5.—PANORAMIC VIEW OF THE EXCAVATED TEMPLE OVAL, SEEN FROM THE SOUTHWEST

the robbers' holes mark the site of the Sin Temple, which was excavated later. Immediately above these are the planned houses of the fortified quarter. The private houses extend behind the dump and surround the Temple Oval from its southeast to its northwest side.

FOURTH SEASON

In the fourth season (December, 1933—March, 1934) the foundations of the Temple Oval were reached and traced, and it was found that they were laid on a thick layer of sand. Several problems which had not found their solution in previous seasons were now solved. Therewith the excavation of the Temple Oval was terminated (Fig. 5). During this campaign excavations were carried out on a larger scale in squares P-R 42, in the area previously plundered by the illicit diggers. Here we finally succeeded in connecting the various fragments of ruins that had escaped destruction into a complete plan of the Sin Temple through three successive stages.¹⁰

SUBSEQUENT SEASONS

During the subsequent three seasons of the Oriental Institute's Iraq Expedition and two seasons under the auspices of the University Museum (Philadelphia) and the American Schools of Oriental Research the Sin Temple was excavated through ten consecutive periods, at least seven of which were already ruined and below ground level when the Temple Oval was founded. Private houses in the area between the two temples were cleared and the accurate connection between various phases of these temples thereby definitely established. Other temples, private dwellings, public buildings, the streets between them, and the town wall and gateways in it were also discovered on Mound A (cf. Pl. II). Important sections of the other mounds were likewise cleared. However, since most of these results have but a slight direct bearing on our subject and will be published in detail in the corresponding volumes of this series, there is no need to describe them further in this summary.

Though the excavation of the Temple Oval was not completed until the end of our fourth campaign, it should be made clear that the actual work of clearing this edifice did not take up the whole of the time of the first to the fourth season nor even the larger part of it. Within each season several other parts of the site were tackled. In some seasons we had to shift our operations to and from the Temple Oval repeatedly, and this not according to a definite, pre-arranged program nor because of the excavators' whim. It was mainly the weather and the special character of the ruins that dictated these seemingly arbitrary changes, for the regular excavations often had to be abandoned for a short period after a day or two of heavy rain. This is easily understood if it is remembered that Mound A is very low—almost on the same level as the surrounding plain—so that the soil there is markedly affected by even the slightest shower of rain. Since the ruins were practically exposed on the surface of the soil and consisted of unbaked brickwork, very often so poorly preserved that only a few layers of sun-dried bricks were left, we naturally avoided the disastrous results likely to follow not only from actual excavation but simply from walking over the ruins while they were soaked with rain. On such occasions, in order to lose as little as possible of our comparatively short seasons in the field, we transferred our activities to the higher mounds. But sometimes, after especially heavy rain, excavations even there were impossible; and then less delicate operations, such as the clearing of robbers' holes, were carried out. In the end these sporadic operations amply repaid the time spent on them, both on account of the objects found and because of the time and labor saved when it came to the regular excavation of these areas.

¹⁰ *OIC* No. 19, p. 39 and Fig. 45 on p. 41.

II

THE FIRST BUILDING PERIOD: THE EARLIEST TEMPLE
OVAL AND ITS THREE OCCUPATIONS

THE FIRST OCCUPATION

The plan of the earliest stage of the building is shown on Plate III; but, before we discuss its details, some space must first be devoted to describing the preparatory constructions of the ancient builders, namely the sand layer which was found below the structure and the low artificial terrace erected upon the sand and forming the base of the Temple Oval.

THE SAND LAYER

A careful re-examination of trench M 45:1, by which Dr. Preusser had begun the excavation of this area (see p. 4), revealed below the solid brickwork through which it cut (and which proved in later seasons to be the foundation of a stairway) a deposit of quite pure sand. A sounding over 2 meters deep, dug into the sand at this spot, produced no evidence of any earlier buildings. Later, after the earlier buttressed platform of the temple proper had been traced and the corresponding floor in front of it cleared for a certain distance, two holes were made simultaneously in front of the northern and western corners of the platform in squares M 45 and L 46 with a view to finding out whether any earlier floors existed below. To a depth of approximately 1.30 m. these holes cut through a mass of lumpy clay that showed no trace of floors. Below this clay a sand deposit was reached at practically the same level as in trench M 45:1. Here too the sand was of the same consistency, nearly pure, except for some patches containing washed-down clay. To ascertain whether the sand found in these holes was of merely sporadic occurrence or whether it was part of a continuous layer, two narrow trenches were dug for a certain distance, one from each of the two holes; and, as the sand continued at the same level, we felt inclined to conclude that the whole building was founded on a previously unoccupied sandy part of the plain.

We decided to test this assumption by making several soundings in different parts of the building and penetrating through the whole depth of this deposit in at least one of the soundings. For this latter purpose room K 45:6 was chosen. Its large size and peculiar shape made it possible to go to a great depth within its limits without ruining any of the surrounding walls; but the deciding factor in the selection of this spot was its situation near a convenient dumping place and far enough from the points already tested. The room was cleared to its lowest floor, and all the remains were recorded as usual before their removal. Below the lowest floor level a solid packing of lumps of clay, occasionally mixed with whole or fragmentary unbaked bricks, was again encountered. In the course of clearance this packing was found abutting against walls of regular brickwork on the three sides of the room. Below the floor level these walls projected inward on all three sides for about 30–40 cm., thus forming broader foundations for the upper walls. These foundation walls were built on top of a sand layer, on which the clay packing also was laid. The surface of the sand layer in this room was at a level of 37.74 m., that is, practically at the same height as in the spots previously mentioned. A pit (Fig. 6) was gradually cut down through this sand in the hope of finding its lower limit. For a depth of about 4 meters not a single potsherd was found, so that one was almost inclined to believe that

virgin soil had been reached; but this was contradicted by the peculiar consistency of the soil, unlike any natural geological formation that could be expected. So the work was carried on until finally, at a level of approximately 32 meters, the first potsherds were found. These, unfortunately, were very fragmentary and bore no informative characteristics; but their pres-

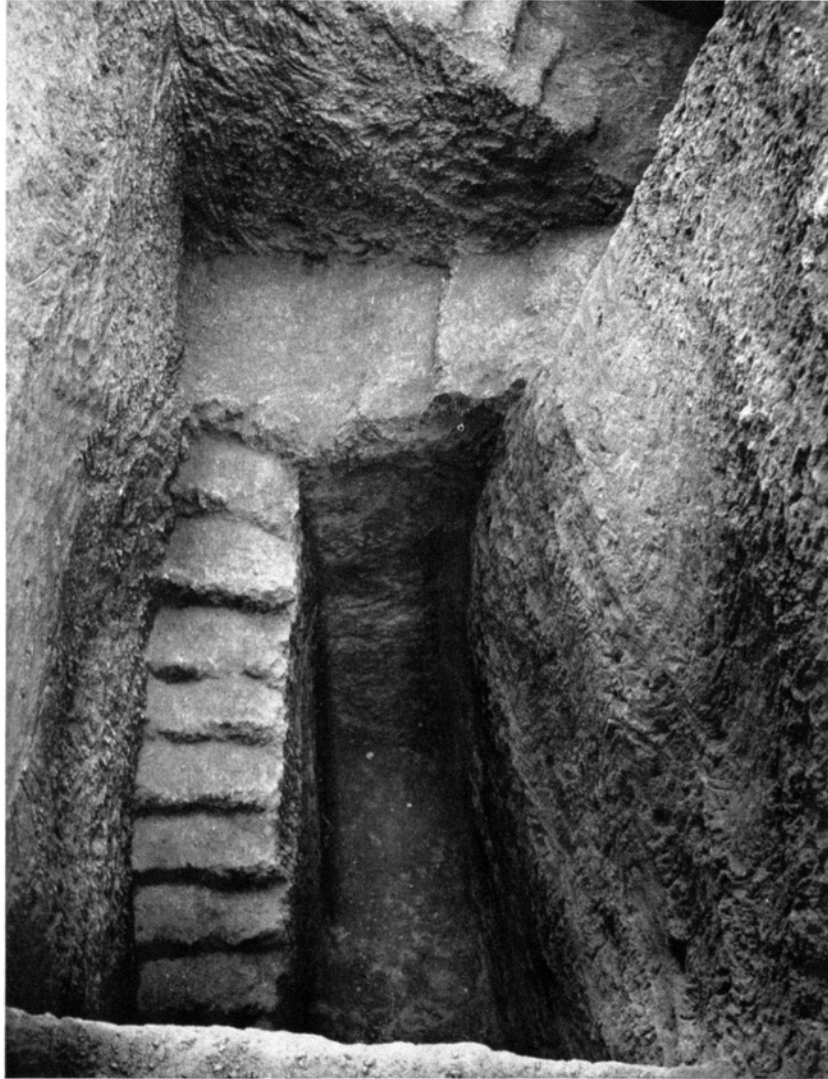


FIG. 6.—A PIT CUT THROUGH THE SAND IN K 45:6

ence alone was enough to reassure us that the upper level of the sand layer could not be considered the lowest point of our investigations. A further descent did not bring us to the lower limit of the sand deposit. In fact, at a depth exactly 7 meters below the upper level of the sand, at a level of 30.74 m., water was reached, and further investigation at this point had to be interrupted. In several other soundings inside the Temple Oval area the surface of the sand was reached at approximately the same level as in K 45:6.

It still remained, however, to investigate the existence of the sand deposit outside the Temple Oval. For this purpose a spot outside "House D," in square K 43, was chosen, for near

THE FIRST BUILDING PERIOD

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this point a relative dating of the Temple Oval, the outside dwellings, and some graves had already been established.¹ Going down from a floor level contemporaneous with a floor inside "House D," we soon reached the geometric level at which the sand would have appeared if it had been a natural deposit with a more or less horizontal upper surface. However, building debris continued below this level, and no traces of sand appeared. This surprising fact necessitated further investigation. For this purpose room K 43:1, inside the Oval opposite the outer sounding, was chosen, and in it sand was soon reached. A tunnel was then dug through the

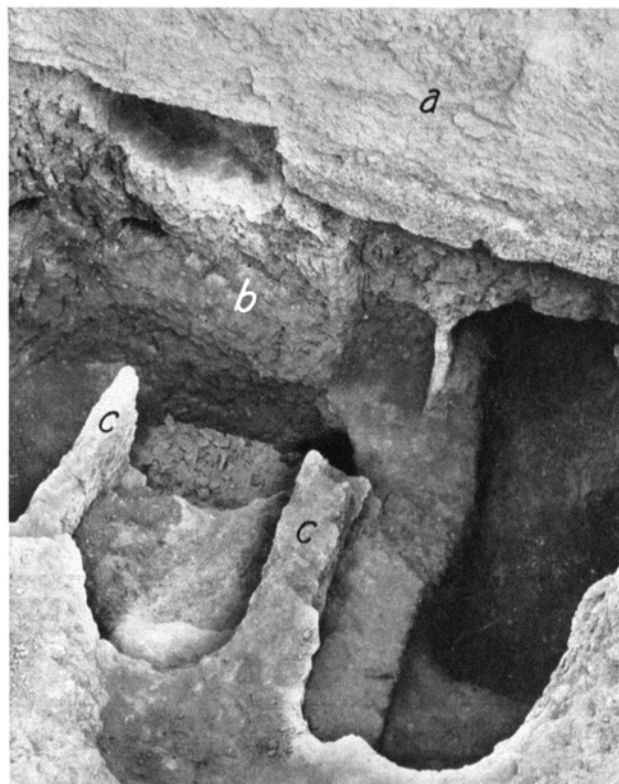


FIG. 7.—THE SOUNDING BELOW AND OUTSIDE THE TEMPLE OVAL IN K 43:11, OPPOSITE ROOM K 43:1

The letter *a* marks the brickwork of the foundation of the outer wall of the Oval, *b* the sand layer underneath the foundation, and *c* walls abutting the sand layer, which were cut away in ancient times when the original excavation was made for laying down the sand bed.

sand toward and beneath the outer wall, while from without a similar tunnel under the wall was excavated through the debris toward the inside. In these tunnels it was established that the sand stopped short about midway below the foundation of the wall, while the fragmentary remains of earlier buildings ceased abruptly against the sand (Fig. 7). The division between the debris and the sand was nearly vertical, the sand sloping, if at all, outward. It was clear that at this point buildings had first existed and that part of them had been cut away and replaced by sand. The same method for finding the limit of the sand on the edge of the Oval was used at a few more points, namely in squares K 46, N 44, O 46, and O 47, and in all these points the results were similar. Figures 8–10 show the edge of the sand layer and the way in which the ancient excavation cut through the walls of earlier ruins at a few points outside the Oval.

¹ *OIC* No. 17, p. 65.

In order to ascertain whether the depth of the sand was the same elsewhere as in K 45:6, a similar investigation was carried out in L 43:3, the courtyard of "House D" (Fig. 11), in which the upper surface of the sand was found at 38.03 m. Here we reached a depth approximately 6 meters below this level without finding the limit of the sand. At this depth the sand gradually became moist, which meant that we were approaching water level, and excavation was therefore halted for the time being. Since, however, the water level changes considerably with the time of the year, we were able to penetrate farther down in this pit at the beginning

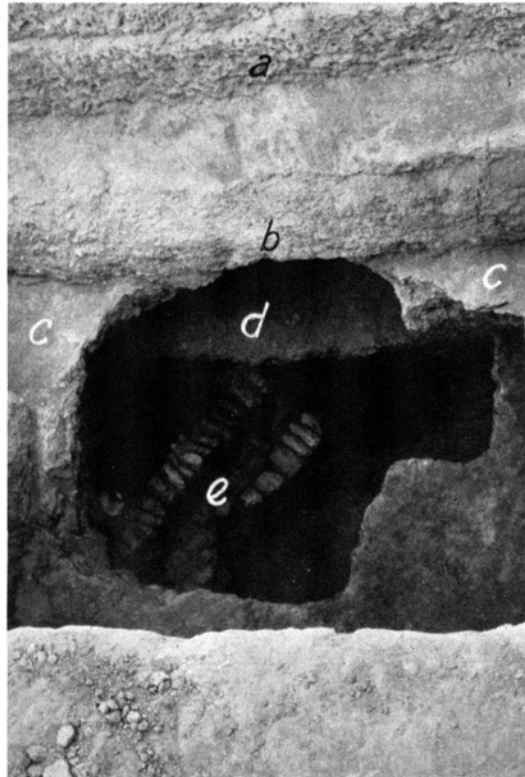


FIG. 8.—VIEW SHOWING THE FOUNDATION OF THE OUTER WALL OF THE TEMPLE OVAL RESTING ON THE SAND IN O 47:5 AND A PORTION OF A WALL OF UNBAKED PLANO-CONVEX BRICKS ABUTTING THE SAND

The letter *a* marks part of the thin outer wall of the Oval, *b* the projecting foundation wall, *c* the floor level outside the Oval, *d* the sand (partly tunneled away) below the foundation, and *e* the wall of plano-convex bricks abutting the sand layer.

of the fifth season (1934/35), when we established the limit of the sand here at a level of approximately 31.00 meters. Under the sand the color of the soil was almost black in contrast with all the layers above. The presence of water and the small area of the sounding—for the hole had to be narrowed in cutting through the sand to avoid collapse of the sides—made it impracticable to dig there to a great depth; hence we penetrated for only about 1 meter into this black deposit. It contained a very large quantity of plain potsherds, all apparently belonging to a type of bowl that survived throughout almost all early periods, so that unfortunately they furnished no dating evidence. This layer contained also an unusually large amount of reeds and some reed matting, particularly well preserved in fairly thick layers, probably on account of the presence of water. The water emitted a very strong sulphurous odor, most likely owing to an unusually large amount of organic remains.

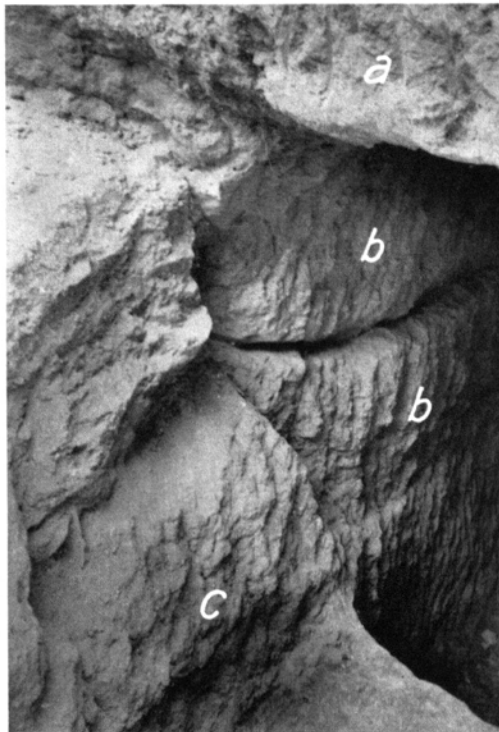


FIG. 9.—VIEW SHOWING THE SLANTING EDGE OF THE SAND IN O 46:2

The letter *a* marks the upper part of the foundation of the outer wall of the Oval, *b* the sand, *c* earlier ruins; between *b* and *c* is the downward sloping line of the edge of the sand pit.

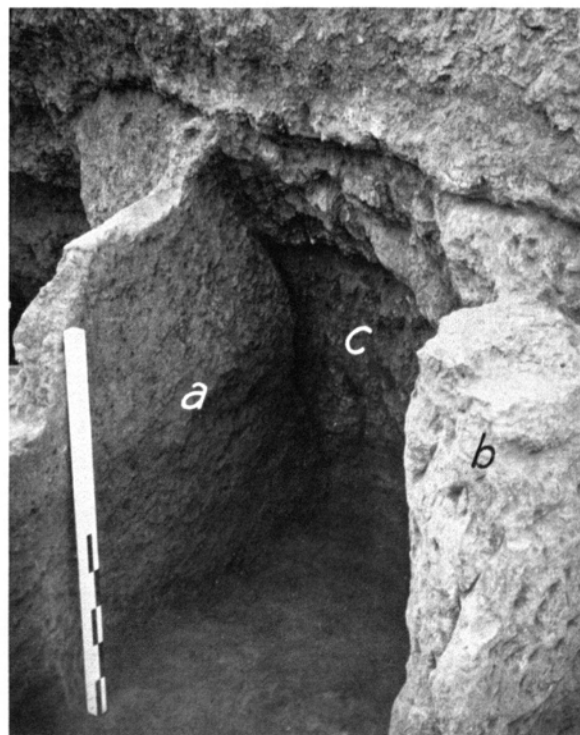


FIG. 10.—VIEW SHOWING THE SLANTING EDGE OF THE SAND IN N 44:9 (BELOW N 44:6) AND TWO WALLS (*a* AND *b*) CUT THROUGH BY THE ANCIENT EXCAVATION WHERE THEY ABUT THE SAND (*c*)

It has been suggested that this black deposit may indicate that the Temple Oval was built on swampy ground that was filled in by the layer of sand.² It is of course possible that marshy ground existed at some time in this area; but, if so, it must have been long before the Oval was built, and it could hardly have been the cause of the sand filling, for in all our soundings around the Oval we invariably found that some earlier buildings had been cut away before the sand was thrown in. Moreover, in several places outside the Oval we reached considerably lower levels and found that buildings existed even below the present water table. It seems certain, therefore, that the ground-water level was lower in ancient times than it is now, and that

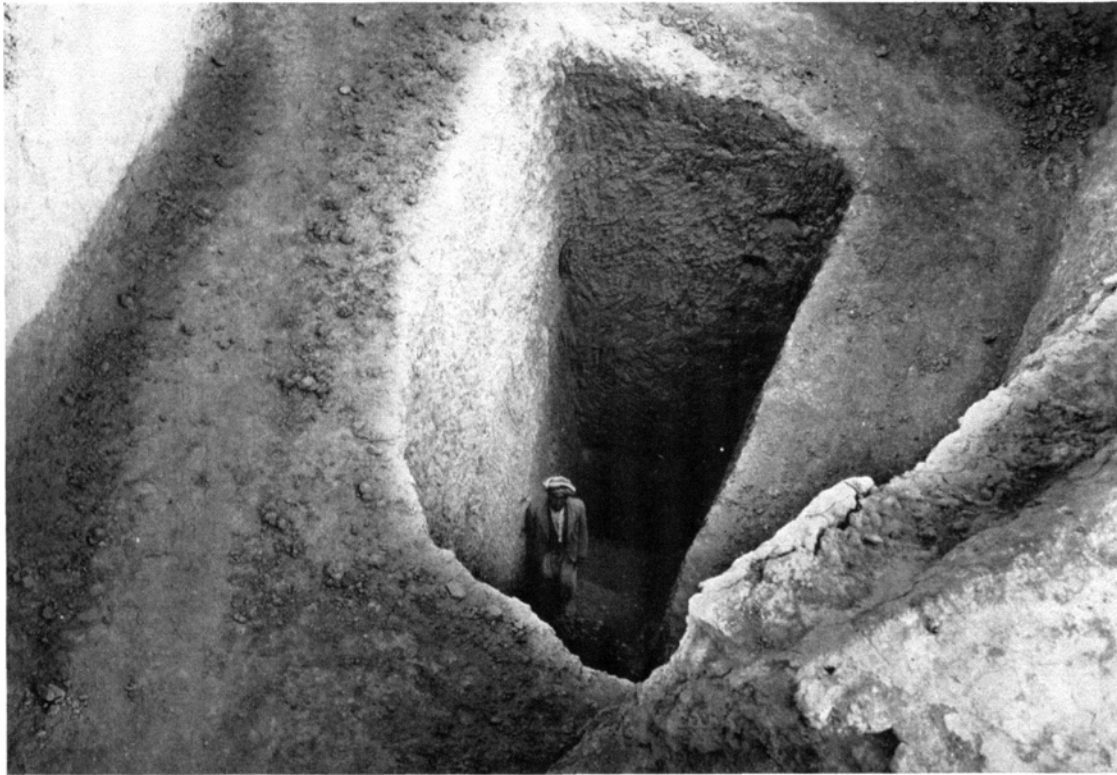


FIG. 11.—A PIT CUT THROUGH THE SAND IN L 43:3, THE COURTYARD OF "HOUSE D"

the accumulation of ruins removed in order to make place for the sand must have been at that time literally high and dry.

In almost all soundings around the Temple Oval we found that the outer limits of the sand layer coincide with the outer inclosure wall above it. There was only one exception, and that was near the eastern side of "House D," in squares M 43 and N 44, where the sand covered a larger area than that of the Temple Oval. But even there the boundary of the sand was quite regular. It would seem that originally the area planned for "House D" was somewhat larger than the area which was eventually allotted to it or, more likely, that at this particular place a ramp existed which was used first in removing the debris and later in filling in the excavated area with sand. Even excluding this additional area, the building covers some 8,000 square meters; and, as the depth of the sand layer averages 8 meters, some 64,000 cubic meters of soil had to be excavated and carried away in preparing the huge cavity, which was then

² *OIC* No. 20, pp. 15 f.

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filled with the same amount of sand. This would be a considerable task even in modern times with all the engineering and transport facilities now available and certainly stands out as gigantic for the period in which it was achieved. In addition, it is certain that the sand must have been brought from somewhere outside the limits of the town, as it is nearly pure, with no traces of potsherds or organic material.³ It contains, however, lumps of clay that might have become mixed with the sand while it was being taken from the river bank or that might have filtered through from the brickwork above when this was exposed to rain.

The excavation of the earlier ruins may possibly be connected with the fact that the area in the vicinity of the Temple Oval had been a popular burial ground long before this temple was built. Thus the soil removed must have contained not only the remains of the dwellings and household utensils of previous generations but the remains of their dead as well. The notion that the dead are unclean (which does not necessarily imply irreverence) was certainly common in the East and is reflected in the Old Testament;⁴ perhaps the Sumerians also held that notion. In this connection it is of interest to note that no more than one grave was found within the Temple Oval,⁵ and even this was doubtful (see pp. 103 f.), though the area around the Oval continued to be a popular burial ground. Not a single burial was found in any of the other early temples excavated in Khafājah or at other sites, though in most cases numerous graves were located in their immediate vicinity.⁶

But even if the presence of burials was not the chief reason for removing the earlier ruins and replacing them by sand, this unusual procedure can still be considered of some religious significance. For the idea of founding a temple on pure soil or laying its foundations on pure sand is not uncommon in Sumerian literature.⁷ The fact that the soil removed consisted of earlier debris which could conceivably be considered impure, the actual contour of the sand deposit coinciding with that of the temple, the magnitude of the undertaking, and the purity of the sand all seem to support this view. Should this explanation be acceptable, the Temple Oval at Khafājah can be considered the first case where the actual, concrete application of that idea has been encountered.

THE ARTIFICIAL TERRACE AND THE FOUNDATION WALLS WITHIN IT

After the cavity had been completely filled with sand, that is, approximately to the height of the then existing buildings into which it had been cut, the sand was fairly carefully leveled and the actual wall-building on its surface begun.

The walls intended as foundations for the outer and inner inclosure walls and for the many minor walls within the outer and the inner Oval were erected to a height of only 1.20–1.40 m. above the surface of the sand, and the space between them was then filled with a solid packing

³ The results of an analysis of this sand are given on pp. 152–54.

⁴ Num. 19:11: "He that toucheth the dead body of any man shall be unclean seven days"; cf. also Num. 6:6 and Lev. 21:11.

⁵ This was the reed-mat basket M 44:3; cf. *OIC* No. 16, p. 76.

⁶ The graves found close to the Sin Temple and the Nintu Temple at Khafājah will be published in a separate volume of this series. No graves were found by the Iraq Expedition at Tell 'Aqrab, but during a few hours of sounding by Dr. E. A. Speiser and the writer in the spring of 1937 several graves of the Early Dynastic period were located in the area immediately north of the Shara Temple.

⁷ Cf. F. Thureau-Dangin, *Die sumerischen und akkadischen Königsinschriften* ("Vorderasiatische Bibliothek," 1. Band, Abt. 1 [Leipzig, 1907]) pp. 68 f. (Gudea's Statue B iv 7–9): "Den Tempel Ningirsus wie Eridu an reiner Stelle erbaute er"; also *ibid.* pp. 60 f. (Statue of Urbau ii 6–iii 3): "Den Boden in eine Tiefe (von so und so viel) Ellen hat er ausgehoben, die Erde wie edles Gestein hat er und wie edles Metall durch Feuer hat er sie Gemäss den Massen eine grosse (Bau)stelle stellte er her, dorthin brachte er die Erde zurück, die Fundamente darinnen legte er," where the king seems to have purified the soil dug out before putting it back.

of pure clay containing only occasional fragments of sun-dried brick. The hardness of the clay suggests that it was brought in wet lumps, which were solidly packed and tamped in between the various foundation walls. The result was that the whole surface of the sand became covered with a solid layer of clay, in which the foundations were completely imbedded and in part covered. Only the outer surface of the outer inclosure wall was exposed, the latter forming the retaining wall of a low artificial terrace rising 1.20–1.40 m. above the surrounding area (cf. frontispiece and Fig. 108).

A breach in the foundation of the outer inclosure wall just below the point where the gateway was situated (K 44:2) indicates that the whole of the clay and bricks for the packing was carried through this spot, the space within the Oval being gradually filled in beginning with the far end at the southeast and approaching the entrance at the northwest. Later this gap also was filled in, and stone steps leading to the top of the terrace were laid over it to make the terrace accessible from the outside.

The foundation of the outer inclosure wall rested partly on the sand and partly on the surrounding debris. The only exception was found, as mentioned above (p. 16), in squares M 43 and N 44.

The foundation of the outer inclosure wall was completely excavated along the outer side (cf. Pl. III), but on the inside it was not considered necessary to trace it along the whole length. However, portions of various lengths along the inner face were excavated at intervals. These include all crucial points, such as inside "House D" where this house adjoins the outer inclosure wall of the temple proper, also in squares M 43–44 and N 44 as well as in the space adjoining the gateway. In Plate III the parts of the various foundation walls that were excavated are shown by continuous lines, while the parts reconstructed are drawn in dotted lines. The upper surface of those parts of the foundation walls which were covered by the packing in the original building is shown by dotted areas, while the surface exposed on the outside of the outer inclosure wall is left white. The various walls erected above the foundations are represented in solid black.

The total length of the foundation of the outer inclosure wall was about 300 meters. Its width was 3 meters on an average, while the width of the wall above it was only 1.50 m. The foundation of the inner inclosure wall was thicker than that of the outer wall, attaining 4.50 m. in width.

The method of first building the various foundations and then filling the inclosed area with a solid packing of clay would seem to squander labor; for, although there may have been a certain advantage in this method, the structures erected upon the various foundations could have been supported by the packing alone. It is possible, therefore, that the procedure adopted also had some ritualistic meaning, such as that the foundations of the entire building had to be brought into direct contact with the pure sand (see p. 17, n. 7). But whatever the reason may have been, the fact that all of the foundation walls, which were intended to be imbedded in the packing, closely outline the various parts comprised in the complete Temple Oval shows that the entire complex was well planned, even down to small details. It is indeed hardly conceivable that the various stages in the building process could have been carried out without a detailed plan thought out in advance.

THE PLAN OF THE FIRST BUILDING PERIOD

The characteristic outline of the Temple Oval (Plate III) was formed by two walls, one inclosed within the other, both of fairly regular oval shape. They ran almost parallel most of the way and approximately 5 meters apart. This distance increased at the northern end of the

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building in squares K 43 and L 43, providing space for "House D" (cf. p. 7, n. 6). As mentioned before, the sand layer was found below "House D" as well as below the inner oval, thus proving that "House D" was originally included in the plan of the whole complex.



FIG. 12.—PART OF THE NORTHWEST SECTION OF THE OUTER INCLOSURE WALL, SHOWING REMAINS OF THE THINNER WALL ON TOP OF THE THICKER FOUNDATION WALL

In the right background are the walls of "House D." In the foreground appear the stone steps of the outer entrance, the brickwork of which was destroyed in a later period to the level of the foundation wall, making it therefore uncertain how the entrance was built.

Of the two inclosure walls the outer was the narrower, having, as we have said, a width of only 1.50 m., while the inner measured 3.50 m. on the average. The outer wall was traced practically in its entire length except for such portions as are shown on the plan by means of

horizontal hatching. The wall was placed unevenly on its foundation, sometimes nearer to the outer, sometimes nearer to the inner side (Figs. 12 and 13). Its outer face was unbroken, but on the inner side shallow projections or buttresses were found. Of these, 18 were quite well preserved at regular intervals in various parts, enabling us to reconstruct the remainder with some degree of certainty. The purpose of the buttresses is not clear. One would expect to find them on the outside if they were meant to serve a decorative purpose, and the same holds true if they were intended for strengthening the wall, in which case they would also have been built with a longer base. But, since the buttresses are on the inside, it might perhaps be assumed that the space between the inner and outer walls had been covered and that the buttresses



FIG. 13.—THE SOUTHWEST SIDE AND THE SOUTHERN CORNER OF THE TEMPLE OVAL, SHOWING THE REMAINS OF BOTH THE THINNER OUTER WALL AND THE THICKER INNER WALL ABOVE THEIR ORIGINAL FOUNDATIONS

marked the positions of the crossbeams. Such projections were, however, found also near the entrance in J 44–45, where the large space forming a forecourt leaves no doubt that no roofing of any kind existed over it.

The space between the outer and inner inclosure walls may be divided into three distinct parts. The first is the comparatively narrow section between the greater part of the two walls, that is, along the entire southwestern and southeastern sides and along over half of the northeastern side. The distance between the walls in this first part varies from 3 meters in K 46 to about 8 meters in J 45. It was bounded at its northern end by the eastern wall in M 43 and at its southwestern end by the cross wall in J 45. The only outstanding feature in this space was the bitumen-covered surface N 47:3, which undoubtedly served to drain off the water, for a bitumen-plastered drain ran from it through the outer wall toward the outside (Figs. 14 and 15). The second section is "House D," at the northern end of the complex, with its main part in squares K 43 and L 43. This building will be dealt with later (see pp. 44–57). The

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third part is the space between the southwestern wall of "House D" and the cross wall in J 45, which section is in fact part of the somewhat elaborate entrance from the town and served both the temple proper and "House D."

THE ENTRANCE

The entrance into the Temple Oval was on the northwestern side, somewhat southwest of the main axis of the building complex. As previously described, the floor level of the area inclosed by the outer wall had been artificially raised above that of the surrounding town, and



FIG. 14.—THE BITUMEN-PLASTERED SPACE BETWEEN THE TWO INCLOSURE WALLS OF THE TEMPLE OVAL IN N 47:3

Two pottery drains from the Inner Oval can be distinguished below the locus board. The foundations of the two walls are partly laid bare on both sides of the floor.

it was reached by a short flight of four stone steps placed in the thickness of the foundation of the outer inclosure wall at J 44:1 (cf. Fig. 12). The top of the terrace here was only about 70 cm. above the level of the open space in the town outside the building. The steps were constructed of fairly regularly cut blocks of soft alabaster of various sizes (Fig. 16). The lowest step consisted of four blocks and was wider than those above, the top one being the narrowest. As the original brickwork near these steps had been completely destroyed by constructions of a later period, this difference in width between the lower and upper steps is the only indication we have that the actual gateway here may have been rabbeted in a manner similar to that of the inner oval gateway. The steps were well worn, but the wear was due not necessarily to long use but perhaps merely to the softness of the stone.

To the east of this outer gateway an open space on the terrace formed a forecourt. This



FIG. 15.—N 47:3 SEEN FROM THE OPPOSITE SIDE, SHOWING THE OPEN BITUMEN-PLASTERED DRAIN RUNNING THROUGH THE OUTER INCLOSURE WALL



FIG. 16.—THE STONE STEPS IN J 44:1, SHOWING ALSO SOME OF THE BRICKWORK OF A LATER PERIOD (*a* AND *b*) THE LAYING OF WHICH DESTROYED ANY ORIGINAL WALLS AT THESE POINTS



FIG. 17.—THE KILN K 44:3, SEEN FROM THE NORTHWEST
On the right can be seen the holes in the partitions between the subcompartments



FIG. 18.—BITUMEN MORTAR BEARING TRACES OF THE BRICKWORK THAT FORMED ONE OF THE STEPS INSIDE THE EARLIER GATEWAY INTO THE INNER OVAL

space, some 450 square meters in area, was bounded on two sides by the inner and outer inclosure walls and by "House D" on the north and by a cross wall on the south. At the northern end of this forecourt, at K 44:3, there was a kiln or oven (Fig. 17; cf. also Fig. 120 and Pl. III). It is impossible to know whether any other structures originally existed near the gateway, for the foundations of the later and more elaborate entrance with its flanking towers and the platform in front of it (cf. Pl. XI) covered the larger part of this area, and any other structures, if they existed, must have been completely effaced during the process of building these later foundations.



FIG. 19.—THE EARLIER GATEWAY, SHOWING ITS RABBETED SIDES, THE GATE CHAMBER K 45:4, AND THE DOORWAY LEADING FROM IT INTO K 45:5

On the eastern side of this forecourt a second and more elaborate gateway was situated, which led through the inner inclosure wall into the inner oval. For the purpose of constructing this gateway the thickness of the already thick inner inclosure wall (3.50 m.) had at this point been increased on its inner face to 5 meters. The gateway itself consisted of two parts; the outer, being the wider, comprised the normal thickness of the wall, while the inner, narrower one extended through the additional brickwork. Two successive projections or rabbets in the sides (cf. Fig. 19) separated these two parts of the gateway.

In the wide part bricks laid in bitumen (Fig. 18) clearly showed that originally there was a short stairway inside this part of the entrance, indicating that the floor level inside the inner oval was above the level of the open space between the two gateways. This arrangement incidentally supports our reconstruction of the gateway at the stone steps in the outer wall.

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The second gateway led into a small room (K 45:4); its outer wall was part of the inclosure wall, while the other three sides were formed by part of one of the long straight walls within the inner oval and two short cross walls (Fig. 19). A doorway in the wall opposite the gateway but not quite symmetrically placed led into a second, much larger room (K 45:5), and from here a third doorway opened on the main courtyard of the temple.

Although K 45:5 was one of the series of rooms round the courtyard, it might have been used as an additional gateroom, thus adding strength to the fortification of the entrance into the inner oval. A stone door socket found inside this room against the northern jamb proves the existence of a door at this point; but the fact that the door opened into the room and not into the courtyard shows that its use was not to bar entrance from the outside. A very strong point for defense, however, was provided by the great thickness of the inner wall at the gateway, where a considerable number of warriors could take up station in case of emergency.

THE ROOMS AROUND THE COURTYARD

Within the inner oval a series of rooms occupied the space between the inner inclosure wall and the four straight, narrower walls which formed the large open courtyard. At the northwestern end the rooms were placed in a double row, while on the other three sides they were in single rows except rooms K 46:4-5 on the southwestern side. All these rooms were situated on top of the artificial terrace, and their original floors were at approximately the same level.

We have seen that a difference existed between the level of the open space in the town in front of the outer gateway and that of the forecourt between the two gateways and again between the level of this forecourt and that of the inner oval; but within each of these areas also certain smaller variations occurred. Very often the original floors in two adjoining rooms varied from about 10 to 15 cm. in level. But such slight variations were to be expected, since all the floors in this building were only tamped clay and had not been very carefully leveled by the builders. When we consider the large size of some of the rooms, it is clear that a very slight slope would be enough to cause such discrepancies in floor levels even within the same room.

The two rooms K 45:4-5 belonged, as we have seen, to the entrance. From K 45:5 a doorway led back into a small triangular room, K 45:7. The western wall of this room was the inner face of the inner inclosure wall; its northern wall was formed partly by the solid brickwork of the gateway and partly by the thin wall separating it from K 45:4.

Northeast of K 45:4-5 were two small oblong rooms, K 44:10 and L 45:4. These were exceptional both in their dimensions (being less than 2 meters wide) and in the fact that in the original building no doorway into them was found. It is clear that these two rooms were in reality one oblong passage or corridor cut by a short length of the long straight wall which separated the two rows of rooms on this side. The exceptional size of this "corridor" together with its position against the thickened part of the inner inclosure wall and hence near the gateway suggests that it may have formed the base of a stairway leading from the courtyard to the top of the roofed portion of the inner oval, including the gateway.

Beyond K 44:10 to the northeast was the long triangular room L 44:2. It was formed by the inner face of the inner inclosure wall, the northeastern wall of K 44:10, and the long wall to the southeast separating it from L 44:3 and 5. Near its southern corner a doorway led into L 44:5. The latter was connected by a doorway with the courtyard. Of the objects found in this room a painted pot of the Jamdat Naṣr period (Kh. IV 473; Figs. 20-21) is worth mentioning, since it is the only vessel of this type found anywhere in the entire area of the Temple Oval. It is discussed and illustrated in colors in the pottery volume. Here it suffices to say



FIG. 20.—PAINTED POT OF THE JAMDAT NAŞR PERIOD AS FOUND *in situ* IN L. 44:5



FIG. 21.—THE POT SHOWN IN FIGURE 20, AFTER IT HAD BEEN CLEANED AND REPAIRED

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that the presence of the pot in this room does not necessarily indicate, as we were at first inclined to believe, that the Temple Oval was not far removed in time from the Jamdat Naşr period.⁸ In subsequent seasons we gained much firmer ground upon which to base our chronological conclusions, and we now know that at least the whole length of the Early Dynastic I period separated this building from the time when this type of pottery was being made. It is not necessary to assume that this vase was preserved in continuous use from the Jamdat Naşr period. Most likely it was one of the few rare specimens discovered unbroken by the ancient builders when excavating to make room for the sand deposit and because of its attractive decoration was considered a valuable relic and worth keeping in the temple.

Next to L 44:5 toward the northeast was L 44:3. Its northern corner was rounded, being the inner surface of the inner inclosure wall, and the narrow wall separating it from the adjoining small, irregularly shaped room L 44:7 was built askew. The doorway connecting L 44:3 with the courtyard was also cut askew and was narrower than the average. The doorway connecting L 44:3 with L 44:7 does not seem to have been a permanent feature. It is possible that the narrow wall was only a low partition at one time. The walls of L 44:7 were plastered with bitumen, which was probably intended to keep out the damp; hence it looks as if this room might have been used as a granary into which the grain was poured from above, thus obviating the necessity of a doorway. The floor space was divided into two small trapezoid compartments, with no communication between them. The walls were preserved to a height of 30 cm. in the western compartment and of only 20 cm. in the eastern compartment, the floor in the latter being 10 cm. higher than that in the former.

Along the northeastern side of the courtyard five rooms were situated between the courtyard wall and the inner inclosure wall. Of these, M 44:4 was the most northerly; it gave into the courtyard by a doorway near its western corner. This doorway also was placed askew, like that in L 44:3. Near the southeastern wall a shallow drain crossed the room on its way from the courtyard, traversed the wide inner inclosure wall, and ended in a vertical shaft at M 44:8 (Fig. 22) in the space between the inner and the outer inclosure wall.

The next room on this side, M 44:5, was connected with the courtyard by a doorway near its southern corner. This is one of the rooms in which the foundations were traced and the sand layer was reached. The top of the foundations was found at level 39.20 m., and the sand was reached 1.26 m. below this at 37.94 m. The foundations projected unequally beyond the surfaces of the different walls, the projection being about 50 cm. beyond the surfaces of the two long walls (northeast and southwest) and only about 25 cm. beyond the surface of the southeastern wall.

N 44:1 adjoined M 44:5. This room was discovered during the first season and is indeed the first room of the entire series around the courtyard to have been excavated. It has been described at some length in our first preliminary report under the name of "macehead room" because of the great number of stone maceheads found in it.⁹ Some of these maceheads were found lying about on the different floors, while others were carefully packed in pottery vessels. There were also a few empty large storage jars and one filled with burned lime. In addition to these some statuary also was found here. From the character of the finds we may conclude that this room served as a magazine, perhaps chiefly for the stonecutter's products. Near the southern corner of the room, at a point opposite the northern corner of the platform, a doorway approximately 90 cm. wide led into the courtyard. In this room also the foundations were traced down to sand level, which was reached at 38.11 m., some 17 cm. above that in the neighboring room M 44:5. The foundations were 1.17 m. high and projected 65 cm. from

⁸ *OIC* No. 19, pp. 36 f.

⁹ Cf. *OIC* No. 13, pp. 66-70.

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the faces of the upper walls. The packing between the foundations consisted, as in all the other cases observed, of irregular lumps of clay containing occasional fragments of unbaked bricks, except that in this case, unlike that in all the other rooms, the upper part which formed the

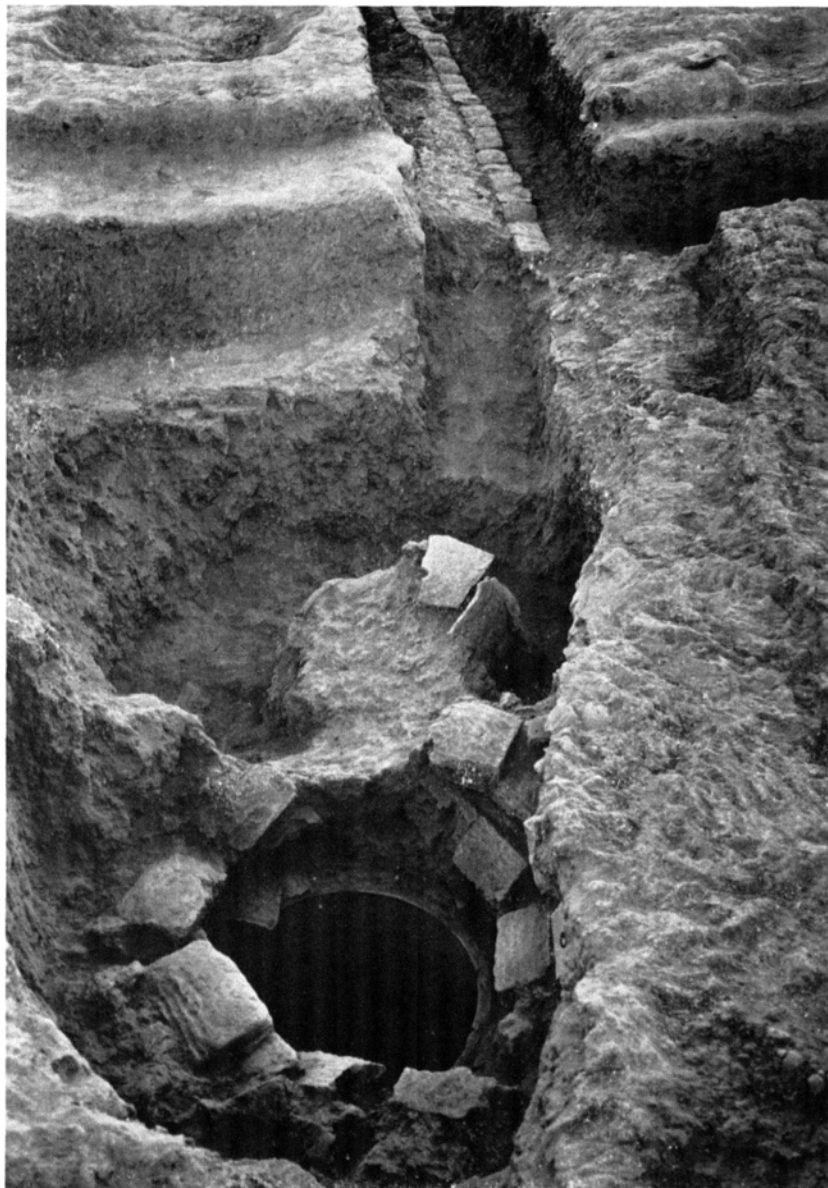


FIG. 22.—DRAIN FROM THE COURTYARD PASSING THROUGH THE THICK INNER INCLOSURE WALL TO THE VERTICAL SHAFT SITUATED BETWEEN THE INNER AND THE OUTER WALL AT M 44:8

floor consisted of a few layers of regularly laid sun-dried plano-convex bricks (Fig. 23). The other rooms merely had clay plaster, more often nothing but a thin layer of tamped earth, over the roughly leveled surface of the packing.

The next room along the northeastern courtyard wall is marked by two locus numbers (N 45:1-2) on account of its large size (approximately 4.40×13.60 m.), N 45:1 being its

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northwestern, N 45:2 its southeastern part. The room was roughly oblong in shape, getting narrower toward the east because of the curve of the inclosure wall. A doorway in the southwestern wall connected the room with the northeastern passage along the platform, and another doorway through the southeastern partition wall connected it with the triangular room N 45:3. Approximately in the middle of N 45:1-2 a kiln or oven was found against the inclosure wall. The oven, oval in shape, was of a type common to various building periods. Its opening faced northwest, and the fire chamber consisted of a long central compartment with



FIG. 23.—ROOM M 44:5 IN THE RIGHT FOREGROUND AND ROOM N 44:1 (THE "MACEHEAD ROOM") BEYOND
The foundations of the former were filled in with ordinary packing, while in the other a floor of fairly regularly laid sun-dried bricks was found.

four narrow subcompartments on each side. A more detailed discussion of this type of structure together with reconstructions is given on pages 130-33.

Room N 45:3 had no direct communication with the courtyard. A large, deep pottery basin found against its northeastern wall had possibly been used in connection with the oven in the adjoining room, for we found similar pottery basins near ovens in later periods also. Of the objects found here a gray-green stone plaque (Kh. II 245) deserves special mention.¹⁰ It was found at the lowest floor level in a corner against the inner inclosure wall.

The first room along the southeastern wall of the courtyard was O 46:1. Like its neighbor N 46:4, it had no direct communication with the courtyard. The entrance into O 46:1 from the passage at the back of the platform was through N 46:1 and N 46:4, so that these three rooms formed one suite. The fact that the two doorways connecting these rooms were flat

¹⁰ Cf. *OIP* XLIV 43 f., 47, and 53 and Pl. 109 D.

against the inner face of the inclosure wall indicates that no doors were used here. The rounded structure against the inclosure wall in O 46:1 might have served as a small granary. The sand level in O 46:1 was approximately 1.55 m. below the original floor level, the packing being somewhat thicker than in the western part of the building.

All of the finds in these three rooms at the back of the platform were of a very definite character, giving the impression that this part of the building was connected with the agricultural activities of the community. They consisted of a few large storage jars, several impressions of

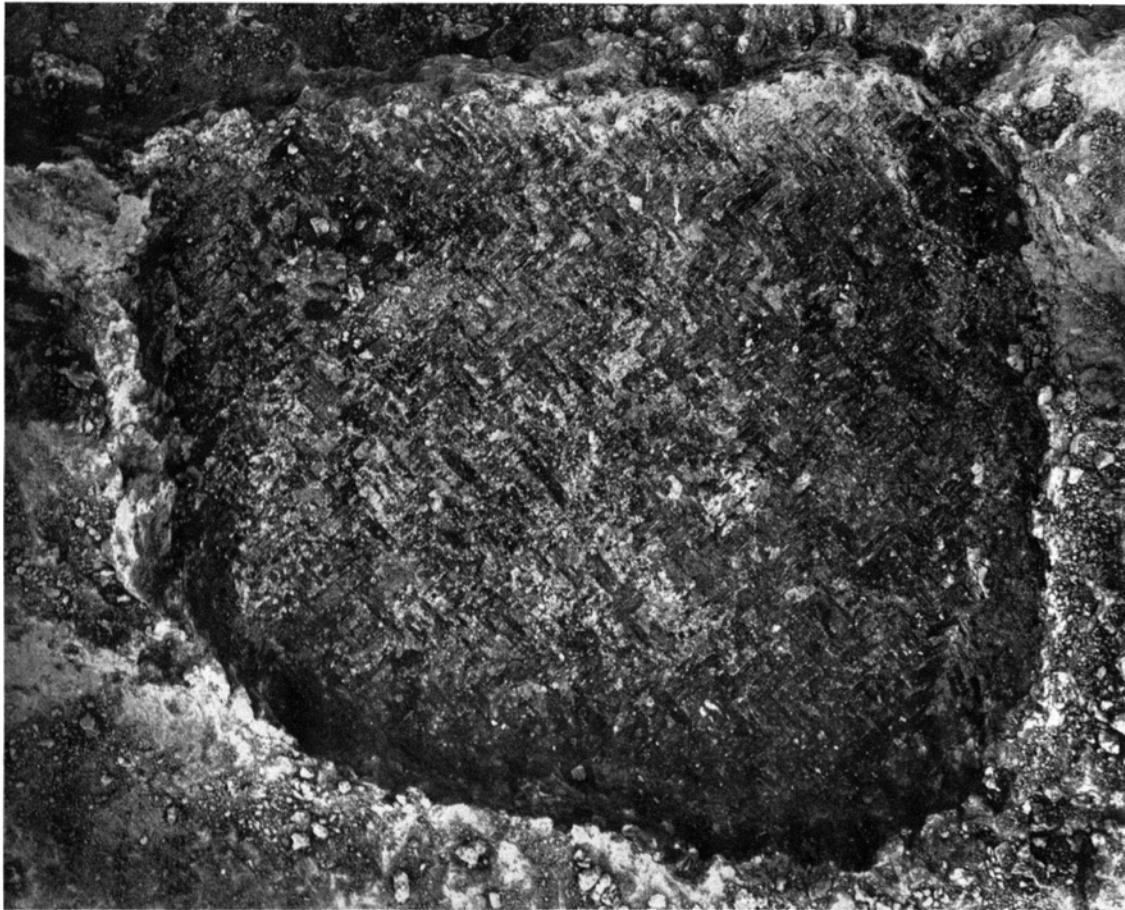


FIG. 24.—IMPRESSION OF A WOVEN REED BASKET IN N 46:1

woven reed baskets such as might have been used in a storeroom for agricultural products (Figs. 24 and 25), and a number of sickles made of flint set in bitumen (Figs. 26 and 27). Figure 26 shows them *in situ* near a large pot. In Figure 27 one can clearly see the serrated edge of the flint projecting out of the bitumen as well as the general shape of the sickles. It is also easy to distinguish two parallel lines running diagonally from upper right to lower left and small, round, dark spots above and below the larger sickle. After a careful examination these details were found to be impressions left in the ground by the wooden box that once contained these implements. The two parallel lines were left by the cracks or spaces between the planks, while the holes were impressions of the wooden nails that once fastened the planks together. The distance between the two lines marks the width of the planks. Not only the

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impressions of the cracks and the nails but even those of the fiber of the wood could be clearly discerned for a short time after the impressions had been cleaned. It is due to the skill of the man who cleaned the sickles for photography that this most fragile evidence of the ancient craft of carpentry has reached us.

