BABYLONIAN EXPEDITION
OF THE UNIVERSITY OF PENNSYLVANIA

EXCAVATIONS

AT

NIPPUR

PLANS, DETAILS AND PHOTOGRAPHS OF THE BUILDINGS, WITH NUMEROUS OBJECTS FOUND IN THEM DURING THE EXCAVATIONS OF

1889, 1890

1893-1896

1899-1900

WITH DESCRIPTIVE TEXT BY
CLARENCE S. FISHER

PHILADELPHIA

1905

THE TOPOGRAPHY AND CITY WALLS OF NIPPUR

EXCAVATIONS AT NIPPUR

I.

THE TOPOGRAPHY AND CITY WALLS

BY

CLARENCE S. FISHER, B.S.

Architect of the Babylonian Expedition, University of Pennsylvania

ILLUSTRATED WITH PLANS, DETAILS AND PHOTOGRAPHS OF THE WALLS, WITH OBJECTS DISCOVERED NEAR THEM, DURING THE CAMPAIGNS OF 1889, 1890, 1893-96, AND 1899-1900

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TO

DR. JOHN HENRY HAYNES

IN RECOGNITION OF HIS

LONG AND FAITHFUL SERVICES AT

NIPPUR

PREFACE.

The material presented in this volume was collected by the various members of the four campaigns sent to Babylonia under the auspices of the University of Pennsylvania. The writer was present at the excavations during seven months of the last campaign only. The preparation for publication of the notes and drawings relating to the architectural side of the work was begun while the writer was Research Fellow in Babylonian Architecture in the Department of Archæology of the University in 1903–1905 (cf. Provost's Report, 1904).

The details here given are from the official records of the expedition, deposited in the Free Museum of Science and Art. In addition to these I have made use of various diaries and private letters belonging to former members of the expedition, who very kindly placed them in my hands. My thanks are due to the authorities of the University for their continued interest and kindness and for permission to use many photographs never before published. Also to the members of the expedition who have so unselfishly aided me in my work. And last but not least to the friends who have helped in many ways to bring the publication to its final form. Especially do I thank my friend, Prof. A. T. Clay, for his continued advice and encouragement during the progress of the work; and Mr. William Witte, to whose personal interest and care the success of the illustrations is due.

The volume aims to be a clear and complete account of the architectural results of the great work undertaken by the University. In the topographical introduction I have endeavored to give in as brief a manner as possible, a connected account of the peculiar conditions obtaining in ancient Babylonia, affecting the early settlement of the country, especially the origin, growth and final decline of our own city of Nippur. This will, I believe, enable one to understand more clearly the buildings of the successive periods. The body of the volume consists of descriptions of the various enclosing walls with their details, together with such objects as were found in connection with them.

CLARENCE S. FISHER.

SEBASTIYEH, July 1, 1909.

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ERRATA.

Page 2, line 40. For *locations* read *location.*
2, note 3. For *all of them are with* read *all of them are within.*
3, note 2. For *connected it to* read *connected it with.*
4, note 5. For *Marashû* read *Murashû.*
6, line 28. Delete *ing* at beginning of line.
8, line 18. Delete *these* at end of line.
16, line 29. For *custom in usage* read *custom or usage.*
33, line 1. For *show* read *shows.*
47, line 3. For *part* read *parts.*
Plate 3. Pottery kiln should be Plate 3A.

EXCAVATIONS AT NIPPUR.

I. TOPOGRAPHY.

§ 1. Physical Features of Babylonia.

1. The Tigris-Euphrates valley, the scene of the long and varied history of Chaldæa and Babylonia, is an alluvial plain of limited extent, stretching from the Arabian tableland eastward to the mountains of Persia. Originally this whole belt of country, at least as far north as the neighborhood of the modern village of Felujeh, formed a part of the Persian Gulf.[1] The valley is wholly a product of the two great rivers and their tributaries. The continual deposit of silt brought down by them has gradually reclaimed the entire area from the sea and forced southward the northern boundaries of the Gulf.

2. Both the Tigris and Euphrates have their sources in the mountains of Armenia, where the geological formation is principally granite, gneiss and other feldspathic rocks. These were constantly exposed to the action of the rain and surface waters and gradually decomposed under their influences;[2] the resultant detritus being carried away by the streams. Before reaching the level region below Hit the Euphrates cuts through different out lying ranges, those forming the southern frontier of Armenia composed for the most part of limestone and sandstone intermingled with schists and quartz. Further south below Samsat the banks of the river contain gypsum, sandstone and conglomerate with mica and feldspar. Between Deir and Hit there are several towering chalk cliffs, worn and broken down by the force of the river. Of the materials obtained from these various sources, thoroughly hydrated during their passage down the winding river, was formed the rich alluvia which gradually filled up the Gulf. The result is that the whole country between the two rivers is practically a great bed of light yellow or brownish clay, mixed with sand.