It is unlikely that the rather primitive type of sickle discovered here was predominantly used in the fields at a time when copper and bronze implements were very common. Perhaps the specimens we found represent implements used in a ritual that was connected with the

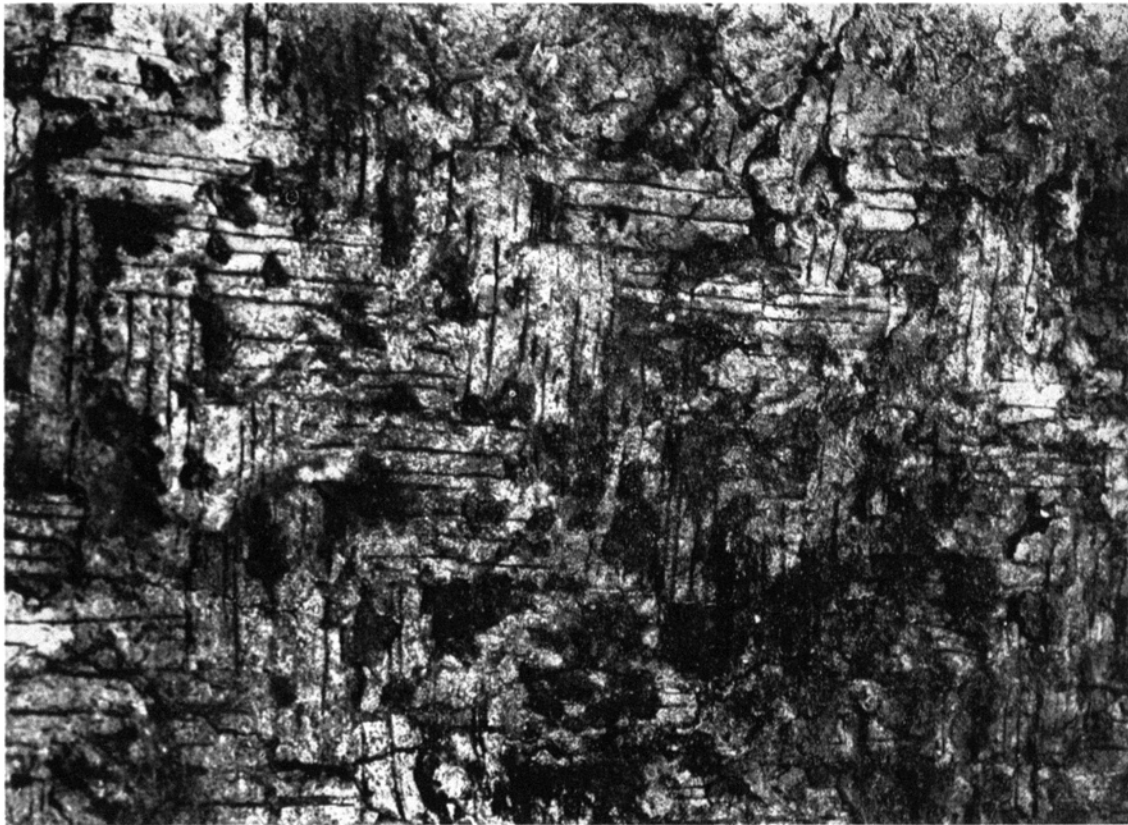


FIG. 25.—DETAIL OF BASKET IMPRESSION SHOWN IN FIGURE 24, ILLUSTRATING THE WEAVE

harvest, for it is in rituals that the use of more archaic implements usually survived. In the light of this consideration it is perhaps possible to assume that the grain kept in these rooms at the back of the platform was not the major part of the community's supply (even the large rooms would be too small for this purpose) but was only a "token," a supply for the use of the deity and the priests.¹¹

Two curious objects in the form of hollow plano-convex bricks (Kh. II 97 and 285) were found in O 46:1 and may perhaps be explained as "safes" or hiding-receptacles for valuable small objects such as were on several occasions found hidden in ordinary pottery vessels. Indeed, it is hard to conceive of a better way of hiding such objects than putting them into such hollow bricks and then building the latter into a wall among ordinary bricks from which they could hardly be distinguished even if the wall was not covered by the usual mud plaster. That

¹¹ Cf., as possible parallels, Ex. 23:19 and Lev. 23:10-11.



FIG. 26.—A POT AND FLINT SICKLES *in situ* IN N 46:1



FIG. 27.—FLINT SICKLES SET IN BITUMEN; BENEATH THEM CAN BE SEEN TRACES OF A WOODEN BOX

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they were found in this room at the rear, the less easily accessible part of the temple, may support such an explanation.

Continuing round the courtyard, we next reach the two rooms opposite the southwestern side of the platform, M 47:2 and the large room adjoining it on the northwest. Here we have a complex of two rooms very like the symmetrically placed couple N 45:1-3 along the opposite, northeast side of the platform. Again the larger room is marked by two locus numbers on account of its size, L 46:7 being the northern, M 47:1 the southern part. In the latter (M 47:1) three valuable copper statuettes (Kh. I 351a-c) were found. They were lying tightly packed together against the surface of the inner inclosure wall (Fig. 28), and some of the later brick-work protected them from greater corrosion. Figure 29 presents them after the earth had



FIG. 28.—THREE COPPER STATUETTES (KH. I 351a-c) *in situ*

been cleaned away but while they were still held together through corrosion. Later they were separated and cleaned, and traces of an inscription were found on the shoulder of the largest of the three. They are fully discussed and separately illustrated in the sculpture volume.¹² Since some small copper objects also were found in this room and in other rooms adjoining the southwestern side of the courtyard, on floors belonging to various periods, it seems likely that this part of the building was used for storing metal objects, and perhaps the copper-smiths of the community had their workshops here.

The partition wall between M 47:1 and M 47:2 was only about 60 cm. wide, that is, thinner than usual, and was preserved to a height of only 22 cm. The opening in the partition was flat against the inclosure wall, like the doorways in N 46:1 and O 46:1, and was paved with baked bricks. The level of this pavement was at 39.57 m., and the original floor was 10 cm. lower. This complex of two rooms was connected with the courtyard through a doorway in L 46:7, near the western corner of the platform. The foundations were traced on three sides at the

¹² *OIP* XLIV 11 f. and 42 f. and Pls. 98-103.

western end of the room. The top of the foundations was at 38.92 m., and the sand lay approximately 1.25 m. below this.

The series of rooms around the courtyard was completed by a suite of five rooms (L 46:4-5, K 46:4-5, and K 45:6). Its only means of communication with the courtyard was through a doorway in L 46:4. This room communicated with L 46:5 to the southeast and probably also with K 46:4 to the northwest. At the southwest jamb of the doorway into L 46:5 a door socket was found, showing that this room could be cut off by a door from the rest of the suite. Another door socket was found at the doorway leading from L 46:4 into the courtyard. It was placed inside the room at the eastern end of the entrance. The original floor of L 46:4 was somewhat higher than that of L 46:5.

K 46:4 was one of the two rooms northwest of L 46:4. The arrangement of two rooms instead of one between the inclosure wall and the courtyard at this corner is easily explained by the fact that here the distance between the inclosure wall and the courtyard wall reaches its maximum of about 9 meters, which is more than the average width of any room in this building. This point is further discussed on page 70, where we consider the reconstruction.

The floor in K 46:5 was somewhat lower than the floor in K 46:4, thus allowing for the slope necessary for the drain traversing both these rooms. The drain had its origin inside the courtyard and, after crossing the two rooms, continued through the inner and outer inclosure walls to the outside of the Oval (Fig. 30). No vaulting of any kind was found above the drain in the thickness of the walls; but, as the walls were continuous at all these points, one must assume that the vaulting was carried out in unbaked brick which finally collapsed into the drain or that the drain had been bridged by wood which had disintegrated.



FIG. 29.—THE THREE STATUETTES SHOWN IN FIGURE 28, AFTER REMOVAL FROM THE GROUND, STILL CORRODED TOGETHER

The room K 45:6 was three-cornered, its straight walls being at the northeast and southeast sides, while the curved inclosure wall served as third wall to the west and southwest.

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Like the two preceding rooms, it was partly excavated in the first season. No doorway leading into it was found then. Since we made sure in the following seasons that no doorways had existed in the walls separating it from K 46:5 and K 45:5, the only possibility of an exit into



FIG. 30.—VIEW OF THE SOUTHERN DRAIN OF THE TEMPLE OVAL, SHOWING SOME BRICKS WITH TWO FINGER MARKS REINFORCING THE POTTERY STRUCTURE

Very few bricks of this type were found in the Oval

the court was through K 46:4; we have therefore shown one there in the reconstructed plan (Pl. III). The room contained two oval structures (Fig. 31), one in the south and one in the north corner, both close to the inclosure wall. Between them was a third structure measuring 1.40 m. square. The two oval structures stood to a height of 35–50 cm. above the floor and



FIG. 31.—TWO OVAL STRUCTURES FLANKING A SQUARE PILLAR IN K 45:6



FIG. 32.—ONE OF THE OVAL STRUCTURES IN K 45:6 IN PROCESS OF EXCAVATION, SHOWING THE SIDE AND THE PAVEMENT OF UNBAKED PLANO-CONVEX BRICKS

were plastered with mud. Each consisted of an outer wall built fairly regularly of unbaked plano-convex bricks, with an earth filling, the latter being covered with an irregular pavement of sun-dried plano-convex bricks (Fig. 32). No conclusive evidence was found concerning the exact use of these structures, but the abundance of ashes and charcoal on the floor around them and the burnt plaster of the walls near by indicate that a big fire was kept up here on certain occasions. The view has been expressed that they served some ritualistic purpose,¹³ but their position in one of the most remote rooms, with no direct communication into the rest of the sanctuary, makes such a theory to my mind very unlikely. As we shall see below, the corner of the courtyard near this room was occupied by a large refuse pit; hence it is possible that these fireplaces were used for burning the more solid rubbish instead of letting it accumulate in the refuse pit. They might, of course, have served some other ordinary domestic purposes.

As we have mentioned (pp. 11 f.), it was in this room that we dug a pit for sounding the sand layer; hence not only were all the successive floor levels in it cleared, but the packing also was removed and the foundations alongside the three walls were traced. The fact that no objects of any value were found seems to support the view that this room was of no particular importance.

THE COURTYARD

The large space within the inner oval inclosed by the four long straight walls formed a courtyard about 56×38 meters. Its eastern part was occupied by a large platform that was so close to the straight walls as to leave only narrow passages on three of its sides. The main part of the courtyard was the open space in front of the northwest side of the platform. The entrance, as previously described (p. 25), was through the gateway in the northwest side of the inner oval, not in the middle but nearer to the western corner of the courtyard. In this corner of the courtyard was a refuse pit, L 45:3, about 7.50 m. in diameter (Fig. 33). This had eventually been filled and leveled with the rest of the courtyard. It contained surprisingly few pottery fragments, bones, and other solid remains, while the earth which filled it was of the particular yellow-greenish color typical of debris once containing much organic material, such as one would expect in refuse remains of sacrificial animals. It is probable that this pit was used mainly for the liquid refuse of the temple, while the solid matter was disposed of by different methods, perhaps by burning (cf. above). The large drain that started just back of the pit was probably part of the arrangement for draining this space.

Other prominent features in the courtyard of the first period were two wells, L 45:2 (Fig. 34) and L 46:6. The former, circular in shape, was 2.50 m. in diameter; the inside was lined with baked plano-convex bricks in a typical herringbone pattern. It was excavated to a depth of nearly 10 meters below the surface before water was reached (in December, 1933, at a level of 29.39 m.). Excavation was continued for a few days, during which time the water had to be bailed out with buckets; but at last the volume of water increased to such an extent that work had to be stopped before the bottom of the brick revetment was reached. Subsequently the water level rose; in March, 1934, after the winter rains, it reached a level of 30.73 m., 1.34 m. higher than in December, 1933. The water, although clear, was so brackish that even the local workmen, who are not fastidious in their tastes, could not drink it.

The other well, L 46:6, was very like that already described, its outer diameter measuring likewise 2.50 m. Its inner surface was lined with baked plano-convex bricks in much the same way as that of L 45:2, but it was in a much poorer state of preservation than the latter. This well was not excavated to such a depth as L 45:2, for a part of the retaining brickwork

¹³ *OIC* No. 13, p. 83.



FIG. 33. A GENERAL VIEW OF THE COURTYARD OF THE TEMPLE OVAL AS SEEN FROM ITS WEST CORNER, SHOWING, AT THE RIGHT, THE SOUTHWEST COURTYARD WALL AND, IN THE FOREGROUND, THE REFUSE PIT L. 45:3

Beyond the pit appear four square pillars of a later period; behind the two on the right is a well (L. 46:6), and to the left a large, deep pottery basin (L. 45:1) with a smaller, shallow brick basin (L. 45:5) at its side; beyond these is the platform with some structures built against it.



FIG. 34.—THE WELL L. 45:2 IN THE COURTYARD

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had already fallen in, and the moist soil near the water level might have caused further collapse. Furthermore, since the two wells were very similar, not much new information could be expected by completely excavating this one also. Consequently the work there was stopped in order not to endanger the workmen. Near the top of the debris filling this well some fragments of statuary were found, among which only Kh. IV 16 and 17 are worth mentioning.¹⁴ A bitumen-plastered, open channel ran from the mouth of this well into a small, shallow, round basin situated approximately 3 meters to the north. This basin was built of baked plano-



FIG. 35.—THE CIRCULAR BASIN M 44:2 AND OTHER SQUARE AND ROUND STRUCTURES IN THE COURTYARD

convex bricks laid in bitumen. It measured approximately 70 cm. in diameter and less than 30 cm. in depth. From its position and appearance one is inclined to suppose that it served for watering animals (cf. Fig. 68).

In the northeastern part of the courtyard was located an unusual round structure (M 44:2) referred to in a previous publication as the "circular basin."¹⁵ It was paved with baked plano-convex bricks, the inside diameter measuring approximately 2.60 m. (Fig. 35). Traces of a wall roughly 30 cm. thick, also of baked plano-convex bricks, could be distinguished, thus bringing the total diameter of the structure to 3.20 m. It is possible that at one time the thin wall had been built of sun-dried bricks and plastered over with bitumen. If so, the vertical layer of bitumen had gradually shifted from its original position and become warped by weather conditions, acquiring such peculiar shapes that when first discovered it gave the

¹⁴ For Kh. IV 16 cf. *OIP* XLIV, Pl. 60 I-J.

¹⁵ *OIC* No. 13, pp. 70-72.

impression of a very complicated system of drains around the basin. In reality only drains built of baked plano-convex bricks plastered with bitumen were connected with this structure, part of the earliest of these being shown on the right in Figure 35. This drain sloped down from a point near the inner inclosure wall toward M 44:2 and must therefore have served to bring water into it and not to drain it away; but since this drain was open, shallow, and connected with the basin near its floor, the volume of water brought in thereby must have been very small. To the south the basin had a square projection measuring about 2×2.50 m. This too was built of baked bricks plastered with bitumen; it may have been a step by which to reach the basin.



FIG. 36.- REMAINS OF BITUMEN-PLASTERED ROUND STRUCTURE L 44:6 IN THE COURTYARD WEST OF THE CIRCULAR BASIN M 44:2

About 5 meters west of M 44:2 a bitumen circle (L 44:6), 2 meters in diameter, was found (Fig. 36). This is all that remained of a circular structure the character of which must remain problematical until some better preserved structure of this type has been discovered.

In square M 45, a section of the courtyard adjoining the platform, we found several more structures of different shapes and varying uses. Among these was the stepped altar M 45:3 (Fig. 37), built against the platform between the second and third buttresses from the western corner. It was constructed of unbaked bricks and measured approximately 2×2.18 m. The first step was about 50 cm. above the floor level of the courtyard, and the altar's upper surface was about 25 cm. above the step. This altar was very like some of the altars found in the Sin Temple, especially the one placed in the open in the Sin Temple courtyard. The similarity extended even to the placing of a jar under a corner of the altar (Fig. 38), a practice observed in the Sin Temple.¹⁶

¹⁶ Cf. *Pre-Sargonid Temples in the Diyālā Region*.

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To the left (northeast) of the altar was a small square structure placed almost symmetrically against the middle of the third buttress. Another, smaller square structure was found north of the platform stairway in square M 45. Several similar structures of the later periods found in the courtyard will be discussed below.

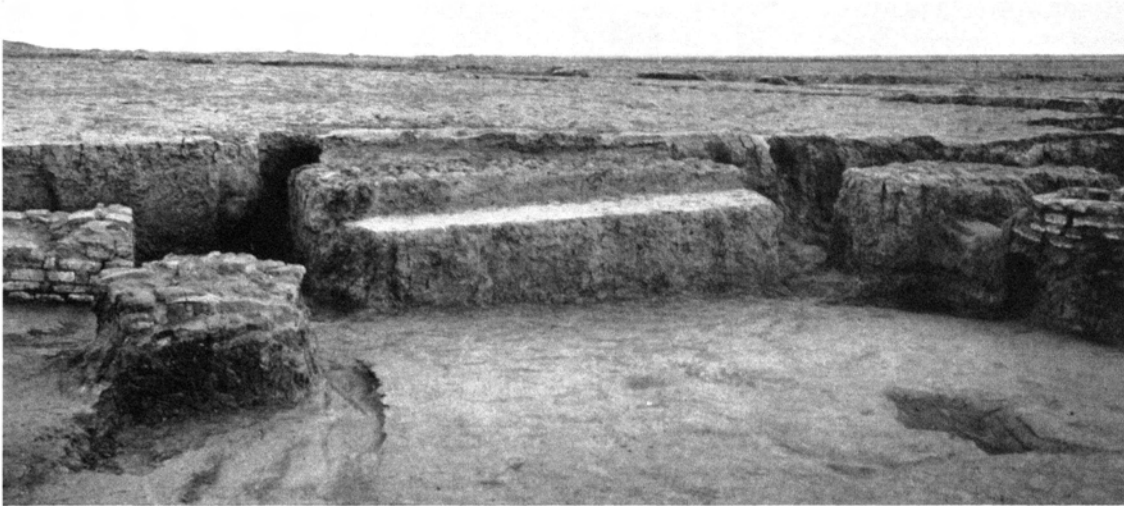


FIG. 37.—THE STEPPED ALTAR M 45:3 AGAINST THE TEMPLE PLATFORM AND SOME OF THE NEAR-BY BRICK STRUCTURES



FIG. 38.—REMAINS OF A JAR BELOW THE NORTH CORNER OF THE STEPPED ALTAR M 45:3, FOUND IN THE SAME POSITION AS JARS BELOW THE CORNERS OF THE ALTARS IN THE SIN TEMPLE AND IN THE LITTLE SHRINE I 43:4 (SEE FIG. 44)

THE PLATFORM WITH ITS STAIRWAY AND PASSAGES

The platform in squares M-N 45-46, or rather the building that once stood upon it, was doubtless the most important part—the *raison d'être*—of the whole complex. This platform,

measuring about 25×30 meters, was ornamented by shallow buttresses which projected only about 15 cm. from its surface. The buttresses were 2 meters wide, while the bays between them were nearly double this width. There were five buttresses on each of the shorter sides of the platform and six on each of the two longer sides. On the northwestern side there were two projections from the face of the platform, symmetrically spaced between the second and third buttresses from each end. One of these, M 45:3, was, as we have just seen, an altar; the other, which was much longer, was the base of a stairway leading from the courtyard to the top of the platform.



FIG. 39. — THE EARLIER STAIRWAY TO THE PLATFORM, SHOWING TWO OF THE STONE BLOCKS FORMING THE LOWEST STEP STILL IN POSITION

The courtyard floor (*a*) corresponding to this stairway is only partly excavated, while in the foreground and to the right a later floor (*b*) is left standing.

THE STAIRWAY

The base of the stairway projected 7.70 m. from the platform, and its width was 2.70 m. Fortunately the lowest stone step was found still in position (Fig. 39),¹⁷ thus enabling us to restore the stairway and to calculate the height of the platform, assuming of course that all the steps were identical and regularly laid. Since the width of the stone steps was only 1.50 m., 1.20 m. less than the width of the base of the stairway, one has to assume that a mud-brick parapet 60 cm. wide originally existed on each side of the stairway.

We have mentioned above that the stairway was built not against the middle of the platform but at a point about one-third along its length, between the second and third buttresses from the northern corner. This arrangement looks at first as though it had been adopted to

¹⁷ The stone slabs which originally attracted our attention to this part of the mound (cf. p. 4) were certainly steps belonging to this stairway.

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achieve symmetry with the altar placed between the second and third buttresses from the western corner; but it is more likely that it came about by reason of the character of the building on top of the platform. This possibility is discussed in chapter iii.

THE PASSAGES

Three narrow passages were formed by the proximity of the platform to the thin walls bounding the courtyard. They were used as a means of reaching the rooms on both sides and at the back of the platform and served also to carry off rain water. Near the middle of the



FIG. 40.—BITUMEN-COVERED STRUCTURE N 45:4 AGAINST THE NORTHEAST SIDE OF THE PLATFORM, AFTER THE BRICKWORK OF THE LATER PLATFORM HAD BEEN CLEARED AWAY

In the background at *a* is seen the floor on which the brickwork of the later platform is founded. The palm-leaf brush rests on top of later brickwork (*b*).

northeast and southeast passages were curious shallow structures plastered with bitumen (N 45:4 and N 46:2). N 45:4 (Fig. 40) in the northeast passage was built partly against the middle buttress and partly against the recess between the third and fourth buttresses from the northern corner. It was about 2.20×3.20 m. in size, built of unbaked plano-convex bricks, and of an irregular oblong shape. Although the bitumen plaster on it suggests that it had some use in connection with water, the absence of a drain leading to or from it eliminates the possibility that it had anything to do with carrying off water from the platform. N 46:2 (Fig. 41) in the southeast passage was placed nearly symmetrically in the middle of the central bay of the platform and was of a more complicated shape. Its main part was rectangular, measuring about 2.40×2.20 m., thus covering the whole width of the passage between the platform and the thin courtyard wall. It too was built of unbaked bricks plastered with bitumen. The

plaster sloped down toward the middle, where it formed a shallow channel about 15 cm. deep. This channel itself sloped toward the southwest, ending in a round, basin-like depression in the bitumen which projected about 1 meter from the main part of the structure. In this case also no drain was found; hence the function of this structure cannot be explained with any degree of certainty. Its situation near the doorway leading into room N 46:1 and the rooms communicating with it, which we believe to have been connected with agricultural activities

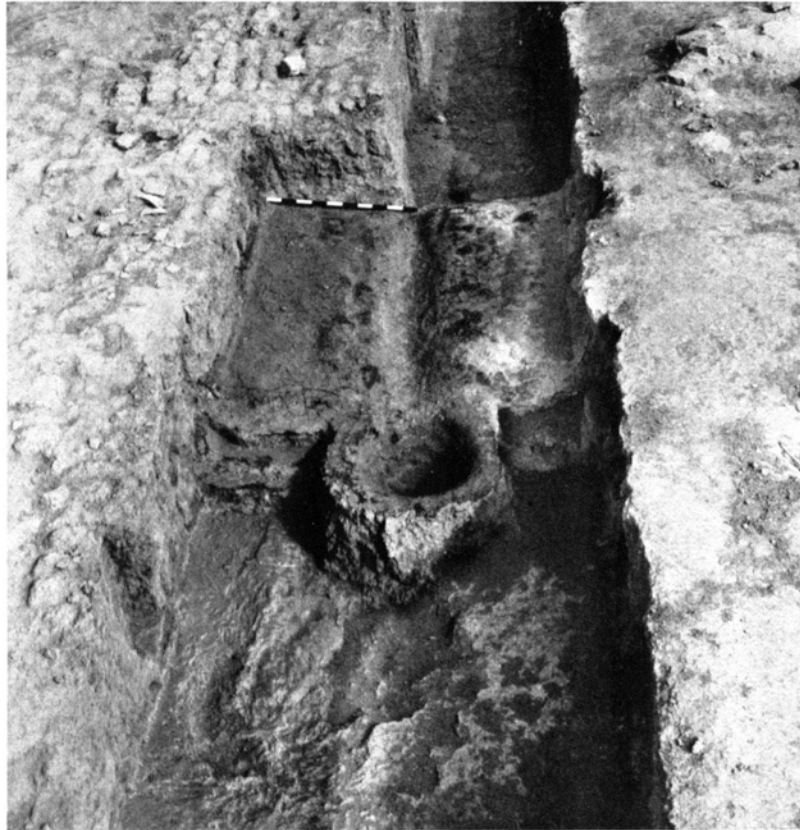


FIG. 41.—BITUMEN-COVERED STRUCTURE N 46:2

of the community (see p. 30), may suggest that this structure was a press for either grapes or olives in the process of wine- or oil-making, for similarly shaped contrivances, cut in the rock, are still commonly used in the East for this purpose.

“House D”

The part of the complex called “House D” formed a self-contained unit more akin to dwelling-quarters than to a sacred building. Its occupants, however, must have had close connections with the temple proper, for this building was situated within the outer inclosure wall and was founded, like the rest of the Temple Oval, on the layer of sand that extended below the whole of the sacred area. If the problem before the ancient architect was to give to “House D” a place according to its importance as something intermediate between the town houses occupied by ordinary mortals and the temple proper—the dwelling of the deity—he certainly dealt with it admirably by placing it between the two inclosure walls, so that, although it was standing on the same sacred soil and on the same terrace as the rest of the temple,

it was separated from it by the thick inner wall. One may even imagine that it was this problem and its solution that brought about the adoption of the double inclosure scheme.

The only entrance into "House D" was placed in harmony with the position of this part of the temple complex between the two inclosure walls. It was a comparatively narrow doorway in square K 43, opening from the forecourt between the two gateways of the Temple Oval and leading first into an antechamber, K 43:4, and thence into the rest of the building. The doorway was only 1 meter wide (the same as the average width of doorways in the rest of the



FIG. 42.—NORTHERN CORNER OF THE COURTYARD L 43:3 IN "HOUSE D," SHOWING THE BITUMEN-PLASTERED BRICK STRUCTURE WITH SHALLOW DRAIN AND SEVERAL UTENSILS IN POSITION

temple) and was in no way emphasized architecturally as the main entrance of the building. The original door socket, made of the same kind of soft stone as was used for the steps of the entrance through the outer inclosure wall (cf. p. 21), was found in position inside the doorway, to the left, at level 38.86 m., that is, at not far from the average height of the original floors in the majority of the rooms in "House D."

Opposite this entrance a doorway led from K 43:4 into the corridor K 43:6, which was only 1.10 m. wide and some 10.60 m. long. Approximately in the middle of this corridor a doorway opened from it into a small room, K 43:2, and at its far (northeast) end it terminated in an oblong space (K 43:1), which measured 2.30×4.60 m. and formed an antechamber for the central courtyard as well as for the three-cornered room L 43:1.¹⁸

¹⁸ This scheme of a corridor or passage ending in a larger space, without a doorway between, was observed also in the private house area (P 44), where the main street opened into a courtyard (Q 44:8); cf. *OIC* No. 17, Fig. 60.

K 43:2 also provided a passage between the corridor and the central courtyard, so that actually there was double communication from K 43:6 into the courtyard. It seems likely that, while K 43:2 was used by people coming from the outside, K 43:1 was reserved for use by the occupants of the house in reaching L 43:1.

L 43:1 was an isolated triangular room with maximum dimensions of 4.5×7 m. Entrance was through a doorway in its southwestern wall connecting it with K 43:1 and thus making it accessible from the central court as well as from the outside. A drain from the courtyard crossed this room and led to the outside of the outer inclosure wall.



FIG. 43. THE BRICKWORK IN THE NORTHERN CORNER OF L 43:3, AFTER BITUMEN AND OTHER REMAINS (CF. FIG. 42) HAD BEEN CLEARED AWAY

To the left is seen a deep shaft dug through the sand layer to determine its depth

L 43:3, the central courtyard, was a roughly square space measuring about 9×10 meters: around it the rest of the building was grouped. To judge by its position as well as by its size, it must have been open to the sky.

A square structure about 2 meters from the southwest wall of the court may have been an offering table or an altar, while a somewhat elaborate arrangement of plano-convex bricks plastered with bitumen, found in the northern corner, was apparently used for domestic purposes. Figure 42 shows this construction as it was first found, with some utensils in place; and Figure 43 shows it after the bitumen had been removed, revealing the actual brickwork with the various types of bricks used. The edge of the pavement was somewhat raised to form a ridge for diverting the water used here into two shallow drains leading from it. The one

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running northwest was connected with the drain running to the outside of the building through L 43:1; the second, a very shallow open channel branching off toward the south, could not be traced for more than 2 meters from its starting point.

Besides the two doorways in the northwest wall of the courtyard leading from K 43:1 and 2 there were five other doorways connecting the courtyard with either single rooms or suites. Of these, one was in the southwest wall, one in the southeast wall, and three were in the northeast wall.

We shall discuss first the three single rooms (L 43:2 and 4-5) off the northeast side of the court, all of which lay between the courtyard and the outer inclosure wall. L 43:2 communi-



FIG. 44.— SMALL ALTAR IN L 43:4, WITH REMAINS OF A JAR AT THE LEFT CORNER (CF. FIG. 38)

cated with the courtyard through a doorway near the northwest end of its southwest wall. The room was slightly irregular in form; no indication was found as to its use. It was excavated down to the foundations, which were found to project about 60 cm., so that the whole thickness of the foundation of the outer wall at the north corner of the room was nearly 3 meters.

L 43:4, the next room abutting the northeast wall of the courtyard, was also excavated to its foundations, and it was found that the foundation of its northeast wall (which is the outer inclosure wall) projected about 80 cm.; the foundations of the other walls projected only about 15-20 cm. L 43:4 was a small single room which possessed a few exceptional features. In the doorway leading into it from the courtyard were a few steps, necessary because the original floor of this room was lower than the floors in the rest of the building, the floor level here being at 38.85 m., which is 53 cm. below the floor level in the courtyard. It is clear that the difference in level between the floor of this room and the rest of the building was not, as in so many other



FIG. 45.— DETAILED SIDE VIEW OF THE WALL OF THE ALTAR IN L 43:4, SHOWING ITS CONSTRUCTION



FIG. 46.— STAIRWAY IN SIN TEMPLE VII WITH PARAPETS HAVING CURVED TOPS

cases, the result of differently rising floor levels, but was premeditated, probably deriving from certain ritualistic traditions.

In the north corner of the room was an interesting structure of unbaked plano-convex bricks (Fig. 44). It had a rectangular base measuring approximately 1.00×1.60 m., the north-east side of which was only 15 cm. from the outer inclosure wall. The base stood 86 cm. above floor level, and on it were built two side walls, each 35 cm. thick, forming an inner square space 95×95 cm., open in front. The tops of these two walls were rounded off toward the outside throughout their length, on the higher as well as on the lower parts (Fig. 45; cf. also Fig. 65), and the whole structure was originally coated with a thick layer of white lime plaster—a circumstance which greatly facilitated its excavation and the tracing of its peculiar shape. The rounded-off tops of the walls are quite similar to the rounded-off parapet walls of the main stairway of Sin Temple VII (Fig. 46) and VIII, which are approximately of the same date, and hence may be characteristic for this period. Both the shape of the entire structure, which suggests an altar, and the abundance and character of the objects found in the room (see list, p. 156) leave no doubt that L 43:4 was a sanctuary, probably for the private use of the occupants of "House D."

It is interesting to note that in placing the altar against a side wall of the room and not facing the entrance the builders took care to preserve the most typical feature of a northern sanctuary of that period, which, according to Professor Andrae, derives from the "Herdhaus,"¹⁹ although in this particular case the altar is placed against the long wall of the room. One may conclude, therefore, that the more important characteristic of this type of sanctuary was the position of the altar in relation to the entrance, while the actual shape of the room was of but secondary importance.

As Dr. Preusser observed, a man standing in this room in front of the altar and looking to his left through the doorway had a direct view of the square pedestal in the court (see Fig. 47), and it is possible that there was some ritualistic connection between the pedestal and the altar.²⁰

L 43:5, the third room off the northeast wall of the courtyard, was connected with the courtyard by a door of the usual width, while a second, somewhat narrower doorway in the east corner of the room led into L 43:6 and thence to a suite of rooms situated east of the latter. The shape and size of L 43:5 (5×1.30 m.) suggest that it was simply a passage or an antechamber to these rooms. These same rooms could be reached also through a doorway in the southeast wall of the courtyard leading into the large oblong room L 43:9.

L 43:9 measured 3.70×9.40 m. Although it was more regular in shape than the rooms lying along the outer and inner inclosure walls, yet none of its corners was rectangular. The room showed very pronounced traces of conflagration. In several places the mud plaster over the sun-dried plano-convex bricks had been baked hard, leaving the walls in a much better state of preservation than in most of the other rooms. But of even greater value to us was another effect of the fire—the preservation of remains of a fairly large portion of fallen ceiling found east of the doorway from the courtyard. Two charred ceiling beams, which originally ran across the width of the room, had fallen in such a way that they had scarcely changed their relative positions (see Fig. 48). The beams seem to have been about 20 cm. in diameter, with the same distance between them. Across the beams, that is, in the direction of the long axis of the room, a layer of reeds, still preserved even in its charred condition to a thickness of 2 cm., was overspread by a layer of clay. In addition several peculiarly shaped fragments of

¹⁹ W. Andrae, *Das Gotteshaus und die Urformen des Bauens im alten Orient* (Berlin, 1930) pp. 18 f.

²⁰ OIC No. 13, pp. 100 and 103.

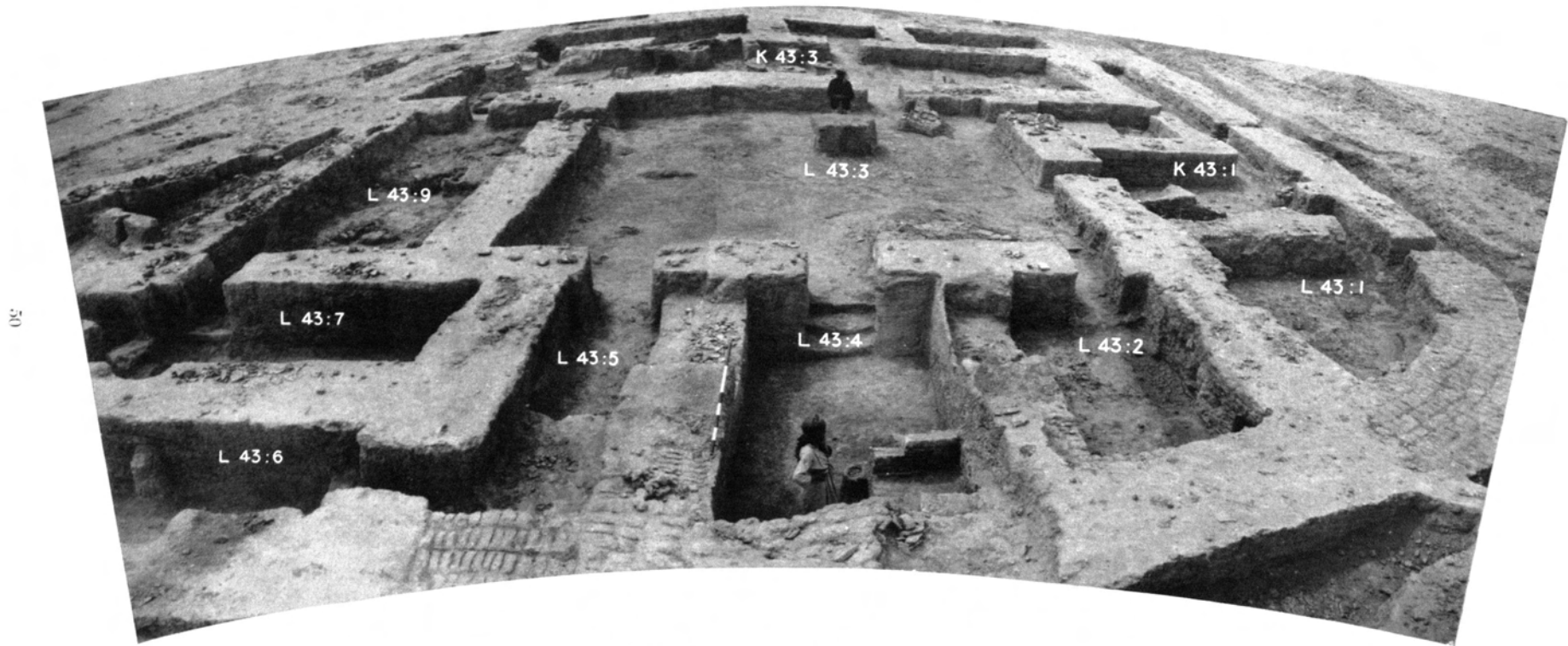


FIG. 47.—PANORAMIC VIEW OF "HOUSE D" FROM NORTHEAST

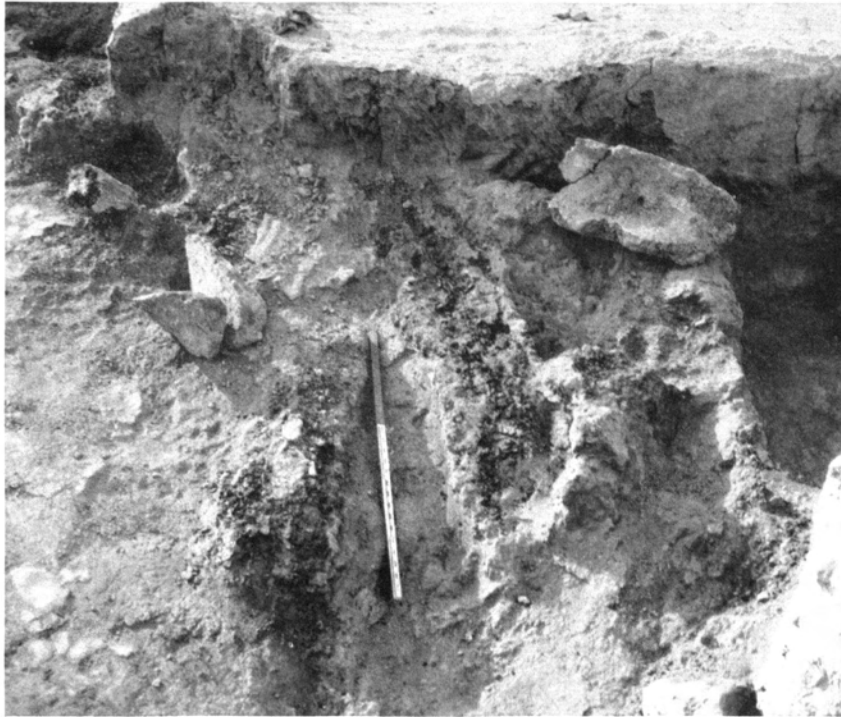


FIG. 48.—REMAINS OF BURNT BEAMS (SEEN ON EITHER SIDE OF THE METER STICK) AND PIECES OF MUD PLASTER FROM THE ROOF OF L 43:9

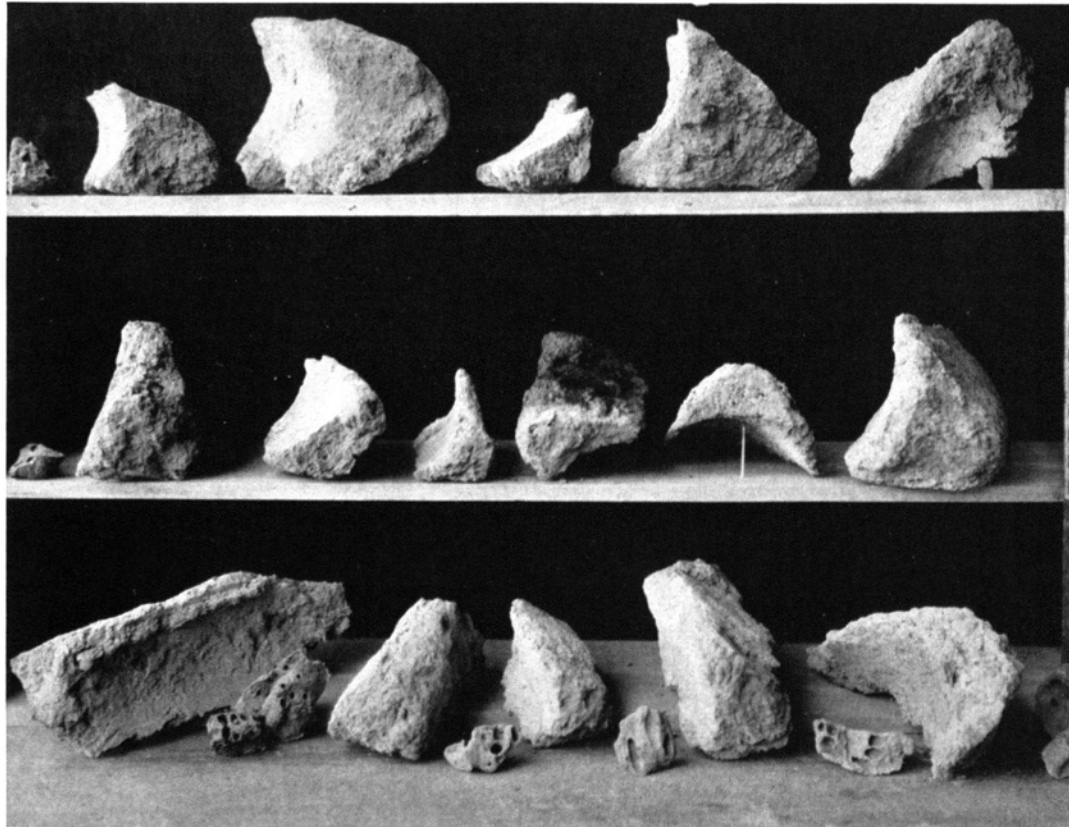


FIG. 49.—LUMPS OF ACCIDENTALLY BAKED MUD PLASTER AND WASPS' NESTS, SHOWING THE SHAPE OF THE ROOF BEAMS IN L 43:9

clay helped us to reconstruct the ceiling with greater accuracy. A few wasps' nests which had been attached to the ceiling and become baked in the conflagration also added some details to the picture. Some of these accidentally baked pieces of clay are shown in Figure 49. The reconstruction based on the evidence they provide is discussed on pages 133–36.

Off the southwest side of the courtyard lay room K 43:3. It measured 4.60 m. in width and 17.70 m. at its greatest length and was the largest and probably the most important room in "House D." It was fairly regular in shape except for its southeast side, which was formed by the curved inner inclosure wall. Access from the courtyard was gained through a doorway in the northeast wall of the room, and a second doorway in the same wall connected it with L 43:9. Two more doorways in the opposite (southwest) wall led into K 43:5 and K 44:5



FIG. 50.—REMAINS OF A SQUARE STRUCTURE IN K 43:3, WITH A CLAY STAND *in situ* AT ITS NORTH CORNER

respectively. In front of the doorway leading into K 43:5 part of the floor of K 43:3 seems to have been paved with a layer of small pebbles plastered over with bitumen. North of this pavement, against the southwest wall, traces of a square structure approximately 2×2 meters could be distinguished (Fig. 50). At its northern corner a singularly shaped clay object similar to others found elsewhere in "House D" (Fig. 51) was still standing in position. The shape of these objects suggests that they may possibly have been used as legs for low tables or divans, for their height is only about 25 cm.

Near the south corner of the room the wall showed traces of white lime plaster, preserved for only a few centimeters above the floor and overlapping the adjoining doorjambs. Two basalt hand mills (metates) were found near the southeast wall, but we cannot necessarily conclude that they were in actual use in this room, since it is possible that some symbolical significance was attached to them (cf. pp. 86–88).

Of the numerous objects found in K 43:3 a stone plaque (Kh. I 400)²¹ is especially worth

²¹ Cf. OIP XLIV 43–45 and 53 and Pl. 107.

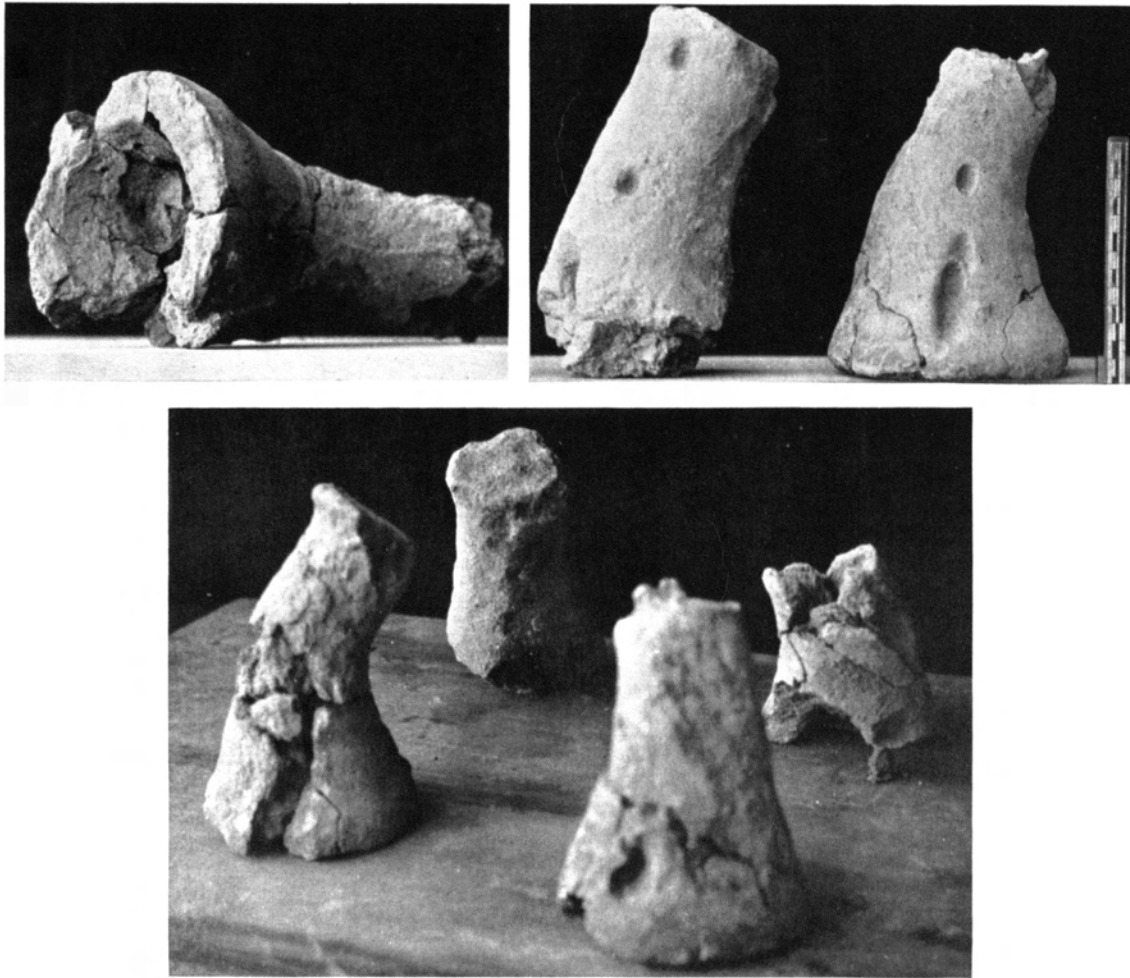


FIG. 51. CLAY STANDS USED PRESUMABLY AS LEGS FOR TABLES OR DIVANS

In the top row they are shown in various positions, while below they are arranged as though to support a table top



FIG. 52.—STONE PLAQUE (KH. I 400) AS FOUND *in situ* IN K 43:3

mentioning. It lay about 4 meters from the millstones mentioned above. Figure 52 shows the fragments of this plaque *in situ*. One may notice that the edges of the break separating the two large sections are not so sharp as the more recent breaks within each section. Besides the objects mentioned in the catalogue (p. 155) quantities of sea-snail shells were also found, most of them in a heap in the west corner of the room. In the northwest part of the room we came upon remains of charred flax seeds (cf. p. 154). They may perhaps have been used for oil-making, but it is more probable that the flax was grown chiefly for its fiber and that linen was already in use.

K 43:5 was the smaller of the two rooms situated southwest of K 43:3. It communicated

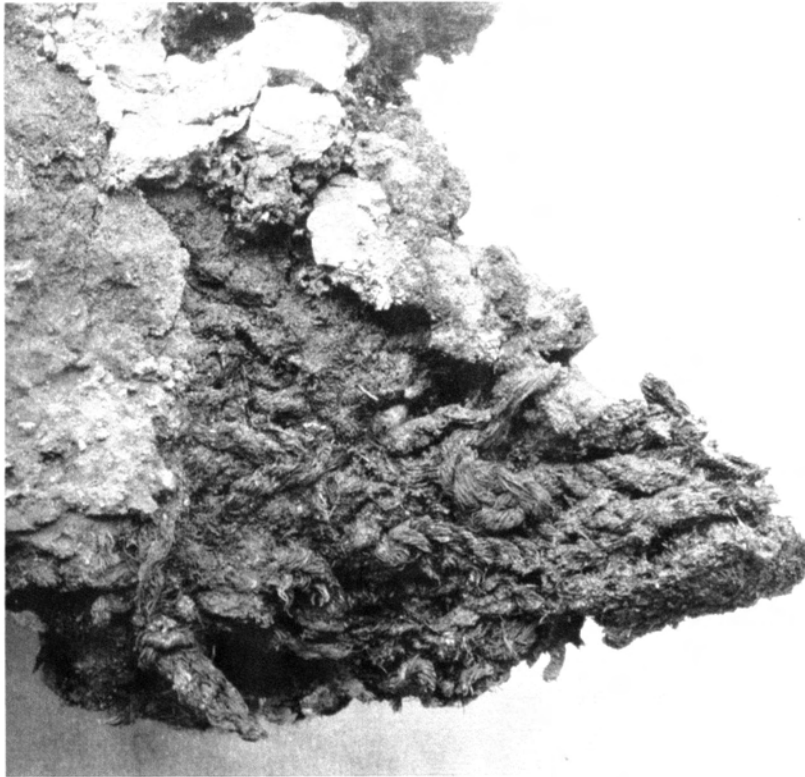


FIG. 53. — FRAGMENTS OF A FISHING NET

only with K 43:3, through a doorway in its northeast wall. In the middle of the room a large, round, flat stone had been let into the floor, probably to serve as a worktable. The room contained also a great number of objects of daily use, especially pots. Among the pottery fragments we found some charred seeds which were identified as lentils and barley. Mixed with them were remains of vegetable fiber that gave the impression of having been woven; it may have been the remains of the sack that once contained the grain. Several fragments of flint set in bitumen were probably the remains of sickles used for cutting grain. All of this suggests that this room, like those constituting the suite of rooms in N 46 beyond the platform, was a storeroom for agricultural produce and tools.

K 44:5 also, like its neighbor, communicated only with K 43:3. Its irregular shape was due to the curved inner inclosure wall, which formed the southeast wall. In the middle of the room, resting on a layer of reddish clay 4.5 cm. thick, was found a large baked clay disk which

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measured 65 cm. in diameter and was 5 cm. thick in the middle and 4.5 cm. thick at its beveled edges. This may have been a potter's wheel: or, since there were no signs of any device for rotating it, it may have served some quite different purpose. A basalt hand mill (metate), complete with its grinder, was also found in the same room.

There remain to be considered the rooms forming the eastern end of "House D," that is, rooms L 43:6-8 and 10 and M 43:5. L 43:6 lay alongside the outer inclosure wall, which accounts for its somewhat irregular shape. Its width was only 1.30 m. on the northwest and 2.40 m. on the southeast side, while its length was approximately 5.30 m. Its foundations were



FIG. 54. CLAY SINKERS AS FOUND *in situ* IN ROOM L 43:9

excavated down to the sand layer, which was found 1.73 m. below the floor level. This room, long and narrow in shape, was probably not used much except as a passage for the suite lying to its southeast. A doorway in its southeast wall led into L 43:8.

L 43:8 had four doorways; the two in its northwest wall led into L 43:6 and 7 respectively, the one in the southwest wall opened into L 43:10, and the one in the southeast wall communicated with M 43:5.

The nearly rectangular room L 43:7 was connected not only with L 43:8 but also, through a doorway in its southwest wall, with L 43:9. The two doorways were near each other in the south corner, so that the main area of the room was unbroken. This room also was partly excavated to the foundations. Of the objects found here there should be mentioned the remains of a fishing net, discovered in the east corner, of which certain details could still be discerned (Fig. 53). The clay rings found with the net (Figs. 54-55) were the net-sinkers.

They were each about 7 cm. in diameter. Of the wooden floats used to keep the upper edge of the net near the surface of the water, only one could be identified.

L 43:10 was irregular in shape on account of its position against the outer face of the inner inclosure wall; it communicated only with L 43:8 through a doorway in its northeast wall. It was interesting to find that this room had at one time been occupied at a level below that of the original floors and of the packing of the surrounding rooms. It looks as if part of the room had been excavated at a later period to a depth below the original floor level, probably in the course of repairing or rebuilding the inner inclosure wall. This would mean that objects found at a low level here are of a later date than those found in higher levels in some of the adjoining rooms.

M 43:5 was the last room at the eastern end of "House D" and formed its narrowest section.



FIG. 55.— CLAY SINKERS AFTER REMOVAL FROM THE GROUND, SHOWING BITS OF NET STILL ATTACHED

Part of the northwest wall of the room had been destroyed while alterations were being made at a later period. Still, there is no doubt that only one doorway existed in this room, connecting it with L 43:8, and that there was no exit on its eastern side into the open space between the two inclosure walls. The room contained a rectangular kiln or oven, M 43:9, very like K 44:3 described above (p. 24); near by was a circular structure, M 43:2, the purpose of which cannot be ascertained, though it probably had some connection with the use of the oven. In excavating within the room it was noted that the foundation for the outer inclosure wall was considerably thinner within the room than beyond it to the east. There is therefore no doubt that already at the earliest stage of the building, when the foundations were laid, the position of the cross wall marking the limit of "House D" had been determined.

The foregoing description of "House D" and its various parts and appointments enables us to draw fairly definite conclusions as to the function of this building within the Temple Oval complex. It seems clear that "House D" was a private residence, occupied presumably by the high priest of the temple or possibly by the ruler of the city in his capacity as high priest. The plan of the house suggests that it was occupied by this person and his immediate *entourage*,

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who were probably family members and servants, and one has no difficulty in attributing appropriate functions to the various rooms. Room K 43:4 is obviously a guardroom near the main entrance. The corridor leads through a small antechamber, K 43:2, into the central court. The large room K 43:3 southwest of the court was certainly the most important room of the building and most likely served as reception room or audience chamber. The smaller of the two rooms at the back of the "reception room" may have been an office or an archive-room, and the larger, K 44:5, may have been for more personal use such as dressing or sleeping. Rooms L 43:9 and 7 will also have been part of the personal suite connected with the "reception room." Their proximity to the service quarters (L 43:8 and 10 and M 43:5) suggests that they may have been the "dining-rooms." At the other end of the courtyard, facing the "reception room," was the small private chapel L 43:4. The bitumen-plastered corner of the courtyard in front of L 43:2 suggests that the water supply was kept here, possibly in large pottery receptacles not much different from those used today. Room L 43:2 may have served as a storeroom for food and drink. The small room at the other side of the chapel, L 43:5, is obviously a passage by which the service quarters could be reached without entering the private suite. The service quarters occupied the eastern corner of the house and consisted of rooms L 43:8 and 10 and M 43:5. It is of interest to note that the oven on which the food was presumably prepared was situated as far as possible from the "reception room" but still within easy reach of the other rooms of the private suite through L 43:8. Finally, the bath and toilet were situated in the opposite corner of the building in room L 43:1, which could be supplied with water through the drain from the courtyard, which ran through this room and out through the outer inclosure wall. No direct access existed from the courtyard into this room, but it could be reached through K 43:1 as well as K 43:2.

If "House D" was occupied by the ruler of the city in his capacity as high priest of the temple, the function of the forecourt between the two gateways can also be satisfactorily explained. The importance of the city gate in the East as a place of public gathering is well known.²² One is perhaps justified in assuming that this forecourt, close to one of the city gates and between the gates of the temple and in front of the priest's residence and the temple proper, was used as such a gathering-place where the important business of the community was transacted and where justice was perhaps administered. This space had the advantage over the city gate proper in that it was not a busy public thoroughfare and could easily be isolated from the town by the closing of the outer gate whenever privacy was required, for instance when the priest had to reach the sanctuary of the temple out of sight of the common people.

THE SECOND OCCUPATION

During the second occupation the whole plan of the building remained unaltered, while the floor levels rose fairly consistently over the whole area. Certain minor additions, however, were made, and these are shown in vertical hatching in Figure 56. Since these additions were confined to the temple courtyard, this area only is shown on the plan.

In square M 44 the projection from the circular basin (cf. p. 40) had been rebuilt and a new drain constructed, leading from it toward the outside of the Oval. This drain was longer and somewhat more elaborate than the former one. Its new course was probably due to some preference for carrying it through the doorway of room M 44:4. Traversing this room, it continued through the inner inclosure wall into M 43:3, the space east of "House D," thence through the outer inclosure wall outside the building, where it bent sharply to the southeast,

²² Cf. II Sam. 18:24; I Kings 22:10; Deut. 22:15; Amos 5:12; *et passim*; see also W. F. Albright, "The epic of the King of Battle," *Journal of the Society of Oriental Research* VII (1923) 1-20, esp. p. 10.

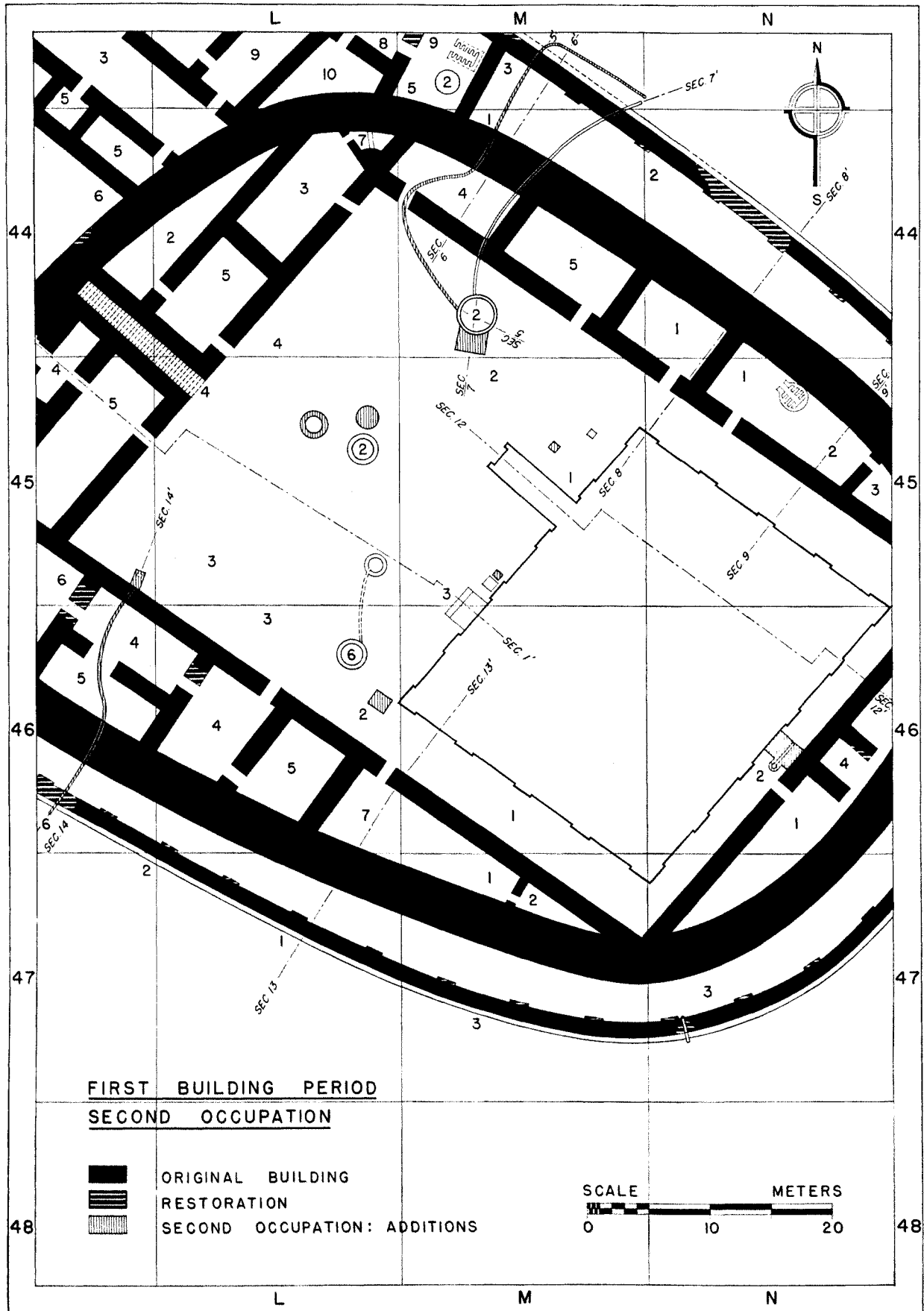


FIG. 56.—PLAN OF THE TEMPLE COURTYARD DURING THE SECOND OCCUPATION OF THE FIRST BUILDING PERIOD. SCALE, 1:450

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running parallel with the outer wall. The original drain also was rebuilt, at a somewhat higher level, and was extended so that instead of ending at the vertical shaft in the space between the two inclosure walls at M 44:8 it continued through the outer wall, the original pottery shaft in M 44:8 having been filled and partly paved in order to extend the drain. It is difficult to

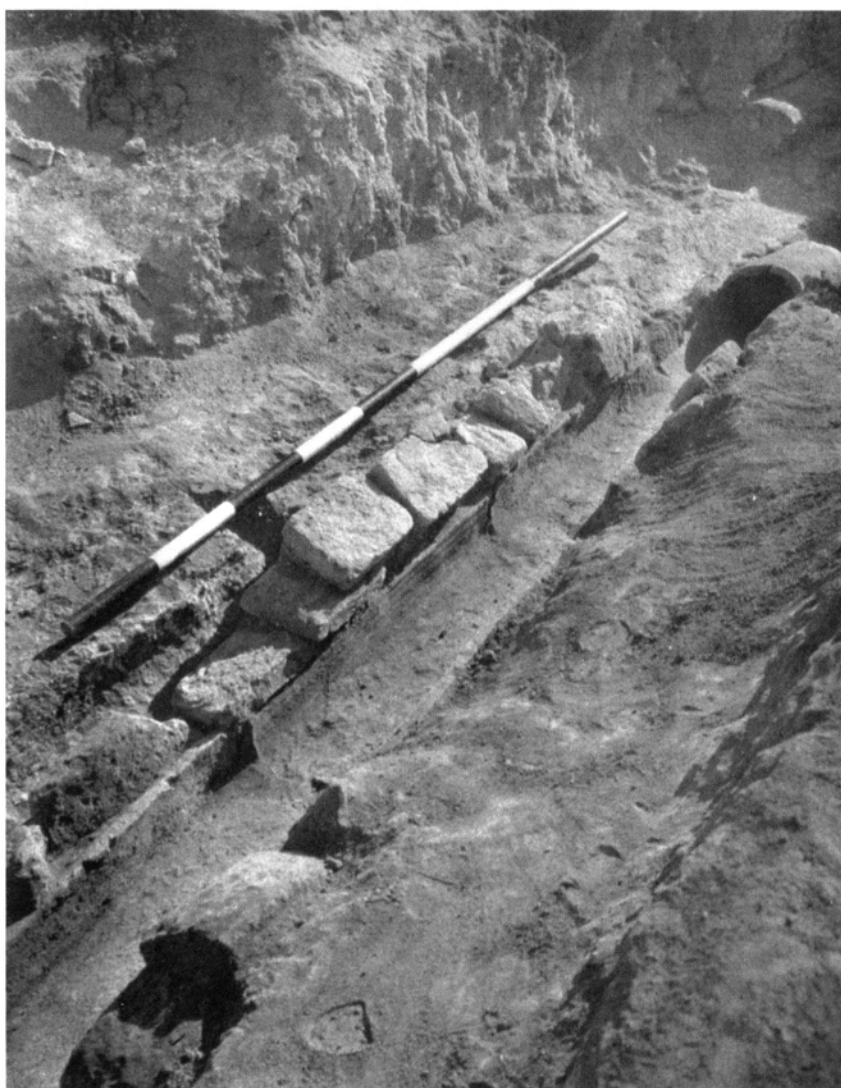


FIG. 57.—DETAIL OF SOUTHERN DRAIN, SHOWING A TUBULAR POTTERY SECTION AND SEVERAL OPEN POTTERY SECTIONS REINFORCED BY BRICKWORK

say whether the two drains were used simultaneously or whether the original drain proved unsatisfactory when rebuilt, so that it was abandoned and the second drain used instead. Section 5 on Plate X shows that this newly built drain sloped from the basin, while section 7 shows that the preserved portions of the shorter drain sloped toward it. It is possible to assume, therefore, that while one drain was used to bring water into the basin, the second was used to drain it off.

The drain leading from the western corner of the courtyard toward the southwest of the

Oval was also rebuilt at this period at a higher level, although its original course remained unaltered. Instead of being a continuous bitumen-plastered drain, it was now built in pottery sections reinforced by bricks to form an open channel (Fig. 57).

Near the west corner of the platform a bitumen-plastered structure, L 46:2 (Fig. 58), was erected, while in front of the platform in square M 45 two offering tables were added, one northeast of the altar M 45:3 and one northeast of the stairway. The upper surfaces of these structures were not preserved, but by analogy with a similar structure of a later period one may assume that they were rounded (cf. Fig. 73). Two round structures near the well



FIG. 58. VIEW ACROSS PART OF THE COURTYARD, SHOWING IN THE FOREGROUND THE BITUMEN-PLASTERED STRUCTURE L 46:2 ON A HIGHER FLOOR AND, BEYOND, THE WELL L 46:6

L 45:2 were also added. Of these only some of the bitumen coating remained, and it is impossible to know their purpose. At the back of the platform the bitumen-plastered structure N 46:2 was rebuilt at a higher level without any alteration in plan.

THE THIRD OCCUPATION

During the third occupation also there were no alterations to the original plan, except at the eastern part of "House D," where the space originally occupied by the two rooms L 43:8 and M 43:5 was rearranged so as still to connect one part of the area concerned with the courtyard of "House D" through L 43:6 and 5, while the rest of the space was divided into the somewhat irregular compartments L 43:12, M 43:5, and M 43:1 (Pl. IV). While the oven M 43:9 had disappeared, the round structure M 43:2 was preserved. A thin partition was built between M 43:1 and M 43:5, and in L 43:10 also a thin partition was constructed, cutting off the eastern corner of this room to form what may have been a small storeroom (Fig. 59).

In the courtyard of "House D" (L 43:3) the bitumen-plastered north corner was renewed and its level raised, while in the small room K 43:2 the north corner was filled by a bitumen-

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plastered structure, probably intended as a place of ablution for people entering from the outside before they reached the courtyard and the main rooms of the building. A very similar arrangement, K 45:2, was also installed at this period in a corner of the large antechamber of the temple courtyard, K 45:5. This was in the form of a basin-like sector with raised edges, lying in the west corner of the room.

In the large temple courtyard several changes occurred. Some of the structures of the earlier court were no longer in use, while others had been built to replace them or had been added to those still surviving. The main addition was a series of eleven small rectangular structures placed practically in a straight line through squares M 45, L 45, and L 46 (cf. Fig. 33).



FIG. 59. VIEW OF L 43:10, SHOWING IN THE CENTER THE STOREROOM FORMED BY A THIN PARTITION AND, IN THE FOREGROUND, A MILLSTONE *in situ*

They ran from a point about 6 meters in front of the platform stairway to about the middle of the northeast wall of L 46:4. They were only about 50×80 cm. in average size, much smaller than the square structures found in other parts of the courtyard. The spacing of the smaller rectangles was somewhat irregular, especially that of the first three at the northeast end, as can be seen on Plate IV. Except for the three referred to, the average distance between them was approximately 2 meters. Their grouping naturally suggests a colonnade, but the fact that they form only a single row in the middle of the courtyard certainly makes it impossible to assume that they were connected architecturally in any way with the platform. The only explanation that seems probable is that they were built to close off the space of the courtyard between the stairway to the northeast, the courtyard wall to the southwest, and the platform to the southeast. That this space was of special importance is indicated by the presence of the altar M 45:3 in it. Probably it was used as a secondary open shrine, either for



FIG. 60.—PART OF THE TEMPLE COURTYARD IN M 45-46, SHOWING THE PLATFORM WITH THE ALTAR AND, NEAR IT, OFFERING TABLES ON DIFFERENT FLOOR LEVELS

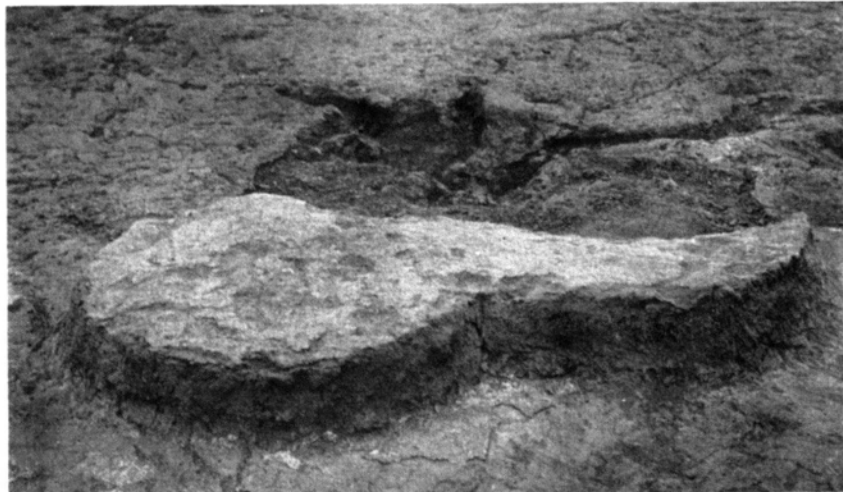


FIG. 61.—TWO ROUND EARTHEN STRUCTURES ON THE UPPER FLOOR LEVEL IN M 45, NORTH OF THE STAIRWAY

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a different class of people or perhaps because at that period the shrine on the top of the platform could not accommodate all the worshipers. The colonnade may have supported beams or rods from which curtains or more probably mats were hung when such a partition was necessary.



FIG. 62.—DETAIL OF THE VAULT OF THE BITUMEN-PLASTERED DRAIN K 46:8

Two building periods can be clearly distinguished, the earlier corresponding to the level indicated by the meter stick, the later represented by the brickwork covering this older vault.

Near the altar M 45:3 four offering tables were added (Fig. 60), and two more were built north of the stairs. In square M 45 we found also two joined circular structures forming a figure 8 (Fig. 61).

Near the well L 45:2 and west of the round basin M 44:2 ten new structures had been added, some square and some round, on an average larger than the offering tables near the platform. The round basin had been rebuilt and the projecting steps to the south altered slightly in

shape and direction. At L 45:4, which presumably served as base for a stairway (see pp. 25 and 69), two projections had been built against the courtyard wall. The southern drain from the courtyard through K 46:4 and 5 was again renewed and continued outside the Oval, ending in an elaborate drain of baked plano-convex bricks, K 46:8 (Fig. 62). Some minor changes were also carried out in M 47:2, where a partition was built to separate the eastern corner from the rest of the room, and in N 46:1, where structures (presumably storage places) were added.

At the same level as the new additions described above we found against the northeast and southwest sides of the platform some brickwork which is shown on Plate IV in a solid line but not hatched. Such an addition is assumed for the southeast side also. It is uncertain whether this brickwork actually belonged to the latest occupation of the first building period or was built in preparation for the fundamental changes that were to be carried out in the second. A discussion of these possibilities will be found on page 85.

III RECONSTRUCTION OF THE ORIGINAL BUILDING

RESTORATIONS

From the preceding chapter it is clear that the information about the original building during its various occupations is very nearly complete. In comparing the isometric reconstruction (Pl. V) with the plan of the earliest ruins as actually found (Pl. III) one sees that restorations were necessary in only a few details. We shall now discuss these restorations and the evidence upon which they are based.

The first of the reconstructed points is at the outer gateway (J 44:1). At a later period the area above it was outside the inclosure, and the laying of the later brickwork, of which traces were found (cf. Fig. 16), might have destroyed the lower courses of the brickwork belonging to this gateway. To accentuate the gateway we have reconstructed merely two shallow towers. This reconstruction is based partly on a comparison with the later gateway and partly on the position of the stone stairs which led up from the outer edge of the foundation wall and thus projected in front of the surface of the thin outer wall. Since it is certain that these stairs were within the thickness of the brickwork of the projecting foundation and the outer wall, the presence of such towers seems most probable.

The second point is at L 45:4, where the beginning of a stairway leading from the temple courtyard to the top of the inner inclosure wall has been reconstructed. The evidence for this stairway has been discussed on pages 25 and 69.

The third point is at M 45:1, where the stairway leading from the temple courtyard to the top of the platform has been reconstructed on the evidence of one of the stone steps found in position (cf. p. 42).

The only feature that is entirely new in the reconstruction as compared with the actual plan is the structure on top of the platform, for which no material evidence exists. As the platform itself, which stood originally to a considerable height, was worn down to its lowest few layers of brickwork, it is not astonishing that no traces of even the foundations of a building on the platform were found. Nevertheless, the existence of such a building must be presumed from the character of the rest of the complex. Since the sacred character of the entire oval inclosure was established beyond doubt from the types of objects found therein, and since the whole scheme of the complex with its inclosures, doorways, and flights of stairs converged upon the platform as its focal point, we must assume that the building on top of the platform was a shrine—the holy of holies of the entire temple.

Few sanctuaries of this period were known until recently; hence the results obtained by our simultaneous excavations, both at Khafājah and at Tell Asmar, were invaluable for our present reconstruction. Particularly valuable information was obtained from the Sin Temple at Khafājah, which we were able to excavate and study in detail in stages dating from times preceding the first building of the Temple Oval through several periods down to a time roughly contemporaneous with its latest remains. These two buildings, although of quite different general character, showed in certain details an astonishing similarity which provides a basis for comparison. Since the first draft of this volume was written and the reconstruction drawn, the Abu Temple at Tell Asmar, the Shara Temple at Tell 'Aqrab, and several smaller shrines

at Khafājah have been excavated and the type of the sanctuary of this period in this region well established.

The length of the actual sanctuary that stood upon the platform must, of course, have been less than the length of the platform, that is to say, less than 29 meters. If we allow for a passage around the sanctuary similar in width to the passage between the base of the platform and the courtyard walls, we should allot a space of about 4 or 5 meters on each side, thus leaving about 20 meters for the length of the sanctuary. Guided by the proportions of the other sanctuaries, we estimate the inside width at approximately 7 meters.

In determining the probable position of the shrine on the platform the spacing and the symmetry of the buttresses prove helpful. As we mentioned on page 42, the platform had six shallow buttresses on each of its long sides and five on each of the short ones. If for reasons of symmetry we adopt the same size and spacing of buttresses for the reconstructed sanctuary, taking into account our conclusions as to its proportions, the most reasonable and symmetrical arrangement would be four buttresses on its long walls and three on the short ones. Each of the four corner towers or buttresses would, therefore, almost exactly face the second buttress on each side of the platform. Such a position of the sanctuary on the platform would make both the stairway and the altar, each between the second and third buttresses from either corner, fit in very well with the whole scheme, and their apparently asymmetrical position would become at once not only possible but practically inevitable. For if the shrine was of the well known "long-room" type as shown, with the entrance near a corner of one of the long sides, and if it was buttressed as indicated above, the natural place for the doorway would be between the two buttresses at one end. In that case the entrance would face and exactly line up with the stairway, as one would naturally have expected. The assumed entrance being at the left end of the sanctuary when viewed from the court, the position of the altar inside the sanctuary would be at the other end, namely against the shorter or southwest wall, and would be in line with the outside altar M 45:3, thus quite naturally accounting for the position of the latter.

The fact that the size and position of the shrine, arrived at purely from considerations of symmetry, coincide so well with the other remains that they even provide an explanation for some doubtful points strongly supports this reconstruction, the more so as it is in absolute keeping with the character of the other shrines of this period mentioned above. Among these the small shrine Q 45:4, partly excavated during the third season and described at first as a "sculptor's workshop"¹ but completely excavated and identified only toward the end of the seventh season, is of particular interest; for its simple plan (Fig. 63) is typical of all the contemporary, even though more elaborate, shrines.² No better supporting evidence for the correctness of our reconstruction could be found than the fact that this small shrine, excavated some three years after our first reconstruction was made, is practically identical in plan with the building we had reconstructed on top of the platform.

The thickness of the walls of the reconstructed shrine is assumed to have been the same as the average thickness of the walls of the rooms around the courtyard, and this again fits in very well with evidence from other buildings of this type. But should we assume that this shrine was vaulted in a manner similar to that suggested by Mr. Lloyd for the reconstruction of the Abu Temple at Tell Asmar,³ the thickness of the walls would have to be proportionately increased so as to withstand the pressure of a vault. Since no traces of baked brick were found

¹ *OIC* No. 17, p. 73.

² Cf. Andrae, *Das Gotteshaus und die Urformen des Bauens im alten Orient* (Berlin, 1930) pp. 18 f.

³ *OIC* No. 17, p. 44 and frontispiece.

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on top of or near the platform, one has to assume that if such a vault existed it was constructed of unbaked bricks—which would result in great technical difficulties. This is one of the reasons why the simpler solution of a flat roof was adopted, especially since such a reconstruction is in keeping with the roofing in the rest of the building (see pp. 69–73). The height of the walls was taken to be approximately 7 meters, again only on the basis of proportion. It might have been slightly lower, but it is unlikely that it was much higher. The doorway is an exact

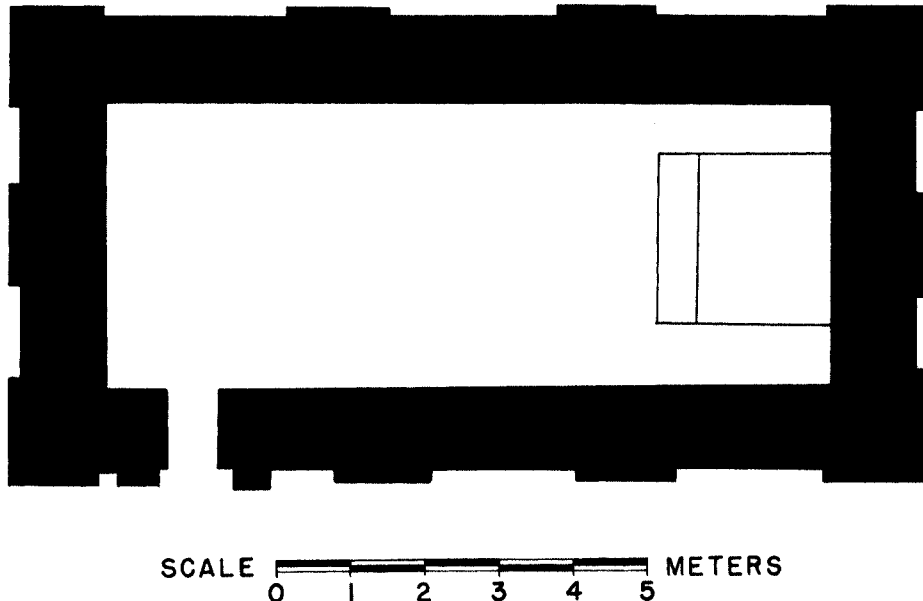


FIG. 63.—PLAN OF THE SHRINE Q 45:4, TYPICAL OF THE EARLY DYNASTIC PERIOD. SCALE, 1:100

replica of the reconstructed entrances through the outer and inner inclosure walls. It is accentuated simply by a further projection of the two buttresses between which this entrance is placed, again resembling similar details observed in actual excavated ruins.

PERSPECTIVE VIEW

The more elaborate reconstruction of the whole complex in perspective as shown on the frontispiece is based on the isometric restoration (Pl. V) discussed in the preceding section. In addition to the points mentioned there such a complete reconstruction involves several more problems, such as the height of the various parts of the building, the question whether any part was roofed or open to the sky, the type of roofing used, the vaulting of the doorways and gateways, and many minor details, the discussion of all of which is the object of this chapter.

A clear idea of the reconstructions adopted for various parts of the building can be obtained from the elevations and sections on Plate VI. *A* is a transverse section through the building in front of the platform. From left to right can be seen the thin outer inclosure wall on top of its wider foundation with a section of the inner surface of the wall in elevation, the thick inner inclosure wall with a reconstructed parapet at its outer face, the sloping roof of M 44:5 with a rainspout from the inner inclosure wall, the temple platform and the sanctuary above it (in elevation) with the open-air altar and some other structures in front of the platform, and to the right K 46:4 and 5 and the inner and outer inclosure walls on the southwest.

B presents a longitudinal section through the Temple Oval from the outer gateway J 44:1 through the forecourt K 44:1 with "House D" in elevation in the background, thence through the inner gateway K 44:2 and rooms K 45:4 and 5 to the courtyard with the well L 45:2, and finally through the stairway and the platform with its reconstructed sanctuary and through rooms N 46:2 and 1 and the inner and outer inclosure walls on the southeast.

C is a section through "House D" and the forecourt K 44:1, taken from the northeast (left) toward the southwest. It shows the chapel L 43:4 with its floor below that of the inner courtyard L 43:3, rooms K 43:3 and 5, part of the inner inclosure wall with its gateway and with the reconstructed sanctuary in elevation in the background, the cross wall in J 45, and the outer inclosure wall in J 45 with buttresses against its inner face.

The two elevations, one from the northwest (*D*) and one from the southwest (*E*), are self-explanatory.

It is seen from these sections and elevations that a height of 4 meters was adopted for the outer inclosure wall and a height of 6.50 m. for the inner inclosure wall. Although in at least two points where the stairways are reconstructed we have some evidence concerning the heights of these walls, the heights assumed for them are in the main somewhat arbitrary, being based chiefly on an individual sense of proportion, and could be considerably varied within certain reasonable limits (cf. p. 69). The problem of the elevation of gateways and doorways depends largely on the height of the reconstructed walls, and within the limits thus fixed they have been arrived at by Mr. Darby on the basis of good architectural proportion.

As to the actual appearance of the two gateways, the plan of the excavated building leaves no doubt that the inner gateway had no ornamentation of any kind on its outer surface. The two shallow recesses situated approximately in the middle of the thickness of the wall were alone the means of emphasizing that this was a main entrance. Of the outer gate, as we have already seen (p. 21), no details were preserved, and in the absence of any exact indications the simplest way of accentuating this main entrance was adopted, namely a shallow tower on each side of the gateway (cf. p. 65).⁴ The tops of the gateways were presumed to be vaulted, as we have ample evidence that the vault as an architectural feature was fairly common if not highly developed at that time. On the basis of roughly contemporary entrances into Sin Temple VI–VIII it is likely that some kind of a parapet or balustrade existed on both sides of the steps; but, as no trace of such an arrangement was actually found, such features have been omitted from the reconstruction. Our reconstruction of the doors at this gateway may be seen in Figure 64.

STAIRWAYS

There must have been four flights of stairs⁵ in the building. The first led from outside the Oval through the outer gateway into the forecourt between the two inclosure walls, the second from here through the inner gateway to the courtyard, the third from the courtyard to the top of the platform, and the fourth from the courtyard to the top of the inner inclosure wall. It was not difficult to reconstruct the first and the second stairway, for, as we said on pages 21–24, stone steps of the stairway at the outer gateway were found in position, and traces of bricks laid in bitumen marked the position of the stairs in the inner gateway. Although in the inner gateway the actual steps had been destroyed, the difference in level of about 30 cm. between the forecourt and the original floor in the gateroom K 45:5 allowed for two rather shallow steps here.

⁴ This reconstruction is supported by evidence from other buildings of the Early Dynastic period, where this method of accentuating the gateway was invariably adopted; cf. *Pre-Sargonid Temples in the Diyālā Region*.

⁵ Not counting the steps which led from the courtyard of "House D" into the small chapel L 43:4.

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Of the stairs which led from the courtyard to the top of the platform the base was completely preserved as well as the first stone step. The base was 7.70 m. in length and the tread of the first step 30 cm. in width, so that the total flight must have had about 26 steps. Since the height of each step was about 15 cm., the height of the platform must have been just under 4 meters above the level of the court, thus making a gradient of 1 in 2. The parapets at the sides of the stairway were reconstructed with flat tops. However, since the discovery of the main stairway of Sin Temple VIII and especially that of VII, the parapets of which were rounded off toward the outside like the curbs on the sides of the altar in shrine L 43:4 (see pp. 49 and 74), it is realized that such rounded-off tops may have been the fashion of the day and that the parapets of the stairway leading to the platform may have been similar in character.

The reconstruction of the stairway leading from the courtyard to the top of the wall is based on much less tangible evidence, and its existence is problematical. However, if we presume that the thickness of the wall served for purposes of defense, a way of reaching the top from the courtyard must have existed. As mentioned on page 25, the two rooms K 44:10 and L 45:4 in the immediate vicinity of the gateway attracted attention. The narrowness of these rooms, the lack of access to them, the absence of proper floors, their position near the thickened part of the inner wall, and the two projections into the courtyard in front of L 45:4 at a later occupation (see Pl. IV) make it probable that in this space was situated the stairway leading from the courtyard to the top of the inner wall. If we adopt this view and then suppose that the same gradient existed here as in the stairway leading up to the platform, the total length of approximately 12.50 m. from the courtyard to the inner wall gives us a height of about 6 meters for the latter at this point. It may be that the extreme shallowness of the stone steps leading up to the platform was necessitated by their ceremonial use for religious processions and the like, while steps for purposes of defense were probably of a steeper gradient. If so, the height calculated for the inner wall on the basis of the gradient of the platform stairway is a minimum, and in all probability the actual height of the wall was rather more than this. By adding 1 or 1.5 meters to this height we would still be well within the limits of reasonable proportions.

ROOFING

As regards roofing, we shall consider separately the space within the inner inclosure and the space between the two inclosure walls, including "House D."

Of the space within the inner inclosure there is no doubt that both the platform and the large courtyard were open to the sky. Some doubt may arise as to the rooms built between the inclosure wall and the courtyard walls. Some of these were of considerable size and certainly demanded not only good craftsmanship but also good material for their roofing. The roof having been in all probability a flat roof consisting of crossbeams, rafters, matting, and mud plaster, it could naturally have been constructed over a limited span only, not only because of the difficulty of obtaining very long beams in a treeless country, but also because the strain caused by the weight of the superimposed structure (crossbeams, rafters, matting, and mud plaster) would increase very rapidly with the increase in length of beams, causing the beams to bend and so making the structure very impracticable beyond certain limits. We estimate that the maximum span practicable was about 8.50-9.00 meters, even if longer beams had been procurable. The very irregularity of the building seems to provide valuable confirmation of this estimate and, indirectly, an indication that these rooms were roofed.

An important object in the ancient architect's scheme (cf. Pl. III) was undoubtedly to provide for a series of rooms between the inner inclosure wall and the walls bounding the

courtyard. On the northwest side the rooms adjoining the main entrance into the inner inclosure were built in a double row, while on the other three sides only single rows of rooms existed between the courtyard and the inner inclosure wall, except in the west end of the building in K 46, where a partition wall parallel to the wall of the courtyard formed two rooms, K 46:4 and 5. It is worth noting that here, due to the irregularity of the inner inclosure wall, the distance between the two walls is the greatest, being just over 9 meters (which we had estimated as the maximum length of the roofing beams); and it seems probable, therefore, that the partition wall was introduced in order to reduce the span. In room K 45:6, which at its maximum width reaches the same span, no such partition wall was built, probably on account of the two oval fireplaces in it. However, the otherwise inexplicable square structure between the two oval fireplaces could be easily explained as a supporting pillar for a few radiating beams, none of which would then have to extend even 5 meters.

It may seem at first that the ancient builders could still have retained a single row of rooms by the alternative method of placing the partition walls perpendicularly to the courtyard wall at distances not exceeding the practical length of roofing beams, thus having the long axes of these rooms running northeast-southwest instead of northwest-southeast and the roofing beams laid at right angles to the direction of the long axes. However, a closer examination will show that this solution of the problem would presuppose either a flat roof or an unrestricted choice as to the direction of the slope. Neither of these was possible, for it is clear that a slope must have existed for the drainage of the rain water and that the direction of the slope was dictated by the general character of the Temple Oval. For practical reasons it was simplest to build the roofs of all rooms situated on one side of the courtyard as a single surface with a common slope. This slope could only be inward into the court or outward into the space between the two inclosure walls. In either case the alternative arrangement suggested above would have necessitated the laying of the roofing beams at right angles to the slope—a solution highly unsuitable from the structural point of view.

As to the space between the two inclosure walls, we assumed that this was open to the sky except for the space occupied by "House D," and even there we thought that court L 43:3 and part of the corridor leading into it were unroofed. The large, irregular forecourt southwest of "House D" between the two gateways we assumed to have been open to the sky, since it was certainly too wide for one span and no traces of any other arrangement to support a roof were found there.

The difference in height of some of the rooms, both inside the inner inclosure and in "House D" (see frontispiece), came about through the necessity of letting light into back rooms, most of which were situated against the inner inclosure wall. As there certainly were no ordinary windows in the thick inclosure wall, the only possible means of obtaining light was by a row of small clerestory windows quite near the ceiling and above the level of the first row of rooms. A window was actually found in Tell Asmar in a private house of the Sargonid period,⁶ and the arrangement of clerestory lighting used by Mr. Hill in his reconstruction of a group of such houses⁷ holds good in our case also. We have indicated clerestory lighting for the main room of "House D" (K 43:3), although in this case such an arrangement is not unavoidable, since the windows might have been facing northeast toward the courtyard.

For the lighting of the sanctuary on the platform Mr. Darby reconstructed a series of rather long and narrow windows, symmetrically spaced in the bays between the buttresses. These are different from the windows shown in the private houses and in "House D." They are placed somewhat lower and are differently proportioned from those reconstructed by other

⁶ *OIC* No. 17, p. 14.

⁷ *Ibid.* Fig. 13.

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architects; but, as Mr. Darby pointed out, there is no conclusive evidence or even a suggestive indication for the usually adopted reconstruction. Moreover his reconstruction, which is definitely preferable from a purely architectural point of view, seems also to be supported by certain indications that we may derive from models of houses of the period, such as the model houses from Assur,⁸ the pottery cult wagon (Kh. IV 476) from the Sin Temple at Khafājah,⁹ a stone offering stand from Tell 'Aqrab,¹⁰ and a small window actually found in a room of Stratum VIII at Tepe Gaurā.¹¹ Though the windows are drawn lower in our reconstruction than in such drawn by others, they still retain that necessary feature of sanctuary lighting, namely their being above the eye level of people outside.

The roofs of the three rooms L 44:2 and K 45:4 and 7, which immediately adjoin the inner inclosure wall near the gateway, were reconstructed to the same height as the inclosure wall at this point, thus forming with the top of the wall a wide platform that could be used by a large number of people for the defense of the entrance into the temple. The second series of rooms we assumed to have been roofed at the same level as the rest of the rooms around the courtyard.

Another problem we had to face in our reconstruction concerned the slopes required for the roofs over different parts of the building in order to provide adequate drainage of the rain water. At first it seemed natural to reconstruct all the roofs with a slope toward the outside, so as to drain off the water from the roofs across the top of the thick inner inclosure wall into the scarcely used space between the two inclosures, especially since the bitumen-plastered surface N 47:3 (Fig. 14) and the system of drains that led from it through the outer wall seemed to leave no doubt that it was meant to collect and drain off the water from the adjoining space. But adoption of this arrangement meant either that the rooms around the courtyard were actually higher than the surrounding thick wall, so that a common slope across the top of the wall could let the water freely into the space between the two inclosure walls, or that, if the thick inner wall stood higher than the rooms within the inclosure, an adequate system of drains through the thickness of the wall must have existed to carry the water off the roofs. In the latter case the drains would have been constructed of baked brick, pottery, or bitumen, of which one would expect to find some traces. But since no such traces came to light, and since it seemed more reasonable to reconstruct the inclosure wall to a greater height than the rooms within the inclosure, we had necessarily to assume that the slopes were toward the inside and that the rain water was first drained off into the courtyard and from there toward the outside, presumably through the large drain at its western corner.

A slight pitch must originally have existed both on the sanctuary roof and on the surface of the platform in order to carry away the rain water. Probably the slope of the platform is indicated in the present incline of the ground toward the west, and one would suppose that the water ran off from the southwest side into the passage between the platform and the courtyard wall at M 46:1 and down to the drain at the south corner of the courtyard.

A parapet wall was reconstructed on top of the sanctuary platform and on the top of the thick inner inclosure wall, since such walls were no doubt of use there. For reasons of symmetry a parapet was assumed to have existed on top of the sanctuary also. The buttresses of the platform and of the sanctuary were carried above the parapets as shallow towers, but no

⁸ W. Andrae, *Die archaischen Ishtar-Tempel in Assur* (Deutsche Orient-Gesellschaft, "Wissenschaftliche Veröffentlichungen" XXXIX [Leipzig, 1922]) p. 36, Fig. 5.

⁹ *OIC* No. 19, pp. 42 and 46 and Figs. 48-49.

¹⁰ *Illustrated London News*, Sept. 12, 1936, p. 134, Fig. 17.

¹¹ E. A. Speiser, *Excavations at Tepe Gawra I* (Philadelphia, 1935) 27 and Pl. XXII b.

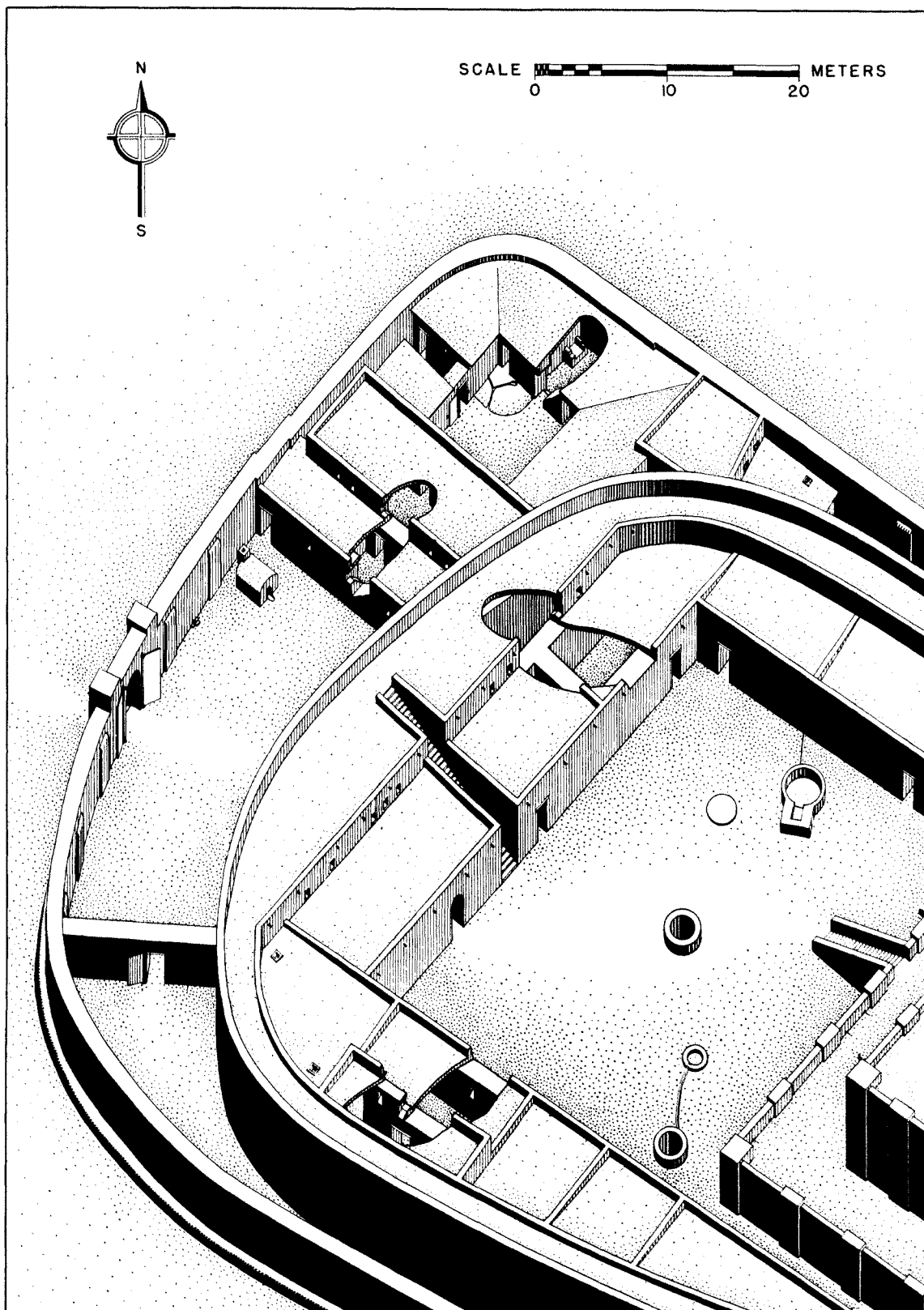


FIG. 64.—ISOMETRIC RECONSTRUCTION OF THE NORTHWESTERN HALF OF THE TEMPLE OVAL DURING THE FIRST BUILDING PERIOD, SHOWING THE PART ASSUMED TO HAVE BEEN ROOFED AND THE STAIRWAY LEADING TO THE ROOF. SCALE, 1:450

reason was found to reconstruct any battlements either in these towers or in the sections of parapet between them.

Our conception of the entire roofing system can be seen clearly from the isometric reconstruction shown in Figure 64. Here parts of the roofs have been cut away to reveal structural details described above. On the roof of K 45:6 are shown two shafts to carry away the smoke

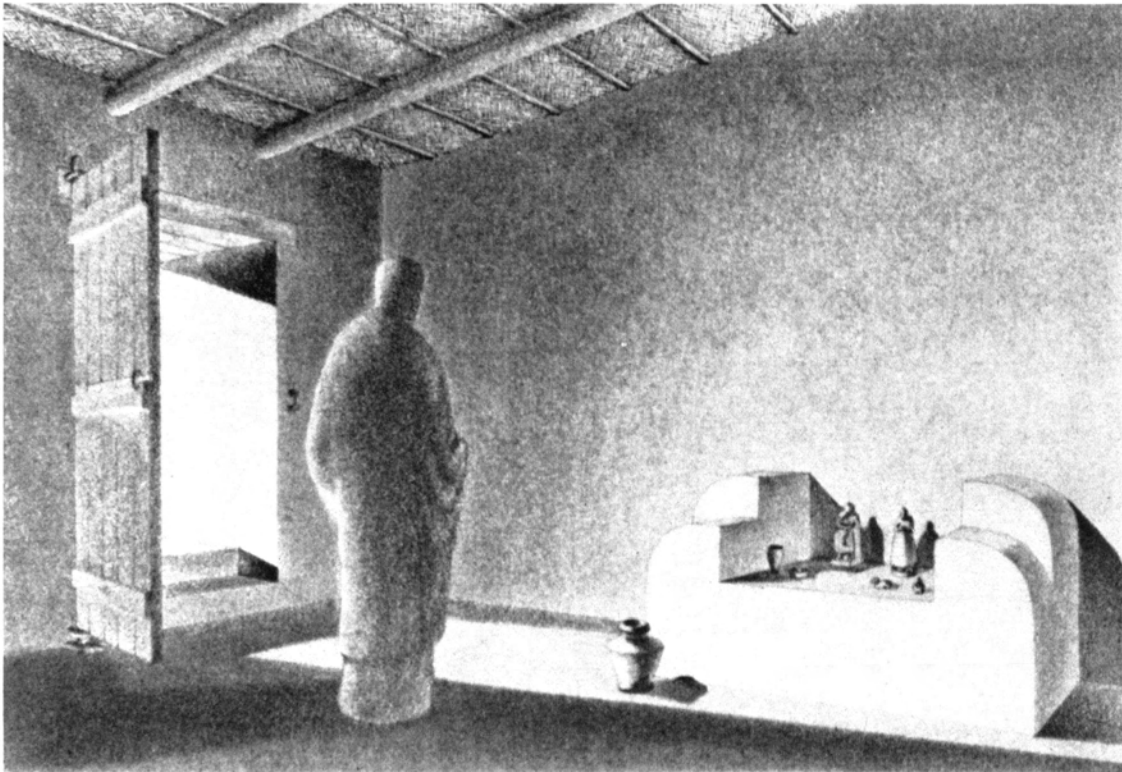


FIG. 65. PERSPECTIVE RECONSTRUCTION OF THE INTERIOR OF THE SMALL SHRINE L 43:4 IN "HOUSE D"

from the two pear-shaped fireplaces in the room beneath. Other details of interest on this reconstruction are the doors at gateway J 44:1 and at the gateway in the wall at J 45:4, also kiln K 44:3.

PRIVATE HOUSES OUTSIDE THE TEMPLE OVAL

The private houses surrounding the Oval are reconstructed partly from the actual plans obtained by excavations and partly by projecting similar buildings into the area not yet excavated. The houses in the area extending from the open space in front of the outer gateway around "House D" and continuing in the direction of the outer wall to about the southeast corner of the Oval were actually excavated, most of them during our third season.¹² The streets were either excavated or traced from the differences in color observed on the surface after rain.¹³ The houses are reconstructed very much on the same principles as those which Mr.

¹² *OIC* No. 17, p. 69 and Figs. 54 and 60.

¹³ This difference in color is due to the varying consistency of the soil in the streets, in the rooms of the houses, and in the places occupied by brickwork, and to the correspondingly varying rate of drying after rain. When such an area is seen from above (in flying over the site, for instance) during the process of drying, the different stages of moisture result

Hill adopted in his reconstruction of the area of the private houses in Tell Asmar (cf. p. 70). Since the private houses excavated at Khafājah will be described and fully discussed in another volume of this series, entitled *Private Houses and Graves in the Diyālā Region*, detailed discussion of them here is unnecessary.

SHRINE L 43:4

In addition to the general reconstruction described above we present also a detailed reconstruction of the small shrine L 43:4 as seen from the east (Fig. 65). The ceiling is in accord with evidence found in room L 43:9 (see pp. 49 and 133-36). The two large crossbeams support thin rafters which are covered by mats made of palm leaves or reeds split into strips. The door is shown as made of fairly regular planks. The evidence that planks were in use is the toolbox in room O 46:1 (see pp. 30 f.). The hinges may have been of metal, wood, or stone, the weight of the door being supported by a stone door socket. In the doorway are to be seen the steps leading down from court L 43:3. The most important feature of this room—the small altar—is reconstructed with some of the objects actually found in the room. The particular shape of the curbs on both sides of this altar is clearer than in Figures 44-45, closely resembling that seen in the parapet of the main stairway of the Sin Temple (cf. p. 49 and Fig. 46).

in regular patches of different colors, producing an effect as though one were seeing the plan of the ruins beneath the surface of the soil by means of a gigantic X-ray apparatus. It is to be hoped that this phenomenon will be properly used in aerial photography in the future and thus help to obtain valuable information about the uppermost ruins of certain ancient sites, especially those where only a thin layer of disintegrated bricks remains and where adequate information is unobtainable by any other means.

[A similar effect due to the fresh grass of spring is explained by E. F. Schmidt, *The Treasury of Persepolis and Other Discoveries in the Homeland of the Achaemenians* ("Oriental Institute Communications," No. 21 [Chicago, 1939]) pp. 134 f. For examples of Dr. Schmidt's outstanding use of aerial photography in the service of archeology see especially his folio volume, *Flights over Ancient Cities of Iran* (in press).—EDITOR.]

IV

SUBSEQUENT BUILDING PERIODS

THE SECOND BUILDING PERIOD

The plan of the ruins of the second building period is shown on Plate VII. These ruins were far less well preserved than the earlier remains. Their different parts are shown in varied hatchings, while the outline of the earlier building appears in continuous line. In order to gain a better understanding of the relation between different parts of these later remains and also between these and the building of the first period it will often be necessary to refer to the vertical cross sections on Plates VIII–X. These show that the floor levels of the second building period were not much higher than those of the original building, also that the walls had no proper foundations but were built directly over the ruins of the earlier period.

It is to be seen from the cross sections that the earlier ruins were preserved to a small height only; and if one assumes that they were gradually worn down to this height by natural denudation one has to allow a very considerable length of time for this process, bearing in mind the great thickness of the walls and the size of the solid platform. Yet there is no doubt that the traditions of the original building were still fresh when the second building was planned, for not only did it follow the general lines of the earlier plan, but even some small details of the two buildings were identical; in fact, it even seems possible that parts of the earlier building continued in use. It is therefore more likely that before the second building was begun the earlier ruins were partly demolished and leveled and the debris carried away. Thus the interval between the two periods will not have been so long as we were at first inclined to believe, although we still have no means of judging its exact duration.

THE OUTER INCLOSURE WALL

The most notable change in plan during the second building period is to be found in the construction of the outer inclosure wall. Instead of the original thin wall only about 1.50 m. wide there was now a wall similar in thickness to the inner inclosure wall, measuring approximately 3.50 m. in width (Pl. VII, horizontal hatching). Another innovation was the introduction of buttresses on the outer face of this wall. The width of the buttresses was on an average 2.30 m., and they projected about 0.50 m. from the wall (Fig. 66). The spaces between them were not very regular and measured on an average 5 meters. No more than twenty-one of these buttresses could be traced, because, unfortunately, at the western side of the building a large portion of the wall had disappeared completely, having gradually been washed away, and left merely a gentle slope from east to west (see Pls. VIII–X, especially sections 1 and 15). Even at the highest point, at the eastern corner of the ruins, the outer wall was preserved to a height of about 0.60 m. only, the height gradually decreasing toward the northwest and the southwest until only the lowest layer of bricks of this wall was left in squares N 44 and L 47. In L 47 we could trace the continuation of the wall for another few meters by the impression that the lowest layer of bricks, now completely gone, had left on the surface of the soil; thereafter all traces were lost. However, fragmentary remains of brickwork in squares J 45–46 and K 46, which owed their survival perhaps to the necessity of placing the wall there at a somewhat lower level, suggest that the new outer inclosure wall followed closely the plan of the earlier wall near the gate also.

In square K 46 some brickwork, presumably connected with this period, formed a small room (K 46:2), which may indicate that during the second building period the space between the two inclosure walls was somewhat differently used than in the first.

No traces of later brickwork were found in the area of "House D," so that we have no indication as to how the buttressed wall continued or ended there.

Unlike the brickwork of the earlier period, that of the second period does not show that any great care was taken in choosing the clay for brick-making. While all the bricks of the first period were made of fairly pure clay, with practically no accidental impurities and only an in-



FIG. 66.—THE BUTRESSES OF THE OUTER INCLOSURE WALL ON THE EAST SIDE

tentional admixture of chaff, sand, or gravel, the bricks of the thick outer wall contained a large amount of potsherds, charcoal, ashes, etc. Because of these foreign materials their color, instead of showing the usual reddish tint of the clay in the plain, was of various shades of gray. Obviously the clay used for these bricks had been dug from a site which contained some earlier ruins. The actual brickwork was also more slapdash, especially in the middle of the wall. Though the herringbone pattern, produced by setting the bricks on their edges, was less common in this wall than in the rest of the ruins and most of the bricks were laid flat, this was done without particular care to produce regular bonding. It seems that the builders relied more on the drying of the bricks and mortar into one solid mass than on any strength produced by bonding methods.

At a certain point in square N 44 a change in the color of the outer wall was observed while

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tracing the brickwork. This led to a more careful examination of this part of the wall, and it was found that for some distance here the wall was built of bricks made of purer clay that were, on an average, much larger than the bricks used in the rest of the wall. While the latter measured only 13×19 cm., the former reached the size of 22×31 cm. and are, therefore, among the largest plano-convex bricks ever found. There seems to be no doubt that by one cause or another a breach had been made in the wall at this point and had been repaired by specially made bricks. A flood would seem to be the most likely among natural causes; but the houses in the immediate neighborhood showed no trace of having been destroyed by water, and one may presume, therefore, that the wall was damaged during a siege.

THE INNER INCLOSURE WALL

During the second building period the inner inclosure wall also was rebuilt. Presumably this occurred about the time when the thick outer wall was being built or possibly somewhat earlier. But since the thickness of the inner wall in both periods was very nearly the same, the changes were much less noticeable; in fact, had it not been for some slight variations in width and for a thin layer of sand found in various places between the brick masses, it would have been impossible to distinguish the two periods. However, these details, once observed, leave no doubt as to the fact that the inner inclosure wall also was completely rebuilt. Although a comparatively larger part of this inner wall than of the outer wall was preserved, all traces of it also were lost at the west; but, judging by what information we obtained from the preserved part of this wall, we may conclude that it followed the same lines all round the building.

A small portion of this rebuilt inner wall was slightly narrower than the rest, being similar in thickness to the original inner wall. This portion differed from the rest of the wall also because of the presence of shallow buttresses against its outer face. It is therefore shown on the plan (Pl. VII) in a different kind of hatching (vertical). On sections 2-4 (Pls. IX and X), which cut through this part of the wall, it may be seen that it was founded immediately on top of the brickwork of the first period. East of this part, however, as sections 5-7 show, we found additional later brickwork. This rested not directly on the original building but on a thin layer of brickwork presumably connected with the main length of the thickened inner wall of the second period. As previously stated, it was by no means easy to assign the different layers in the solid mass of brickwork of these thick walls or of isolated sections of them to their respective periods. It is possible, therefore, that in this particular point the two separate layers of brickwork above the original wall as shown in these sections resulted from different modes and techniques of bricklaying during a single rebuilding and are not evidence of the existence of two different building periods.