3. This deposit played an important rôle in the development of the country, entering in some way into nearly every phase of Babylonian life. In the first place the combination of clay, chalk and sand made an unusually rich and fertile soil, so that the valley eventually became famous as one of the most productive and hence richest countries of the ancient world, in many ways the successful rival of Egypt. But of more importance to us from an archæological standpoint is the fact that this clay was adapted peculiarly for building purposes. The civilization and culture consequent upon the growing power and wealth of the people created the desire for extensive buildings of various kinds, and developed an ingenious and highly efficient system of construction, based solely on the use of clay. In buildings it was used for floors and roofs as well as for walls. In this case it was laid up *en masse* or moulded into bricks and tiles used in their crude sun-dried condition or fire-baked. Out of it were made pipes and conduits of many sizes and patterns for the conveyance underground of water to different parts of the houses and through the towns; and also for the carrying away of household wastes. In addition to these uses of clay there was its employment for literary purposes. Carefully cleaned,

[1] Prestwich, Geology (map).

[2] *Ibid.*, I, p. 48 f.

by washing, of the sand and other impurities and then shaped into tablets and cylinders, it became the medium for recording the history, literature, and even the letters and commercial transactions of the everyday business life of the people.

§ 2. Changes made by the Rivers.

1. It will readily be seen that through a soil, which by its very composition was soft and yielding, the swift currents of the rivers would have no fixed channels. The beds of both the Tigris and Euphrates are tortuous and erratic. Besides the gradual erosion of the banks and the depositing of silt in the form of bars, all tending to divert the stream, the channels were subject to more violent and extensive alterations during the annual inundations. Then the current, sweeping down the valley with irresistible force, made numerous new cuttings, which would be left after the waters had subsided. Furthermore, the several mouths in the deltas of the rivers tended to develop into separate branches or channels, which grew longer as the delta advanced into the Gulf. Under these circumstances it was quite possible that the topography of an entire district would be altered in the course of a few centuries. Before attempting to enter into a description of these changes, it will be well to consider the great influence which the rivers exerted upon the original settlement and subsequent development of the country.

2. That the Tigris-Euphrates valley had been formed well down towards the 31° N. lat. when the first settlements were made, is evident. The majority of the great cities, among them the very oldest in the land, are to be found in this lower end of Babylonia. This suggests at the same time that the original settlers came from the south by way of the Gulf, established themselves first in the deltas of the rivers and then gradually worked their way toward the north. In all such immigration movements both the start and advance are made along such lines of waterways as the country affords, and we would not expect to find Babylonia, so rich in such streams, any exception to the rule.

3. The beginnings of each town were humble. At first they were nothing more than simple collections of fortified dwellings of clansmen, probably built around a shrine or altar dedicated to their guardian spirit.[1] The extreme fertility of Babylonia resulted in a rapid development of civilization, which gradually outgrew the tribal stage, so "that at the very dawn of history cities had superceded, at least in form, the communal clan organization."[2] In connection with this development came the need of communication between the different towns. The rivers, from being merely sources of water supply or the bases of irrigation systems, rose to the importance of thoroughfares, along which passed the commerce and travel of the country. Each town, steadily growing in wealth and power, extended its influence first over the country in its immediate neighborhood and finally began to encroach upon that of neighboring towns. In the struggle for supremacy that followed, a number of the cities at different times gained and held the political control for varying periods. A few cities, especially Nippur, obtained another more stable form of supremacy, that of religion. The original simple shrines had developed into an elaborate pantheon in which Bêl of Nippur at a very early date took the chief place. Now in either the political or religious developments the waterways played an important part and one of the main reasons why the cult of Nippur attained and kept its hold upon the rest of Babylonia for a longer period than that of any other city, was the exceptionally fortunate locations which it had.[3] In the very center of the valley and on the great artery of travel, it was more easily

[1] Barton, Semitic Origins, p. 30, 162 ff.

[2] *Ibid.*, p. 31.