THE ROOMS AROUND THE COURTYARD

In the rooms around the courtyard the rebuilding could be traced at several points. Some of the thin walls forming the long courtyard wall, however, might have been continuously in use; alternatively, they had been preserved to a higher level, so that the level at which the rebuilding actually occurred has now completely disappeared. Inside the rooms themselves higher floor levels correspond to this later period.

Sometimes it was very difficult to assign the floors to their respective periods. Since the floors consisted of tamped clay or mud plaster, their levels were continuously and gradually rising, even in ordinary use and without the occurrence of any rebuilding, so that normally several floors were found in each room even during one building period. Occasionally, however, the two main periods could be separated either by tracing the earlier floors under the later, rebuilt walls when these projected into the rooms or by finding some other structures

THE TEMPLE OVAL AT KHAFĀJAH

which had obviously been built on different floor levels corresponding to the two different periods. Such were the ovens in room N 45:1-2. The oven of the second period was rebuilt in the northern corner instead of in the middle of the room (Fig. 67). A large pottery basin was placed in about the same position as that of the earlier oven. This basin replaced the one that had



FIG. 67.—N 45:1-2, SEEN FROM NORTHWEST, AFTER PART OF THE STRAIGHTENED WALL (*a*) HAD BEEN REMOVED AND THE EARLIER FLOOR REACHED

The position of the wall before removal is marked by the light line (*b*) running parallel to the part left standing. In the left foreground is the oven of the second building period, and in the left center the large pottery basin; in front of the latter can be seen the remains of the oven of the first building period.

previously stood in N 45:3. It seems certain that there was a working connection between the oven and this type of large receptacle.

In the other rooms no noticeable changes occurred, and there were enough indications provided by the small finds that each of these rooms served the same purpose as did the corresponding rooms in the original building.

THE COURTYARD

In the courtyard most of the structures of the first two occupations of the first period were no longer in use, but practically all the structures built during the third occupation had con-



FIG. 68.—THE LARGE POTTERY BASIN L 45:1 (RIGHT) AND THE EARLIER ROUND BRICK BASIN L 45:5 (LEFT)



FIG. 69.—DETAILS OF THE CONSTRUCTION OF THE SHALLOW DRAIN LEADING INTO BASIN L 45:1, SHOWING SUCCESSIVE LAYERS OF BAKED BRICKS, POTSHERDS, AND, ON TOP, BITUMEN

tinued. It was indeed very difficult in some cases to ascertain whether these structures were built at the end of the first period or at the beginning of the second. Not only were the geometric levels an uncertain guide here, but even the tracing of the actual floor levels was not always of much help; for in addition to the fact that some of the floors were indistinguishable on account of their exposure one had also to consider the possibility that some of the additional structures might have been founded below the floors to which they belonged. There is, therefore, a possibility that some of the structures that we attributed to the latest occupation of the first period belong in reality to the early part of the second period. The frequent recurrence of similar structures in both periods and the preservation of many details show that in general the same parts of the courtyard were used for similar purposes in both periods.

The altar M 45:3 was enlarged to a width of about 3.50 m., completely covering the earlier structure, and it was ornamented with two shallow projections in front. These projections may indicate that this altar was similar in shape to the altar in the small shrine L 43:4, the two projections being continuations of the parapets on the sides of the altar (cf. Fig. 65).¹



FIG. 70.—FOOTPRINTS IN THE UPPER FLOOR OF THE COURTYARD NEAR THE STAIRWAY (a) TO THE PLATFORM

The deep well L 45:2 was certainly used during all periods, but L 46:6 seems to have collapsed before the Temple Oval was abandoned, for traces of a round brick structure, L 46:1, were found above it. During the second building period the drain leading from L 46:6 to the north had been rebuilt, and instead of the former shallow basin of baked plano-convex bricks plastered with bitumen a large pottery basin, L 45:1, was used (Figs. 68–69). A similar pottery basin was placed near the entrance from K 45:5 into the courtyard. It is possible that the refuse pit in the west corner of the courtyard was already covered at this period.

No traces of a drain through rooms K 46:4 and 5 were found; but a bitumen-plastered structure similar to N 46:2 of the first period appeared in the space between the two inclosure walls at K 46:3.

Thanks to the skill and extreme caution of one of our workmen an unexpected and rather amusing discovery was made in the courtyard. At a certain point to the right of the platform stairway the tracing of the floor of the upper level suddenly became very difficult because of some irregular holes. When we proceeded to clean these, it was found that they were nothing less than the very footprints of ancient frequenters of the temple (Figs. 70–71). Single foot-

¹ An elaborate altar with two such projections in front of it was found in one of the shrines of the Nintu Temple and is described and illustrated in *Pre-Sargonic Temples of the Diyālā Region*.

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prints similar to those found in the courtyard were also found on some baked bricks. Figure 72 shows a child's footprint and that of a dog in baked clay and another footprint of a child in unbaked clay. In the courtyard there were also perfect footprints of cattle, sheep, and dogs. In some instances the sliding marks of the men's and animals' feet pointing in opposite directions called up a vivid picture of struggle between them. It is not difficult to imagine how these footprints were preserved. Their large number in the small area immediately adjoining the temple platform suggests that they were made at a time when the temple courtyard was crowded by worshipers bringing their offerings, perhaps at a spring festival during which the last



FIG. 71.—DETAIL OF THE FOOTPRINTS IN THE COURTYARD
To the left at the top is one filled in with plaster for taking a cast

rain of spring happened to fall. Once the festival was over, the court was but little used and the sun gradually hardened the mud during the dry summer months. Possibly occasional dust storms partly covered the footprints before the annual replastering of the floors took place as part of the routine temple upkeep, or perhaps a thin layer of earth was purposely spread over the court prior to such replastering. Whatever the case may have been, the footprints were covered by the time the next rainy season began. The protective layer must have been augmented by the gradual accumulation of debris from ruined and rebuilt structures during the time of the temple's existence. After its abandonment this layer was subjected to gradual denudation, becoming thinner in the course of centuries; and soon the clay in which the impressions were made would again have been exposed to the rain which long millennia ago had made their recording possible. They would then have disappeared as other perhaps more spectacular

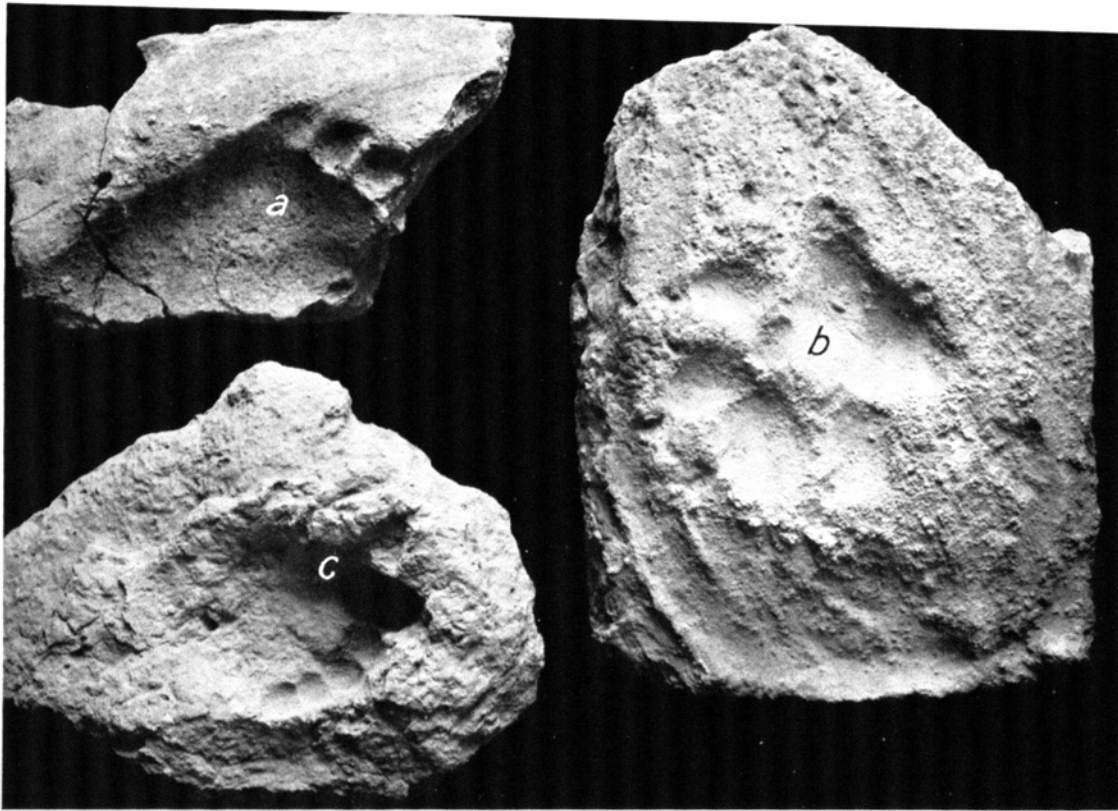


FIG. 72.—FOOTPRINTS OF A CHILD AND OF A DOG IN BAKED BRICK FRAGMENTS (*a-b*) AND A FOOTPRINT OF A CHILD IN UNBAKED CLAY (*c*)



FIG. 73.—ONE OF THE STRUCTURES WITH ROUNDED TOP IN THE COURTYARD NORTHWEST OF THE PLATFORM STAIRWAY

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traces of ancient humanity are gradually vanishing from the surface of innumerable mounds scattered over the vast exposed space of the Plain of the Two Rivers.

This foot-trodden area proves beyond doubt that the space was open to the sky, and it also suggests a plausible explanation for some of the many square structures near by. Most of these were preserved only to a very small height, and their upper surfaces were destroyed. In the single case where the upper surface was preserved it was found to be rounded (Fig. 73).² It is clear that such a surface was unsuitable for ordinary offering tables, and the footprints of animals near by suggest that these structures may have been used in slaughtering and preparing the animal sacrifices.



FIG. 74.—THE BRICKWORK OF THE PLATFORM AFTER CLEANING

THE PLATFORM

Of the later platform only the northern part was preserved; its southern end was denuded below the foundation level. Even its best preserved part stood to a height of about 30 cm. only, which gradually diminished, until somewhere near the middle of the platform it disappeared completely and the brickwork of the earlier platform was exposed on the surface. This does not mean that the brickwork could immediately be identified, for the bricks, being unbaked, naturally disintegrated into ordinary earth once they were exposed to the elements. It was fortunate, however, that at the beginning of our excavations, while the character of the building was as yet unknown, a very exceptional method of investigation was adopted, namely that of cleaning brick after brick individually and tracing the lines of the mud mortar between them. By use of this method it became possible to separate the two periods. Figure 74 shows

² Smaller structures with similar rounded tops were found in front of an altar in the latest Sin Temple (cf. *Pre-Sargonid Temples in the Diyāla Region*), thus proving that the structure in the courtyard of the Temple Oval was not exceptional.

the brickwork of the platform just below the surface as it appeared immediately after cleaning.

Only one side of the platform, namely the northeast, could therefore be traced through the whole of its length; on the northwest side we were able to trace it as far as the base of the stairway and the altar; on the southeast side only three buttresses of the second period were preserved. Between the thin layer of brickwork of the upper or later platform and the brickwork of the lower or earlier one a layer of sand not more than 1–2 cm. thick was found. At the north-



FIG. 75.—SEVERAL FLOOR LEVELS (*a*) BELOW THE ADDITIONAL BRICKWORK (*b*) AGAINST THE EARLIER PLATFORM; ABOVE IT IS THE BRICKWORK OF THE LATER PLATFORM (*c*)

ern corner it was only about 11 cm. below the exposed surface of the brickwork, and at the eastern corner it lay not more than 31 cm. below the best preserved part of the brickwork.

On the whole, the platform of the second period was very similar to the original one, differing only slightly in size and plan. Its northeast side completely covered the older structure and projected approximately 1 meter over it, with its side practically parallel to it. On the two other partly preserved sides likewise it overlapped the earlier platform; hence it is probable that the same applied to the fourth side. The missing part was therefore reconstructed symmetrically (cf. Pl. VII, heavy broken line). We have, however, further evidence for this reconstruction. With the change of size of the second platform the measurements and the spacing of the buttresses were altered. Instead of the five buttresses along the northeast side of the platform in the first period there were now six, while the spaces between the buttresses had

SUBSEQUENT BUILDING PERIODS

been reduced from about twice to about one and a half times their width. Allowing for one additional buttress on each of the longer sides, and assuming that the buttresses and the spaces between them were fairly regular in size, we come very nearly to the results adopted in our reconstruction. Furthermore, in this reconstruction the missing southeast and southwest sides are placed roughly in the middle of the brickwork that had been added to the earlier platform (see p. 64 and Pl. IV), corresponding to what we had observed on the northeast side. Hence this reconstruction appears to have a fairly sound basis.

The brickwork added to the earlier platform was traced on the northeast, the southwest, and partly on the southeast side; on the northwest side it stopped at the edge of the earlier plat-

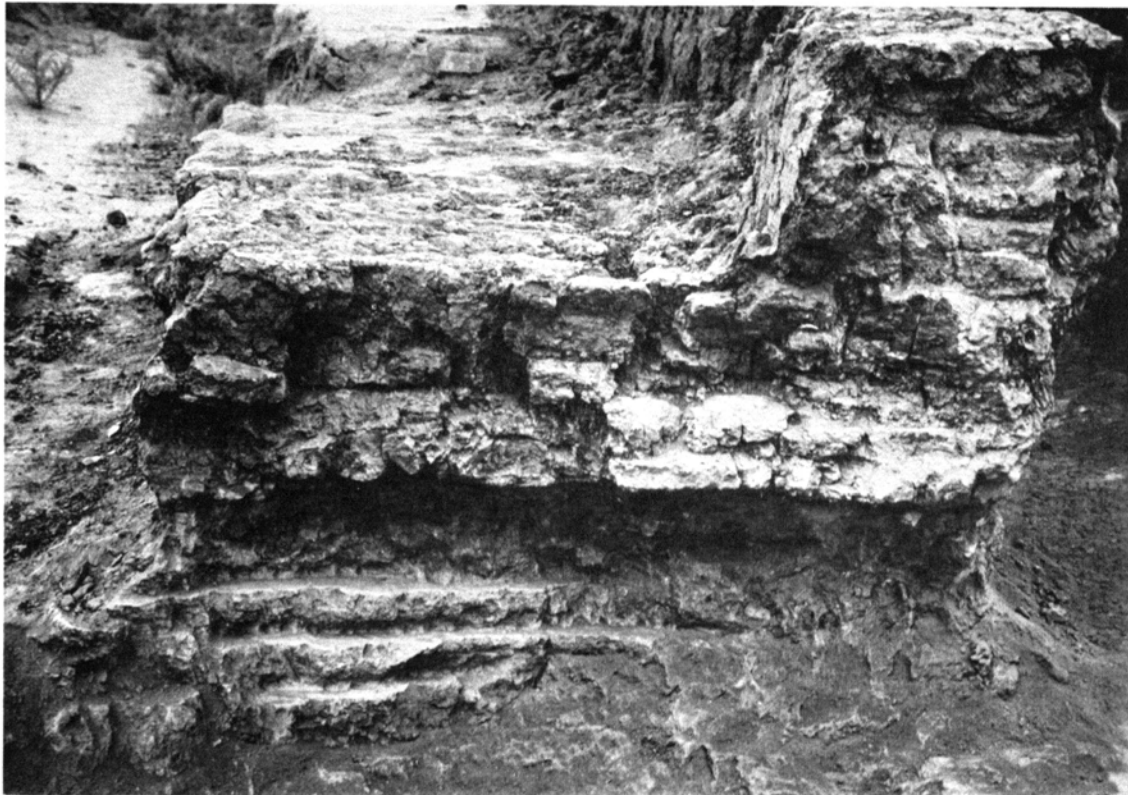


FIG. 76.—A CUT THROUGH THE ADDITIONAL BRICKWORK AGAINST THE EARLIER PLATFORM, SHOWING ABOVE TO THE RIGHT THE BRICKWORK OF THE LATER PLATFORM AND, BELOW, SEVERAL FLOOR LEVELS

form, and no traces of it were found in front of the platform. Several floors appeared below this brickwork on the northeast side (Figs. 75-76), and it also covered part of the bitumen structures N 45:4 and N 46:2 (Fig. 77; cf. also Pl. III), which had been built against the earlier platform. However, no separation or sand layer was found between this brickwork and the brickwork of the later platform. This fact, together with the position of the later platform above this brickwork, seems to indicate that it was to serve as some kind of a *kisū* or foundation for the later platform; but the fact that no traces of such a foundation were found below the extension of the later platform along the northwest side introduces an element of uncertainty into this interpretation.

Under the two preserved corners of the later platform, on the thin layer of sand between the brick masses of the two periods, we found two groups of objects which were certainly founda-

tion deposits belonging to the upper platform. The group under the eastern corner (N 46:3) consisted of one dark millstone (metate) and rectangular pieces of gold, copper, lapis lazuli, crystal, and slate (Kh. IV 425); that under the northern corner (N 45:5) comprised the same materials (Kh. IV 427), with the exception of an unworked piece of carnelian (Kh. IV 426) instead of crystal, and it contained also a nail with flower-shaped head (Kh. IV 428), a copper



FIG. 77.—BITUMEN-PLASTERED STRUCTURE N 46:2, PARTLY COVERED BY THE LATER PLATFORM (CF. FIG. 41)

tool (Kh. IV 429), and a piece of bronze wire (Figs. 78-79). It is probable that similar foundation deposits lay below the other two corners of the platform also but had been swept away during the process of erosion of the ruins.

Considering the possibility that such deposits lay below the earlier platform also, we cut down at the eastern corner through the packing to the same level below the earlier platform; but, though we cleared a space of about 2×2 meters (Fig. 80), we did not find any objects. It is of course possible that the deposits under the earlier platform were somewhat differently spaced than those under the later platform or that they were imbedded in the sand at a much greater depth.

In later times foundation deposits were fairly common in Mesopotamia, but those found by



FIG. 78.—FOUNDATION DEPOSIT *in situ* AT THE NORTHERN CORNER OF THE PLATFORM (N 45:5)

In the foreground near the millstone is an oar-shaped copper tool, and to the right of the latter is the flower-shaped upper part of a bronze nail, with a rectangular piece of gold and two pieces of stone above it. Lying under these is a long bronze wire. Near the millstone are pieces of lapis lazuli and slate.

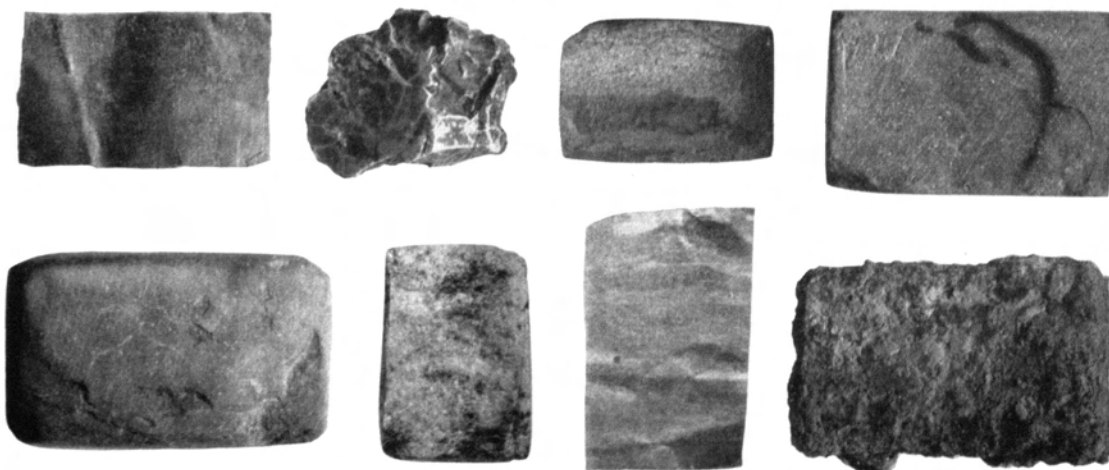


FIG. 79.—PIECES FROM THE FOUNDATION DEPOSITS

Those in the top row are from N 45:5 and consist (left to right) of gold, carnelian, lapis lazuli, and slate; those in the lower row are from N 46:3 and consist of slate, lapis lazuli, gold, and copper.

us are especially interesting not only because of their early date but also because they certainly were intended to represent the abstract idea of *materials* rather than definite *objects*.



FIG. 80.—THE EAST CORNER OF THE PLATFORM, SHOWING THE AREA EXCAVATED IN SEARCH OF A FOUNDATION DEPOSIT UNDER THE EARLIER PLATFORM

The letter *a* marks the brickwork added to the earlier platform; *b*, the remains of buttresses of the later platform; *c*, the corner of the earlier platform; *d*, the upper surface of the earlier platform, over which a thin layer of sand had been spread before building the later platform, and on which the foundation deposit was found; *e*, the height of the brickwork of the later platform; *f*, the height of the earlier platform, which rested on the original clay packing; *g*, the trench cut through this packing down to the sand layer below.

This is indicated by the fact that most of the pieces are either of the same conventional shape or, as in the case of the carnelian, of no particular shape. The presence of the millstone, the copper tool, and the nail or rosette probably also had some symbolical significance.

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THE PLATFORM STAIRWAY

The base of the stairway of the second period was identical in width with that of the earlier one but projected a little farther into the courtyard (Fig. 81). However, in view of the fact that the second platform itself projected beyond the earlier one, the length of the stairway base remained practically unaltered. Assuming that in other respects also the stairway was not very different from that of the first period, we must conclude that the new platform rose to about the same height above the floor of the courtyard as the earlier one. No steps of the later stairway were found, and we cannot say whether they were of stone or of brick. Two square structures in front of the projecting parts of the parapet walls suggest that at this period

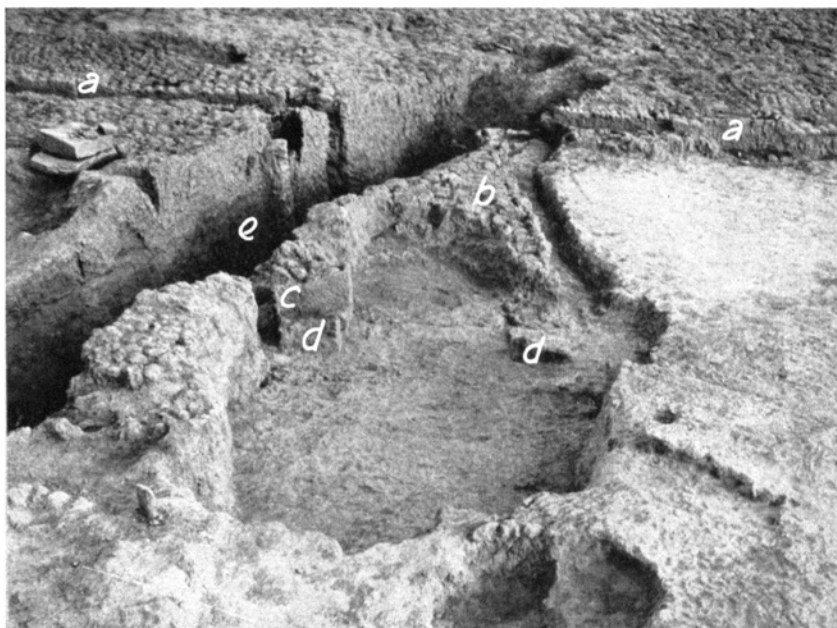


FIG. 81.—REMAINS OF THE STAIRWAY CONNECTED WITH THE PLATFORM OF THE SECOND BUILDING PERIOD

The line of the platform brickwork can be seen at *a*; the brickwork of the stairway foundation appears at *b*. At *c* part of the original vertical plaster has remained in place, while at *d* the marks of two projections can be made out. The deep trench *e* is where excavations were begun in the first season. The two stone blocks at the upper left probably were treads of the earlier stairway.

the stairway was somewhat more elaborate. However, nothing definite can be said about this, since only the impressions left by the two square structures in the floor on which they were founded had remained. It is due to the extreme caution of the men employed in excavating that these traces were found at all, for not only had the robbers been active here but the area had also been excavated in the first season.

"HOUSE D"

A very noticeable change of plan in the interior of "House D" was carried out in its eastern part, in square M 43 and in part in L 43, where a series of small rooms replaced the three large ones which had occupied this section of the original building. Apart from this the general plan inside "House D" remained unaltered, though some minor changes were made in several of the rooms and the floor levels were some 20–30 cm. above those of the original building.

The most important innovation, however, affected the main entrance to "House D." Orig-

inally the entrance had been through the wall forming the southwest end of "House D," opening into the forecourt near K 44:3 (see p. 45). This entrance was now blocked up (Fig. 82) and the southwest wall thickened (cf. Pl. VII). A new entrance was cut through the outer inclosure wall at the northwestern side of "House D," thus giving direct access from the town



FIG. 82.—THE OUTER INCLOSURE WALL AND WALLS OF ADJACENT ROOMS IN SQUARE K 43

At *a* is seen the doorway between K 43:4 and 6; *b* marks the blocked doorway in the southwest wall of "House D." The original doorway and the door socket (*c*) can be clearly distinguished. The darker part below the doorsill is the trench made in excavating this part down to the foundation. In the background at *d* is kiln K 44:3.

through K 43:6. The significance of this change is discussed on page 111. There were indications that a doorway existed also above the drain in L 43:1. This latter room, now serving as a passage from the town, could certainly not be retained for its original use as a bathroom and lavatory (p. 57), and it seems likely that the two rooms M 43:1 and M 43:3 in the eastern section of "House D" were now to serve the function of L 43:1 in the original building.

Of the minor changes found in "House D" the alteration of the brick structure near the

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northern corner of the courtyard L 43:3, which left the doorway into L 43:2 unobstructed (cf. Pls. III and VII), is worth mentioning. This structure was plastered with bitumen, and on top of it was found the base of a large pottery basin. On one side of the latter lay several deep pottery bowls, probably ladles, and on the other side the impression of wickerwork in the bitumen marked the place where a heavy basket must have stood. Two small pots filled with very small beads of lapis lazuli, agate, and gold as well as some larger lapis lazuli beads and a few copper rings were found near by.



FIG. 83.—SMALL ALTAR IN L 43:4, PARTLY COVERED WITH BRICKWORK OF THE SECOND BUILDING PERIOD

Other rooms affected by alterations were:

L 43:1.—It appeared that this room had been somewhat enlarged by removing part of the brickwork of the outer inclosure wall. The drain that crossed this room was open and sloped less than the earlier one because the floor levels in the town had risen more rapidly.

L 43:4.—The difference in level between the floor of this room and that of the courtyard was less marked than in the preceding period. The original altar had been covered by sun-dried plano-convex bricks, thus forming an oblong structure 0.90×1.70 m. which extended up to the northern corner of the room (Fig. 83). This structure probably served the same purpose as the original one. Unfortunately it was preserved to a height of about 30 cm. only, and it was impossible to find out whether its upper part had been identical in structure with that of the original altar.

K 43:3.—In this large room a narrow partition had been built against the northeast wall near the doorway leading into *L 43:3*. About a meter northwest of this partition was a semi-circular projection from the wall measuring about 55 cm. in diameter. A large pottery basin was found in the north corner of the room, while a second one stood against the inner inclosure wall near the doorway leading into *K 44:5*. At a higher level, about 46 cm. above the floor, a piece of bitumen floor-coating approximately 4.00×1.30 m. in area appeared between the two doorways in the southwest wall. Traces of bitumen apparently connected with this coating were found penetrating the actual core of the wall for a distance of about 1.60 m. It is possible,

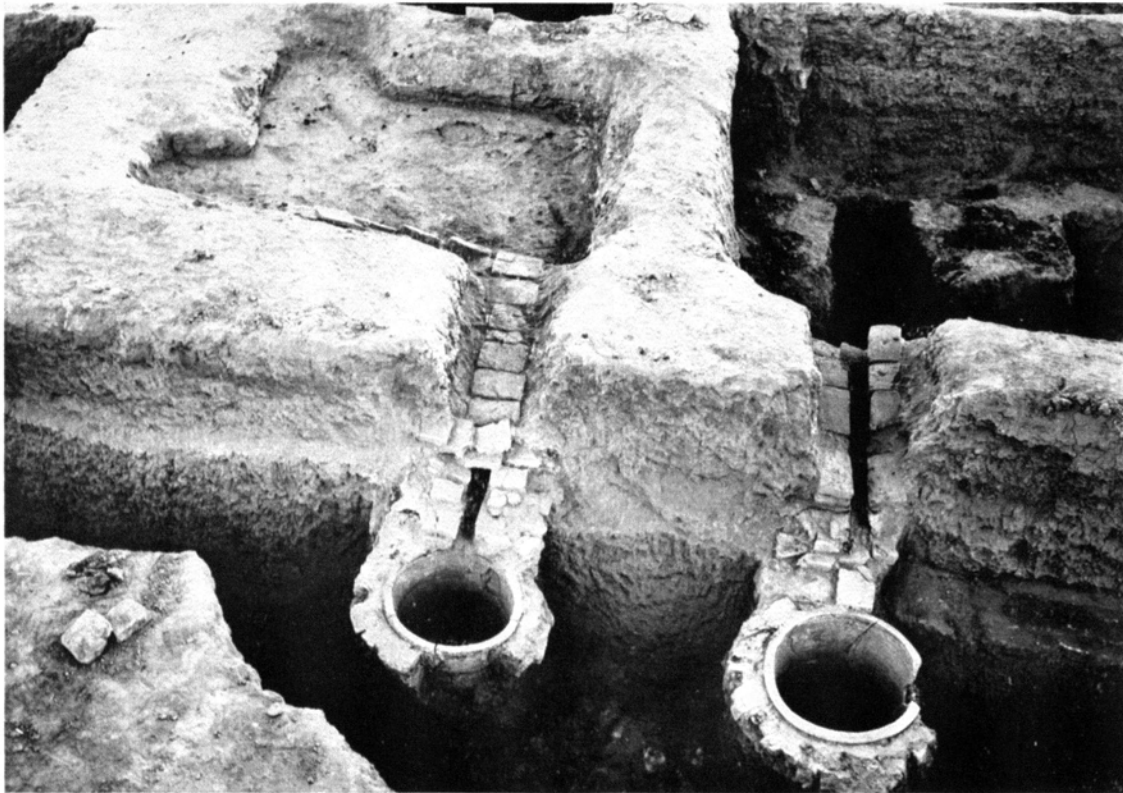


FIG. 84.—ROOMS M 43:1 (LEFT) AND M 43:10 (RIGHT), SHOWING THE BITUMEN-COVERED FLOOR OF M 43:1 AND DRAINS THROUGH THE OUTER INCLOSURE WALL TO VERTICAL POTTERY SHAFTS

however, that these belong to a still later period of which no other remains were found in the vicinity.

The changes at the eastern end of "House D" followed the changes effected already during the third occupation level of the first period. *L 43:11* and *M 43:10* remained unchanged except for a large oval oven that appeared in *M 43:10*. It is likely that this oven was used for the same purpose as the one that originally existed at a lower level (*M 43:9*). The position of *M 43:10* in relation to the rest of the building was also very similar to the position of *M 43:9* in the original building, both being toward the end of a series of connecting rooms which communicated with the courtyard through *L 43:5, 6, and 8* (later 11) only. However, the area of the house was enlarged toward the east by adding rooms *M 43:3* and *M 44:1*. These could be reached from the court through *L 43:9, 7, and 12* (the newly formed antechamber or corridor) and *M 43:5*. Adjoining *M 43:5* but separated from it by a curved partition wall was a

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small room of peculiar shape, M 43:11, probably used as a storeroom or granary. M 43:1, northeast of it, was another small room, in which water was obviously used in abundance, for its floor was paved with baked plano-convex bricks plastered over with bitumen mastic. At the eastern and southern corners were two small doorways, the thresholds of which also were partly paved and plastered with bitumen. A drain of baked bricks led from this room through the outer inclosure wall into a vertical pottery drain. Figure 84 shows the bitumen-covered floor and the covered drain; Figure 85 shows the same floor after the bitumen plaster had been removed. Directly above the floor the walls were protected by a skirting of baked bricks stand-



FIG. 85.—ROOM M 43:1, SHOWING THE FLOOR AFTER REMOVAL OF ITS BITUMEN PLASTER

ing on edge. The variety in shape and size of the bricks used for the paving and the numerous broken bricks are typical of the later period of the building, in which materials of the earlier ruins were commonly re-used.

The two rooms M 43:3 and M 44:1 were now the extreme eastern rooms of this complex. Although they were completely excavated and their foundations traced, only a few objects of little importance were found here. The drain from the circular basin crossing room M 44:4 traversed these two rooms also, ending outside the outer inclosure wall.

The last room in this house showing remains of alterations made during the second period was L 43:10. A part of this room was occupied during this period at a level below that of the original floors of the adjacent rooms. Apparently this part of the room had been excavated to a depth below the original floor level, probably in connection with some repair or rebuilding of

the inner inclosure wall. Thus objects found at a lower level here are of a later period than those found at higher levels in the adjoining rooms.

The thin partition cutting off the eastern corner of the room in the first period was retained, while traces of a second thin partition were found in the middle of the room against the outer surface of the inner inclosure wall. This second partition was partly baked by a fire that had occurred in the room and thus preserved evidence of the method of its construction. It seems to have been made of a reed screen used as a core for heavy mud plaster on both sides. There were no traces of brickwork. Figure 86 shows the reed impressions that had been preserved in the clay plaster. This method of building is interesting because it may, in a way, be regarded as the ancestor of certain modern methods used in building with reinforced concrete. The baking of thin partitions made in this way could be accomplished with comparative ease and would produce very strong walls of moderate thickness. However, the baking of this particular par-

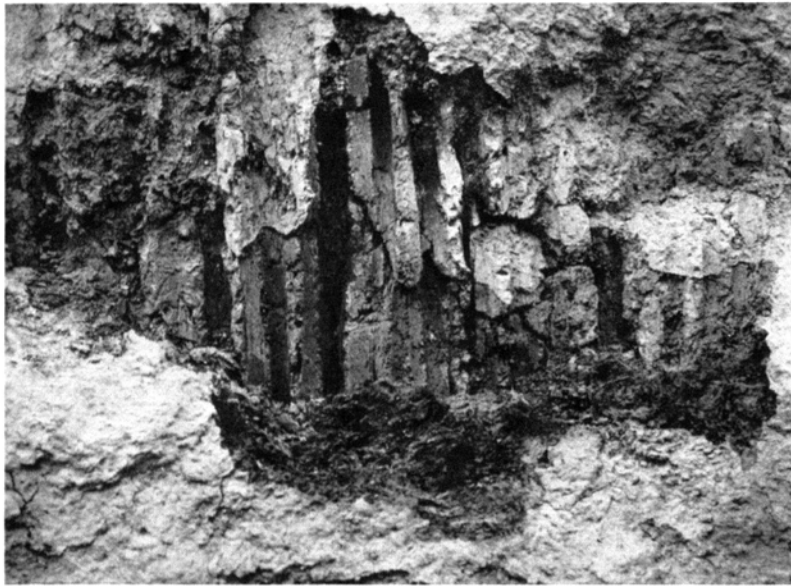


FIG. 86.—IMPRESSION OF A REED SCREEN USED AS A STRENGTHENING CORE OF A PARTITION WALL IN L 43:10

tion seems to have been accidental, since traces of a conflagration were found in other parts of the room also. The fire partly baked the plaster on the outer surface of the inner inclosure wall also, thus facilitating the tracing of the true surface of the wall at this rather crucial point.

As previously mentioned, the outer surface of this part of the inner wall, unlike the rest of the wall, had buttresses. One of these, 2 meters wide, came to light in the middle of the room, while two others, one about 5 meters to the east and another 4.30 m. to the west, were partially covered by its walls. This latter fact might suggest that "House D," at least at this point, was built against the inner inclosure wall when this was already standing to a certain height, or else that these buttresses, although meant to show only above the level of "House D," were carried out even in the foundations—a practice noticed on several other occasions when architectural details of the upper structure were found to be present in the foundations also, where they would be hidden. Since we have positive evidence that "House D" was not a later addition but formed part of the whole scheme of the building (cf. p. 19), the second assumption deserves consideration, the more so as it also offers an explanation as to



FIG. 87.—THE EAST END OF THE TEMPLE OVAL IN PROCESS OF EXCAVATION

The buttressed outer wall (*a*) is being traced by a group of men in the left background; the straightened wall (*b*) is being investigated by the two men in the center. At *c* the brickwork of the straightened wall disappears, and the brickwork of the earlier inner inclosure wall (*d*) is being traced by a man on the edge of this wall and by another group of workmen in the center background. The men on the right are engaged in tracing the southeastern wall of the courtyard (*e*), which is still largely unexcavated. To the right and back of them the shallow brickwork of the platform (*f*) can be discerned.

why buttresses were found alongside the surface of the inner inclosure wall only on the part against which "House D" was built. A further discussion of this point in connection with one of our reconstructions is found on page 111.

At a higher floor level, but presumably still of the second period, this room (L 43:10) contained against its northwest wall a small mud hearth, probably used for cooking. A heap of blue-black mussel shells found near by was perhaps the remains of a meal. That food was prepared here may also be indicated by the presence of charred seeds (see p. 154), some basalt hand mills, stone and clay pots, and other household utensils.

As to the objects from "House D," it was not always easy to attribute them definitely to one period or another, since the floor levels were close together; but with regard to some of them there is no doubt that they were higher than the original floor levels and hence belonged to the second period. They are appropriately entered in the catalogue on pages 155-68.

From the foregoing description of the ruins of the second period it is clear that in spite of the care taken in their excavation and recording they cannot, because of their poorer state of preservation, convey such a complete picture of the building as do the remains of the original temple. Furthermore, fragmentary remains of buildings were found above the ruins of the second period at certain points. Since it is possible that some parts of these latest ruins were used simultaneously with some of the ruins described above, various modifications of our reconstructions are likewise possible. Before these can be considered, a description of the latest ruins becomes, therefore, necessary.

THE THIRD BUILDING PERIOD

Of this latest period, the second rebuilding of the Temple Oval, only very fragmentary remains were preserved, falling roughly into two groups, one at the eastern, the other at the western end of the inclosure. These are shown on Plate XI by dotted areas, while the solid lines indicate the earlier ruins of the two periods underneath.

At the eastern side, in squares N 44-45 and O 45-46, we found a wall about 2.50 m. thick and practically straight in its main length. In O 45 this wall touched the inside of the buttressed outer inclosure wall and formed a rounded corner (O 45:9). From here it could be traced for some 12 meters toward the southwest (Fig. 87) and for nearly 40 meters toward the northwest (Fig. 88). At its highest point this wall was preserved to about 35 cm., becoming gradually lower at both ends and disappearing completely in squares M 44 and O 46.

Like the wide outer inclosure wall of the second period, this straightened wall also was ornamented with buttresses. These measured about 2.70 m. in width, were spaced about 6 meters apart, and projected 40 cm. Only two of them were completely preserved, but on the basis of traces of others found on the southeastern and northeastern sides we assume that their size and the spacing between them were regular all along the wall.

The straightened wall was founded partly on the oval inner wall, but its corner projected beyond the latter into the space between it and the outer inclosure wall, touching the outer wall at O 45:9 (see sections 9-11 on Pl. IX). It partly covered the remains of the second period in rooms N 44:1 and N 45:1 and 2 (Fig. 89) and thus definitely proved that it was of later date. Furthermore, its course suggests that if any rooms existed inside this new inclosure wall they must have been arranged on a somewhat different plan. Their floor levels must have been above the remains of the oval inner wall at O 45:1. Unfortunately no walls of rooms directly connected with this latest inclosure wall were preserved; but a little farther to the northwest, over rooms M 44:4 and 5, some remains of brickwork were found that might have belonged to such rooms. In both cases the brickwork is nearer to the inclosure wall than were the original



FIG. 88.—THE STRAIGHTENED INNER INCLOSURE WALL (*a*) AND THE OVAL OUTER INCLOSURE WALL (*b*), SEEN FROM THE EASTERN CORNER LOOKING TOWARD THE NORTHWEST

Part of the southern face of the straightened inclosure wall was cut away at *c* in order to excavate rooms N 44:1 and N 45:1. The brickwork of the oval inner wall (*d*) can be seen below the shallow structure of the straightened inclosure wall.

thin walls of the courtyard, so that one may conclude that at this last stage the rooms were somewhat narrower than in the previous periods. At M 44:9 this brickwork actually formed a corner, with a small section of the floor preserved at level 40:50 m., thus giving us an approxi-



FIG. 89.—THE BRICKWORK OF THE STRAIGHTENED INCLOSURE WALL, COVERING PART OF ROOMS OF THE SECOND BUILDING PERIOD ON THE NORTHEAST SIDE OF THE COURTYARD (CF. FIGS. 67 AND 88)

mate idea of the levels of the rooms in this latest period. One sees that this is higher than any part of the brickwork of the latest inclosure wall or of the gateway, and it is therefore clear that these ruins represent only foundations. Over M 44:4 part of a wall was found running

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from the west corner toward the southeast for a distance of about 7 meters (Fig. 90). This wall was about 1.10 m. in thickness as against 1.60 for the earlier walls along the courtyard. An interesting detail showing that even in this latest stage of the building the earliest traditions survived is the placing of the doorway in this wall in exactly the same position as in the earlier periods.



FIG. 90.—THE LONG NORTHEAST WALL OF THE COURTYARD, SEEN FROM NORTHWEST

Remains of a later wall in M 44:4 can be seen at *a*; the entrance (*b*) was in the same position as that in the earlier wall alongside.

Among the finds connected with the latest remains in this area there are worthy of mention the sculptured and inscribed macehead Kh. I 636 (Fig. 91) found in M 44:5 and a large reed-mat basket found below the fragments of a wall at M 44:3 (Fig. 92). The macehead bore a dedicative inscription to Inanna which is translated and discussed on pages 148 f. The reed-mat basket measured from 60 to 80 cm. in width, approximately 100 cm. in length, and 70 cm. in height. Its position below the remains of a wall of the third building period and above earlier floor levels definitely dates it to the intermediate period between the second and third rebuildings of the Temple Oval. On account of its appearance and contents it was taken to be a burial,³

³ *OIC* No. 16, p. 76.



FIG. 91.—A SCULPTURED AND INSCRIBED MACEHEAD FROM M 44:5



FIG. 92.—REED-MAT BASKET M 44:3 BEING CLEANED, THE REED WORK SHOWING AT THE LEFT CORNER

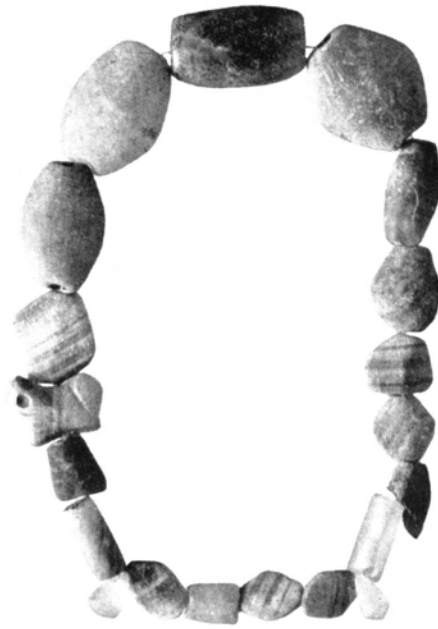


FIG. 93. NECKLACE OF BEADS FROM BASKET M 44:3



FIG. 94.—BRICKWORK OF THE THIRD BUILDING PERIOD AT THE WEST END OF THE TEMPLE AREA, SHOWING AT *a* THE CORNER OF THE LATEST GATEWAY, FOR WHICH SOME EARLIER BRICKWORK, PROBABLY OF THE OUTER INCLOSURE WALL, WAS CUT AWAY



FIG. 95.—GENERAL VIEW OF THE LATER GATEWAY, FROM NORTHWEST, SHOWING BRICKWORK (*a*) UNDER WHICH EARLIER STONE STEPS WERE DISCOVERED AT A LATER STAGE IN THE EXCAVATION

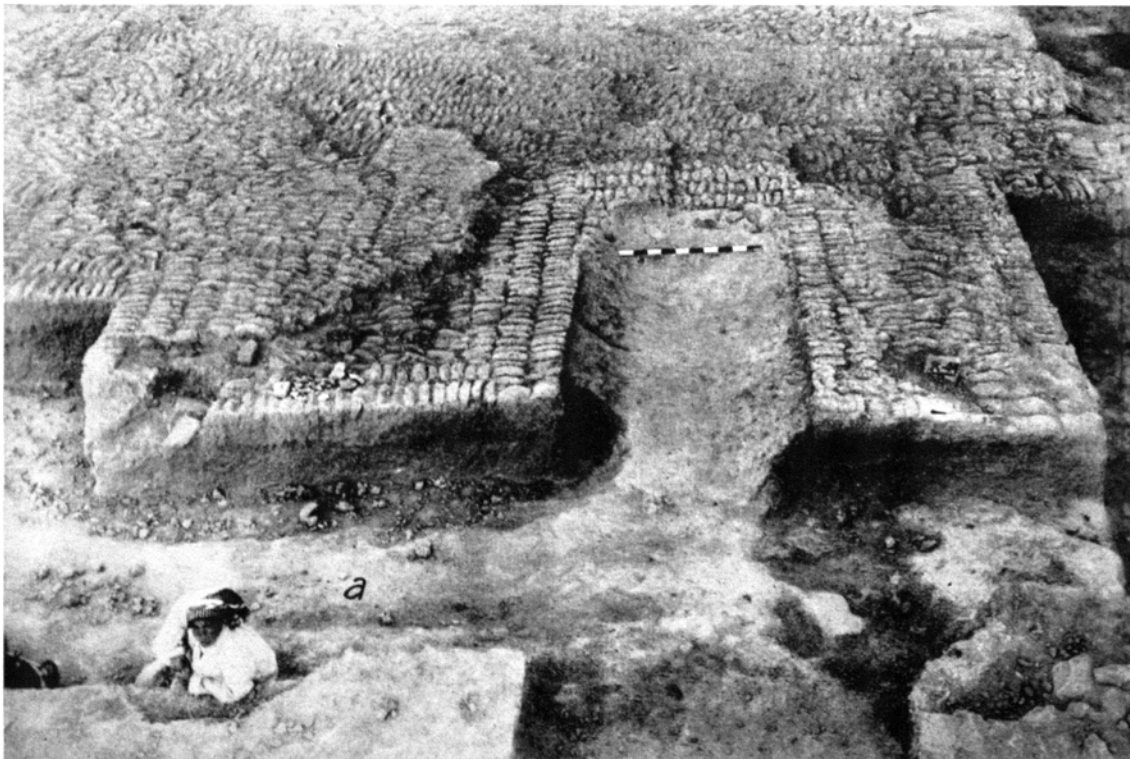


FIG. 96.—DETAIL OF BRICKWORK OF LATER GATEWAY, SHOWING THE ENTRANCE (*a*) AND THE SMALL GATE CHAMBER (INDICATED BY METER STICK)

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though the skeletal remains in it were very fragmentary and the better preserved bones seemed to be remains of an animal rather than of a human skeleton. These latter bones were believed to be the remains of a meal left for the dead. Besides the bones the basket contained fragments of two small pottery vessels and some beads (Kh. II 181-90; Fig. 93). Similar beads and a pendant (Kh. II 234-40) were found immediately outside the basket and led us to conclude that the "burial" was robbed before it was covered by the brickwork of the later wall. In the



FIG. 97.—THE LATER GATEWAY, SHOWING FLAT BRICKS IN THE FOREGROUND (*a*) AND, BEYOND, THE GATE CHAMBER (*b*)

light of our later observations concerning the character of Early Dynastic temples and contemporary graves some doubt arises as to whether this reed-mat basket was actually a burial. The fact that not a single other grave was found within any of the Early Dynastic temples excavated at Khafājah or any other site can certainly not be explained as pure coincidence, for most of these temples were situated in the midst of or close by houses, which were popular burial grounds. Furthermore, the size of the reed-mat basket in M 44:3 excludes the possibility of its being an ordinary adult burial; on the other hand, an ordinary child burial never contained objects valuable enough to attract grave-robbers, as obviously happened in this case. From all these considerations we must conclude that if this was a burial it was an exceptional

one indeed. It may be, therefore, that it was not a burial but a sacrificial deposit connected with the latest rebuilding of the temple. This assumption would offer an explanation of all the exceptional circumstances mentioned above.

The second group of remains of the third period was found at the western end of the temple area. Only a very shallow layer of brickwork remained here, and this had to be cleaned brick by brick from above (Fig. 94) before an adequate plan could be obtained. The plan revealed a gateway more elaborate than, but still a definite development of, the gateways in the earlier stages of the building (Figs. 95-97). A solid and regular layer of brickwork, K 44:7, is probably all that was left of the platform in front of the gateway. This measured about 19.5 m. in length and 6.5 m. in width. Only its southwest side was preserved; its northeast side had completely disappeared, but it is shown symmetrically reconstructed on our plan (Pl. XI).

Above this brickwork two symmetrically spaced towers projected some 4 meters from another line of brickwork, which we took to be the remains of the outer inclosure wall. The southern tower was founded on a layer of pounded burnt brick about 10-12 cm. thick (Fig. 98). This layer extended from squares K 45 and J 45 over into J 44, but could not be traced farther to the northeast. On the inner surface of each tower, facing each other, a series of three recesses, each measuring about 1.30×1.30 m., narrowed the entrance until the actual gateway (K 44:1) was reached (cf. Fig. 95). This was about 2 meters wide and 3 meters long and led into a small gate chamber, K 44:8, symmetrically spaced on both sides of the entrance. From this chamber a narrower doorway led into a larger room, K 44:9, which corresponded to room K 45:5 of the earlier periods and was probably one of the series of rooms between the inner inclosure wall and the courtyard. The fragmentary brickwork at the southwest end of this room suggested that there had once been two narrow partitions and two small rooms here, K 45:8 and 9 (cf. Pl. XI). The remains of brickwork northeast of K 44:9 enabled us to reconstruct the two rooms K 44:4 and 6. Of the southeast wall common to these five rooms a long strip of brickwork only one or two bricks in height was left. It could be traced for a length of some 47 meters, and there seems to be no doubt that this was one of the walls that bounded the courtyard. This long wall covered part of the thin wall that had divided room L 44:2 from rooms L 44:3 and 5 in the second period, and at the northern end it was founded on top of the inner inclosure wall of the second period (Fig. 99).

Against the southeast side of this wall we found traces of a rectangular structure of solid brickwork, L 44:1. Its proximity to the place where we had assumed a stairway for the earlier periods may indicate that this too was the remains of a stairway leading to the top of the walls; but the unequal thickness of the two towers occasioned by the different arrangement of the rooms behind them led us to assume the existence of a stairway inside the thicker, that is, the southwest, tower.

Other remains that may be assigned to this period are those of the rebuilt circular brick basin M 44:2 and of the drain that connected it with the pottery basin M 44:7. As in previous periods, the ground sloped toward the circular basin; hence, if a device existed for collecting rain water in the smaller basin, the water could be diverted from it into the larger. In the area J 45:3 was a round bitumen-plastered structure close to a drain in the middle of which a vertical shaft was sunk at some still later time. In N 44:4 we found a solid mass of bitumen with a slightly depressed, basin-like surface. These structures, being so few and scattered, can hardly give a precise idea as to their use, but their presence alone seems to indicate that certain characteristics of the earlier periods were preserved at this latest rebuilding.

No traces were found of the platform or of any building that might have existed inside the inclosure during the third period; but the very presence of the inclosure and of the gateway certainly points to the fact that the general character of the latest building must have been

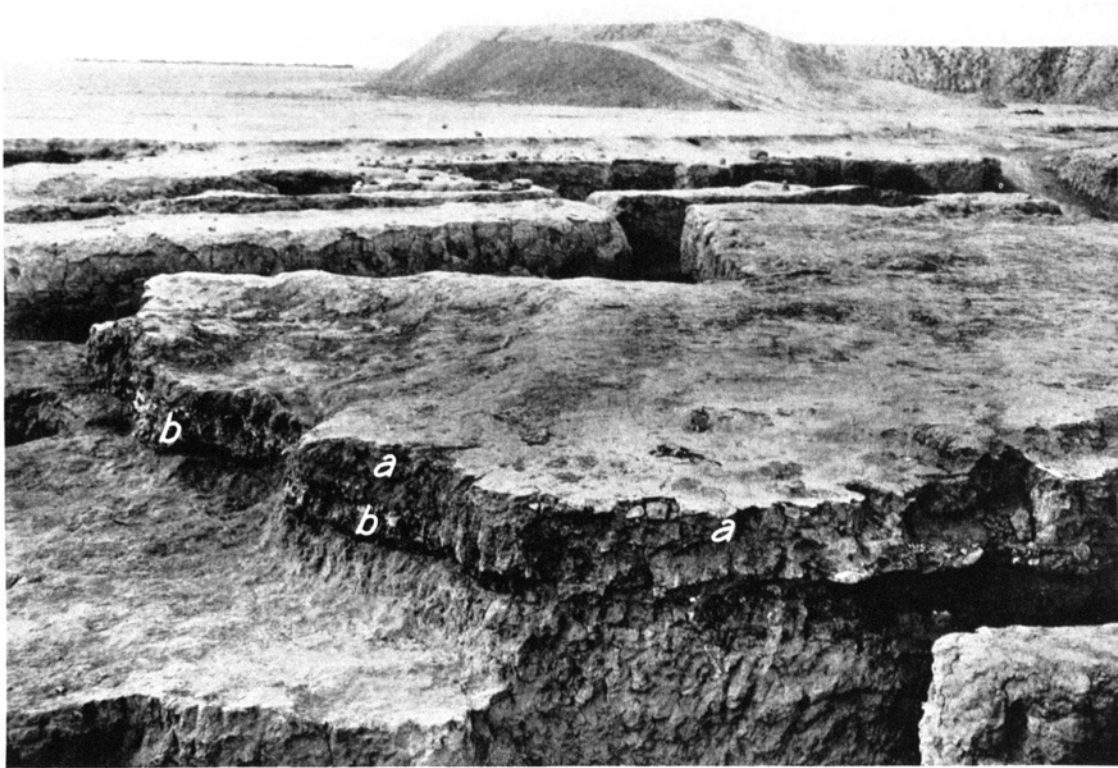


FIG. 98.—THE THIN REMAINS OF THE LATER GATEWAY (*a*) FOUNDED ON A LAYER OF POUNDED BURNT BRICKS (*b*)



FIG. 99.—THE LOWEST COURSE OF BRICKWORK OF A STRAIGHT WALL (*a*) FOUNDED ON THE INNER INCLOSURE WALL (*b*) OF THE SECOND BUILDING PERIOD

The room marked *c* is L 43:10 of "House D"

very much like that of the earlier ones. We therefore feel justified in assuming that a platform existed also in the third period.

With regard to "House D" and its connection with the third building period, no evidence was obtainable. At two points the latest brickwork touched "House D," namely at K 44:6, where it was actually found on top of the brickwork of the wall of room K 44:5, and on top of the inner inclosure wall at L 44:8, where it reached room L 43:10. At both these places the brickwork was very shallow, being only one brick or part of a brick high; and, since "House D" had been excavated to lower layers in the first season, before the late gateway had been found, it was impossible to ascertain whether this brickwork continued on top of these rooms (which would mean that "House D" was no longer used at this period) or whether some of the remains of "House D" were indeed connected with the third building period. The wall tops of "House D" were carefully but unavailingly examined at several points where remains of the latest brickwork were to be expected, and the question is therefore left undecided.

From the above description it is clear that the fragments of the straightened inclosure wall and the latest gateway with the brickwork adjoining it are not directly connected. It was only by taking into consideration the facts that these structures, both at the east end of the inclosure and along the northwestern part, diverge from the previous plans, and that in both cases they certainly existed later than the reconstructed inner inclosure wall of the second period since they covered considerable parts of it, that we attributed them to the third period.

The most noticeable change from the previous period was the straightening of the inclosure wall in its main length, although the older tradition still survived in the rounded corner (O 45:9) at the east end (cf. Fig. 88 and Pl. XI). Again, a more definite feeling for symmetry is expressed in the planning of the gateway, and it is in accordance with these indications that the isolated points have been connected in our attempted reconstructions.

Although hardly any objects were found in connection with the remains of the third period, the facts that plano-convex bricks were still used and that characteristics of the earlier buildings certainly survived leave no doubt that the straightened wall and the gateway belong to the Early Dynastic, pre-Sargonid period. However, remains of flat bricks just above the remaining brickwork of the late gateway (cf. Fig. 97), the general stratigraphy of the site, and a few fragmentary inscriptions, especially that on the macehead, which may be dated to Eannatum (see pp. 148 f.), helped to assign these remains to the latest part of the Early Dynastic period. Inscriptions of Rimush on fragments of bowls (see pp. 149 f.) give, perhaps, some ground to assume that this monumental building was finally destroyed during the period of conflict preceding the Akkadian conquest of the region.

V

RECONSTRUCTIONS OF THE TEMPLE OVAL OF THE
SECOND AND THIRD BUILDING PERIODS

On account of the meager height to which the later remains were preserved and the disappearance of nearly all the corresponding floors the grouping of these remains is by no means certain. The cross sections (Pls. VIII-X) provide the data on which our reconstructions are based. These data, however, are not conclusive, and various schemes of reconstruction are possible. Four of these are shown on Figures 100-103. Not all are mutually exclusive, and they do not exhaust all possibilities for reconstruction.

Figure 100 is based on the assumption that the first rebuilding in the second period was limited to rebuilding and thickening the inner inclosure wall, enlarging the platform, and carrying out certain minor changes in "House D," namely blocking the entrance from the forecourt and opening a direct entrance from the town area in K 43 (see p. 90), while the rest of the building, including the thin outer wall, remained unchanged. This scheme is supported by sections 8-11, in which it can be seen that the rebuilt thick inner wall was founded at a somewhat lower level than the thick buttressed outer wall. The difficulty is to find an explanation as to why the much thicker and more solid inner wall as well as the platform needed rebuilding, while the outer wall, much thinner and more exposed to an outside attack, presumably remained undamaged.

If we adopt the foregoing scheme, we have to assume that the thick buttressed outer wall and the straightened inner wall existed simultaneously during the third building period. This scheme, shown on Figure 101, seems to be supported by section 11, which shows that these two walls were founded at nearly the same level. But sections 9, 10, and 12, taken on either side of the point where both walls touched, show that the foundations of the straightened wall were just as much above those of the thick buttressed outer wall as the latter were above the foundations of the rebuilt thick inner wall; hence, since no actual floor levels between any of these walls were preserved, a different reconstruction is also possible. The scheme shown in Figure 101 has, of course, the advantage of connecting the buttressed part of the oval inner inclosure wall in L 43-44 (vertical hatching) with the straightened and buttressed wall to the east and at the same time connecting the former with the brickwork of the late gateway to the west; but it disregards the fact illustrated in section 2 (Pl. IX; cf. also Fig. 97) that a wall connected with this gateway was found above the buttressed inner wall in L 44:8 (cf. Pl. XI), which shows that they were not of the same period. Furthermore, this reconstruction does not take in any of the contemporary remains in squares L 44 and K 45 east of the late gateway. It is, moreover, based on the assumption that "House D" was no longer used, while actually it was found that at least the part adjoining the Oval in L 43:10 was used at the same time as the buttressed portion of the oval inner inclosure wall, for the effects of the fire that burnt the buttress coming within this room were observed also in the adjoining area. It seems, therefore, that this reconstruction is not the most likely; and we are led to assume that the building of the buttressed outer wall was carried out simultaneously with, or not much later than, the rebuilding of the oval inner wall and the platform (Fig. 102) and that the straightened buttressed wall belongs to a later, that is, a third period (cf. Pl. XI).

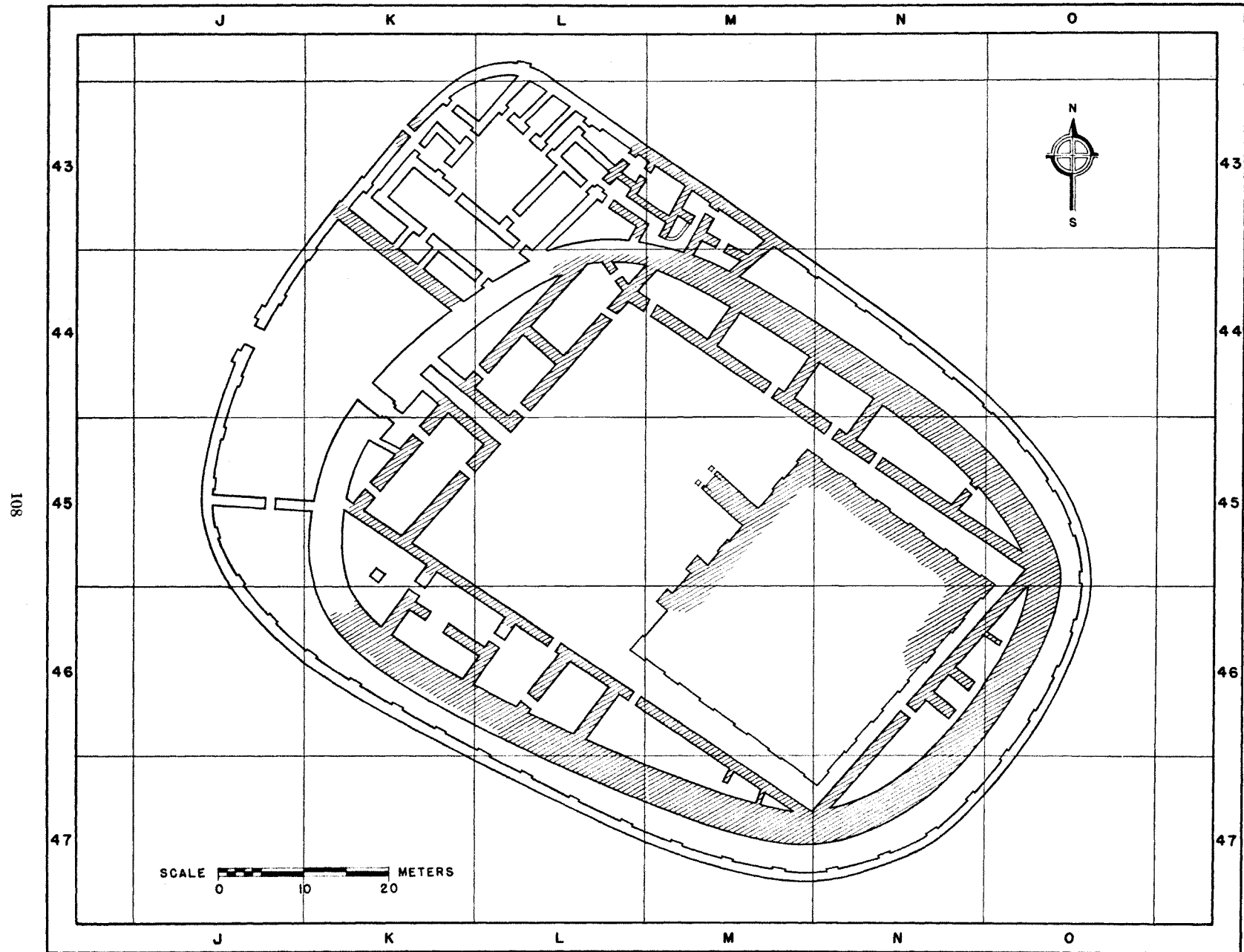


FIG. 100.—CONJECTURAL RESTORATION OF THE TEMPLE OVAL OF THE SECOND BUILDING PERIOD, COMBINING THE THICKENED INNER INCLOSURE WALL AND THE THIN OUTER WALL. SCALE, 1:640

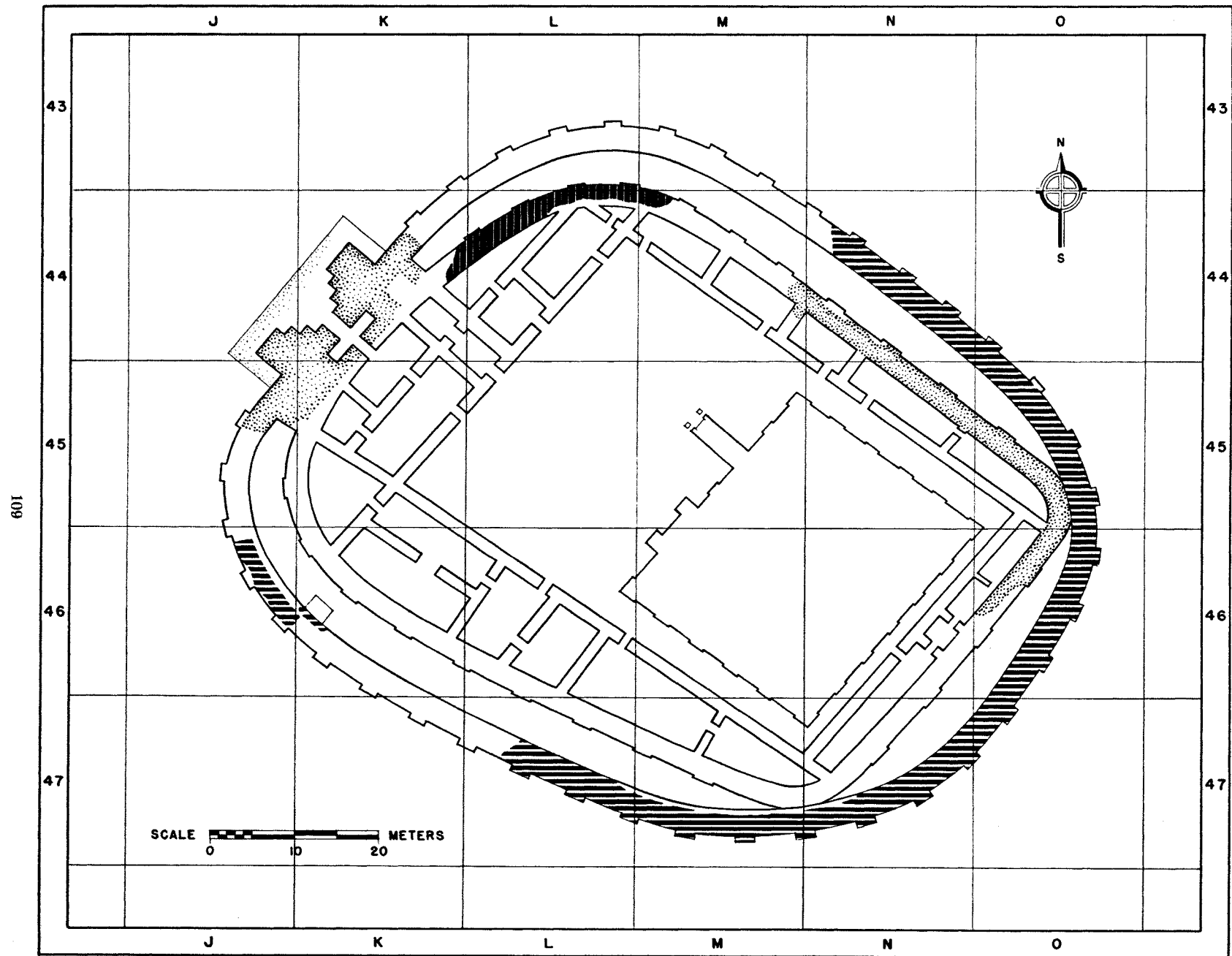


FIG. 101.—CONJECTURAL RESTORATION OF THE TEMPLE OVAL OF THE THIRD BUILDING PERIOD, COMBINING THE STRAIGHTENED INNER INCLOSURE WALL WITH THE BUTTRESSED SECTION ADJOINING "HOUSE D," THE BUTTRESSED OUTER INCLOSURE WALL, AND THE LATE GATEWAY. SCALE, 1:640

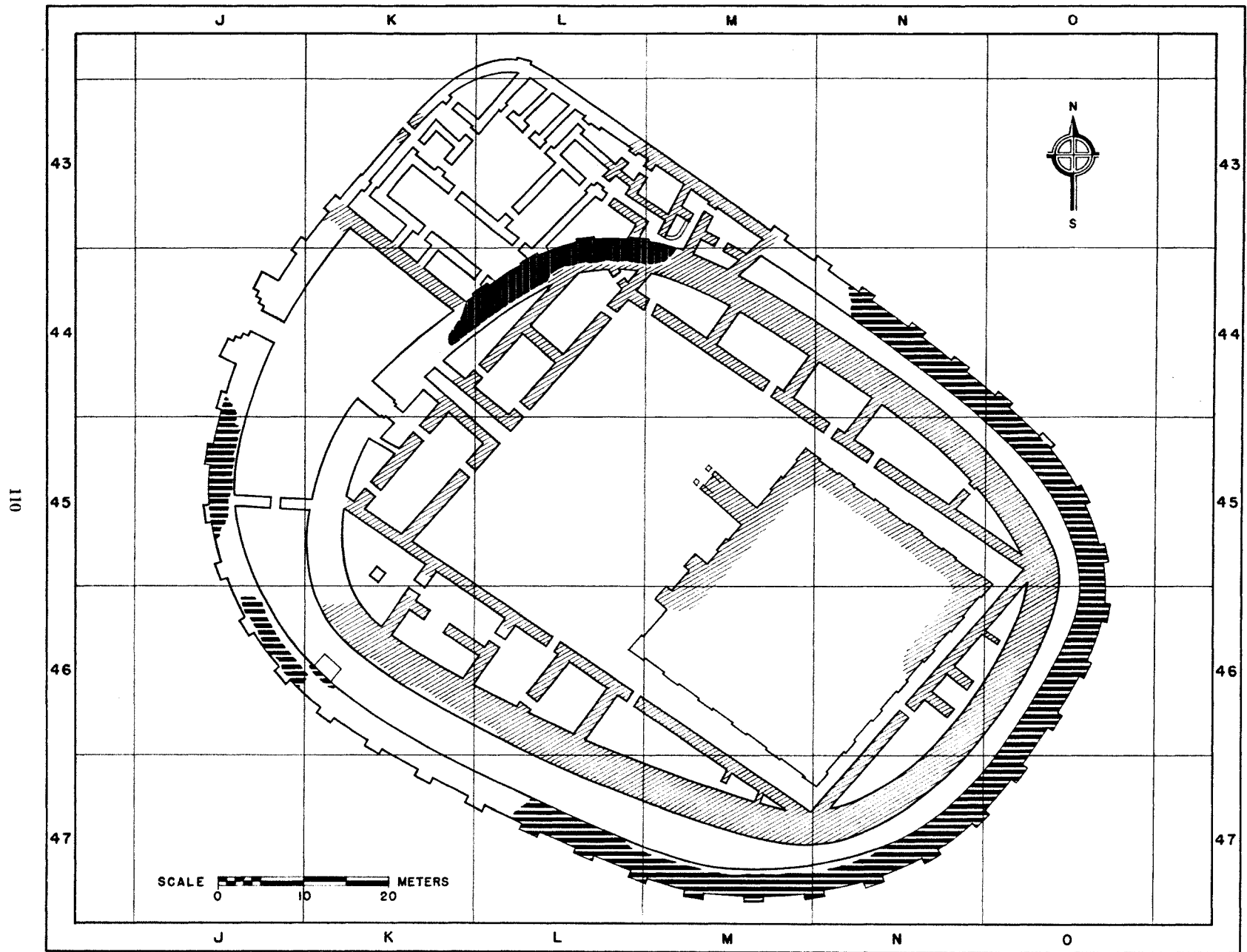


FIG. 102.—ALTERNATIVE RESTORATION OF THE TEMPLE OVAL OF THE SECOND BUILDING PERIOD, COMBINING THE THICKENED INNER INCLOSURE WALL, THE BUTRESSED SECTION AT "HOUSE D," AND THE THICK BUTRESSED OUTER INCLOSURE WALL. SCALE, 1:640

But even with the adoption of this possibility there are still different ways left of reconstructing the missing parts of the buttressed outer inclosure wall (cf. Pl. VII). The simplest one is to assume that it followed exactly the course of the thin outer wall, even around "House D," and that the later gateway was situated approximately on the site of the earlier one. This scheme can readily be visualized by continuing the outer buttressed wall on Plate VII around "House D" and need not be represented by a separate drawing. However, there are certain circumstances that make such a reconstruction somewhat doubtful. The first is that no traces whatever of such a gateway were found, while a gateway of a later period, fairly well preserved, came to light within the forecourt to the southeast (cf. Pl. XI). The second, and more important, is the altered entrance into "House D." If a double inclosure wall existed exactly on the same lines as in the original building, there was no apparent reason for blocking the original entrance that led from the forecourt between the gateways and opening a new one through the outer wall in K 43. Such a direct entrance into "House D," if made through a wall some 3.50 m. thick, seems rather too elaborate for the purpose. Furthermore, the thickening of the southwest wall of "House D" in K 43-44 was superfluous if it lay between two very thick fortification walls. A third point is that the thickened outer wall would have covered most of the small rooms situated along the inner side of the thin outer wall in squares K-M 43. Finally, in such a scheme a further abnormality would be the appearance of buttresses on the outside of the inner inclosure wall inside "House D" against rooms M 43:5, L 43:10, etc., where obviously they were hidden. The absence of buttresses from the rest of the wall, where they could have been seen, further accentuates this abnormality. The buttresses were at first taken as proof that "House D" was a later addition, constructed against the inner wall after this had been built; but, since we now know that "House D" was planned and built as a part of the whole scheme at the earliest building of the Oval (cf. pp. 18 and 44), this explanation is no longer valid. In view of all this, and considering further that no traces of the thick outer wall were found above the thin outer wall inclosing "House D" and that the buttressed thick outer wall came very close to the point where the buttresses of the thick inner wall began, we may venture the hypothesis that the buttressed part of the inner inclosure wall was meant to be in a way a continuation of the thick outer inclosure wall, the latter joining the former by means of the short outer wall of "House D" in M 44 and rejoining the outer buttressed wall near the gateway by means of the thickened southwest wall of "House D" (cf. Fig. 102).

As we have seen, the surface of the town was originally below that of the Oval, but in the course of time the occupation levels outside the Oval rose more rapidly than those within. This is obvious when one considers that dwellings were built of rather thin walls which would be more frequently destroyed and rebuilt than thick temple walls, and also that normally debris accumulates in such dwelling-quarters and in the streets adjoining them at a much faster rate than in a well kept temple area. Hence at a certain stage, which probably coincided with the first important rebuilding of the temple, the occupation floors in the town area had risen to the same level as the floors in "House D" (cf. Fig. 110); thus steps were no longer needed to reach this building from the town, and a door could be opened directly through the thin outer wall. This would mean, in a sense, excluding "House D" from the sacred area of the temple. Since in this case no need would be felt for surrounding "House D" by the thick buttressed outer wall when this was built, this wall would be extended only as far as the northeast corner of square M 44, whence it would be continued as the southeast wall of "House D" and join the inner inclosure wall in the same square. Then, in order to produce some kind of continuity of the inclosure wall formed by portions of these two walls, the buttresses might have been added on the part of the inner wall which abutted on "House D." As we have seen on page 94, the rooms against this part of the inner wall, especially room L 43:10, showed

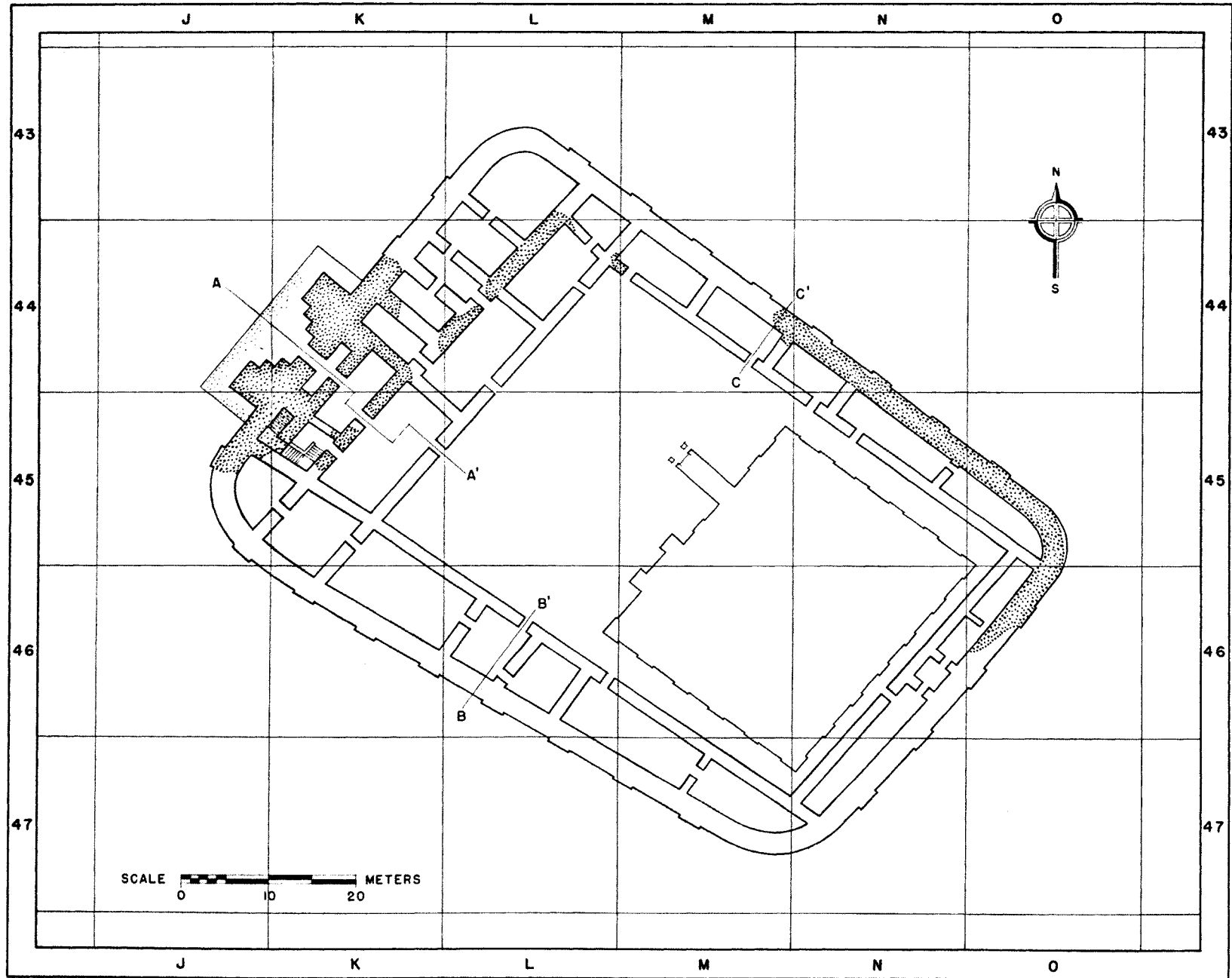


FIG. 103.—ALTERNATIVE RESTORATION OF THE TEMPLE INCLOSURE OF THE THIRD BUILDING PERIOD, COMBINING THE STRAIGHTENED INCLOSURE WALL AND THE LATE GATEWAY. SCALE, 1:640

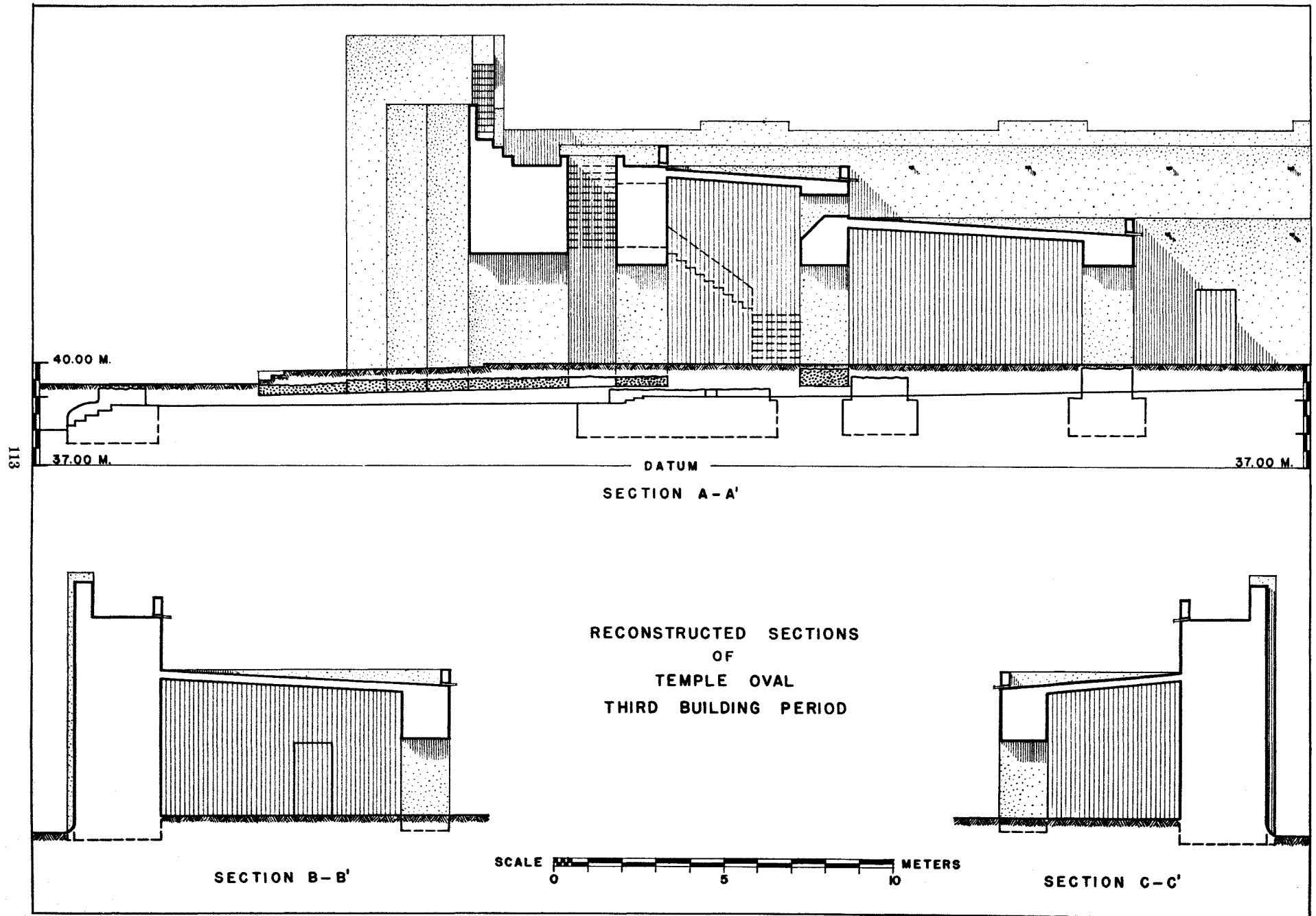


FIG. 104.—RECONSTRUCTED SECTIONS OF THE TEMPLE OVAL OF THE THIRD BUILDING PERIOD, BASED ON THE PLAN IN FIGURE 103. SCALE, 1:150

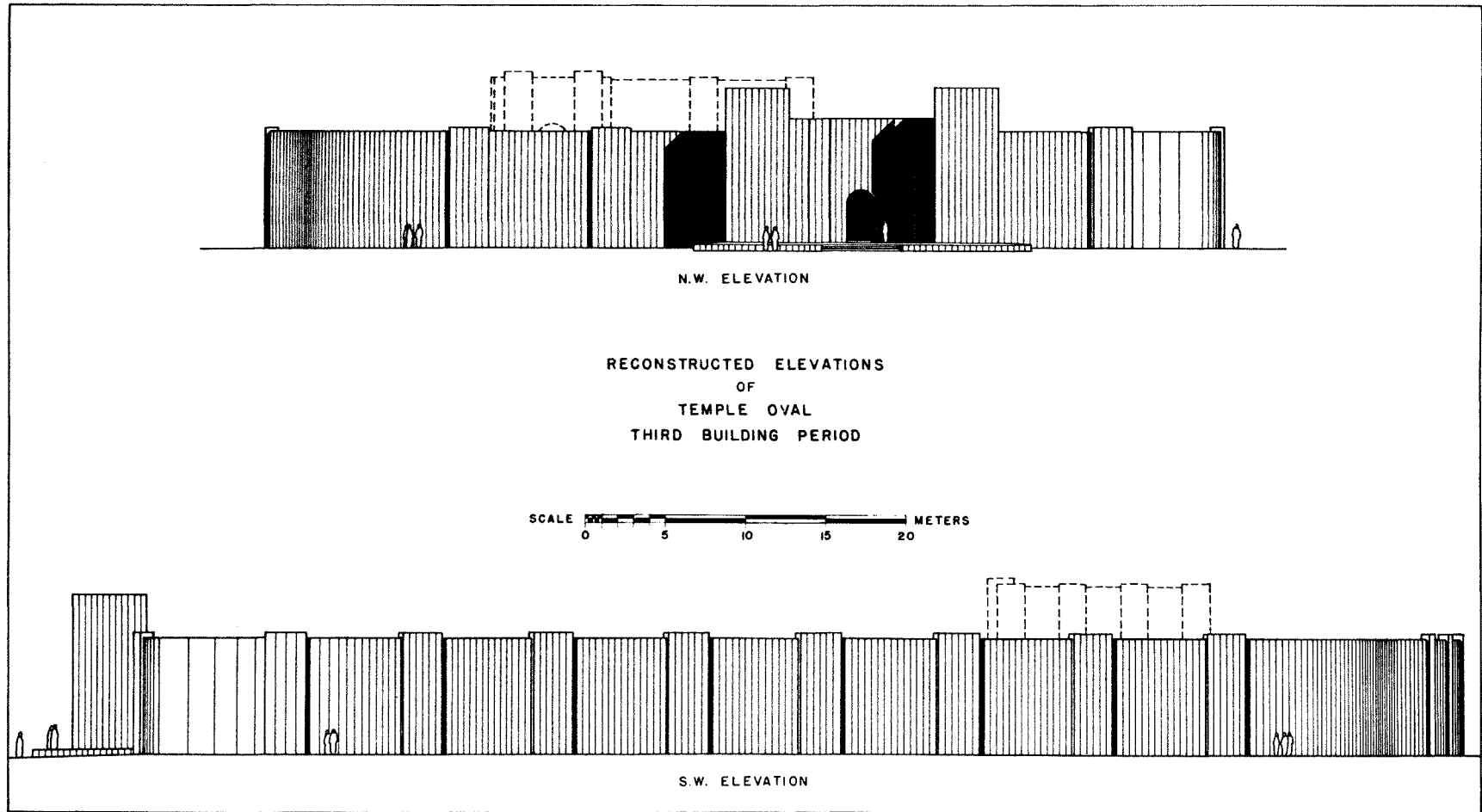


FIG. 105.—RECONSTRUCTED NORTHWEST AND SOUTHWEST ELEVATIONS OF THE TEMPLE OVAL OF THE THIRD BUILDING PERIOD, BASED ON THE PLAN IN FIGURE 103. SCALE, 1:400

traces of later work. These may now be explained as caused by the excavation and rebuilding of this part of the inner wall in order to provide foundations for adding buttresses. The thickening of the outer wall of "House D" in K 43-44 and the blocking of the original doorway would also be explicable by this arrangement of separating "House D" from the temple proper.

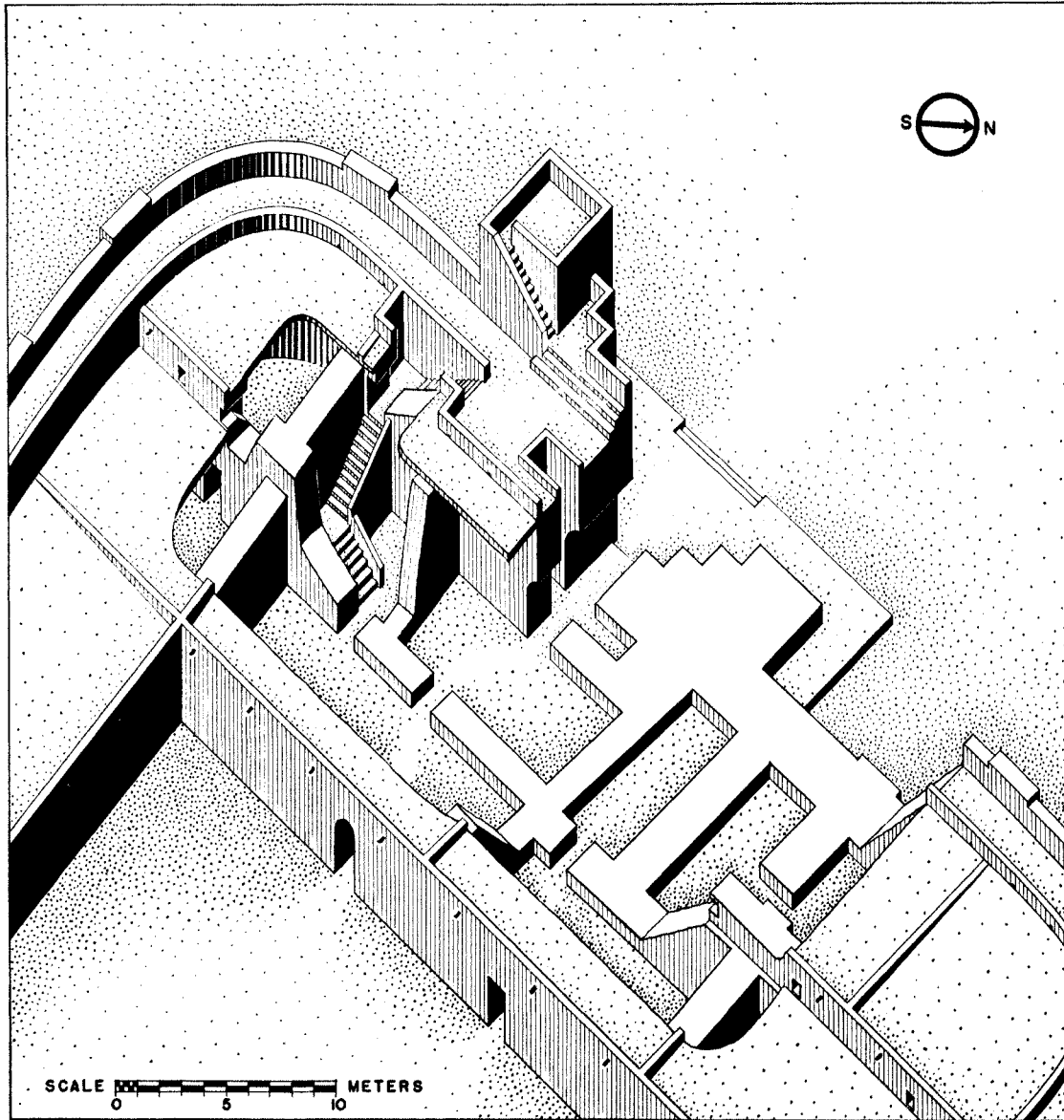


FIG. 106.—ISOMETRIC RECONSTRUCTION OF THE LATE GATEWAY (PARTLY CUT AWAY). SCALE, 1:320

From the northern end of this thickened outer wall of "House D" the thick buttressed outer inclosure wall probably continued toward the gateway. On the other side of the gateway some remains of brickwork were actually found in J 44-45, and these fit in quite well with this reconstruction.

Whether the scheme shown in Figure 102 or the alternative discussed on page 111 is adopted, the plan of the remains of the latest period as shown on Plate XI has to be recon-

structed separately. We think that the most likely reconstruction is as shown in Figure 103. In the absence of positive proof to the contrary we presume that in the latest period only a single, straightened, buttressed inclosure wall existed and that "House D" was no longer used. We still assume the existence of the temple platform, for otherwise the existence of the inclosure wall would be pointless. In Figure 103 the remains actually found are shown as stippled surfaces, while the solid lines represent the reconstructed parts. The straightened buttressed wall is continued in a straight line into square L 43, where it meets the perpendicular wall from the gateway found in K 44. The two walls are joined by a rounded corner similar to that found in O 45. A stump of wall in J 45, southwest of the gateway, is continued in somewhat asymmetrical fashion to join the other end of the buttressed wall in O 46. The asymmetrical form is the outcome of a wish to provide a rounded corner in J 45 on the one hand and not to enlarge the area of the inclosure and the size of the rooms around the courtyard on the other. For the reconstruction of the series of rooms southeast of the gateway we have better evidence than for those on the northeast, where only fragmentary walls remained in L 44:3 and M 44:4 (cf. Pl. XI). In the reconstruction of the rest of the rooms and of the platform we were guided by the plan of the ruins of the earlier period.

In studying the actual brickwork of the later gateway on Plate XI we see that its plan was not entirely symmetrical because of the difference in the thickness of the brickwork on both sides of the gate chamber K 44:8. Northeast of this chamber were two rooms, K 44:4 and 6. The corresponding brickwork on the southwest side of the gate chamber was a solid block about 8 meters thick, for which there seemed to be no reason. But if we assume that a stairway must have existed somewhere near the gate to give access to the top of the fortifications, this part of the tower would seem to be the most likely place for it. Such a stairway has, therefore, been reconstructed, leading from room K 45:8 through K 45:9 to the top of the tower. Since the stairway would of course have been built of the same material as the rest of the gateway, it is obvious why no traces of a chamber were found in the lowest preserved layers of brickwork. Our reconstruction incidentally explains the exceptionally small size of rooms K 45:8 and 9.

As we have seen on page 104, the brickwork L 44:1 also may have been the base for a stairway. The existence of such a second stairway, giving access to the northeast tower and the northern part of the fortification wall, seems quite likely, considering that only a limited number of people could use the narrow stairway we have reconstructed in K 45:8. It is, of course, possible that the square structure L 44:1 had some other quite different purpose, which we have no means of ascertaining.

Figure 104 shows reconstructed sections based on the plan shown in Figure 103. Section *A* shows heavily dotted the remains of walls of this period as actually found. Below them the ruins of the earlier periods are indicated, and above them the reconstructed parts. Sections *B* and *C* are taken in squares L 46 and M 44 through the southwest and northeast sides of the inclosure wall and the adjoining rooms. Figure 105 shows the reconstructed elevations based on Figures 103 and 104.

Figure 106 shows a more detailed view of the reconstructed stairs leading to the top of the wall and to the towers. The view is from the east looking west. For the sake of clarity the northern tower and parts of the roofs are cut away. In the foreground part of the courtyard is to be seen with the two doorways leading into K 45:5 and L 44:5 respectively. From K 45:5 one can see the two doorways leading into K 44:9 and K 45:8. In K 45:8 a flight of 7 steps is assumed to have occupied the space K 45:9 at the southeast wall. From the first landing the steps continue at a right angle against the southwest wall into the thickness of the brickwork, where they turn toward the northeast, finally reaching the top of the wall. From

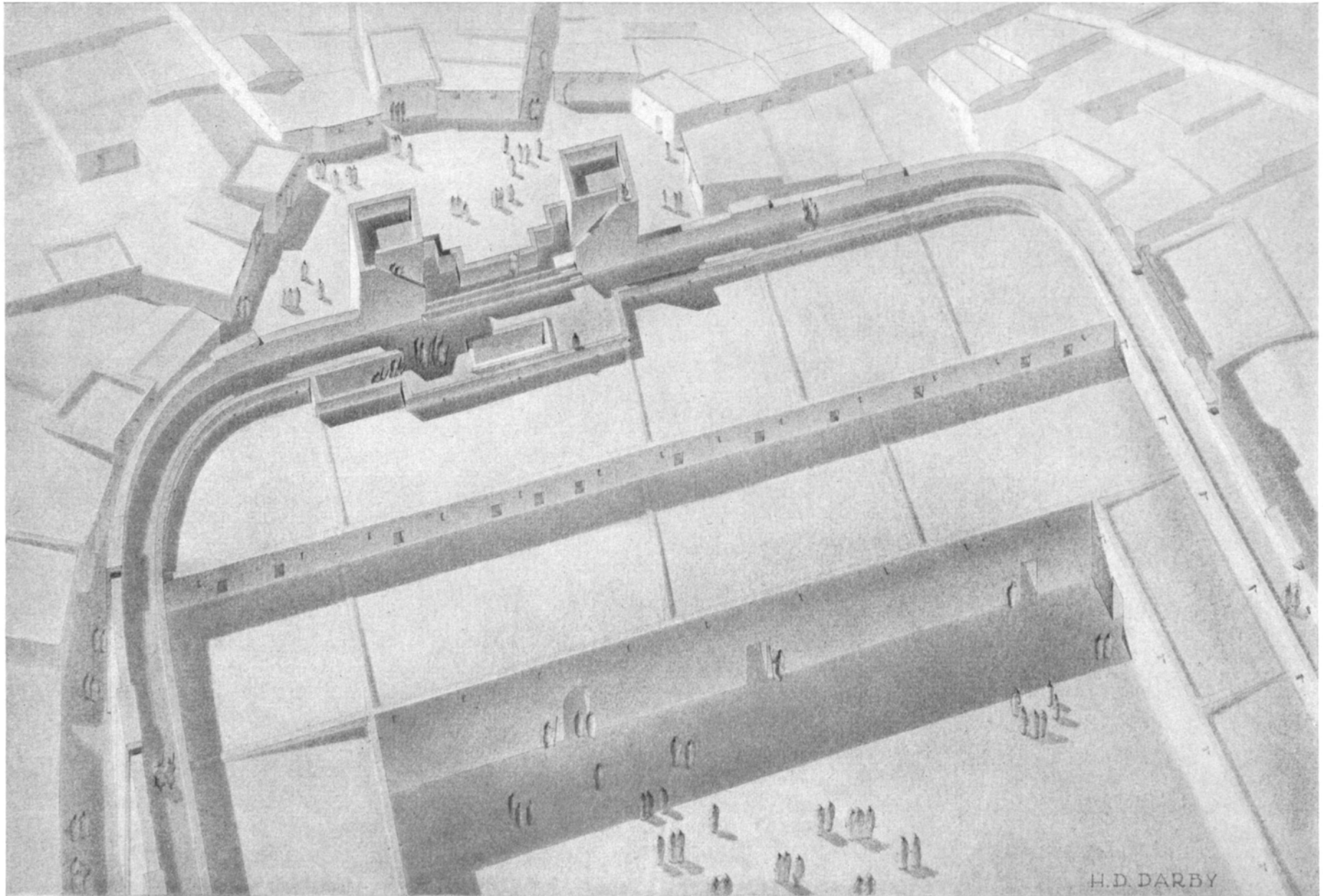


FIG. 107.—PERSPECTIVE VIEW OF THE NORTHWEST END OF THE TEMPLE INCLOSURE OF THE THIRD BUILDING PERIOD, BASED ON THE PLAN IN FIGURE 103

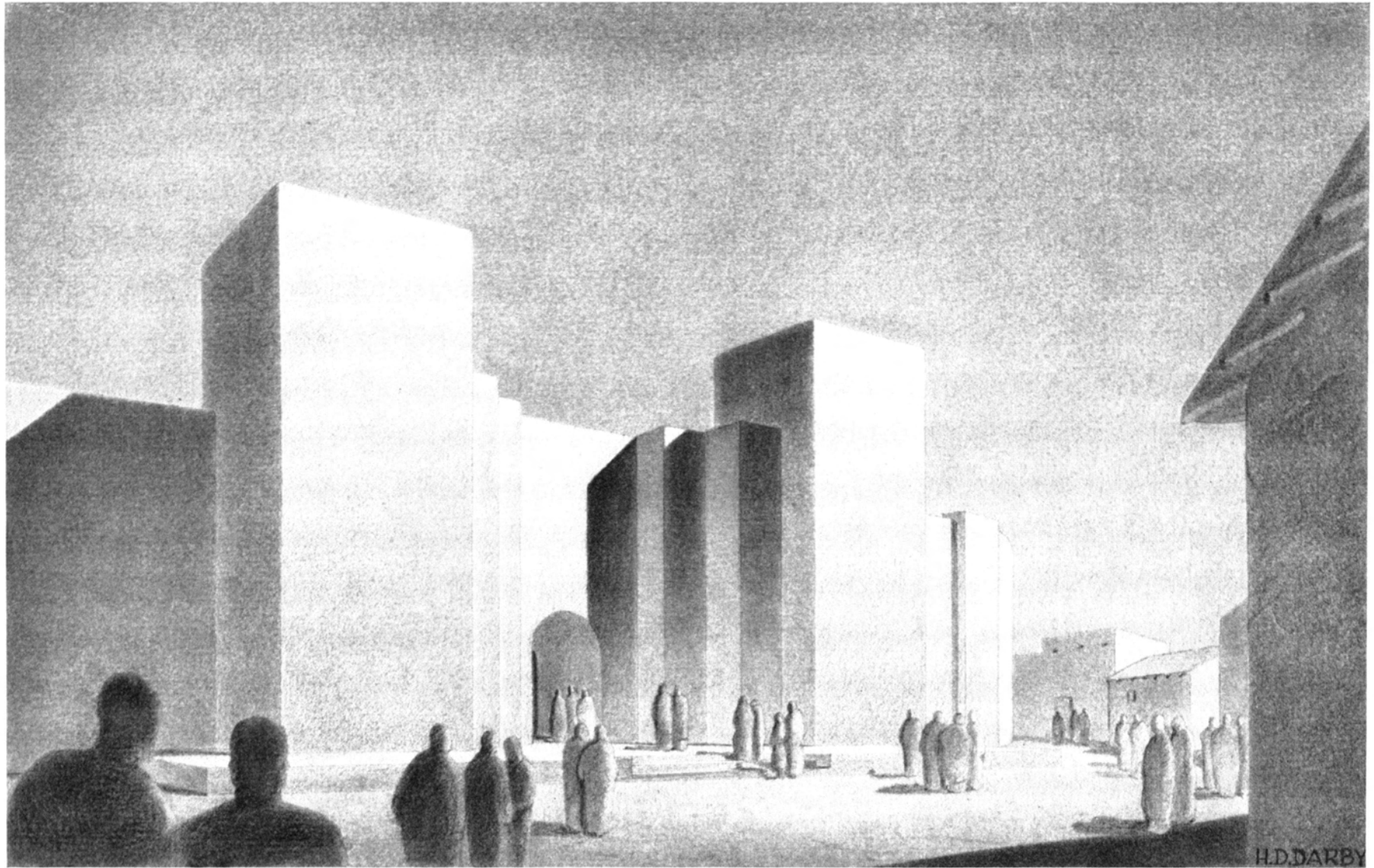


FIG. 108. — PERSPECTIVE FRONT ELEVATION OF THE GATEWAY OF THE THIRD BUILDING PERIOD, VIEWED FROM NORTHWEST

there flights of stairs are assumed to have led up the two large towers, one on each side of the gateway. Further details show the presumed arrangement of buttresses, parapets on top of the walls, lighting arrangements, and rainspouts.

Figure 107 is a perspective view of a larger part of the reconstructed building, based on the restored plan shown in Figure 103. The view is from the southeast and includes the whole western part of the building. In the foreground is part of the large courtyard with doorways leading into the series of rooms around it. These doorways have straight lintels except the one leading into K 45:5, which is vaulted because it forms part of the main entrance into the building. The second row of rooms against the northwest side of the inclosure and the gateway is reconstructed to a greater height than the first so as to provide clerestory lighting. Beyond are the inclosure wall and the gateway with its towers and stairways. The only unroofed room in our reconstruction is the small gate chamber K 44:8, which may have served as a light shaft for the gateway and possibly also for strategical purposes. In the background part of the town with its private dwellings has been reconstructed in accord with the reconstruction of this area for the earlier period (cf. pp. 73 f.).

Finally, Figure 108 presents a view of the reconstructed gateway as seen from a point in the town area north of the building. The shallow terrace K 44:7, the arched gateway, and the arrangement of towers are shown in proper perspective. Here again no battlements of any kind were restored, for we found no evidence of their existence.

VI MISCELLANEOUS DETAILS

CONSTRUCTIONS FOR THE USE AND DRAINAGE OF WATER

Water was certainly used in abundance for different purposes in the Temple Oval area, and either for convenience or for strategical reasons the temple itself was probably independent for its water supply. The two wells in the courtyard, L 45:2 and L 46:6 (cf. Pl. III and pp. 37-39), which, so far as we could establish, must at one time have been used simultaneously,



FIG. 109.—THE BRICKWORK OF WELL L 45:2

probably supplied enough water for all ordinary purposes. Only L 45:2 was excavated by us down to the present water level, which was approximately 10 meters below the present surface of the soil. At this level the bottom of the brickwork had not been reached, and it is certain that the ancient water level was lower. Even now the water level is subject to seasonal fluctuations during the year, depending on the level of the water in the Diyālā River, which reaches its maximum height after the rainy season in the spring and its minimum at the end of the summer. At the present day the water in the well is brackish, having a very pronounced salty, bitter taste, and would not be used for drinking by even the most indiscriminating of



FIG. 110.—THE NORTHERN CORNER OF "HOUSE D," SHOWING THE SLOPING FLOOR OF THE TOWN AREA (*a*), THE ORIGINAL FOUNDATION OF THE OUTER INCLOSURE WALL (*b*), AND THE THIN OUTER INCLOSURE WALL (*c*) ABOVE IT

It can be seen that at least part of the foundation was exposed at the outside, and also that the drain (*d*) was put in at a later date when the ground level outside the Oval had risen. In the foreground and on the right are walls belonging to private houses. The hole at *e* is the sounding in K 43:11, where the limit of the sand deposit was first established (cf. Fig. 7).

the local Arabs. But this present-day condition of the water is no proof that it was the same in ancient times, for its peculiar taste is probably due to the accumulation of organic matter which has been in the process of slow decomposition for many centuries at the bottom of the well. A thorough cleaning of the well and regular drawing of water would probably improve the quality of the water even now.

Both wells were lined with baked brick in the regular herringbone pattern (Fig. 109). The mortar between the bricks was ordinary clay. L 45:2 was much better preserved than L 46:6. The presence of contemporary statuary in the upper layer of the filling of the latter suggests that it collapsed and was filled in before the temple was abandoned, while L 45:2 continued



FIG. 111.—BAKED BRICKS USED IN THE CONSTRUCTION OF THE DRAIN IN K 46:4

to be used. No clue was found indicating the means by which the water was drawn from the wells, but the simple method of a jar attached to a rope is the most likely.

A small shallow basin (L 45:5) made of plano-convex baked bricks plastered with bitumen was originally connected by means of a shallow drain to L 46:6 and could be filled with water drawn from the well and poured into the bitumen-plastered channel. This brick basin may have been a trough for watering animals in the courtyard, but the large pottery basin that took its place at a later period would not be easily accessible to small animals. Figure 68 shows both basins at different levels; Figure 69 shows details of the construction of the channel leading to the later basin. Near the other well (L 45:2) no such arrangements were found.

The circular brick basin M 44:2, described on pages 39 f., was not connected by drains with these wells, although traces of drains were found near it. Section 7 (Pl. X) shows clearly that these drains sloped toward the basin and presumably served to bring water to it, while a second series of drains, as reconstructed on section 5, may have been used to drain it off. In the third building period we actually found a large pottery basin, M 44:7, connected with the brick

MISCELLANEOUS DETAILS

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basin by a bitumen-plastered drain, and one may assume that if rain water was collected by some means into this pottery basin it was either diverted into the circular basin M 44:2 or drained off toward the outside by the drain sloping the other way (cf. section 7). This second drain toward the outside of the Oval probably shows that the circular basin was used only periodically and that when it was not in use the water could be drained off toward the out-



FIG. 112.—TUBULAR POTTERY DRAIN REINFORCED BY BAKED BRICKWORK, LEADING THROUGH THE OUTER INCLOSURE WALL IN J 44

side. It is possible that in the first building period the drain through room M 44:4 and the space between the two inclosure walls M 44:1 (Pl. III) was used not only for draining the circular basin but also for draining the northern side of the courtyard.

On the other side of the courtyard a large drain began in K 45 and ran through rooms K 46:4 and 5 and thence through both inclosure walls to the outside, ending up in a rather complicated vaulted drain, K 46:8 (cf. Pl. IV).

In "House D" a special drain carried the water from the courtyard L 43:3 through room L 43:1 toward the outside of the Oval (Fig. 110). In the southern corner of the Oval another

drain led to the outside from a bitumen-plastered space (N 47:3; cf. Figs. 14–15) between the two inclosure walls; this was undoubtedly intended to carry off only the rain water from the space between the two inclosure walls.

It was this arrangement of drains running practically toward all sides from the Oval that first gave us the idea, before we began to penetrate into earlier layers, that the whole of the building complex must originally have been built on a higher level than the surrounding town, possibly on an artificial terrace.



FIG. 113.—DEEP VERTICAL SHAFT M 44:8 (CF. PL. III), FORMED BY A SERIES OF TUBULAR POTTERY SECTIONS

At least nine of these sections can be distinguished in the photograph, and in the upper ones holes for percolation of water can be seen.

Various types of drains were used for varying purposes. Most of the drains were uncovered in their main length except in those parts which cut through walls. In structure they varied considerably, from a very primitive drain consisting merely of a shallow depression in the ground, plastered with clay, to a very elaborate vaulted structure built of baked bricks, such as K 46:8. The shallow open drains were constructed sometimes of clay or unbaked bricks but more often of baked bricks, and they were usually plastered with bitumen mastic (Fig. 111). The use of baked bricks in the whole building was restricted almost exclusively to structures connected with the use of water. The brick-built drains were of several types: (1) a shallow channel constructed either of a single row of baked bricks or of two rows of bricks slightly

sloping toward each other; (2) a deeper channel made by means of one row of bricks laid flat and two rows placed on their edges one along each side of the flat row; (3) a covered channel obtained by laying a flat row of bricks above the two rows standing on edge. All these various types were occasionally plastered with bitumen mastic, but more often only clay mortar was used in connection with baked bricks. Frequently a simple gable-like covering of two bricks sloping toward each other was used to carry such drains through the thickness of a wall, but occasionally vaulting was preferred (Figs. 112 and 117).



FIG. 114.—FUNNEL-SHAPED VERTICAL DRAIN AT THE END OF THE HORIZONTAL DRAIN OUTSIDE M 43:1

Pottery drains also were used extensively, and these too were of different types. The open pottery drains were fashioned of several troughlike sections, each measuring about $1.00 \times 0.30 \times 0.10$ m., which fitted into one another to form a continuous drain (cf. Fig. 57). Another type was the tubular pottery drain. This was frequently used when a conduit was needed to cut through a wall. Occasionally several such drains were used parallel to one another so as to obtain the necessary capacity (cf. Fig. 14). A third type found in the Oval and very commonly used in Early Dynastic as well as later periods was the vertical pottery shaft, which was formed by a series of tubes of large diameter (60–90 cm.) placed one above another (Fig. 113). Some of these shafts revealed a succession of eleven tubes, whose total height was about 7.50 m.

In Figure 113 one can distinguish at least nine tubes. That the water directed into these shafts was not meant to reach any receptacle but was intended to be gradually absorbed by the surrounding soil is clearly shown by the series of holes perforating each tube and by the thick layer of potsherds packed around the shaft to facilitate absorption of the water. The top of such a shaft was usually reinforced by baked bricks (Fig. 113), so that the flow of water should not damage the upper section by washing away the soil surrounding it. A fourth type of pottery drain was similar to the ordinary pottery basin but with a hole in the base, thus



FIG. 115.—VAULTED DRAIN K 46:8 SOUTHWEST OF THE TEMPLE OVAL (CF. PL. IV)

forming a funnel-like entrance into the drain below (Fig. 114). This contrivance may have been used also as a filter to eliminate solid refuse and let only the water through.

The most elaborate drain in the Temple Oval area was that passing through K 46 (cf. Pl. IV). It was built and vaulted with baked bricks (Figs. 62 and 115-16). The inside measurements were about 70 cm. in width and 60 cm. in height, and the thickness of the brickwork attained 80 cm. The vault itself, although not very regular, was a quite solid structure, suggesting the possibility that this architectural feature was used on other occasions also, for example for doorways and perhaps even for roofing. Similar vaulting was used on a smaller scale to carry drains through walls (Fig. 117).

Sometimes combinations of the various types of pottery drains and brick drains were used.

With regard to the method by which the rain water was carried off the roofs and the tops of the thick inclosure walls only one indication was found, and that was in room O 44:17 in the

house area adjoining the outer buttressed wall. The floor of this room was completely plastered with bitumen, sloping gradually from northwest to southeast and ending in a drain leading toward the southeast. The bitumen came up against the actual surface of the outer inclosure wall, and near the western corner of the room it took the form of a V-shaped groove (Fig. 118; cf. Pl. VII). This bitumen-plastered groove apparently had continued vertically in the outer face of the inclosure wall to the top of the wall and will have served to carry off the water from



FIG. 116.—DETAIL OF THE COVERING OF THE LARGE VAULTED DRAIN K 46:8

the top of the wall so as not to damage the latter. This groove was very nearly centered between two buttresses and may indicate that similar arrangements existed regularly all around the outer inclosure wall; but, as no other rooms plastered with bitumen were found adjoining the outer wall, it seems more likely that the water was conducted on top of the wall alongside the parapet, probably also in channels plastered with bitumen, to a limited number of such grooves situated at the points where drains had been cut through the parapet.

We cannot say for certain whether rainspouts existed or not, as we found none in the Oval at Khafājah; but some of the pottery drains, both troughlike and tubular, could have served

this purpose effectively. If such spouts existed, it is likely that the surface of the wall immediately below them was protected by bitumen plaster from damage by the outflow of water. If not, the water may have run through openings in the parapet of the wall directly into bitumen-plastered grooves that conducted it to brick-paved or bitumen-plastered areas whence it was carried off by a regular drainage system.

The baked bricks employed in structures meant to be used in connection with water were invariably plano-convex in shape, and hence the methods used in laying the bricks are the same as those observed in their use otherwise.¹ The bitumen mastic used must have been applied at comparatively low temperatures; nevertheless all bitumen-covered surfaces withstood the hot



FIG. 117.—VAULTED DRAIN THROUGH THE INNER INCLOSURE WALL AT M 44:4

climate and have worn extremely well throughout the centuries. This is probably due to the fact that all the mastics have a large admixture of either sand, pounded baked brick, or more often organic material consisting of straw or chopped reed. Although no detailed studies of specimens of mastic from Khafājah have yet been undertaken, the results of a study by Mr. R. J. Forbes, chemist of the laboratory of the Bataafsche Petroleum Maatschappij in Amsterdam, of several specimens of bitumen from Tell Asmar,² some of which are of the same period as the Temple Oval, will no doubt hold in general also for the mastic used at Khafājah.

Most of the foregoing constructions for the use and drainage of water are not confined to Khafājah but have been found also on most other Mesopotamian sites. In fact, because of the

¹ SAOC No. 7, pp. 13-28.

² R. J. Forbes, "Untersuchungen über die ältesten Anwendungen von Bitumen in Mesopotamien," in *Bitumen V* (Berlin, 1935). See also his *Bitumen and Petroleum in Antiquity* (Leiden, 1936).

waterproof materials of which they were built (baked bricks, pottery, or bitumen) such structures attracted the attention of even those excavators who thought it unworthy to trace and record properly mere mud-brick walls and for this reason are among the most prominent architectural remains published in the reports on certain sites.



FIG. 118.—TWO BITUMEN-PLASTERED ROOMS, O 44:16 IN THE MIDDLE FOREGROUND AND O 44:17 TO THE RIGHT, THE LATTER SHOWING A GROOVE (MARKED BY ARROW) WHERE IT JOINS THE OUTER INCLOSURE WALL

Well preserved wells of plano-convex bricks were found at Tell Lūh (Tello)³ and at Nippur.⁴ Both horizontal and vertical drains were uncovered on almost every site thus far dug,⁵ and even the less common circular basin M 44:2 had its parallels at Tell Lūh⁶ and at Ur.⁷ It seems

³ E. de Sarzec, *Découvertes en Chaldée* (Paris, 1884–1912) I 416–19 and II, Pl. 57 (2); Léon Heuzey, *Une villa royale chaldéenne ...* (Paris, 1900) pp. 69–76.

⁴ C. S. Fisher, *Excavations at Nippur* (Philadelphia, 1905–6) p. 55 and Pls. 6 (Fig. 3) and 17. Horizontal drains were found at Nippur (cf. *ibid.* p. 55 and Pl. 18) as well as on other sites. As for the vertical drain, it was of very common use for a long time in Mesopotamia, in later periods also. For some reason this type of drain seems to be an attractive subject to photographers, and numerous photographs of it have appeared in various publications. Most of these, however, show such drains as standing columns, without any connection with the floor levels to which they originally belonged.

⁵ Cf. e.g. Ernst Heinrich, *Fara. Ergebnisse der Ausgrabungen der Deutschen Orient-Gesellschaft in Fara und Abu Hatab 1902/03* (Berlin, 1931) pp. 10 f.

⁶ De Sarzec, *op. cit.* I 420 and II, Pl. 55 (2); G. Cros, *Nouvelles fouilles de Tello* (Paris, 1910–14) p. 93 and Plan C opposite p. 90.

⁷ C. L. Woolley, "Report on the excavations at Ur, 1932–33," *AJ* XIII (1933) 377 and Pl. LXII 2. Of all similar structures the "circular base" at Ur undoubtedly most closely resembles the circular basin at Khafājah. However, for some reason which one fails to understand, Sir Leonard Woolley prefers to compare it with the two oval fireplaces in room

certain, therefore, that problems of water supply and drainage played a prominent part in all of the more important architectural schemes carried out during the Early Dynastic period, and perhaps some of the details observed at Khafājah can be used to elucidate certain points on other sites where less attention could be paid to architectural details.

OVENS AND KILNS

Several structures found in the Temple Oval area were clearly used for fires. We cannot state their exact purpose with certainty, but their construction suggests that they may have been used not only as rather elaborate cooking ovens but also for other purposes (see pp. 131–33). Two such structures belonging to two periods were found in room N 45:1–2, one against the middle of the northeast wall (cf. p. 29 and Pls. IV–V), the other in the northern corner (cf. p. 78 and Pl. VII); a third kiln was discovered in square K 44 in the forecourt between the two gateways (Pls. III–V); and two ovens appeared in “House D,” one in room M 43:5 of the first building period (M 43:9 in Pl. III; cf. Pl. V), the other in room M 43:10 of the second period (cf. Pl. VII).

The two ovens in N 45:1–2 were ellipsoid (*ca.* 2.10×2.50 m.), with a projection about 0.40 m. long on one side for the opening. A central fuel chamber about 0.40 m. wide ran along the main axis, while four compartments branched off symmetrically on each side. The compartments measured between 0.50 and 0.75 m. in length, according to their position within the oval, and approximately 0.20 m. in width. It is possible that these compartments were connected not only by the central fire chamber but also by small holes in the partitions between them. The whole structure, including the compartments, must have been covered by a flat surface or possibly by a vault.

The oven found in M 43:10, though not so well preserved, seems to have been of exactly the same type as those in N 45:1–2, while M 43:9 and that found in K 44 were somewhat different. The latter was better preserved than the others and so provided better evidence for reconstruction. It was rectangular in plan (*ca.* 2×2.50 m.), and consequently all the compartments branching off from the main fire chamber were of equal length. The central fuel chamber was 0.50 m. wide, 2 m. long from the entrance to the back wall, and was divided by a series of five arches, the spaces between them forming the six compartments on each side. These compartments were intercommunicating not only by means of the central chamber but also by small square holes (Fig. 119; cf. Fig. 17). One can also see from the figure that the floor in these side compartments sloped up from the central fire chamber toward the side walls. It is possible that the whole structure was vaulted; however, to judge from the preserved part of this kiln, it seems more likely that its top was flat.

Several similar structures were found in our own excavations at Khafājah outside the Temple Oval—some in the private houses and some connected with the Sin Temple or one of the smaller shrines. At Tell Asmar also some structures not greatly different from these were found at a later period. At a few other sites very similar structures were discovered. Of these the one from farthest south, that found in the Temple of Ninkhursag at al-‘Ubaid, is the closest in date to those in the Temple Oval.⁸ At Nippur also a similar but considerably larger

K 45:6, although our circular basin was also published in the same preliminary report. As Woolley himself points out, “a bitumen base is the last thing that one would use for a fireplace.” Perhaps the alternative, that the “circular base” at Ur was no exception to other structures covered with bitumen and was used in connection with water, is more acceptable.

⁸ Hall and Woolley, *Al-‘Ubaid*, p. 75 and Pl. II. The very ingenious explanation put forward by Woolley that this structure was a restaurant kitchen set up by some enterprising caterer to supply lunch to pious excursionists from Ur is no longer necessary in view of the fact that the ovens at Khafājah were planned as part of the temple equipment, especially

structure was found⁹ and was dated by Hilprecht to the 1st dynasty of Babylon.¹⁰ North of the Diyālā region also a very similar and comparatively well preserved structure was found at Nuzi and is dated by Dr. Starr to a still later time, namely Nuzi II.¹¹ The presence of such similar structures in the ruins of different periods in four regions of Mesopotamia shows that it was commonly used all over Mesopotamia throughout many centuries; and indeed, as has often been observed, the ordinary kitchen ranges in Mesopotamian villages even today are not greatly different.

Unfortunately none of the ovens found was preserved well enough to supply proof as to whether they consisted of the lower fire compartment only or whether a superstructure



FIG. 119.— FIRE CHAMBER OF THE KILN K 44:3, SHOWING THE SUCCESSIVE ARCHES AND THE SQUARE HOLE THROUGH THE UPPER LEFT PART OF ONE OF THE ARCHES (CF. FIG. 17)

existed which could be used as a baking chamber. In the first case they would have been used only as somewhat elaborate kitchen ranges, while in the second case they could have been used for baking pottery or bricks. No such indications as pottery or brick “wasters” were found in the vicinity of any of our ovens or kilns, but some grayish white granular material discovered

since it has been proved that the temple platform at al-Ubaid also was surrounded by an oval inclosure and that the “kitchen” which the distinguished excavator considered to be standing “out in the open away from any building” was in reality on the edge of the larger temple complex.

⁹ C. S. Fisher, *Excavations at Nippur*, pp. 40 f., Plan 3 (Fig. 2), and Pl. 3 (2).

¹⁰ H. V. Hilprecht, *Explorations in Bible Lands* (Philadelphia, 1903) pp. 489–92.

¹¹ Richard F. S. Starr, *Nuzi. Report on the Excavations at Yorgan Tepe near Kirkuk . . .* (Cambridge, Mass., 1937–39) I 54 f. and 239 f. and II, Pl. 22 B. Dr. Starr comes to the conclusion that this kiln, to judge by its form and position in the town, was not used for ordinary domestic purposes. He also concludes that the fire chamber was below ground level—the only notable difference between this structure and those at Khafajah.

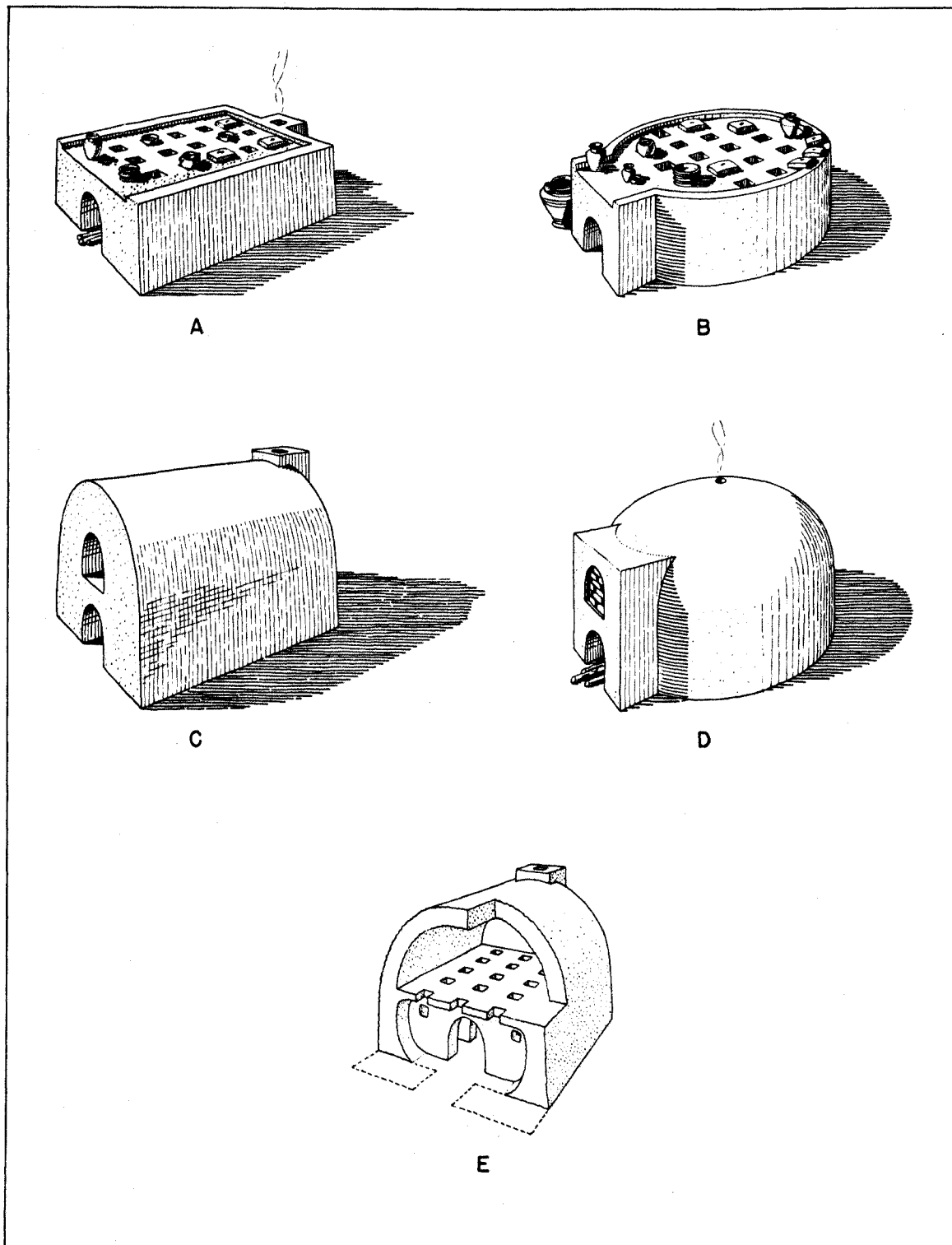


FIG. 120.—RESTORED KILNS OF THE TYPE FOUND WITHIN THE TEMPLE OVAL

MISCELLANEOUS DETAILS

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in the oven or kiln in room M 43:10 of "House D" (see the analysis on p. 151) indicates that at least this one was used for burning lime. Traces of lime used in whitewash and in wall plaster were found in several different places in the building. The use of a kiln within the temple inclosure for burning lime is interesting as another example of the manifold secular activities undertaken by the temple household. But since no traces of lime were found in any of the other ovens or kilns, it would be unwarranted to conclude that all of them were used for lime-burning. One kiln probably could have supplied all of this material needed. Furthermore, the position of the ovens in N 45:1-2, in a presumably roofed room and close to the temple platform, argues against such use.¹² More likely these were used for cooking, or perhaps for burning the sacrificial offerings.

In Figure 120 we give two possible restorations for the rectangular and oval types of ovens. *A* shows the rectangular oven with a flat top pierced by vertical vents on which the cooking utensils could be placed. *B* is a similarly restored oval oven. These reconstructions are based on the evidence preserved, and we believe they give a fairly accurate picture of the structures when they were in use. The other reconstructions are more conjectural and are merely intended to demonstrate how these ovens could have been converted into kilns for baking pottery or bricks. We do not believe that the structures we found were actually thus used, for kilns for baking pottery or bricks would probably have been larger and situated in an open area where both the clay and the water needed for manufacturing were more easily accessible. *C* is the rectangular kiln restored with a vaulted upper baking chamber, and *D* an oval kiln with a domed upper baking chamber. *E* is another view of *C*, partially cut away to show the various details of the firing chamber and its connection with the upper chamber.

No traces of the fuel used in the ovens were found, but there is no reason to believe that it was any different from the fuel commonly used by the local inhabitants at present, namely straw for a quick, hot flame and roots of desert shrubs and dried dung for a more constant or a smoldering fire.

As we have seen, not all of the ovens found in the Temple Oval were used simultaneously. At least it is certain that the two in N 45:1-2 and the two in "House D" were built on different floor levels which corresponded to the first and the second building period. As for the kiln K 44:3 and the oven M 43:9, it is possible that they existed at the same period. However, since no oven existed in "House D" during the latest occupation of the original building (cf. Pl. IV), it is possible that during that time K 44:3 served the purpose for which the oven in "House D" had originally been intended. During the second building period an oven was once more built in "House D," this time in M 43:10, while the kiln in the forecourt was no longer in use. It seems possible, therefore, that the oven in M 43:10 was built to replace the kiln K 44:3. In any case it seems likely that at least two of these five kilns or ovens, one inside the inner inclosure and one outside it, were used simultaneously. The continued use of these kilns or ovens in similar positions within the compound at different periods indicates that the same specific functions for which the various parts of the building were originally planned were retained in the later rebuildings also.

CEILINGS

As already mentioned (pp. 49-52), certain observations made in room L 43:9 provided us with tangible evidence as to the type of ceiling used. Indeed it was very similar to the type of ceiling which is to be found even now in most villages in Mesopotamia. Figure 121 shows a recon-

¹² The argument advanced in our first preliminary report that this room was a ruin when the kiln was built (*OIC* No. 13, p. 76) is, of course, no longer valid in the light of our subsequent investigations.

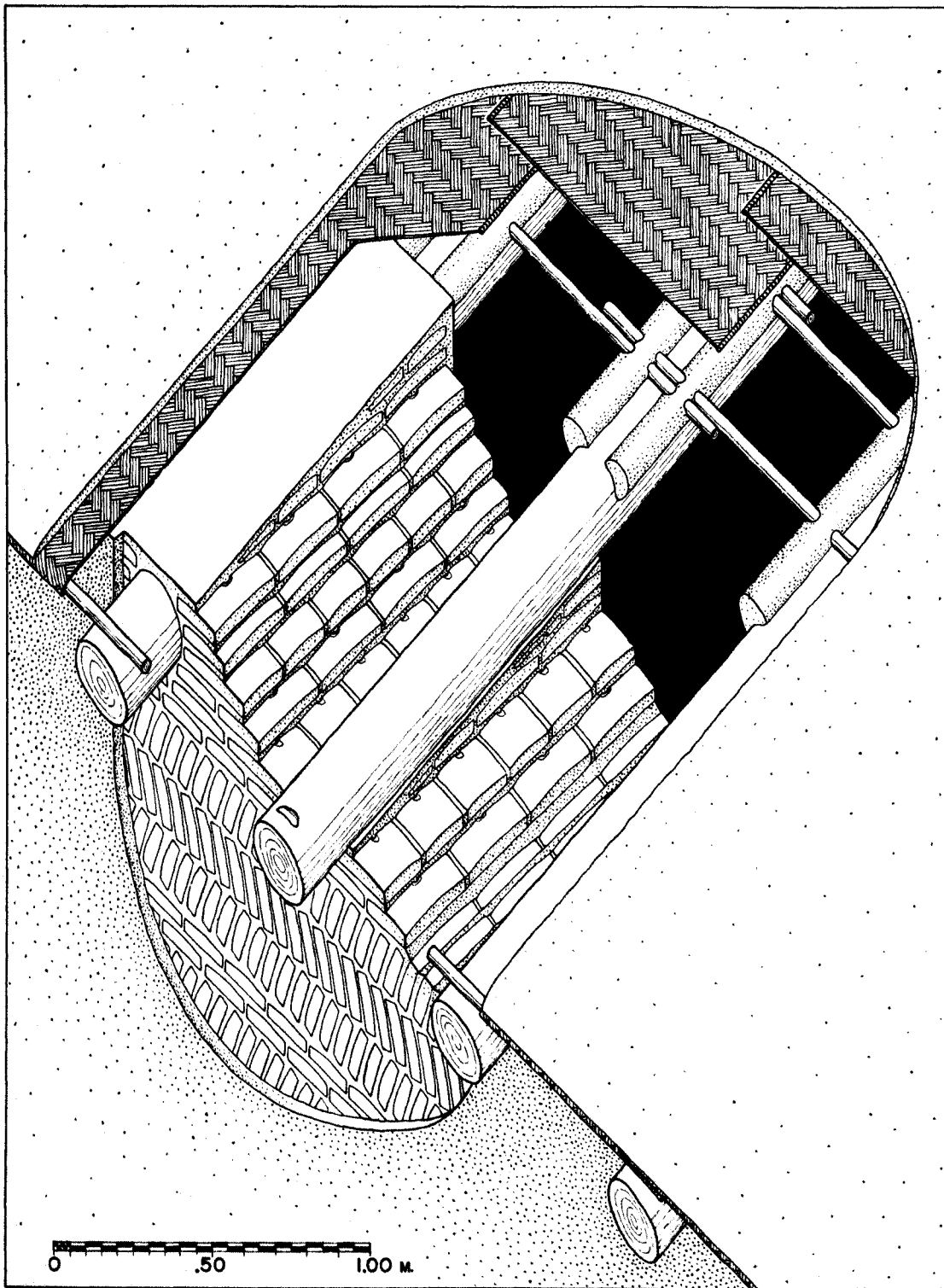


FIG. 121.—ISOMETRIC DRAWING SHOWING THE PROBABLE CONSTRUCTION OF THE ROOF OF ROOM L 43:9. SCALE, 1:20

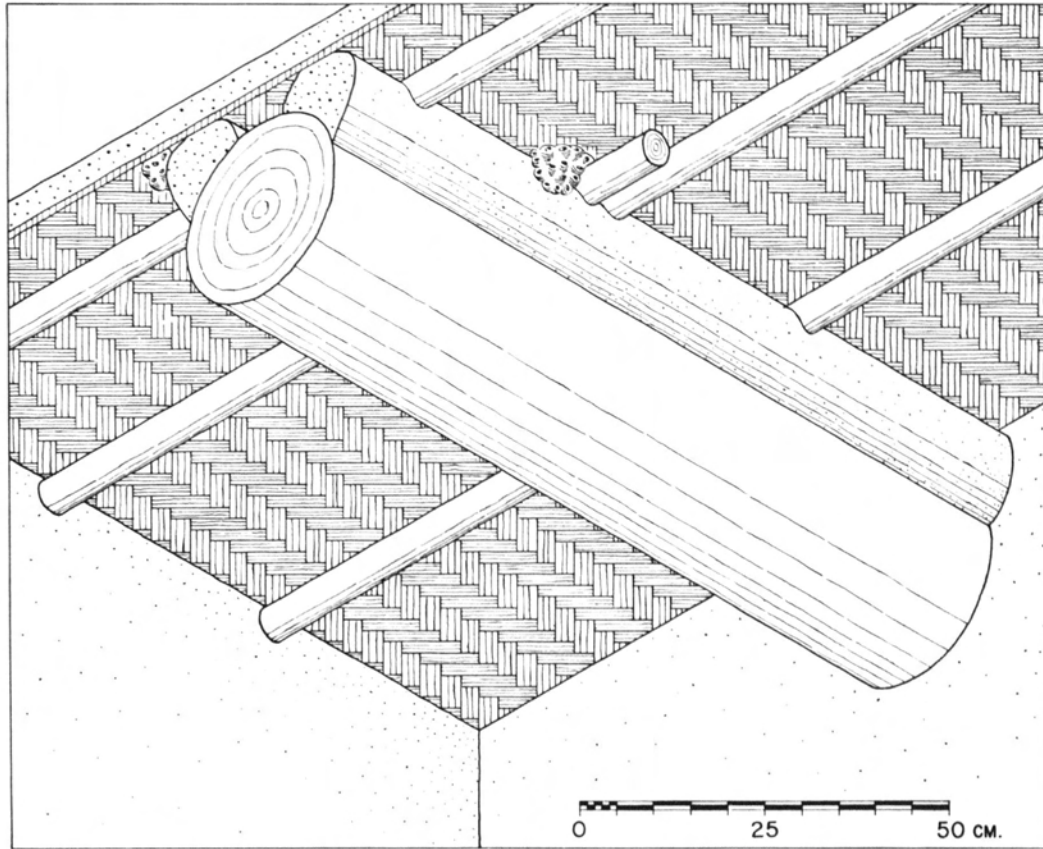


FIG. 122.—ISOMETRIC DRAWING OF THE RESTORED CEILING OF ROOM L 43:9, SHOWING DETAILS INDICATED BY REMAINS FOUND IN THE ROOM. SCALE, 1:10

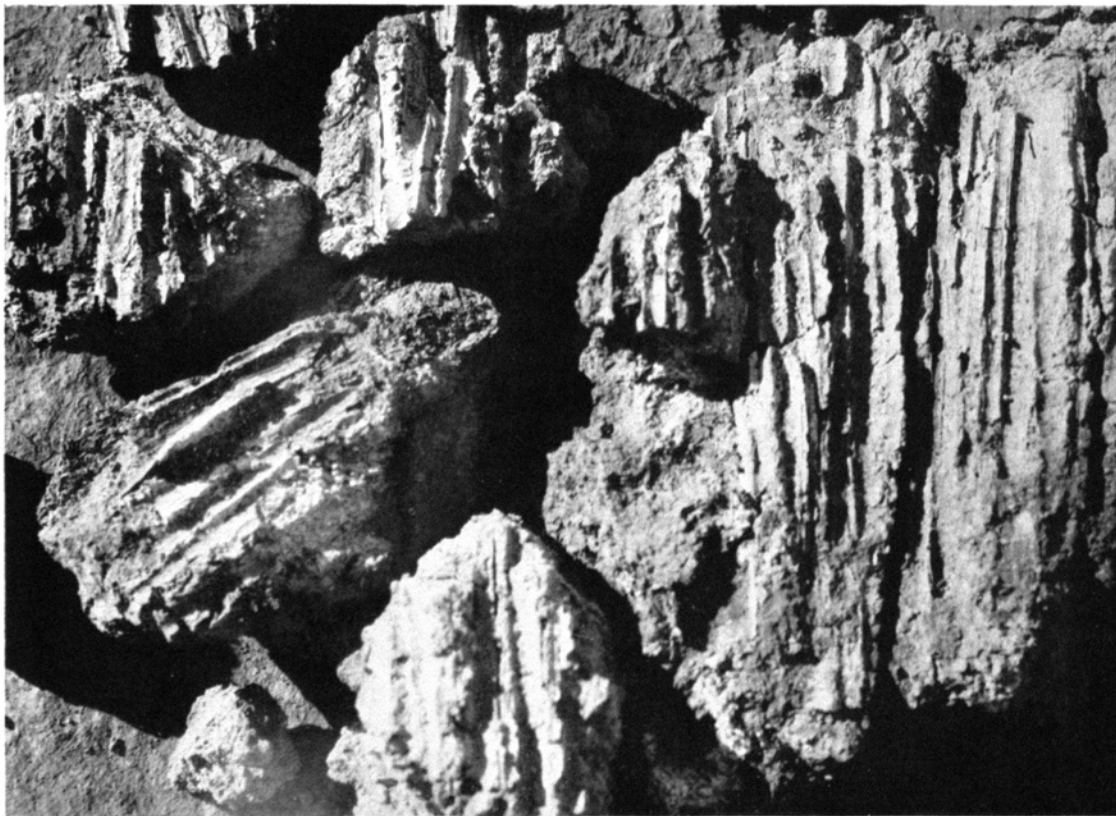


FIG. 123.—BURNT CLAY SHOWING IMPRESSIONS OF REEDS PROBABLY USED IN ROOFING

struction based on the available evidence. The view is from above. The stippled surfaces represent the mud plaster over the wall and over the roof. The plaster on the wall has been cut away to show the brickwork and the manner in which the beams were imbedded in it. Beneath the plaster of the roof reed mats are to be seen. These mats were supported by cross rafters resting on the beams and projected above and across the walls to form eaves. Where the rafters touched the beams shallow grooves were probably cut into the latter for stability, especially in cases where the slope was considerable. It is possible that the rafters were attached to the beams by means of wooden pegs, nails, ropes, or strips of hide, of which, however, no traces were found. The plastering of the upper parts of the round beams, besides providing a larger flat surface for the mats to rest on so as to avoid sagging and tearing, probably also helped to keep the rafters in position. Several fragments of clay plaster which had lain against the beams and been burnt in the conflagration were found (cf. Fig. 49), and from the curve thus preserved we were able to estimate the diameter of the beams. No such plaster was found to have existed against the rafters, but fortunately several wasps' nests that had been attached to them had also been burnt, thus preserving the shape of the rafters and providing a clue to the diameter of the latter. In Figure 122, which shows part of such a ceiling seen from below, one may see one large beam with the clay packing against it as well as wasps' nests against the rafters. Instead of regular matting a layer of reeds may occasionally have been used, as is indicated by the reed impressions shown in Figure 123.

VII

THE POSITION OF THE TEMPLE OVAL WITHIN THE TOWN

In the preceding chapters we have been concerned with the Temple Oval as an isolated unit, of which we endeavored to present as detailed an account as possible. It remains now to consider the same building from the point of view of its relation to the contemporary town and to establish its stratigraphic connections with the various layers of architectural remains on the site.

Plate II shows the position of the Temple Oval within the town. Before we discuss this position in detail, it should be made clear that the various buildings shown on this plan are not strictly contemporaneous. In the Temple Oval itself, for instance, the superimposed remains of three successive phases are indicated. In other parts only one layer, usually the one found immediately below the surface, is shown. Because of various circumstances not the whole surface of the mound as it now appears was occupied at one time. However, when we speak in terms of historical periods rather than in terms of single occupations, all these remains may be considered as roughly contemporaneous, since they must all be dated to the later part of the Early Dynastic period. From our excavation of the site we know that on the whole the ruins exposed on the surface of the mound were not greatly different from the layers immediately underlying them, and we may therefore consider that the ruins shown on Plate II represent a fairly close picture of any one occupation level within this longer period.

The town wall (Pl. II 4), which has been largely excavated on the north and west sides of the city and which has also been located on the east side of it (beyond the irrigation canal), marks the shape of the Early Dynastic town. It was an irregular, oblong area approximately 400 meters wide and 1000 meters long, covering about 100 acres. As may be seen from the plan, only a small part of this area has so far been excavated.

The Temple Oval was situated near the western edge of the town, close by the town wall and somewhat nearer the southern than the northern end of the city. Its main entrance was only about 30 meters from one of the town gates, and it is likely that the area between the gate and the Temple Oval was originally unobstructed, though at a later period some poor houses seem to have existed there. This gate served mostly the Temple Oval, for the private dwellings beyond the Oval could be reached only through a few narrow alleys alongside the latter. However, a second gate was situated in the southern corner of the town in square O 59, and possibly there was a third gate in the northern part giving access to the river, which must have played an important part in the life of the city.¹

On three sides the Temple Oval was surrounded by private houses of various sizes and plans. These served as burial grounds before as well as during the existence of the Temple Oval. The majority of the burials were simple graves dug under the floors of rooms. Such rooms seem to have been used for ordinary purposes after the graves were covered. Some graves were fairly large and were covered by vaults of sun-dried plano-convex bricks. Graves of this type occasionally occupied the whole of small-sized rooms, and perhaps these rooms were not used immediately afterward for ordinary purposes but were consecrated to the dead. However,

¹ We have both direct and indirect indications that the community engaged in fishing (see *OIP XLIV*, Pl. 109 D), and undoubtedly the river was used also for communication and transportation. Some of the larger stone slabs found within the city must have been brought from far afield, most likely by water.

there can be no doubt that the house area surrounding the Temple Oval was not a necropolis, for the graves, though numerous, occupied only a part of it, and in most of the rooms the accumulation of floor levels and the remains of household utensils and other small objects indicate that they were continuously used for ordinary domestic purposes. Perhaps a proper necropolis was located southeast of the Temple Oval, where in square Q 49 we found during our last campaign three large vaulted tombs built entirely of kiln-baked plano-convex bricks and placed very close to one another, each occupying the whole area of the room in which it stood. These tombs have not yet been fully investigated, but their appearance, which closely resembles that of some of the "royal tombs" at Ur, suggests that they too are tombs of no ordinary persons but of religious or civic dignitaries.

Smaller areas of private houses (marked "2" on Pl. II) were cleared on other parts of the site and will be discussed in another volume of this series. Of more direct bearing upon our present subject are several smaller temples discovered on the site, for the Oval, though the largest and probably the most important temple during its existence, was neither the only one in the town nor the oldest. It was with some surprise that we established, during our third season on the site, the existence of a large temple dedicated to Sin and situated only some 40 meters east of the Temple Oval.² In subsequent seasons a third, fairly large temple, which we believe was dedicated to Nintu,³ and two smaller shrines were found in squares Q 45 and O 43, that is, in the immediate vicinity of these two great temples. The concentration of a number of temples in this comparatively small area clearly indicates that here was the religious center of the town, and the prominence of these buildings lends character to the whole city.

No contemporary secular buildings on a similar scale were found, though both south of this area, in squares R 51-52, and north of it, in squares C-G 26-30, we found foundations of seemingly important buildings. In the south the remains of only one wall were preserved, but in the northern part of the town the foundations were more nearly complete, giving a summary plan of a building (Pl. II 5) which might have been a palace of the rulers. However, both these remains were built not of plano-convex but of flat bricks, and in the northern building we found a few fragments of clay tablets bearing traces of inscriptions in Akkadian. It was because of this that we arbitrarily named this latter the "Akkadian Building," though this name should not be taken to imply any precise date. The preservation of this later brickwork among earlier ruins is probably due to the fact that the foundations of thicker walls were deeper than usual and were therefore preserved, while the contemporary smaller buildings with shallower foundations completely disappeared.

We mentioned above that the Temple Oval was not the oldest temple in the town. In fact, when the Oval was built the city already had a long history, probably of many centuries, behind it. Plate XII, which shows a section through the town area between the Temple Oval and the Sin Temple, including private houses and graves as well as a smaller shrine (O 43:11), will illustrate this point. On the left the foundation of the outer inclosure wall of the Temple Oval, resting on sand, is seen at the approximate level of 38 meters. The sand filling was actually investigated at this point to a depth of approximately 4.5 m., but we know from the two pits we cut through it (cf. pp. 11 f. and 14) that it went down to water level at approximately 30.50 m. The floors in the house area in N 44 corresponding to the floors on the artificial terrace inside the Temple Oval belong to Houses 5 and 6.⁴ It is clear that Houses 6 were contemporary with the first occupation of the Temple Oval. In following the

² Cf. *Pre-Sargonid Temples in the Diyālā Region*.

³ See *ibid.*

⁴ The houses, unlike the completely excavated buildings, are numbered from the upper to the lower layers; "5" is therefore the 5th layer of house buildings from the surface of the mound, and "6" the one below it.

floors connected with this period of houses through the entire area we come, at a level of approximately 38.25 m., to the tops of the preserved stumps of walls of Sin Temple VII and the earliest occupation floors of Sin Temple VIII. The floor of Houses 6 may correspond to a later floor of Sin Temple VII which had disappeared during the rebuilding or to the first floor of Sin Temple VIII; if the latter, this would indicate that Sin Temple VIII was built at the same time as the Temple Oval. In any case, no less than six consecutive temples of Sin were already in ruins underground by the time the foundations of the first Temple Oval were laid. Two of them must be assigned to the Early Dynastic period, while at least four are earlier, that is, of the Jamdat Naşr period, although the foundation of the temple may go back to the Uruk period.

As for the town, it is to be seen that in the 4 meters immediately below the levels corresponding to the foundation of the Temple Oval six layers are well represented in our section; and, though below this level the building remains are scarcer, we made certain at O 43:50 and P 42:28 that they continued at least down to water level and possibly below it. The house floors at the time the Temple Oval was founded were already at the top of an artificial mound at least 8 meters above the ruins of the earliest settlement on the site. Elsewhere we have tried to estimate the time needed for such an accumulation of debris,⁵ but here it suffices to note that the height of debris existing at the time the Temple Oval was built was more than twice the height of the debris which accumulated during the time of its existence, which indicates that the Oval was built at a late stage in the history of the town.

On Plate XII we see that the houses contemporaneous with the Temple Oval foundations (Houses 6) and at least two more layers were destroyed and rebuilt before any rebuilding took place in the Temple Oval, for the upper floor level inside the Oval is roughly contemporaneous with the floors in Houses 3. In the small shrine O 43:11 the same three rebuildings and an occupation of no less than seven floors could be observed for the same time. This incidentally illustrates the point which we have mentioned on several previous occasions, that the floors in the town outside the Temple Oval rose more rapidly than those inside it; for, while the floors of Houses 6, contemporaneous with the floor on top of the artificial terrace inside the Oval, were nearly 1.5 m. below the latter, the floors of Houses 3 were at the same or even slightly higher levels than the corresponding floors within the Oval. During the time that the first Temple Oval existed two rebuildings of the Sin Temple took place. The greater stability of the Oval was undoubtedly due to more solid construction; but, since the Sin Temple also was of better than average construction and since in this period the Sin Temple did not suffer premature, violent destruction but had to be rebuilt only after deterioration due to wear and tear, the view is justified that the first Temple Oval existed for an exceptionally long time for a mud-brick building. Whether it was finally demolished in time of peace because of need for repair and rebuilding or was destroyed by an enemy during an attack on the city is difficult to ascertain. Traces of a conflagration in room L 43:9 and a layer of ashes which covered the ruins of the first Oval and the houses near by and on which the latest rebuilding of the Sin Temple was founded (see Pl. XII) seem to support the latter conjecture. Whatever the case may have been, the rebuilding of both the Temple Oval with the thick buttressed wall and the enlarged Sin Temple certainly proves that this collapse was only temporary and that afterward the city again enjoyed a period of peace and prosperity. It is impossible to say whether the rebuilding was undertaken under the regime which had originally built the Temple Oval or by newly established conquerors. Only fragmentary remains of houses in the immediate vicinity of the Temple Oval could be attributed to the third building period, with which, however, a "walled quarter"⁶ farther to the east might have been connected.

⁵ Cf. *Pre-Sargonic Temples in the Diyālā Region*.

⁶ OIC No. 17, pp. 69-71.

VIII

SIMILAR TEMPLES ELSEWHERE

After the excavation of the Temple Oval had been completed, the question naturally arose as to whether this type of building—the only one of its kind known at the time—was unique and for some unknown practical or religious reasons confined to Khafājah or occurred on other sites also. For reasons which have been briefly outlined elsewhere¹ the writer believed that a similar oval temple structure existed at al-ʿUbaid, some 300 kilometers farther south, where excavations had previously been conducted by Dr. H. R. Hall and Sir Leonard Woolley;² and he had the good fortune to be able to investigate the site and to prove that his conjecture was correct. A short summary of the results of this investigation has been published.³ Here it suffices, for purposes of comparison, to reproduce the plan and section of the Temple of Ninhursag at al-ʿUbaid (Figs. 124–25). The newly excavated parts are shown in solid black, while the previously excavated ruins are shown in vertical hatching. The solid black does not indicate any definite thickness of wall but only the face of what is probably solid brickwork. Because of the small scale of this plan certain details, such as the buttresses of the temple terrace,⁴ have been omitted.

In comparing the plan on Fig. 124 with the best preserved plan of the Temple Oval (Pl. III) certain similarities are immediately noticeable. The scale of the two buildings is nearly identical, the general architectural scheme of a roughly rectangular platform within an oval inclosure is the same, and some details also are similar in both buildings. Of these latter we may mention the stairway projecting from the platform, the “kitchen” at the edge of the terrace, and the baked-brick drains, one against the western corner of the terrace and another at the south end of the oval inclosure wall. It is possible, too, that a well existed somewhere within the temple inclosure, since an inscription mentioning “the holy well” was found.⁵ A fragmentary wall which we found near the east corner of the platform (Fig. 124, square D 5) seems to indicate that at al-ʿUbaid, too, rooms were situated between the platform and the outer inclosure wall, and there is nothing to prevent us from assuming that they served domestic purposes similar to those of the rooms around the courtyard in the Temple Oval at Khafājah.

There are, however, also certain dissimilarities which are likewise significant. It is to be seen that the al-ʿUbaid oval is more regular in shape than that at Khafājah. Since the irregularity of the Khafājah Oval was to a large extent the result of providing room for “House D,” one is inclined to conclude that no provision for a similar house was made at al-ʿUbaid. This is not surprising, since, as we have seen (pp. 56 f.), “House D” was probably occupied by the ruler of the city in his capacity as high priest of the temple. It is likely that the priest of the Ninhursag Temple at al-ʿUbaid—even if he was not Aannipadda, the king of Ur, who was identified by a foundation tablet as the builder of the temple—would have had his residence in Ur. The second dissimilarity is to be observed in the relative position of the temple platform within the oval inclosure at the two sites. While at Khafājah it is obvious that both belong to a single architectural scheme, the arrangement at al-ʿUbaid—the asymmetrically placed stair-

¹ P. Delougaz, “A short investigation of the temple at al-ʿUbaid,” *Iraq* V (1938) 1 f.

² H. R. Hall and C. L. Woolley, *Al-ʿUbaid* (“Ur Excavations” I).

⁴ Cf. Hall and Woolley, *op. cit.* Pl. II.

³ *Iraq* V 1–12.

⁵ *Ibid.* p. 126.

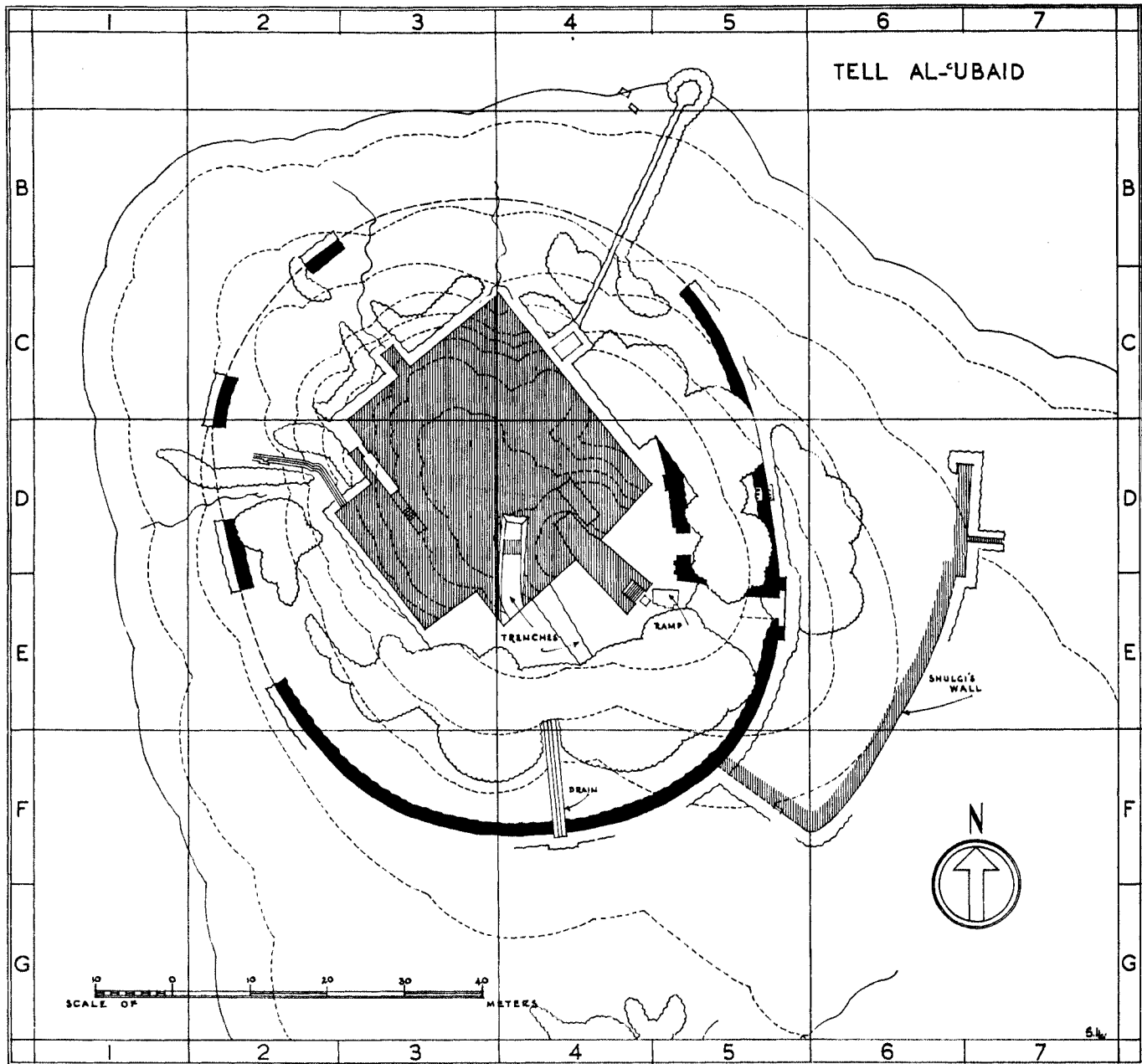


FIG. 124.—THE OVAL INCLOSURE WITH TEMPLE PLATFORM AT AL-UBAID. SCALE, 1:800

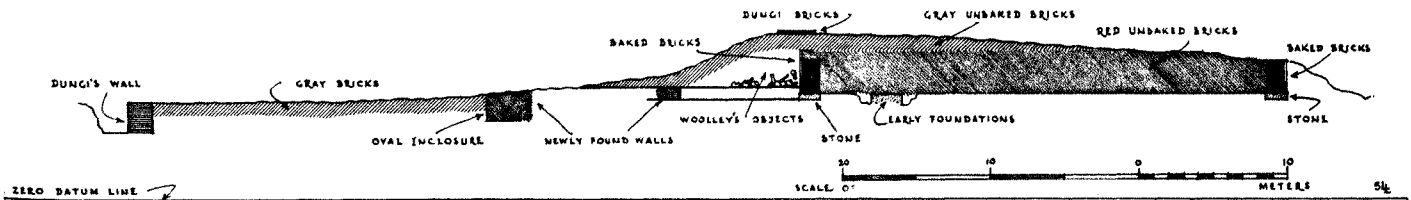


FIG. 125.—SECTION THROUGH THE OVAL INCLOSURE AND THE TEMPLE PLATFORM AT AL-UBAID. SCALE, 1:500

way and the relation of the whole platform to the entrance—suggests that the platform as it stands now and the inclosure were not planned simultaneously. It may be that the platform was built at a later period to replace an earlier building which was more symmetrically spaced within the inclosure. Perhaps the traces of a stone wall found below the south corner of the platform belong to such an earlier building.⁶ A ramp (Fig. 124, square E 5), which is in line with the entrance and below the floor from which the stairways now lead, may also belong to an earlier stage of the temple. It is the writer's opinion, after an attentive reading of the previous excavator's report and his own short investigation on the site, that the ruins as they are now exposed are a heterogeneous group and that the material evidence which they contain is not yet wholly exhausted. A further careful examination of these ruins should produce much valuable information and help to clear up some of the architectural problems involved.

A comparison of the reconstructed temple on top of the platform at al-ʿUbaid⁷ with the sanctuary which we reconstructed on the platform of the Temple Oval at Khafājah is necessarily less significant, since no material basis for a comparison exists. Not only were there in both cases no remains of the actual shrines left *in situ*, but the methods of reconstruction are entirely different. While our reconstruction is based wholly on architectural considerations and comparisons, at al-ʿUbaid only the conclusions concerning the height of the platform and the probable position of the shrine on top of it are based on such considerations derived from the ruins themselves. The rest of Woolley's reconstruction is a result of the assumptions that the objects found at the base of the platform originally adorned the outer walls of the shrine and that most of them lay in the exact positions into which they fell or were "deliberately flung" when the temple was wrecked,⁸ presumably during a war. Of these assumptions the most ingenious use has been made, yet the reconstruction based upon them is not wholly convincing and can be doubted on archeological⁹ and esthetic¹⁰ as well as purely architectural grounds. Since it is only with the latter that we are here concerned, we need not discuss here

⁶ Cf. *Iraq* V 6.

⁷ Cf. Hall and Woolley, *op. cit.* Pls. II (insert) and XXXVIII.

⁸ *Ibid.* pp. 105–10.

⁹ The questions (a) whether all the objects can be considered as architectural decorations and (b) whether the positions in which they were discovered can be taken as indicating the positions they originally occupied in the temple are of interest to us rather than the question whether they were a "cache" (Hall in Hall and Woolley, *op. cit.* pp. 21–25), a "foundation deposit" (Frankfort, *SAOC* No. 4, p. 7), or neither (Woolley, *The Royal Cemetery* ["Ur Excavations" II] p. 217, n. 2). Now, whereas there can be no doubt that some of the objects, such as the "flowers" and the inlay and copper friezes, were found in a position which indicates that they had fallen from the building (not necessarily all from the superstructure, for some of them might have adorned the platform itself), there were also certain objects some of which were obviously not architectural features (the statues, for instance) while others (such as the Imdugud relief, the large lions, and the copper bull statues), though they might have been used for architectural decoration, could have belonged to the interior of the temple just as well.

The explanation as to how the Imdugud relief could have fallen so as to be standing against the wall of the platform "right way up, facing outwards and almost vertical" (Hall and Woolley, *op. cit.* p. 116) does not seem very natural. But it would be nothing short of a miracle if the lions were really "thrown down one by one" (*ibid.* p. 117) and then came to rest close to one another, at the same distance from the platform, all the right way up and "roughly in a row, facing outwards" (*ibid.* p. 116; cf. also Pl. VIII 1–4). The alternative that "the spoilers meant to carry them away and stacked them side by side for removal, just as on the other side of the stairs they piled the bull statues one on top of the other, and then left them there" (*ibid.* p. 117) is definitely preferable. Even if one may doubt the existence of the spoilers and still more their intentions, the fact remains that the lions were stacked side by side and that the bull statues were piled up "one on top of the other." It is clear, therefore, that their positions as found had nothing to do with their positions in the building.

All such objects are not only valueless for the reconstruction of the exterior of the temple, but need not be considered as strictly contemporaneous except on the basis of additional evidence, such as that of the inscription of Aannipadda on one of the copper bull statues, or perhaps on the basis of certain stylistic considerations.

¹⁰ Cf. *SAOC* No. 4, pp. 7 f. (end of n. 1).

the perspective reconstruction of the temple at al-^cUbad,¹¹ the main purpose of which was the placing of the various objects as architectural decorations. As to the ground plan of the temple restored on the platform,¹² its general oblong shape is not unlike that of our own restoration. Another similarity is a doorway facing the main stairway. In all other respects the restored shrines are different. In our opinion the restored shrine at al-^cUbad is placed too near the edge of the platform, and its width of 11 meters is exaggerated (cf. p. 66). However, the most unlikely arrangement in the whole reconstruction is the placing of the two doorways near one corner of the shrine. Not only is such an arrangement unsupported by any comparable ruins so far uncovered, but also a priori it seems most improbable that the ancient builders would turn the sanctuary, the focal point of the whole temple, into a passageway between the platform and the front stairway. Perhaps the position of the stairway near the middle of the platform indicates that an entirely different type of sanctuary has to be restored here.

These various points, however, cannot be decided one way or another on the basis of the material evidence we possess at present. Some of them may perhaps be solved when a better preserved temple of this type is discovered and thoroughly investigated. A necessary condition for such an investigation must be that the ruins of such a temple should be located not much below the surface, since an adequate excavation of a building of this scale below a considerable accumulation of later ruins is a task beyond the means of any institution engaged in archeological research. Is there at present any indication as to where such ruins can be found? In the writer's opinion this question can be answered in the affirmative.

Over half a century ago, in the spring of 1887, a small group of German archeologists (Bernhard Moritz, Robert Koldewey, and Ludwig Meyer)¹³ excavated at Zurghul and al-Hibbah, two sites located east and northeast of Tell Lūh (Tello). The results of this campaign were reported by Koldewey,¹⁴ and his main conclusion was: "Beide Stätten sind Nekropolen, die Häuser Wohnungen für die Toten."¹⁵ It is perhaps this conclusion, the correctness of which we now have good reason to doubt, that was responsible for the abandonment of the excavations there, and to my knowledge these sites have never been more thoroughly investigated and hardly ever, if at all, visited by archeologists since. However, here we are not concerned with this conclusion. The feature that is of interest to us now is a terraced circular building found at al-Hibbah, classified by the excavators as one of a series of "Terrassenbauten"¹⁶ and thought by them to be a burial mound. It was referred to as such many years later,¹⁷ though Koldewey himself had previously admitted that perhaps, as Hilprecht suggested, this structure can be explained as a ziggurat.¹⁸ Unfortunately no other record than the verbal description by Koldewey has survived from this campaign,¹⁹ and no more concrete basis for comparison exists. Nevertheless the writer ventures to suggest that this "burial mound" or "ziggurat" is possibly another temple oval not unlike those at Khafājah and al-^cUbad and of approximately similar date. And on the basis of certain details in Koldewey's report he is inclined to date it to the later rather than the earlier part of the Early Dynastic period. The

¹¹ *Ibid.* Pl. XXXVIII.

¹² *Ibid.* Pl. II (insert).

¹³ Cf. H. V. Hilprecht, *Explorations in Bible Lands* (Philadelphia, 1903) p. 282.

¹⁴ "Die althabylonischen Gräber in Surghul und El Hibba," *ZA* II (1887) 403-30.

¹⁵ *Ibid.* p. 406.

¹⁶ *Ibid.* pp. 420-23.

¹⁷ W. Andrae, *Das Gotteshaus und die Urformen des Bauens im alten Orient* (Berlin, 1930) p. 4, Fig. 2, "grosser Grabhügel."

¹⁸ Koldewey, *Die Tempel von Babylon und Borsippa* (Leipzig, 1911) p. 61.

¹⁹ Andrae, *op. cit.* p. 4, n. 5.

fact that these ruins stood to a height of 7.30 m. above the surrounding town (and half a century will have affected them but little if they have escaped damage by man) may indicate that there is still hope of recovering more complete evidence from them than from the two temples previously excavated. It is hardly necessary to add that these suggestions are largely conjectural and that only actual investigations on the site, which the writer hopes to carry out, can prove or disprove them.

So far as the existence and distribution of temple ovals is concerned, we have definitely established that this type of edifice was not restricted to a single site or even to a small area; but with regard to the time of its existence the evidence now in our possession seems to indicate that it was confined to the Early Dynastic period only.

Even if future excavations should prove that similar temples existed in other periods of Mesopotamian history, we may still consider as certain that this type of temple was not the only one or even the most prevalent one at any time. In fact, from the Early Dynastic period, to which the temples of Khafājah and al-ʿUbaid belong, we now possess several other completely excavated temples; and, though most of them have certain details in common with the temple ovals, they are all of a different general type, that is, one in which right angles predominate.

The question therefore arises as to the origin of the temple oval and the reasons for adopting this particular shape in certain cases. In our present state of knowledge it still seems impossible to answer this question satisfactorily. However, we are at least in a position to assert that this shape is not likely to have been the outcome of practical circumstances and that it did not, therefore, serve any specific utilitarian purpose. An inclosure devoid of sharp corners, as we have mentioned elsewhere,²⁰ is naturally obtained in any country where the inclosure has to follow closely a contour line if building at different levels is to be avoided. However, in a flat country such a consideration is meaningless. Another factor which must commonly influence the general outline of a building, especially in a built-up area inside a town, is the size and shape of the space available for it among other already existing buildings—in other words, the “vacant lot.” This factor too could have been of no importance in either case. In Khafājah, as we have seen, existing structures were not considered a determining factor, for not only were the existing houses demolished, but even the accumulation of earlier ruins was excavated to a great depth and removed. In fact, the builders of the private houses surrounding the Temple Oval had to accommodate themselves as best they could to the Temple Oval during the time of its existence, as one can easily see from Plate II. At al-ʿUbaid too, though the presence of early foundations beneath the platform does not confirm the first impression that “the site of the temple was a low natural hillock, an ‘island’ rising above the alluvial plain,”²¹ it is nevertheless clear that the temple was built in an open space on the edge of a ruined earlier settlement. Its shape might have been influenced by earlier ruins but certainly not by surrounding buildings. This argument does not, of course, mean that once the temple was built in this shape no practical use was made of it. In previous chapters we have often mentioned the indications we found concerning the use of various parts of the building, and there is but little doubt that as a whole it could have served as a stronghold in case the outer fortifications of the town were weakened. However, the oval shape was not imperative for any of these uses.

If the oval shape did not derive from any practical need, other possibilities are either that it was adopted to satisfy certain religious or ritual requirements or that it was maintained or revived out of reverence for an ancient tradition. In the first case it might have been con-

²⁰ SAOC No. 7, pp. 30–32.

²¹ Hall and Woolley, *op. cit.* p. 61.

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nected with a specific deity or group of deities; in the second it might have reflected a tradition native to the land or one brought in from another region long before the Early Dynastic period. It is also possible that it was an innovation introduced in the Early Dynastic period either by a new wave of conquering immigrants or by peaceful travelers and merchants. Moreover, the possibility that this type of building had some symbolic meaning or represented a round structure of a less permanent nature, such as a tent or a byre, should not be excluded. As previously stated, we are at present still unable to choose among these and other possible alternatives. Further excavations will have to be made and additional material evidence obtained before we may attempt to decide between them. Even then the final solution may rest not upon material which is within the legitimate field of the excavator but rather upon such as the historian, the philologist, or the student of art or religion may claim as his own.

IX INSCRIPTIONS

By THORKILD JACOBSEN

No. 1

Kh. II 243. Fragment of a carved black stone vessel found in K 45 between Oval II and Oval III.

TE(?) - NUN

The first sign may be either TE or ITI.¹ The second is NUN. It has the form which that sign takes in the inscriptions of Me - ba - ..² This link with the inscriptions of Me - ba - .., who cannot be far from Mesilim in time, suggests a date in the middle or in the first half of Early Dynastic III. Such a date agrees with the circumstances of the find, for our vessel, discarded before the construction of Oval III, was probably fashioned when Oval II was in existence, i.e., in the first half of Early Dynastic III.

Since we have only a fragment of the vase, our two signs may have formed part of a longer inscription. It seems more probable, however, that they represent part of a personal name, or even that they constitute a property mark of the type found on vessels of the "royal cemetery" at Ur.³

No. 2

Kh. III 35. Fragment of an alabaster bowl(?) found in L 46:4.

m e - b à r - 's i l'(?)

This is presumably a personal name. The restoration of the last sign as s i is quite uncertain.

No. 3

Kh. II 51. Fragment of stele found in J 44:1.

[. . .]
ʽHÉʽ-[.]	....
κ[İš]	Kish
gú[g(?)]	....
. . . . -GÁN,
ʽLUGAL KIŠ ^{k1}	king of Kish,
ENSI	ishakku of

The inscription should be dated not later than Eannatum, for the sign PA is so written that the vertical line stops directly above the upper and does not continue until below the lower of the two horizontal lines in the sign. This form seems peculiar to the time before Eannatum; in the inscriptions of that ruler and later the line is carried through.

¹ Cf. A. Deimel, *Liste der archaischen Keilschriftzeichen von Fara* (Deutsche Orient-Gesellschaft, "Wissenschaftliche Veröffentlichungen" XL [Leipzig, 1922]) No. 380.

² D. D. Luckenbill, *Inscriptions from Adab* (OIP XIV; Chicago, 1930) Nos. 8:3 and 9:4.

³ Cf. E. Burrows in C. L. Woolley, *The Royal Cemetery* (Joint Expedition of the British Museum and of the Museum of the University of Pennsylvania to Mesopotamia, "Ur Excavations" II [Oxford, 1934]) p. 317.

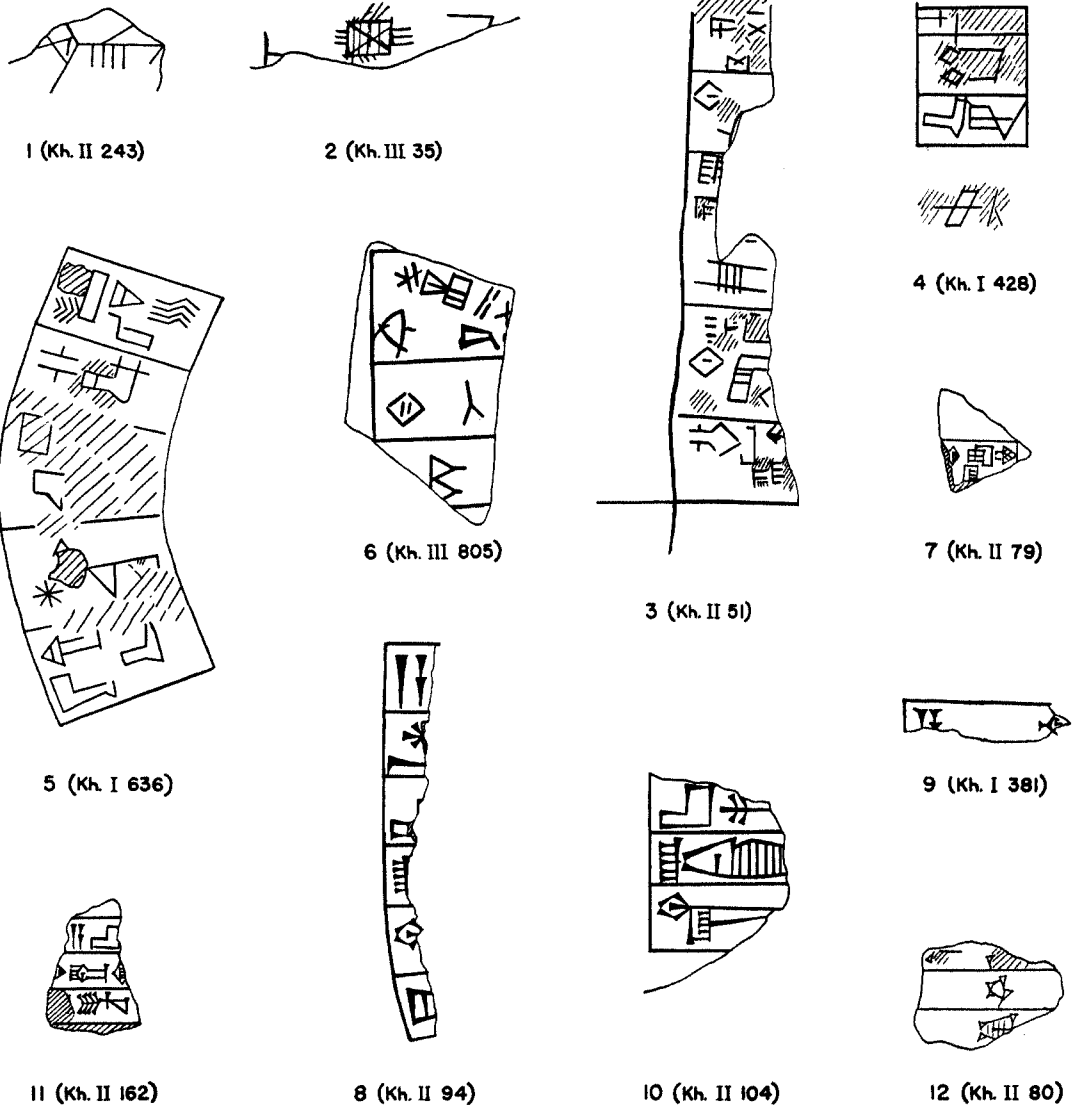


FIG. 126.—INSCRIPTIONS ON OBJECTS FOUND IN OR NEAR THE TEMPLE OVAL IN KHAFĀJAH

No. 4

Kh. I 428. A statue found in L 44, inscribed on the back. The inscription is badly damaged, and our reading of the signs is highly uncertain.

.....
ALAM(?)	.....
MAḤ(?) IŠ(?)	.....
.....

No. 5

Kh. I 636. An inscribed sculptured macehead found in M 44:5 of Oval III.

ʿšar ¹ -i-lum-ma	Shar-ilumma,
UGULU MAḤ	chief alderman,
ʿKU ¹ (?) []	fashion[ed the
d[¹ M]	mace(?);
^d ʿinanna ¹	to Inanna
SAG-KAB-DU	he presented (it).

The name in the first line is ambiguous. We have above accepted *šar-i-lum-ma* as the reading which follows most closely the disposition of the signs. If this is correct, the name should be explained as *šar ilum-ma*, “king (*šar*, *status indet.* of *šarrum*) is the (personal) god only (*-ma*, ‘only’).”⁴ At the period to which our inscription must be assigned transposition of signs is, however, still found quite frequently, so the argument for this reading to be gained from the order in which the signs are written is not very strong. Furthermore, the writing *i-lum-ma* instead of *i-lu-ma* for *ilum-ma* is unusual, for double consonants are hardly ever expressed in the older Akkadian texts. We should therefore consider seriously another possible reading, one to which Dr. I. J. Gelb of the Oriental Institute calls my attention, namely *šar-ma-i-lum*, “the (personal) god is indeed king.” Cf. the Assyrian royal name *šar-ma-adad*, “Adad is indeed king.” As a last possibility we may mention a reading *i-šar-lum-ma*, “Lumma is just.” Lumma was the second name of Eannatum,⁵ who is known to have conquered Akshak. If, as seems possible, Akshak is to be identified with Khafājah A, the naming of an influential political personage there after the conqueror Eannatum would find an interesting parallel in the name Ur-Lumma, “. . . of Lumma,” assumed by the ruler of Umma after that city had been conquered by Eannatum.

The title UGULU MAḤ does not, to my knowledge, appear elsewhere. It is obvious, however, that UGULU MAḤ would stand in the same relation to u g u l u as e.g. s u k k a l m a ḥ to s u k k a l, so we can translate “chief u g u l u.”⁶ Our translation “alderman” (in its historical meanings) is based on the fact that the u g u l u is frequently found as head of a guild.⁷ In Assyria the title (*w*)*aklum*, apparently the same etymologically, was borne by men of high standing in older times. Thus Ititum is content to style himself merely (*w*)*aklum*, and even as late as Middle Assyrian times rulers of Assur use that title.⁸ Since Assyria tends to preserve archaic features longer than Babylonia, the importance of the (*w*)*aklum* there is significant; it suggests that the “chief” (*w*)*aklum* whom we find in early Khafājah was a person of political importance, probably the ruler of the city.

Our translation of line 3 is suggested by the facts that d[¹M] represents the idea “to fashion” and that the inscription is carved on a macehead. It should be considered as purely hypothetical.

⁴ Cf. A. Ungnad, *Materialien zur altakkadischen Sprache* (Vorderasiatisch-Ägyptische Gesellschaft, “Mitteilungen” XX [1915] Heft 2) p. 63.

⁵ Cf. A. Poebel in *ZA* XXXVI (1925) 8.

⁶ On the function of the u g u l u see Deimel in *Reallexikon der Assyriologie* I (Berlin u. Leipzig, 1932) 444 and Deimel, *Sumerisches Lexikon* (Roma, 1925-37) No. 295.4.

⁷ On the reading of PA as u g u l u see Förtsch in *ZA* XXXI (1917/18) 159 f. Contrary to the opinion expressed there we consider it most probable that u g u l u is a loan word from Akkadian (*w*)*aklum*, related to Arabic وَكَلَّ, وَكَلَّ.

⁸ Cf. e.g. *Keilschrifttexte aus Assur verschiedenen Inhalts* (Deutsche Orient-Gesellschaft, “Wissenschaftliche Veröffentlichungen” XXXV [Leipzig, 1920]) Nos. 93:4, 210:5, 211:2, and 212:6. Dr. A. Sachs calls my attention to still later examples in Kohler and Ungnad, *Assyrische Rechtsurkunden* (Leipzig, 1913) Nos. 1, 2, 4, 5, 7, 18, and 20.

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On the group SAG-KAB-DU, which has the meaning "he presented," see the latest discussion by Thureau-Dangin.⁹ We hope to take up elsewhere the question regarding the Akkadian form it represents.

The inscription should not be dated later than Eannatum, since the form of PA is one peculiar to the period before that ruler.

No. 6

Kh. III 805. Fragment of a bowl found in P 46:4 outside the Oval.

^d n i n - a - b [u] - k u ₆ - d [u]	(To) Ninabukudu
š à - k u d	(has) Shakud,
d u m u	son of
....

On the deity see Deimel, *Pantheon babylonicum* (Romae, 1914) No. 2405. The reading of the name, which occurs in a great number of variant writings, is not yet certainly established.

See the references to the donor's name in Deimel, *Šumerisches Lexikon*, No. 384.35.

The sign šà is written as a diamond inclosing two parallel vertical lines, a form current earlier than Eannatum; in the inscriptions of this ruler and later the parallel vertical lines develop into a V or X. The sign à is written as two parallel vertical lines the second of which is broken at the middle. This form is the one used by Eannatum and later rulers, while Urnanshe and earlier rulers write the sign with two unbroken lines. The two forms, one current in the time before, the other in the time of or after Eannatum, would indicate the period just before that ruler as the probable date of our inscription, since that period seems the one most likely to combine both features.

No. 7

Kh. II 79. Fragment of an alabaster bowl found in K 45 in Oval III.

[^d n]a-ra-am-	Naram-
[^d] ^{EN} -[ZU]	Sin

No. 8

Kh. II 94. Fragment of an alabaster bowl found in K 45:2, top layer.

a[-na]	To
^d E[N-ZU]	Sin
r[<i>i</i> -mu-uš]	did Rimush,
š[<i>à</i> r]	king
k[<i>i</i> š <i>i</i>]	of Kish,
i[-nu]	when
[<i>elamtam</i> ^{ki}]	Elam
[<i>ù</i>]	and
[<i>ba-ra-aḥ-sé</i> ^{ki}]	Barahshe
[SAG-GIŠ-RA- <i>ni</i>]	he had smitten,
[<i>in</i> NAM-RA-AK]	from the booty
[<i>elamtim</i> ^{ki}]	of Elam
[A-MU-RU]	present (this).

The inscription has been restored on the basis of the inscription of Rimush published by the University of Pennsylvania.¹⁰ We have restored ^dE[N-ZU] in line 2 rather than ^dE[N-LÍL] in view of the fact that a temple dedicated to Sin was situated close to the Oval where our fragment was found. This fragment and also Nos. 9 and 10 were found in secondary context. They may therefore well have come from refuse discarded from the near-by Sin temple.

⁹ *Revue d'assyriologie et d'archéologie orientale* XXXI (1934) 141.

¹⁰ *The Babylonian Expedition Series A: Cuneiform Texts*, ed. by H. V. Hilprecht, I (Philadelphia, 1893-96) Pl. 4.

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No. 9

Kh. I 381. Fragment of an alabaster bowl found in K 45 in Oval III.

<i>a-n[a]</i>	To
[. . . .]

This is probably part of an inscription duplicating No. 8.

No. 10

Kh. II 104. Fragment of a calcite vase found in J 45:2 in Oval III.

<i>ri-m[u-uš]</i>	Rimush,
<i>šà[r]</i>	king
<i>kiš[i]</i>	of Kish.

The top of the inscription is missing, so we do not know whether other lines preceded the one here given as line 1.

No. 11

Kh. II 162. Fragment of a vase of dark stone found in K 45 in Oval III.

[. . . .]
[. . . .] <i>a ri</i> [	.....
[<i>a-g</i>] <i>a-dè^k[i</i>	Agade
[. . . .] <i>uz</i> [ . . ]	.....
[. . . .]

A reading [*ša*]*r-ri* in the first line preserved, with restoration to the royal name [*šar-kà-li-ša*]*r-ri*, is not compatible with the traces found on the fragment.

No. 12

Kh. II 80. Fragment of a tablet found in K 44:2.

] . . . [.....
] UD [	.....
] ZU [	.....

X ANALYSES

MATERIAL FROM THE KILN IN M 43:10

The grayish white granular substance found in this kiln (cf. pp. 92 and 131-33) was analyzed by Dr. Koch, of the chemical laboratory of the State Museums in Berlin,¹ and was found to consist of

	Per Cent
Phosphoric acid (P ₂ O ₅)	1.58
Sulphuric acid (SO ₃)	1.93
Magnesium oxide (MgO)	4.59
Ferric oxide (Fe ₂ O ₃) plus a small amount of aluminum oxide (Al ₂ O ₃)	5.82
Inorganic residue, mainly sand	21.05
Calcium oxide (CaO)	29.25
Lost in heating (including 23.41 per cent carbon dioxide [CO ₂])	32.68
Potassium (K), sodium (Na), chlorine (Cl), determined by difference	3.10
	100.00

The high percentages of calcium oxide and carbon dioxide make it evident that the chief constituent was calcium carbonate (CaCO₃).

COPPER STATUES AND OTHER OBJECTS

The weights and the specific gravities of the two smaller statues were determined by Mr. E. L. Haenisch at the University of Chicago to be:

	Weight	Specific Gravity
Kh. I 351b	3591 gm.	6.56
Kh. I 351c	3838 gm.	5.83

The determination of the specific gravity was undertaken in order to obtain some indication as to whether the statues were hollow. Since the density of pure copper is 8.92, the foregoing findings seem to show that both statues are indeed partially hollow, even if we allow for the presence of a certain amount of carbonate of copper.

The first chemical analysis of the metal itself was made by Professor Cecil H. Desch, F.R.S., now of the National Physical Laboratory in Teddington, England, from a sample drilled from the larger statue.² After the statuettes had been cleaned, new samples of their metal were obtained by drillings in the stands. Some of these samples were analyzed in the laboratories of the University of Chicago. The comparative results of these analyses are:

	PER CENT		
	A*	B*	C*
Copper	99.00	95.39	95.64
Tin	0.63	0.32	0.15
Lead	tr.	0.15	0.13
Iron	tr.	0.17	0.13
Nickel . . . . .	.....	.....	.....

* Sample A was analyzed by C. H. Desch, samples B and C at the University of Chicago.

¹ Cf. *OIC* No. 13, p. 90.

² Cf. *ibid.* p. 78.

THE TEMPLE OVAL AT KHAFĀJAH

The findings show that the statuettes consist of copper and not of bronze. The differences in the copper values are, according to Professor Desch, due merely to the varying degrees of oxidation of the samples, and the deficiency from 100 per cent may be taken to be oxygen. The proportion of impurity, small as it is, was probably just enough to allow the metal to be cast—a circumstance which agrees with our observations that the main parts of the statuettes were cast, and that only the stands were hammered and then riveted to the feet. The slight variations in the finished products may be due to nonhomogeneity of the metal employed and possibly to their being cast from different crucibles.

We add below the results of analyses of a few more metal objects from Khafājah, all from the Early Dynastic period. Table A shows the direct results of the analyses, while Table B shows the original composition of the unoxidized metal in each case, as recalculated from the data yielded by the analyses.

TABLE A

Object	Field No.	Copper	Tin	Arsenic	Nickel	Lead
Arrow butt.....	Kh. II 75	74.22	.....	0.47	0.06	.....
Pin.....	Kh. III 1072	93.63	0.29	1.80	1.42	.....
Pin.....	Kh. III 688	94.45	0.32	0.83	0.07	.....
Dagger blade.....	Kh. III 44	89.99	2.98	0.94	0.30	.....
Pin.....	Kh. III 215	88.98	3.44	1.06	0.09	.....
Pin.....	Kh. III 729	53.73	3.33	.....	0.03	tr.
Blade.....	Kh. III 904	83.22	9.82	0.23	0.16	.....
Pin.....	Kh. III 850	87.50	10.64	0.68	0.09	.....

TABLE B

Object	Field No.	Copper	Tin	Arsenic	Nickel	Lead
Arrow butt.....	Kh. II 75	99.29	.....	0.63	0.08	.....
Pin.....	Kh. III 1072	96.40	0.30	1.85	1.45	.....
Pin.....	Kh. III 688	98.72	0.33	0.87	0.08	.....
Dagger blade.....	Kh. III 44	95.50	3.19	1.00	0.31	.....
Pin.....	Kh. III 215	95.03	3.69	1.18	0.10	.....
Pin.....	Kh. III 729	93.94	6.00	.....	0.06	tr.
Blade.....	Kh. III 904	89.08	10.50	0.25	0.17	.....
Pin.....	Kh. III 850	88.42	10.80	0.69	0.09	.....

Some of the samples, especially Kh. III 729, 904, and 850, contain such a proportion of tin that they are without doubt true bronzes, while in others only traces of tin were found. It is certain, then, that bronze and copper were used simultaneously throughout the Early Dynastic period. Similar analyses of objects from earlier periods have not yet been undertaken, but they may prove even more illuminating.

As to the provenience of the metal, the samples containing arsenic may have had a northern origin. However, our present state of knowledge of ancient ores is still far from satisfactory, and it is therefore impossible to assign the metal of any of these objects to any definite region. The study of ores from various regions in the Near and Middle East, in which Professor Desch is actively engaged, will certainly provide most interesting findings bearing on this problem.

SAND UNDER THE TEMPLE OVAL

Sand from beneath the Temple Oval was submitted for analysis to Professor C. H. Edelman of the geological laboratory of the Agricultural College at Wageningen, Holland. It was compared with silt from the Diyālā River, desert sand from the surface between Khafājah and Tell Asmar, and sand from below the earliest occupation in Tell Asmar ("bird-vase pit"),

which we believe to represent the ancient surface of the plain. The silt from the river was obtained in the spring of 1935, while the wind-blown sand from the desert was collected at a point which showed no traces of occupation in either ancient or modern times.

The following passages are translated from the report submitted by Professor Edelman:

The analysis was undertaken with the purpose of determining, if possible, the manner in which the soil from which the samples were taken was deposited, in other words, the recent history of the landscape.

The samples were analyzed in several ways. In the first place a microscopic analysis was undertaken after the samples had been treated with acids, washed, and separated into heavier and lighter parts by means of bromoform (specific gravity 2.9). This type of analysis is especially suitable for the discovery of any relationship or differentiation in material which may exist between the various samples and for tracing the origin of the material.

TABLE I
MICROSCOPIC ANALYSIS OF THE HEAVIER PART

PROVENIENCE OF SAMPLES	OPAQUE MATERIAL PER CENT OF SAMPLE	TRANSLUCENT MINERALS IN THEIR MUTUAL PERCENTAL RELATIONSHIPS											
		Zircon	Garnet	Rutile	Titanite	Dis-thene	Epi-dote	Saus-surite	Am-phi-bole	Glau-co-phane	Au-gite	Hy-per-sthene	Pico-tite
I. Diyālā silt	8	.....	4	1	.....	.....	12	11	16	.....	55	.....	1
II. Desert sand from surface	15	1	10	.....	1	1	11	11	16	.....	48	.....	1
III. Sand beneath Temple Oval, Khafājah	24	.....	9	.....	1	.....	9	15	13	1	47	1	4
IV. Sand from "bird-vase pit," Tell Asmar, lowest level	13	1	4	.....	.....	.....	8	23	10	.....	52	.....	2

The foregoing analysis of the heavier part (Table I) shows that from the point of view of their composition the four samples must be considered as identical. The differences met with are so small that they must be viewed as incidental differences within an essentially homogeneous material. This result implies that the material which formed the soil of this region in the past (samples III and IV), that which forms the present desert surface (sample II), and that which the Diyālā is now transporting (sample I) are identical.

In the second place, we have analyzed the sizes of the grains in the various samples. Table II gives the results obtained by sifting the material as found, that is, without dissociation of the actual particles into constituent grains. The smallest particles were obtained by wind-sifting. The measurements were carried out by Dr. R. J. Forbes in Amsterdam.

TABLE II
ANALYSIS BY SIFTING OF THE MATERIAL AS FOUND

AMERICAN SOCIETY FOR TESTING MATERIALS SIEVE NO.	SIZES OF PARTICLES IN MICRONS (0.001 MM.)	PERCENTAGES OF TOTAL WEIGHTS			
		I Diyālā Silt	II Desert Sand from Surface	III Sand beneath Temple Oval, Khafājah	IV Sand from "Bird-Vase Pit," Tell Asmar, Lowest Level
10	More than 2000	.....	.....	6	0.1
20- 10	840-2000	.....	.....	3	3
30- 20	590- 840	.....	0.3	1	3
40- 30	420- 590	.....	2.7	1	4
50- 40	297- 420	0.2	9	1	8
80- 50	177- 297	18	28	6	23
100- 80	149- 177	23	9	4	6
200-100	74- 149	54	43	60	30
Wind-sifted	35- 74 Less than 35	5	8	{16 2	16 7

THE TEMPLE OVAL AT KHAFĀJAH

TABLE III
ANALYSIS OF DISSOCIATED GRAINS

GROUP	SIZES OF PARTICLES IN MICRONS (0.001 MM.)	PERCENTAGES OF TOTAL WEIGHTS			
		I Diyālā Silt	II Desert Sand from Surface	III Sand beneath Temple Oval, Khafājah	IV Sand from "Bird-Vase Pit," Tell Asmar, Lowest Level
1.....	2000-200	25.0	10.8	6.7	7.2
2.....	200-100	70.0	48.4	60.9	23.0
3.....	100- 50	0.0	7.3	12.7	6.8
4.....	50- 10	1.1	8.4	12.7	26.0
5.....	10- 5	1.8	4.8	2.4	15.4
6.....	5- 2	1.7	11.3	1.8	8.8
7.....	2	0.4	9.0	2.8	12.8

The Kopecky-Kraus method was used for groups 1-3, the Olmstead method for groups 4-7.

It is to be seen from these tables that there is no striking difference among the various samples, although in all of them, including the Diyālā silt, the grains are finer than those usually observed in a fluvial deposit and are nearer to wind-blown sand. The conclusion one may arrive at is either that the river silt reaching this last stage in its course consists mainly of wind-blown dust or else that the dust blown by the wind is mostly composed of the alluvial soil of the plain.

During our campaigns in this region we observed that the heaviest dust storms usually coincide with an east or southeast wind. Although there can be no doubt that most of the dust in such storms is of "local" origin, we observed on more than one occasion during the heaviest of these dust storms a peculiar reddish color in the fine dust deposited—a color quite unlike the usual gray of the alluvial plain. This fine reddish dust must certainly have been carried from very distant regions. However, it usually forms a very thin deposit which disappears completely with the first rain or high wind.

The conclusion that the wind-blown soil and the river silt were practically the same some sixty centuries ago as they are now was only to be expected, since such a period, long as it may seem to the historian, is very short from the geologist's point of view. Further and more detailed observations will have to be carried out to elucidate the geological problems of this region.

CHARRED SEEDS

Remains of charred seeds were found in room O 46:1 and especially in "House D" in rooms K 43:3 and 5 and L 43:7, 9, and 10. Some of the seeds were actually burnt, and others had probably carbonized gradually during the centuries. In comparing these carbonized remains with freshly charred seeds of a similar nature Professor E. Schiemann, of the Botanical Museum in Berlin, was able to identify some of those in room L 43:10 as belonging to a crucifer, *Brassica* or *Sinapis*, the oil of which could be used either in cooking or as fuel for lamps.³

Some seeds found in room K 43:3 were identified as *Linum usitatissimum* (flax), but they differed from normal seeds in the location and structure of the embryo. They were not flat like fresh linseed, but were almost pear-shaped. However, it was found that the charring of fresh linseed produced the same effect because of the oil content. The presence of these seeds suggests, of course, that flax was used in the making of textiles and that linseed was probably pressed for oil.

In K 43:5 remains of lentils (probably *Lens esculenta*) and barley (*Hordeum vulgare*) could be identified.

³ Cf. *OIC* No. 13, p. 91.

XI

CATALOGUE OF OBJECTS FOUND IN THE TEMPLE OVAL AND
ITS IMMEDIATE VICINITY

OBJECTS GROUPED BY PERIODS AND LOCI

TEMPLE OVAL I

Locus	Field No.	Designation	See
J 45:3	Kh. IV 52	male head	S ¹
J 45:4	Kh. IV 61	animal pendant	M
	86	calf's muzzle	S
	88	stamp seal bead	M
	90	cylinder seal	C
	92	carved vessel	M
	93	weight	m
J 46:1	Kh. V 361	cylinder seal	C
	363	cylinder seal	C
K 42:4 (below)	Kh. IV 498	mirror	m
	499	cone	m
	500	bowl	M
	501	lamp	M
K 43:1	Kh. III 1354	amulet	M
K 43:3	Kh. I 399	head fragment	m
	400	relief plaque	Fig. 52 and S
	405	hook	m
	432	bowl	m
	466	worked stone	M
	582	worked stone (weight)	m
	II 266	plaque	m
K 43:4	Kh. I 467	bitumen bottle-stopper	M
K 43:5	Kh. I 457	bowl	M
	459	implement	M
	460	model wheel	m
K 44:2	Kh. III 1309	nail	m
	1310	lead ring	m
K 45:2	Kh. II 71	worked stone	m
	168	weight	m
K 45:3	Kh. III 869	statue fragment	m
K 45:6	Kh. I 386	cylinder seal	C
	IV 25	worked stone	m
	27	bowl fragment	m
K 46	Kh. I 537	plaque fragment	M
K 46:4	Kh. I 397	bitumen object	M
K 46:6	Kh. I 424	statue fragment	m
	425	vessel fragment	m
	548	statue fragment	m

¹ A letter here indicates the volume in which the object has been or is to be published. That is, "C" means that the object is illustrated in *Cylinder Seals from the Diyāla Region*; "M," that it is illustrated in *Miscellaneous Objects from the Diyāla Region*; "m," that it is merely catalogued in the last mentioned volume; "P," that it is illustrated in *Pottery from the Diyāla Region*; "p," that it is merely catalogued in the pottery volume; and "S," that it is illustrated in *Sculpture of the Third Millennium B.C. from Tell Asmar and Khafājah (OIP XLIV)*. Figure numbers refer to figures in the present volume.

THE TEMPLE OVAL AT KHAFĀJAH

Locus	Field No.	Designation	See
K 46:7	Kh. IV 71	bird pendant	M
	87	male head fragment	S
L 43:1	Kh. I 581	stone bowl	M
L 43:4	Kh. I 554	statue fragment	m
	562	female head	S
	578	male head	S
	584	statue fragment	m
	585	macehead	M
	586	female head	S
	587	cylinder seal	C
	588	animal amulet	M
	589	male head	S
	590	stamp seal	M
	591	statue fragment	m
	592	rosette	M
	594	male head	S
	595	male torso	S
	596	head fragment	m
	597	female head	S
	598	bird amulet	M
	600	flat statue	m
	601	box	m
	602	statue fragment	S
	617	headless statue	S
	618	ram amulet	m
	620	animal amulet	m
	623	knob	m
	624	vase	M
L 43:7	Kh. I 503	needle	M
	514	cylinder seal	C
	515	pierced stone	m
	516	knife	m
	517	cylinder seal	C
	518	spindle whorl	M
	519	cosmetic dish	m
	522	worked stone	M
	523 ^a	pottery bowl (B. 062.210) ²	P
	523 ^b	pottery bowl (B. 002.200)	P
	523 ^c	pottery bowl (B. 033.310)	P
	543	needle	M
	544	chisel	M
	633	weight	m
	III 365	ax	M
L 43:8	Kh. I 565	relief fragment	S
	574	pierced stone	M
L 43:9	Kh. I 383	net-sinker	m
	403	pierced shell	m
	504	ring	M
	513	bone "spoon"	M
	524	lancehead	M
	525	stopper	M
	527	pottery support	Fig. 51
	643	net-sinkers	Fig. 55
644	fishing net	Fig. 53	

²The symbols in parentheses indicate the forms of the vessels, as described in the pottery volume.

CATALOGUE OF OBJECTS

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Locus	Field No.	Designation	See
L 43:9	Kh. I 645	net-sinkers	Fig. 54
L 43:10	Kh. I 480	stone pot	M
	481	fish hook	M
	II 36	cylinder seal	C
	IV 475	cylinder seal	C
L 44:5	Kh. IV 26	incised stone	m
	338	cylinder seal	C
	371	weight	m
	380	pendant	m
	473	painted pot (C. 606.373)	Figs. 20-21 and P
L 45	Kh. IV 3	foot impression	Fig. 72
L 46:4	Kh. III 35	inscribed bowl fragment	Fig. 126:2 and M
L 47:1	Kh. IV 23	cylinder seal	C
	38	celt	M
	V 4	statue eyebrow	m
M 44:4	Kh. IV 5	nail	m
	20	clay ram's head	m
M 44:5	Kh. IV 11	cylinder seal	C
	13	pendant	M
	22	cylinder seal	C
M 44:6	Kh. IV 70	figurine fragment	M
M 45	Kh. III 1394	male head	S
M 45:2	Kh. II 250	small pot (A. 525.273)	P
	251-57	beads	M
	257a	silver bead	m
	IV 24	spear point	m
	37	bowl fragment	M
M 46	Kh. IV 1	animal inlay	M
	7	gold ribbon	m
M 47:1	Kh. I 351a-c	copper statues	Figs. 28-29 and S
	II 244	seated statue	S
	269	face fragment	m
N 44:1	Kh. I 307	macehead	M
	309a and c-f	maceheads	M
	309b	macehead	m
	317	macehead	M
	II 224-26	maceheads	M
N 44:2	Kh. IV 431	amulet	m
N 44:5	Kh. V 301	pottery jar (C. 516.371)	P
N 45:2	Kh. II 17-25	maceheads	m
	32-35	stone bowls	M
	46-47	stone bowls	M
	48-50	stone bowls	m
N 45:3	Kh. II 245	plaque fragment	S
N 46:1	Kh. II 65	sickles	Figs. 26-27
N 47:2	Kh. III 1321	pottery jar (C. 654.510)	P

TEMPLE OVALS I-II

J 44:1	Kh. III 1356	pin	m
	1357	nail	m
	IV 60	stone bowl fragment	M
	68	stone bowl fragment	M
K 44:2	Kh. III 1136	plaque fragment	S
K 44:3	Kh. II 88	statue fragment	m
	92	statue eye	m

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Locus	Field No.	Designation	See	
K 45:2	Kh. II 158	head fragment	m	
	170	statue fragment	M	
	172	statue fragment	m	
K 45:4	Kh. III 1169	statue fragment	m	
	1170	plaque fragment	S	
K 46:1	Kh. IV 400	macehead	M	
K 46:6	Kh. IV 29	statue feet	S	
		30-31	statue fragments	m
		32	vessel fragment	m
		33	male head fragment	S
		34	macehead fragment	m
		35	male statue	S
L 43:10	Kh. II 127	bowl fragment	m	
L 44:2	Kh. II 91	vessel fragments	M	
L 44:3	Kh. II 112	statue fragment	m	
L 46	Kh. II 62	double chisel	M	
L 46:1	Kh. II 42	statue fragment	m	
L 46:4	Kh. II 209	chisel	m	
M 44:4	Kh. I 195	fragment of same plaque as Kh. I 632	S	
M 44:5	Kh. I 632	fragment of same plaque as Kh. I 195	S	
M 45:2	Kh. II 289	statue fragment	m	
M 47:1	Kh. II 9	tool fragment	m	
		40	macehead	M
		52	stamp seal	M
N 44:2	Kh. II 227	macehead	M	
		IV 477-77a	shell rings	m
N 45:2	Kh. II 10	weight	m	
		13	amulet	m
		202	bird amulet	M
		203	animal bead	m
		223	stamp seal	M
N 46:1	Kh. II 271	plaque	m	
N 47:3	Kh. IV 408	weapon	M	

TEMPLE OVAL II

J 44:1	Kh. III 1352	cylinder seal	C	
		1353	bowl fragment	m
		1364	relief fragment	m
J 46:1	Kh. IV 44	head fragment	m	
J 46:2	Kh. IV 85	cylinder seal	C	
K 42:4	Kh. I 530	bull amulet	M	
		579	stone bowl	m
		580	pin	m
K 43:2	Kh. I 476	cylinder seal	C	
		489	needle	m
K 43:3	Kh. I 408	stone tool	M	
		410	wall peg	m
		411	stone tool	m
		412	worked stone	M
		419	fragment of a mortar	M
		435	pin head	M
		444	male torso	m
		446	small bowl (A. 224.200)	P
		452	statue fragment	m
		454	pot (A. 515.361)	p

CATALOGUE OF OBJECTS

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Locus	Field No.	Designation	ee
K 43:3	Kh. I 454 <i>a-b</i>	stone bowls	M
	454 <i>c-e</i>	pots	P
	454 <i>f-k</i>	shells	M
	468 <i>a</i>	pot (B. 574.220)	P
K 43:4	Kh. I 453	statue foot	m
K 43:5	Kh. I 429	cylinder seal	C
	430	small pot (A. 424.353)	P
	437	clay stopper	M
	441	spindle whorl	m
	443	bowl fragment	M
	455	pottery jar (B. 663.540)	P
	456	pottery jar (B. 575.223)	P
	458	bowl (B. 081.210)	P
K 44:2	Kh. II 66	cylinder seal	C
K 44:5	Kh. I 418	stone tool	M
K 45	Kh. II 138	seated statue fragment	S
K 45:1	Kh. III 867	copper hammer	m
	893	weight	m
	895	weight	m
	902	vase fragment	m
	903	silver crescent	m
	905	nail	m
K 45:6	Kh. I 379	big copper pot	M
K 46:1	Kh. II 2-3 <i>a</i>	inlays	M
	6	male head	m
K 46:2	Kh. II 7	worked stone	m
K 46:4	Kh. I 372	adz edge	M
	373	2 nails	m
	398	stone inlay	M
K 46:7	Kh. I 367	statue fragment	m
L 43:1	Kh. I 604	male head	S
	615	shell	m
	626	nail	M
	628	pierced clay disk	m
L 43:2	Kh. I 607	bone "spoon"	M
L 43:3	Kh. I 497	bitumen staff head	M
	533	clay model wheel	M
L 43:4	Kh. I 552	statue fragment	m
	553	statue eye	m
L 43:7	Kh. I 484	square bead	m
L 43:8	Kh. I 341	small cup (A. 173.200)	P
	359	small pot (A. 516.151)	P
L 43:9	Kh. I 393	miniature pot (A. 415.273)	P
	401	stone mallet	m
	409	pot (B. 494.560)	P
	502	clay stopper	M
	506	cylinder seal	C
	Kh. I 482	shell lamp	M
L 43:10	490 <i>a-b</i>	bone tools	M
	492	spindle whorl	m
L 45	Kh. III 314	clay animal	m
	316	unbaked clay cylinder seal	C
L 45:1	Kh. II 276	cylinder seal	C
	III 228	macehead	m
	636	carved stone fragment	m
L 45:2	Kh. III 268	statue fragment	m

THE TEMPLE OVAL AT KHAFĀJAH

Locus	Field No.	Designation	See
L 46:2	Kh. II 55	ornament	M
	63	face amulet	m
	67	chisel	m
L 46:3	Kh. II 247	statue fragment	m
L 46:4	Kh. I 360	cylinder seal	C
L 46:5	Kh. I 362	copper bowl	M
	364 <i>a-b</i>	sickles	M
L 46:7	Kh. I 358	copper hook	M
L 47	Kh. I 377	bowl fragment	M
M 43:3	Kh. III 5	jar (B. 601.530)	P
M 43:5	Kh. III 14	bowl fragment	m
M 43:6	Kh. I 346	clay model wheel	M
M 43:7	Kh. III 1100	small pot (A. 446.830)	P
M 44:3	Kh. III 439	jar (B. 625.360)	P
M 44:4	Kh. I 104	statue feet	m
	105	bird amulet	M
	107	cylinder seal	C
M 44:5	Kh. I 110	statue skirt	m
	157	copper disk	M
	158	male head	S
	161	shell inlay fragment	M
	345	macehead	M
M 45:2	Kh. I 231	statue fragment	m
	318	shell ring	m
N 44	Kh. I 235	clay chariot fragment	m
	315	obsidian knife	m
N [*] 44:1	Kh. I 179	statue fragments	m
	186 <i>a-e</i>	maceheads	M
	188	statue fragment	m
	189 <i>a-e</i>	maceheads	M
	202	macehead	M
	209	macehead	M
	214	macehead	M
	215 <i>a</i>	macehead	M
	219	male head	S
	223	needle	M
	225	spindle whorl	m
	227 <i>a-f</i>	maceheads	M
	238	statue fragment	m
	239	stone bowl	m
	249 <i>a-h</i>	maceheads	M
	255 <i>a-b</i>	maceheads	M
	255 <i>c</i>	statue fragment	S
	255 <i>d</i>	statue feet	m
	261	stone jar	M
	279	male head	S
	280	male bust	S
	281	macehead	M
	282	spindle whorl	M
	285	gold-leaf ornament	M
	286	macehead	M
	290	statue fragment	m
	291	pierced spindle	m
	292	needle	M
	297	nail	m
	311 <i>a</i>	macehead	M

CATALOGUE OF OBJECTS

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Locus	Field No.	Designation	See
N 44:1	Kh. I 311b	macehead fragment	m
	572	macehead	M
N 44:2	Kh. II 267	cylinder seal	C
N 45:2	Kh. I 226	plaque fragment	S
N 45:3	Kh. I 258	statue fragment	m
	II 201	group of flint blades	m
N 45:5	Kh. IV 426	carnelian lump	Fig. 79
	427	foundation deposit	Fig. 78
	428	copper flower	Fig. 78
	429	copper tool	Fig. 78
N 46:1	Kh. II 99	cylinder seal	C
N 46:3	Kh. IV 425	foundation deposit	Fig. 79
N 47:2	Kh. III 620	fruit stand (C. 365.810)	P
O 45:2	Kh. I 313	small jar (A. 655.520)	p
	326	clay chariot fragment	m
	335	fruit stand (C. 365.810)	P
	IV 384	shell spacer	M
O 45:8	Kh. I 264	fruit stand (C. 365.810)	p
O 46:1	Kh. II 97	hollow brick	M
	284	stone bowl	m
	285	hollow brick	m
TEMPLE OVALS II-III			
K 42:4	Kh. I 608	vessel fragment	m
	609	mouse amulet	m
K 45	Kh. II 85	statue foot	M
	161	staff head	M
	243	fragment of inscribed vessel	Fig. 126:1
K 46:8	Kh. I 536	male head	S
L 43:1	Kh. II 274	statue fragment	m
L 43:2	Kh. I 550	relief fragment	m
	556	bowl fragment	m
	560	vessel fragment	m
L 43:10	Kh. I 473	stamp seal bead	M
L 44	Kh. I 428	inscribed statue	Fig. 126:4 and S
M 42:1	Kh. III 329	clay seal impression	m
	331	clay seal impression	M
M 43:1	Kh. III 1061	arrow end	m
	1063	clay animal head	m
	1069	inscribed stone fragment	m
M 43:6	Kh. III 327-28	clay seal impressions	m
M 44:2	Kh. I 85	male figurine	S
M 44:3	Kh. II 165	blade	m
	169	lump of metal	m
	176	pendant	m
	177	pendant	M
	181-89	beads	M
	190	animal bead	M
	192	cylinder seal	C
	197	bone "spoon"	m
	234	pendant	M
	235-40	beads	M
	IV 495	stone bowl	M
	495 α	beads	Fig. 93 and M
M 45:2	Kh. I 126	relief fragment	S

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Locus	Field No.	Designation	See
M 45:2	Kh. I 129	statue fragment	m
	168	male head	S
	169	inlay	m
	174	stamp seal	M
	232	statue fragment	m
	237	stone bowl fragment	m
N 44:1	Kh. I 215 <i>b</i>	macehead	M
	216	macehead	M
N 45:2	Kh. II 200	amulet	M

TEMPLE OVAL III

J 44:1	Kh. II 51	inscribed stele fragments	Fig. 126:3 and S
	129	relief fragment	M
J 45:2	Kh. II 104	inscribed bowl fragment	Fig. 126:10 and M
J 45:3	Kh. I 387	clay chariot fragment	m
	390	macehead	M
	391	stone chisel	M
K 43	Kh. I 416	statue fragment	m
K 43:1	Kh. I 23	pottery bowl (B. 002.200)	P
K 43:3	Kh. I 402	pot (C. 516.371)	P
K 43:5	Kh. I 462	bowl (B. 174.220)	P
K 44:1	Kh. II 105	statue fragment	M
	171	hands of statue	m
	173	inscribed fragment	M
	Kh. II 80	inscribed bowl fragment	Fig. 126:12
	Kh. III 773	pendant	m
K 45	Kh. I 381	inscribed vase fragment	Fig. 126:9
	II 75	pronged tool	M
	76	flint blade set in bitumen	M
	79	inscribed bowl fragment	Fig. 126:7
	94	inscribed bowl fragment	Fig. 126:8 and M
	107	bowl fragment	M
	118	vessel fragment	M
	119	vessel fragment	m
	131	amulet	m
	134	vessel fragment	m
	159	twisted gold band	m
	162	inscribed stone fragment	Fig. 126:11 and M
	175	amulet	M
	195	flint scraper	m
K 45:3	Kh. II 90	stone bowl fragments	M
	100	male head	S
	108	bowl fragment	m
	120 ^a	vessel fragment	m
K 46	Kh. I 343	pottery model wheel	M
L 43	Kh. I 478	stone bowl fragment	M
	511	cosmetic dish	m
L 43:3	Kh. I 549	cylinder seal	C
L 43:10	Kh. I 477	pot (B. 515.373)	P
L 46:6	Kh. IV 16	male head	S
	17	pupil of eye of statue	m
M 43	Kh. I 564	worked stone	M
	III 2	weight	m
	3	needle	m
M 43:5	Kh. I 382	cup (B. 082.210)	P

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Locus	Field No.	Designation	See
M 44	Kh. I 167	macehead fragment	m
M 44:4	Kh. I 111	lancehead	m
	200	spindle whorl	m
M 44:5	Kh. I 163	ram pendant	M
	166	claw pendant	M
	196	statue fragment	m
	630	stone bead in form of shell	m
	636	inscribed macehead	Figs. 91 and 126:5 and M
	638	animal pendant	m
	639	copper chisel	m
M 45	Kh. I 146	reed impression	M
	148	bitumen object	M
	150	model wheel	M
	173	bird pendant	M
	II 283	pupil of eye of statue	m
N 44	Kh. I 260	knife fragment	M
N 44:1	Kh. II 1	statue fragment	m
N 44:4	Kh. I 253	bowl fragment	m
	254	cylinder seal	m
N 45	Kh. I 256	statue fragment	m
O 45	Kh. I 325	copper ring	M
P 46:4	Kh. III 805	inscribed fragment	Fig. 126:6

SURFACE

K 45	Kh. I 396	bitumen stopper	M
	II 72	glazed tile fragment	m
	194	weight	m
K 45:2	Kh. II 89	nail	m
L 42	Kh. I 546	macehead	m
	606	clay relief	M
L 43	Kh. I 541	spindle whorl	m
M 44:2	Kh. I 82	copper strip	m
	92	small statue	m
	93	macehead	M
M 44:5	Kh. I 96	plaque	M
M 45:1	Kh. I 60	twisted copper bar	m
M 45:2	Kh. I 128	statue fragment	m
N 45:3	Kh. I 288	clay model wheel	M
O 45:2	Kh. III 23	needle	m
	31	chisel	M
O 47:2	Kh. III 874	cup (B. 176.224)	p
Unknown	Kh. I 534	seal impression	m
	Kh. II 8	cylinder seal	C
	199	stone tool	M
	Kh. IV 39-40	bricks with foot impressions	Fig. 72

LEVELS UNCERTAIN

K 42:4	Kh. I 563	copper pin	M
K 45	Kh. II 136	relief fragment	M
	154	spindle whorl	m
	249	copper tool	m
K 46	Kh. I 370	bitumen plate fragment	M
L 43:1	Kh. I 605	needle	M
	II 4	small head	M

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Locus	Field No.	Designation	See
L 43:1	Kh. II 5	statue fragment	m
L 43:7	Kh. I 336	net-sinker	m
L 43:10	Kh. II 124-26	bone "spoons"	m
M 43:6	Kh. I 348	clay ram figurine	m
M 44:4	Kh. II 248	spearheads	m
M 44:5	Kh. I 97	cylinder seal	m
M 45	Kh. I 59	long copper needle	m
M 45:2	Kh. I 233	worked shell	m
	II 246	copper rod	M
N 44:3	Kh. I 276	silver ring	M
	306	bowl fragment	m
N 45:3	Kh. II 16	shell core	m
	228	macehead	m
	229-31	weights	m
N 46:1	Kh. II 115	weight	m
O 45	Kh. I 257	rolled pin	m
O 45:8	Kh. I 295	model wheel	M
	304	shell ring	m
O 47:2	Kh. III 864	copper earrings	m
Unknown	Kh. III 815	eye inlay	M

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OBJECTS IN ORDER OF FIELD NUMBERS WITH INDICATION OF
LOCI AND PERIODS

Field No.	Locus	Period	Field No.	Locus	Period
Kh. I 23	K 43:1	III	Kh. I 249a-h	N 44:1	II
59	M 45	uncertain	253-54	N 44:4	III
60	M 45:1	surface	255a-d	N 44:1	II
82	M 44:2	surface	256	N 45	III
85	M 44:2	II-III	257	O 45	uncertain
92-93	M 44:2	surface	258	N 45:3	II
96	M 44:5	surface	260	N 44	III
97	M 44:5	uncertain	261	N 44:1	II
104-5	M 44:4	II	264	O 45:8	II
107	M 44:4	II	276	N 44:3	uncertain
110	M 44:5	II	279-82	N 44:1	II
111	M 44:4	III	285-86	N 44:1	II
126	M 45:2	II-III	288	N 45:3	surface
128	M 45:2	surface	290-92	N 44:1	II
129	M 45:2	II-III	295	O 45:8	uncertain
146	M 45	III	297	N 44:1	II
148	M 45	III	304	O 45:8	uncertain
150	M 45	III	306	N 44:3	uncertain
157-58	M 44:5	II	307	N 44:1	I
161	M 44:5	II	309a-f	N 44:1	I
163	M 44:5	III	311a-b	N 44:1	II
166	M 44:5	III	313	O 45:2	II
167	M 44	III	315	N 44	II
168-69	M 45:2	II-III	317	N 44:1	I
173	M 45	III	318	M 45:2	II
174	M 45:2	II-III	325	O 45	III
179	N 44:1	II	326	O 45:2	II
186a-e	N 44:1	II	335	O 45:2	II
188	N 44:1	II	336	L 43:7	uncertain
189a-e	N 44:1	II	341	L 43:8	II
195	M 44:4	I-II	343	K 46	III
196	M 44:5	III	345	M 44:5	II
200	M 44:4	III	346	M 43:6	II
202	N 44:1	II	348	M 43:6	uncertain
209	N 44:1	II	351a-c	M 47:1	I
214	N 44:1	II	358	L 46:7	II
215a	N 44:1	II	359	L 43:8	II
215b	N 44:1	II-III	360	L 46:4	II
216	N 44:1	II-III	362	L 46:5	II
219	N 44:1	II	364a-b	L 46:5	II
223	N 44:1	II	367	K 46:7	II
225	N 44:1	II	370	K 46	uncertain
226	N 45:2	II	372-73	K 46:4	II
227a-f	N 44:1	II	377	L 47	II
231	M 45:2	II	379	K 45:6	II
232	M 45:2	II-III	381	K 45	III
233	M 45:2	uncertain	382	M 43:5	III
235	N 44	II	383	L 43:9	I
237	M 45:2	II-III	386	K 45:6	I
238-39	N 44:1	II	387	J 45:3	III

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Field No.	Locus	Period	Field No.	Locus	Period
Kh. I 390-91	J 45:3	III	Kh. I 522	L 43:7	I
393	L 43:9	II	523a-c	L 43:7	I
396	K 45	surface	524-25	L 43:9	I
397	K 46:4	I	527	L 43:9	I
398	K 46:4	II	530	K 42:4	II
399-400	K 43:3	I	533	L 43:3	II
401	L 43:9	II	534	unknown	surface
402	K 43:3	III	536	K 46:8	II-III
403	L 43:9	I	537	K 46	I
405	K 43:3	I	541	L 43	surface
408	K 43:3	II	543-44	L 43:7	I
409	L 43:9	II	546	L 42	surface
410-12	K 43:3	II	548	K 46:6	I
416	K 43	III	549	L 43:3	III
418	K 44:5	II	550	L 43:2	II-III
419	K 43:3	II	552-53	L 43:4	II
424-25	K 46:6	I	554	L 43:4	I
428	L 44	II-III	556	L 43:2	II-III
429-30	K 43:5	II	560	L 43:2	II-III
432	K 43:3	I	562	L 43:4	I
435	K 43:3	II	563	K 42:4	uncertain
437	K 43:5	II	564	M 43	III
441	K 43:5	II	565	L 43:8	I
443	K 43:5	II	572	N 44:1	II
444	K 43:3	II	574	L 43:8	I
446	K 43:3	II	578	L 43:4	I
452	K 43:3	II	579-80	K 42:4	II
453	K 43:4	II	581	L 43:1	I
454	K 43:3	II	582	K 43:3	I
454a-k	K 43:3	II	584-92	L 43:4	I
455-56	K 43:5	II	594-98	L 43:4	I
457	K 43:5	I	600-602	L 43:4	I
458	K 43:5	II	604	L 43:1	II
459-60	K 43:5	I	605	L 43:1	uncertain
462	K 43:5	III	606	L 42	surface
466	K 43:3	I	607	L 43:2	II
467	K 43:4	I	608-9	K 42:4	II-III
468a	K 43:3	II	615	L 43:1	II
473	L 43:10	II-III	617-18	L 43:4	I
476	K 43:2	II	620	L 43:4	I
477	L 43:10	III	623-24	L 43:4	I
478	L 43	III	626	L 43:1	II
480-81	L 43:10	I	628	L 43:1	II
482	L 43:10	II	630	M 44:5	III
484	L 43:7	II	632	M 44:5	I-II
489	K 43:2	II	633	L 43:7	I
490a-b	L 43:10	II	636	M 44:5	III
492	L 43:10	II	638-39	M 44:5	III
497	L 43:3	II	643-45	L 43:9	I
502	L 43:9	II			
503	L 43:7	I	Kh. II 1	N 44:1	III
504	L 43:9	I	2-3a	K 46:1	II
506	L 43:9	II	4-5	L 43:1	uncertain
511	L 43	III	6	K 46:1	II
513	L 43:9	I	7	K 46:2	II
514-19	L 43:7	I	8	unknown	surface

CATALOGUE OF OBJECTS

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Field No.	Locus	Period	Field No.	Locus	Period
Kh. II 9	M 47:1	I-II	Kh. II 170	K 45:2	I-II
10	N 45:2	I-II	171	K 44:1	III
13	N 45:2	I-II	172	K 45:2	I-II
16	N 45:3	uncertain	173	K 44:1	III
17-25	N 45:2	I	175	K 45	III
32-35	N 45:2	I	176-77	M 44:3	II-III
36	L 43:10	I	181-90	M 44:3	II-III
40	M 47:1	I-II	192	M 44:3	II-III
42	L 46:1	I-II	194	K 45	surface
46-50	N 45:2	I	195	K 45	III
51	J 44:1	III	197	M 44:3	II-III
52	M 47:1	I-II	199	unknown	surface
55	L 46:2	II	200	N 45:2	II-III
62	L 46	I-II	201	N 45:3	II
63	L 46:2	II	202-3	N 45:2	I-II
65	N 46:1	I	209	L 46:4	I-II
66	K 44:2	II	223	N 45:2	I-II
67	L 46:2	II	224-26	N 44:1	I
71	K 45:2	I	227	N 44:2	I-II
72	K 45	surface	228	N 45:3	uncertain
75-76	K 45	III	229-31	N 45:3	uncertain
79	K 45	III	234-40	M 44:3	II-III
80	K 44:2	III	243	K 45	II-III
85	K 45	II-III	244	M 47:1	I
88	K 44:3	I-II	245	N 45:3	I
89	K 45:2	surface	246	M 45:2	uncertain
90	K 45:3	III	247	L 46:3	II
91	L 44:2	I-II	248	M 44:4	uncertain
92	K 44:3	I-II	249	K 45	uncertain
94	K 45	III	250-57	M 45:2	I
97	O 46:1	II	257 ^a	M 45:2	I
99	N 46:1	II	266	K 43:3	I
100	K 45:3	III	267	N 44:2	II
104	J 45:2	III	269	M 47:1	I
105	K 44:1	III	271	N 46:1	I-II
107	K 45	III	274	L 43:1	II-III
108	K 45:3	III	276	L 45:1	II
112	L 44:3	I-II	283	M 45	III
115	N 46:1	uncertain	284-85	O 46:1	II
118-19	K 45	III	289	M 45:2	I-II
120 ^a	K 45:3	III	Kh. III 2-3	M 43	III
124-26	L 43:10	uncertain	5	M 43:3	II
127	L 43:10	I-II	14	M 43:5	II
129	J 44:1	III	23	O 45:2	surface
131	K 45	III	31	O 45:2	surface
134	K 45	III	35	L 46:4	I
136	K 45	uncertain	228	L 45:1	II
138	K 45	II	268	L 45:2	II
154	K 45	uncertain	314	L 45	II
158	K 45:2	I-II	316	L 45	II
159	K 45	III	327-28	M 43:6	II-III
161	K 45	II-III	329	M 42:1	II-III
162	K 45	III	331	M 42:1	II-III
165	M 44:3	II-III	365	L 43:7	I
168	K 45:2	I	439	M 44:3	II
169	M 44:3	II-III			

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Field No.	Locus	Period	Field No.	Locus	Period
Kh. III 620	N 47:2	II	Kh. IV 26	L 44:5	I
636	L 45:1	II	27	K 45:6	I
773	K 44:4	III	29-35	K 46:6	I-II
805	P 46:4	III	37	M 45:2	I
815	unknown	uncertain	38	L 47:1	I
864	O 47:2	uncertain	39-40	unknown	surface
867	K 45:1	II	44	J 46:1	II
869	K 45:3	I	52	J 45:3	I
874	O 47:2	surface	60	J 44:1	I-II
893	K 45:1	II	61	J 45:4	I
895	K 45:1	II	68	J 44:1	I-II
902-3	K 45:1	II	70	M 44:6	I
905	K 45:1	II	71	K 46:7	I
1061	M 43:1	II-III	85	J 46:2	II
1063	M 43:1	II-III	86	J 45:4	I
1069	M 43:1	II-III	87	K 46:7	I
1100	M 43:7	II	88	J 45:4	I
1136	K 44:2	I-II	90	J 45:4	I
1169-70	K 45:4	I-II	92-93	J 45:4	I
1309-10	K 44:2	I	338	L 44:5	I
1321	N 47:2	I	371	L 44:5	I
1352-53	J 44:1	II	380	L 44:5	I
1354	K 43:1	I	384	O 45:2	II
1356-57	J 44:1	I-II	400	K 46:1	I-II
1364	J 44:1	II	408	N 47:3	I-II
1394	M 45	I	425	N 46:3	II
Kh. IV 1	M 46	I	426-29	N 45:5	II
3	L 45	I	431	N 44:2	I
5	M 44:4	I	473	L 44:5	I
7	M 46	I	475	L 43:10	I
11	M 44:5	I	477-77a	N 44:2	I-II
13	M 44:5	I	495-95a	M 44:3	II-III
16-17	L 46:6	III	498-501	below K 42:4	I
20	M 44:4	I	Kh. V 4	L 47:1	I
22	M 44:5	I	301	N 44:5	I
23	L 47:1	I	361	J 46:1	I
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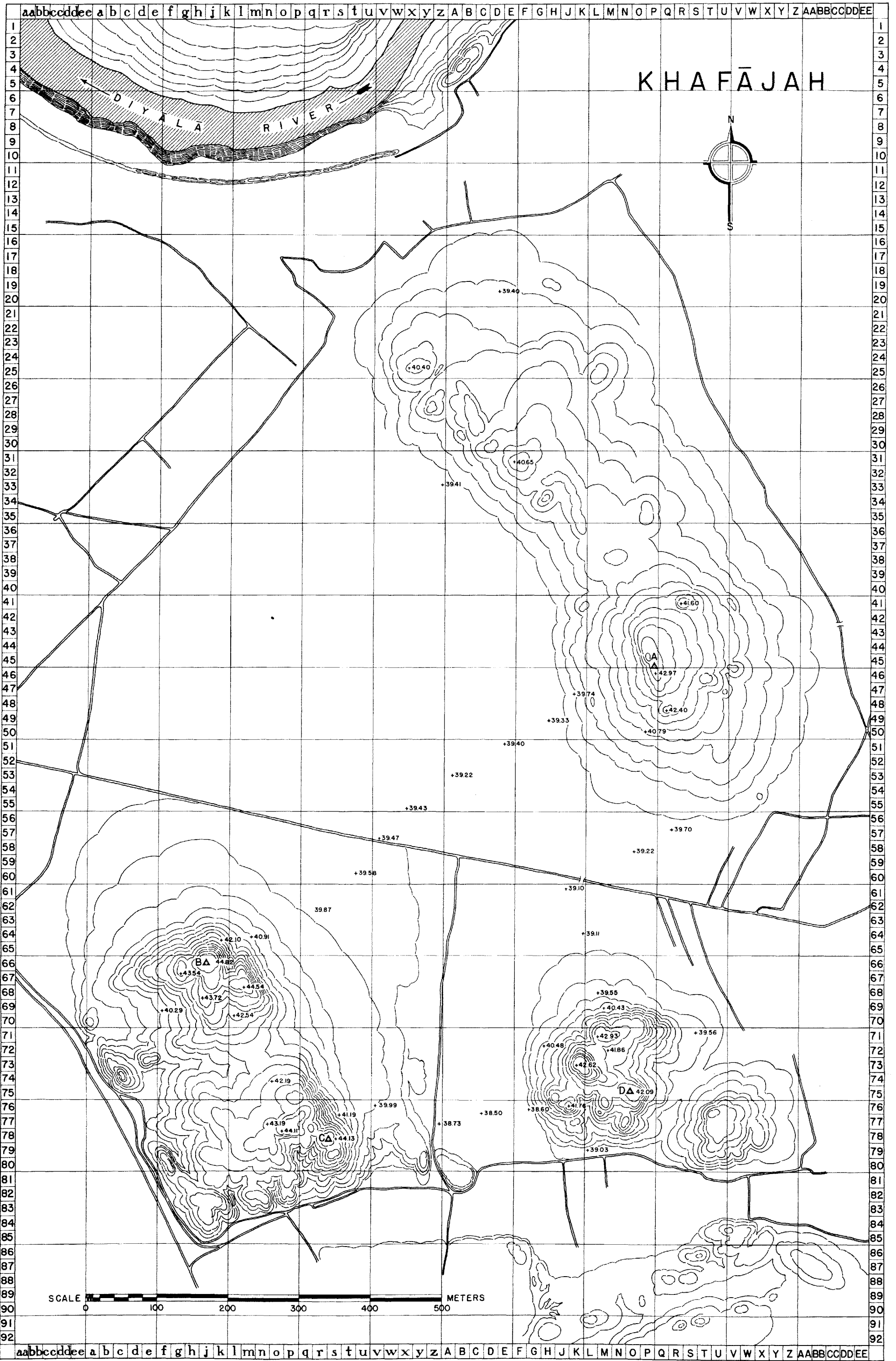
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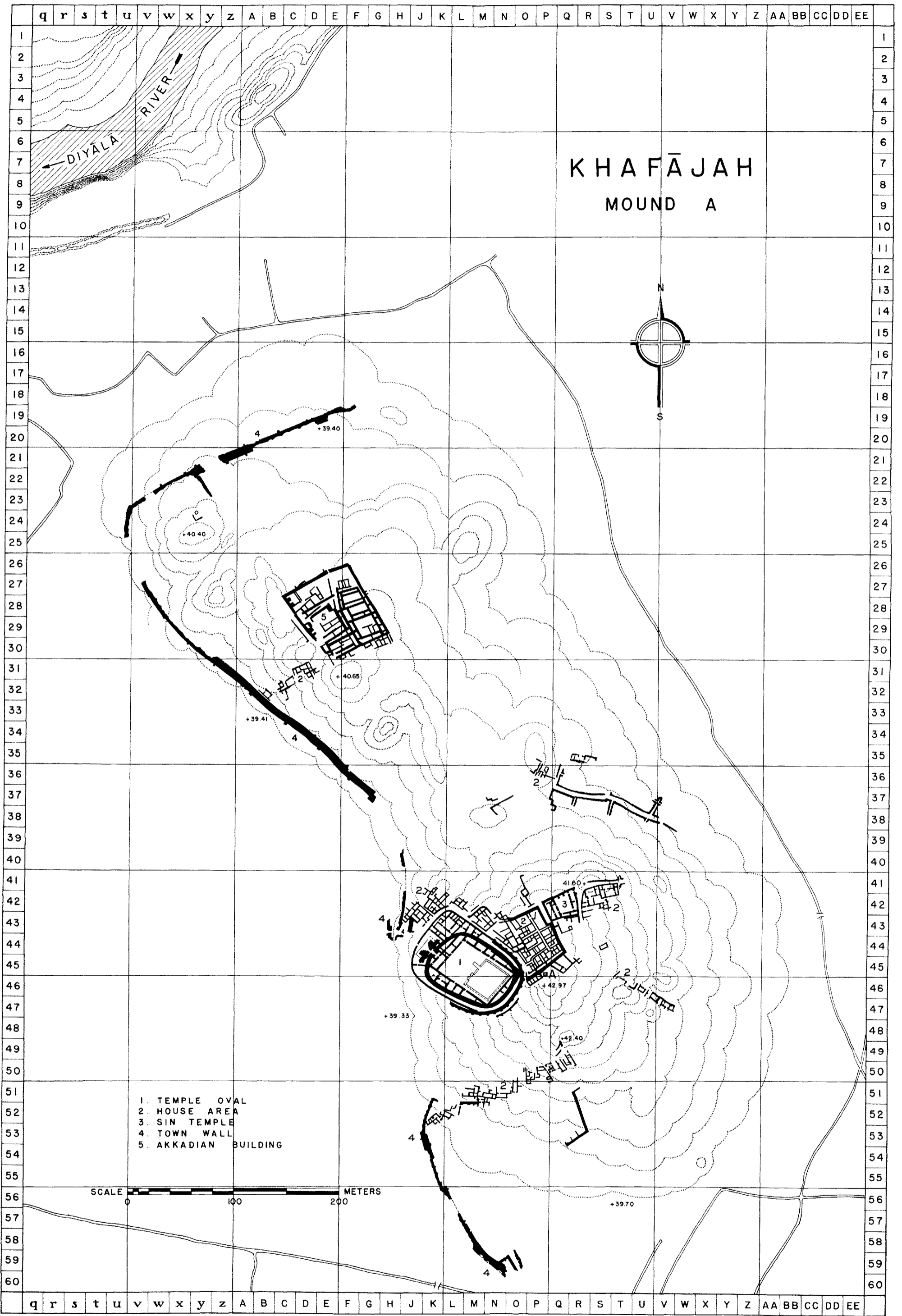
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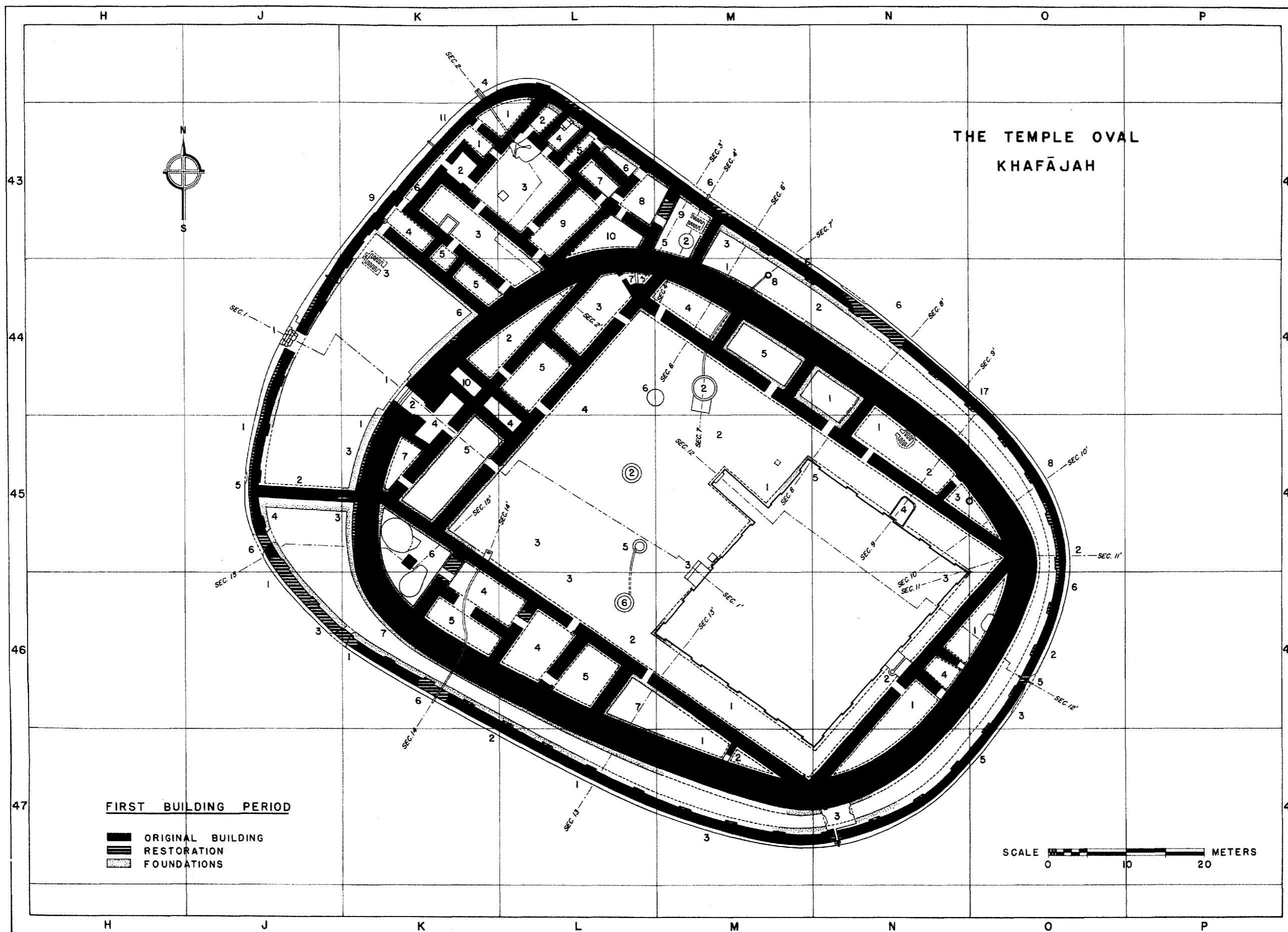
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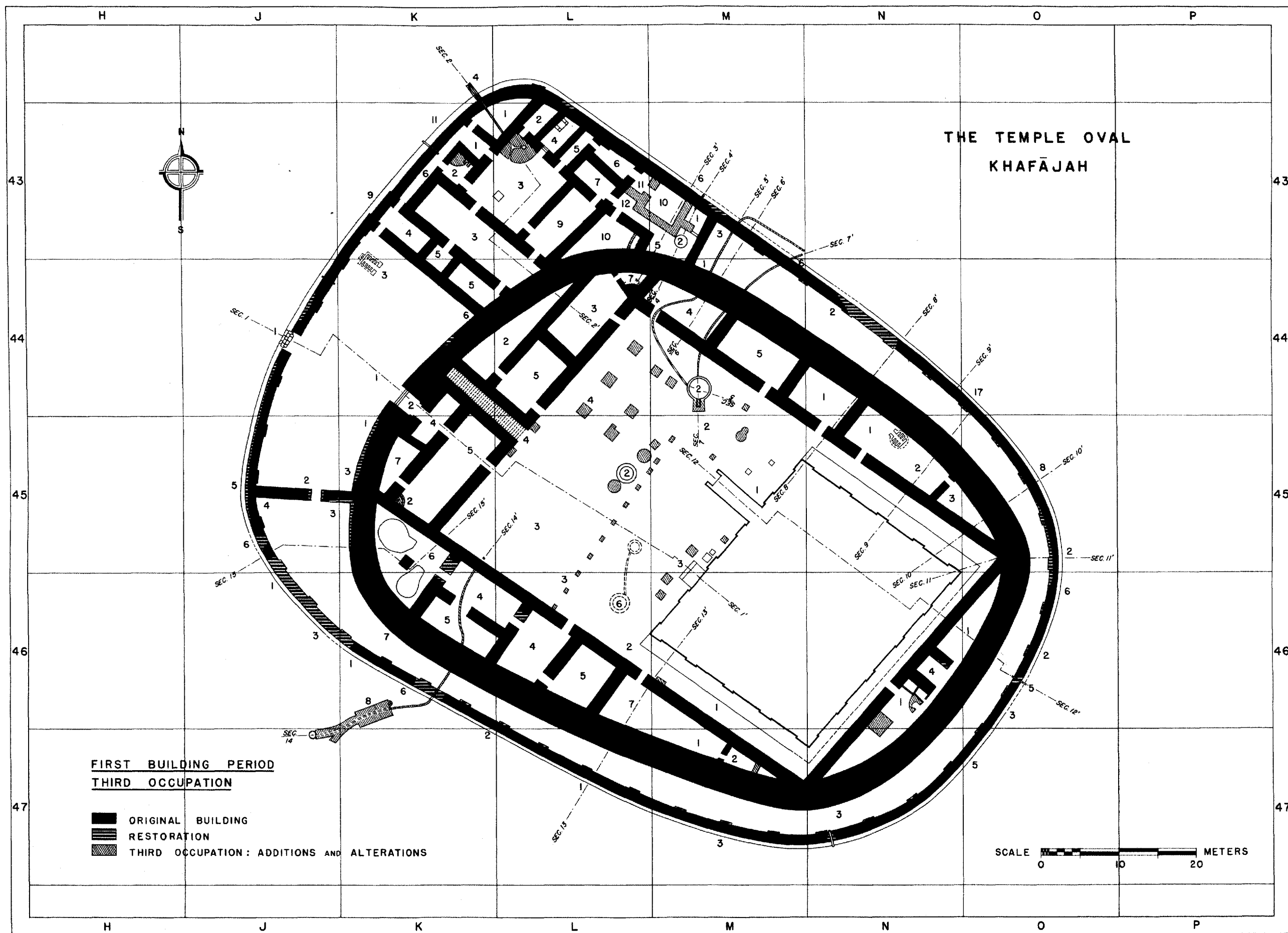
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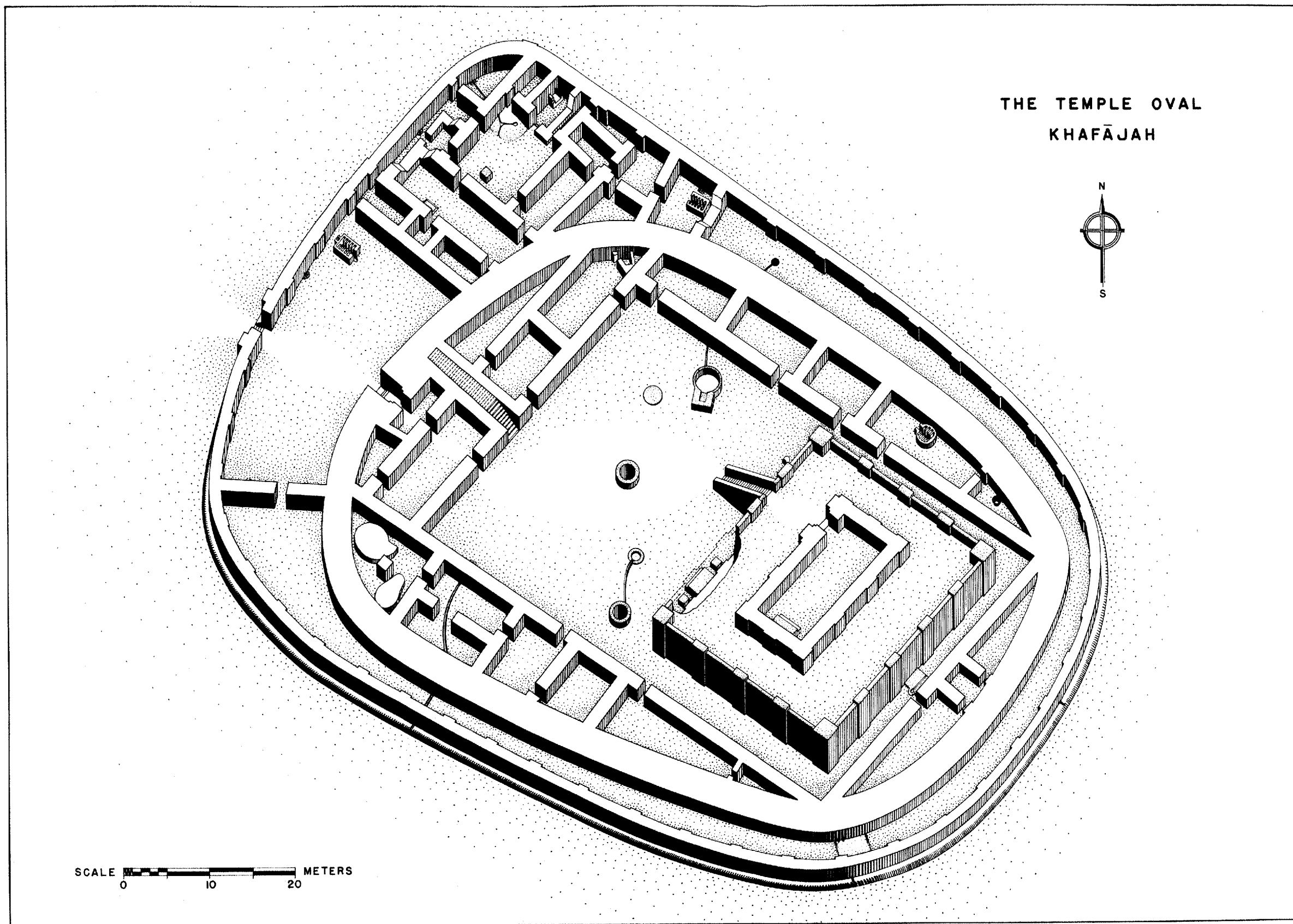
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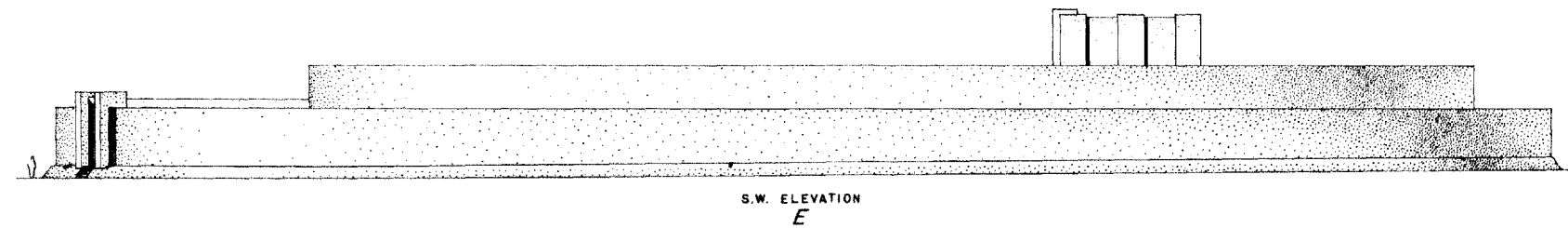
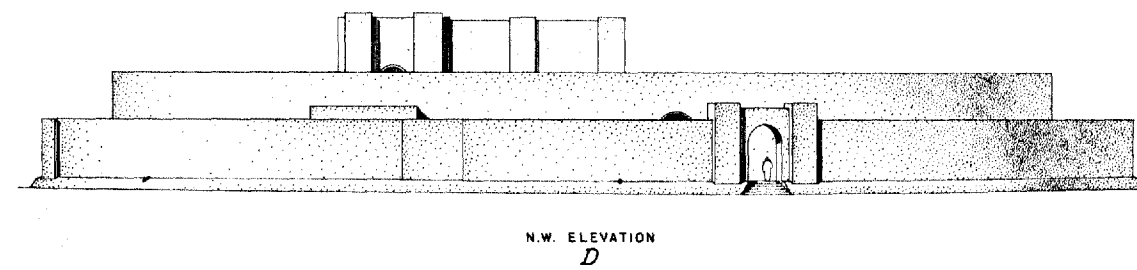
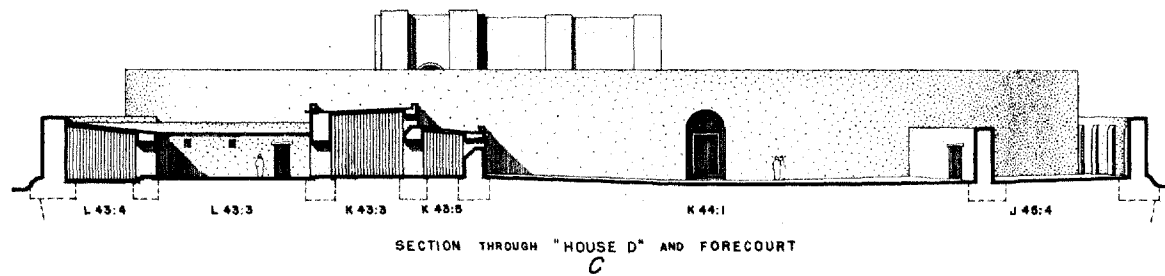
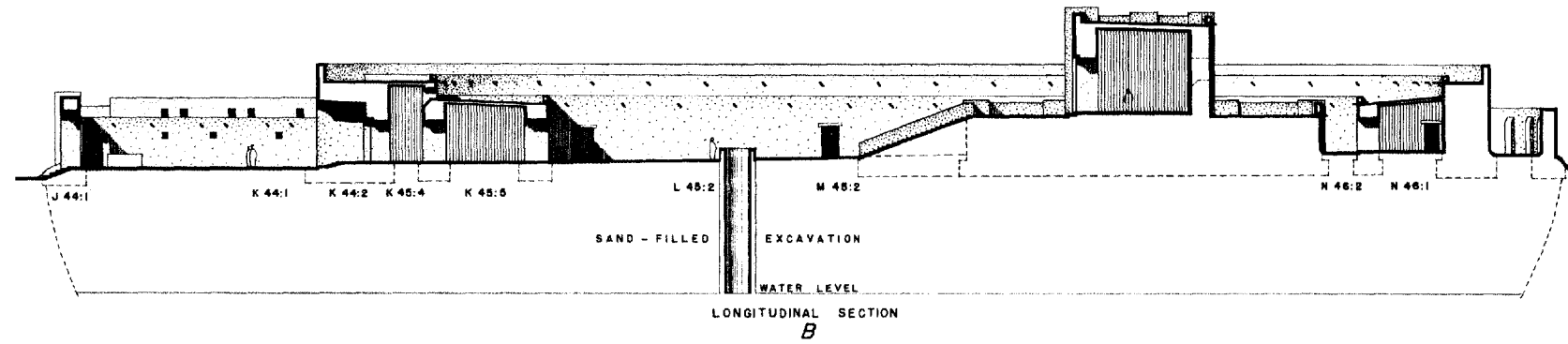
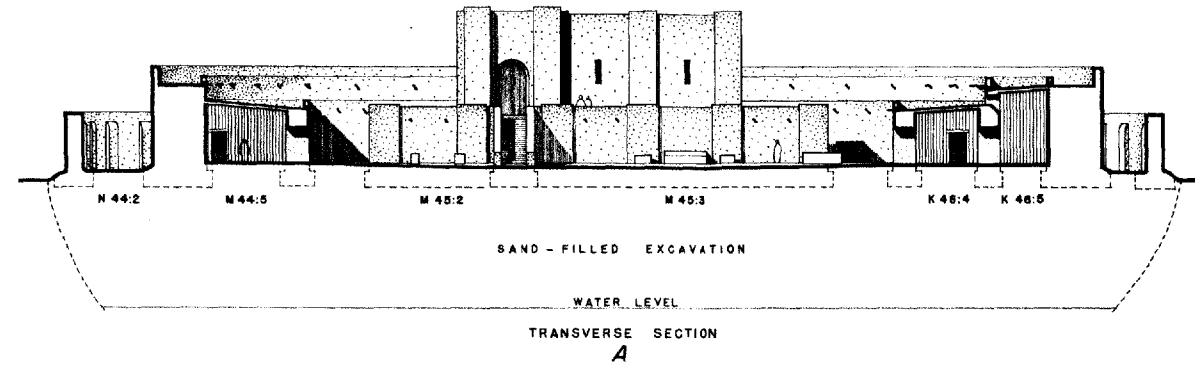


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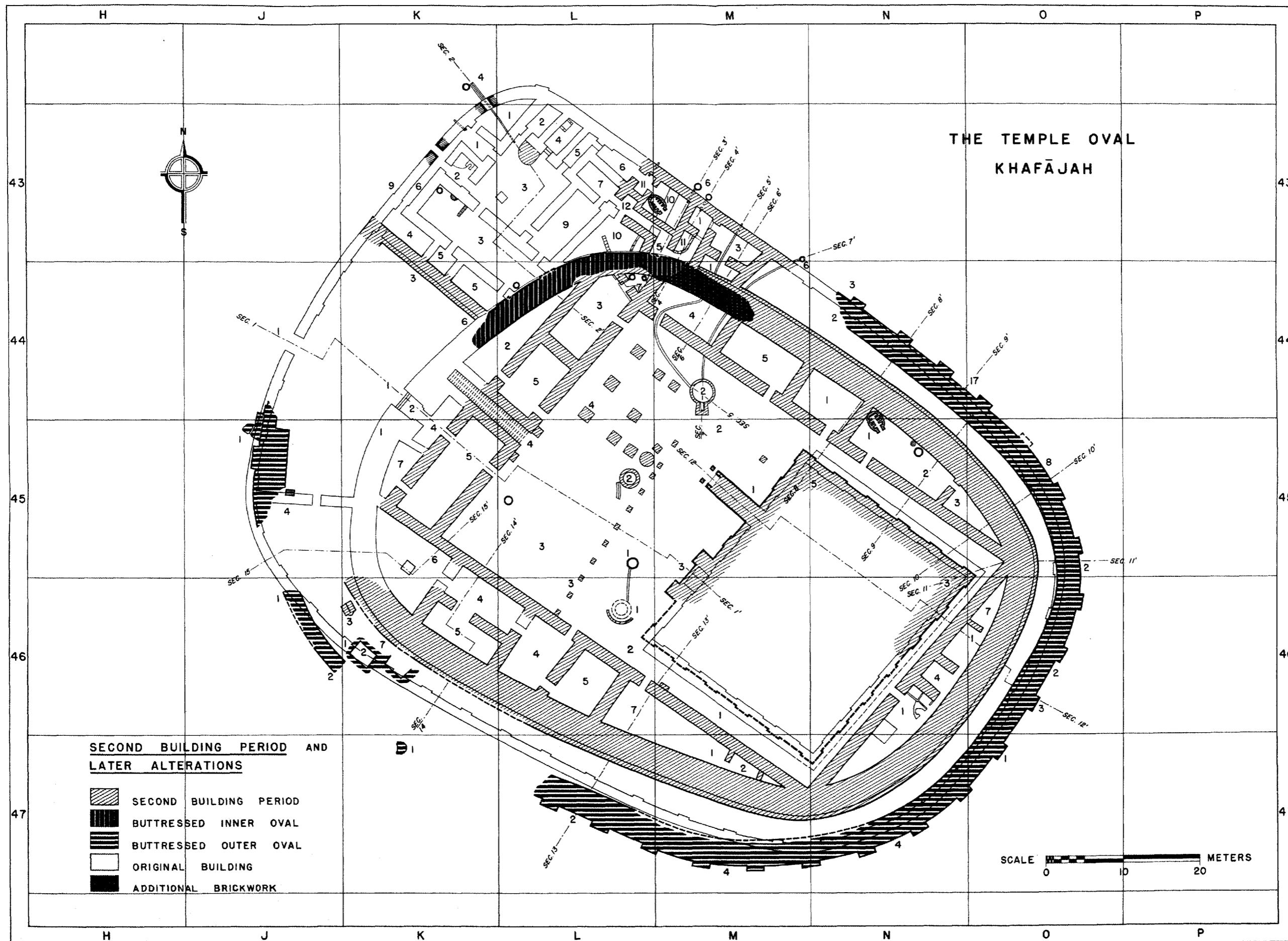


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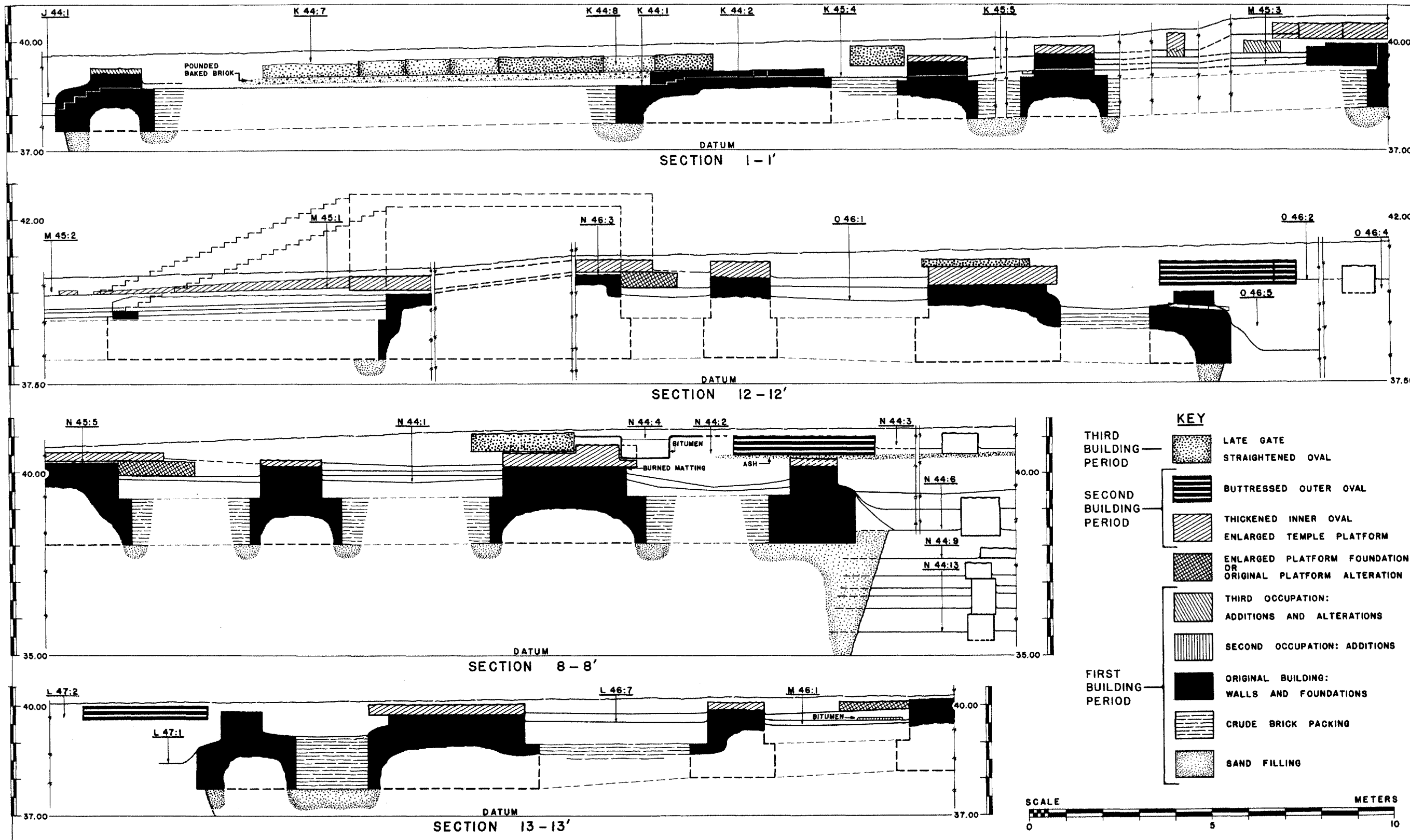
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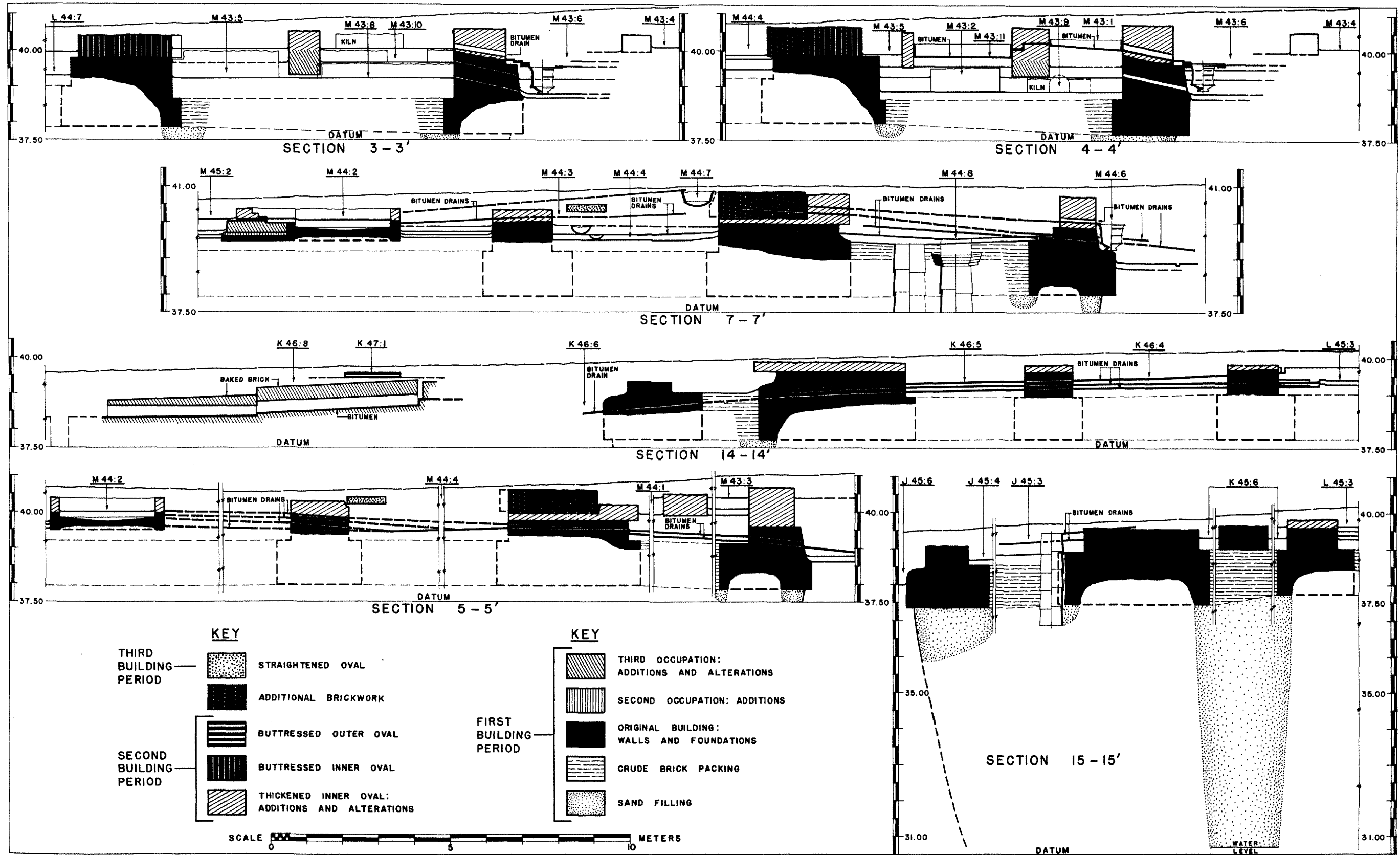
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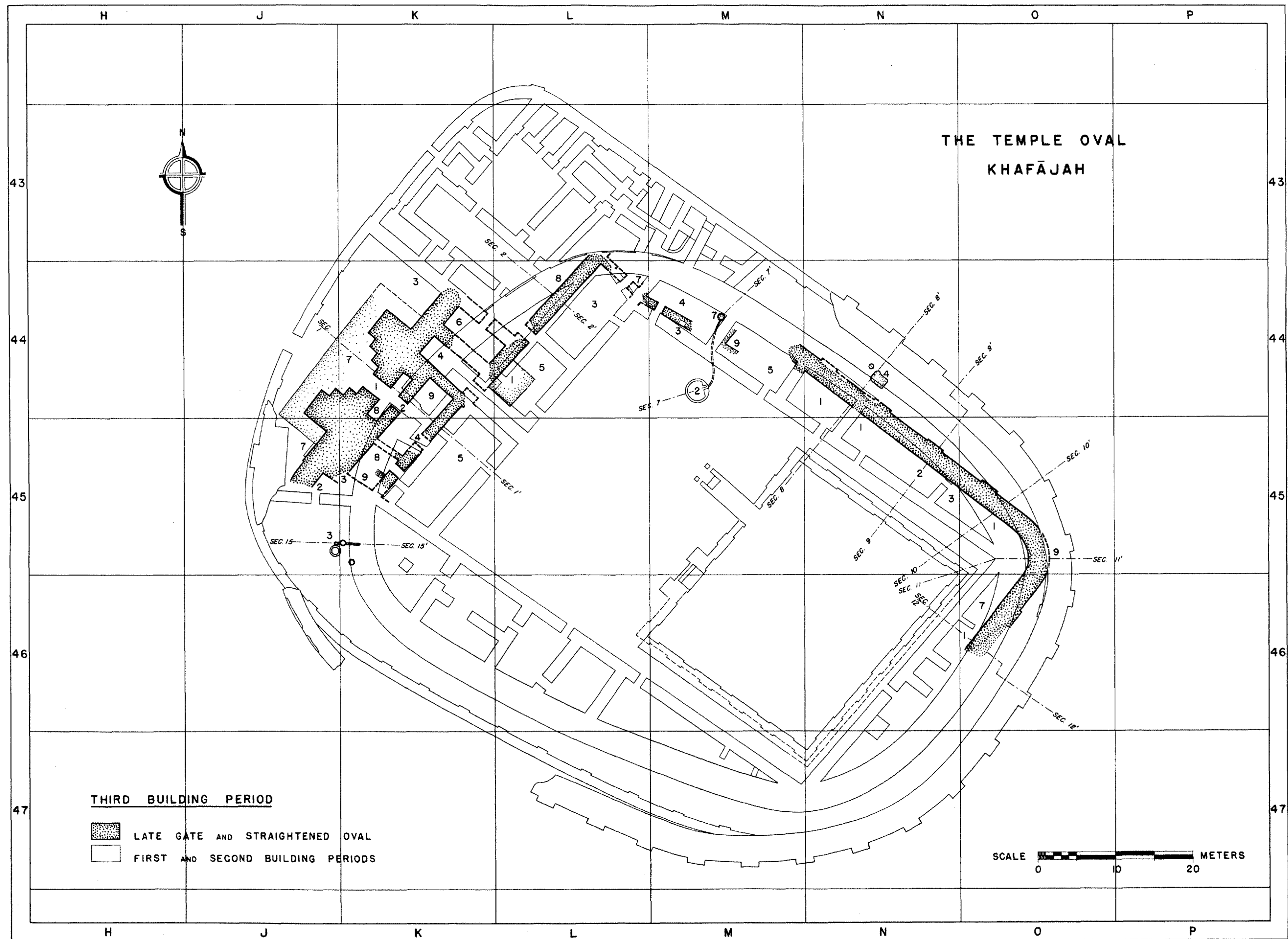
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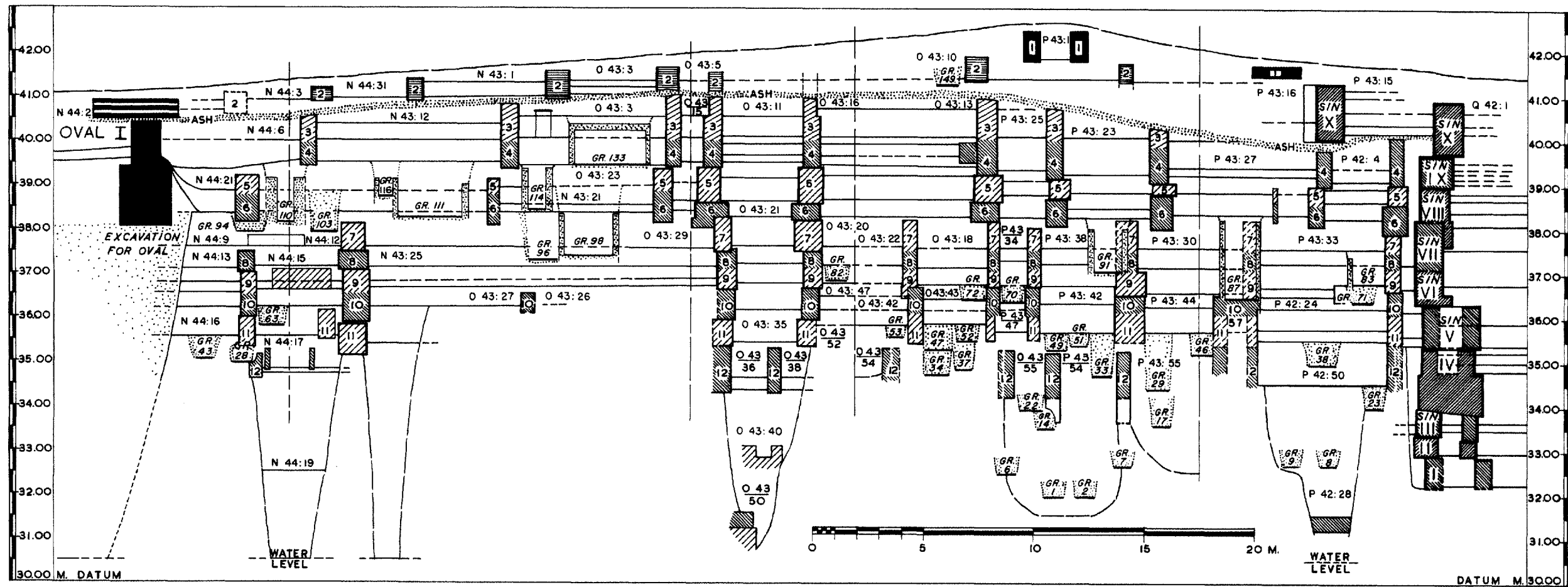
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