[3] Note in Fig. 1, how Nippur is midway between the two groups of cities; Sippara, Kutha, Kis, Babylon, etc., in the north and Udnun, Kissura, Surrippak, Erech, Ur, etc., in the south. Practically all of them are with the 150 km. (90 miles) radius.

and quickly accessible from cities both north and south than any other spot could have been. (See map, Fig. 1.) It is thus evident that any deviation of the river which tended to leave a city

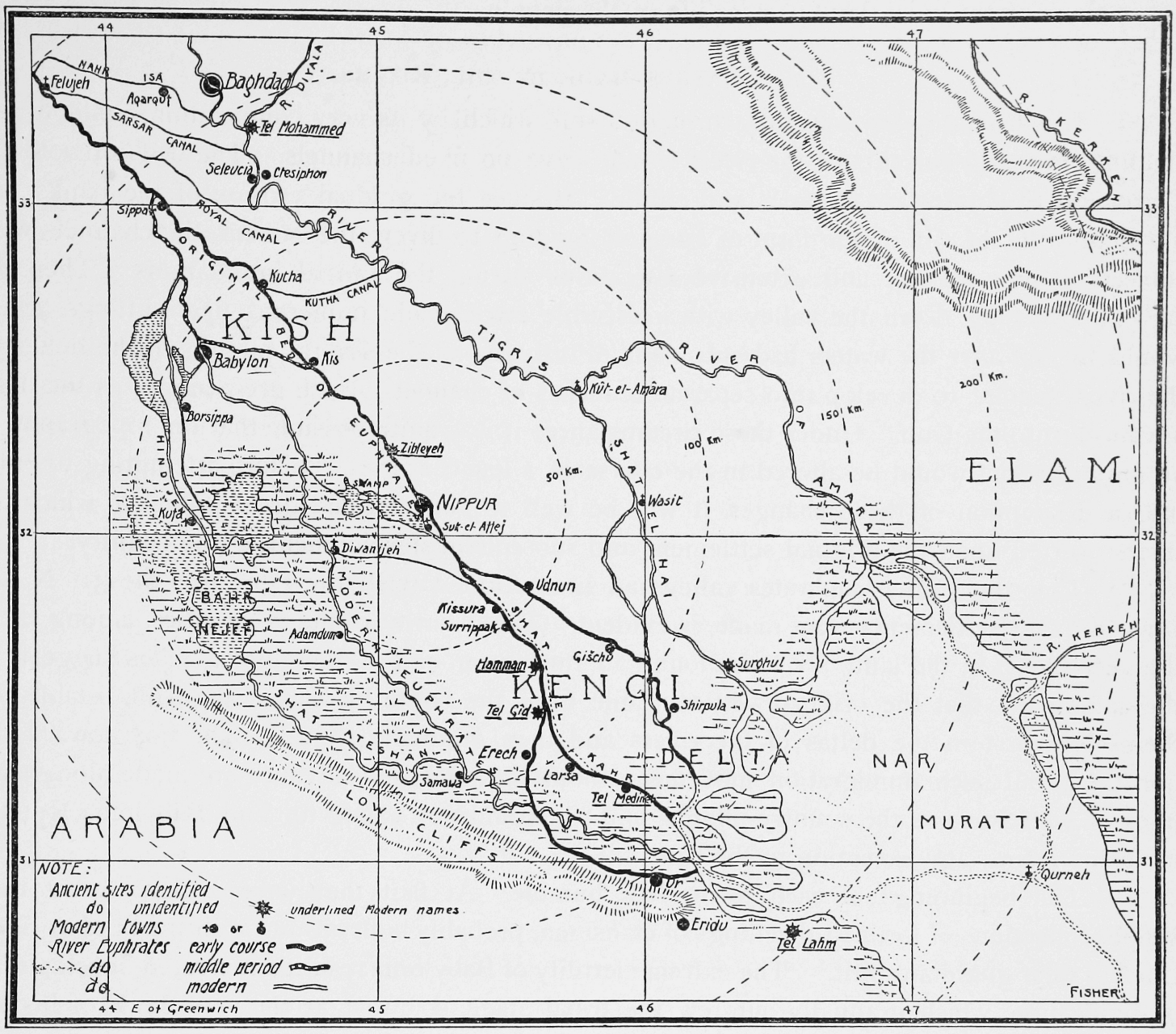


FIG. 1. Sketch map of Babylonia, showing: (1) The extent and early political divisions of the country and the shores of the Nar Muratti; (2) the early course of the Euphrates and the later changes in its bed, with the cities as originally established along its various branches; (3) the unique position of Nippur as the geographical center of the land.

a distance from its banks would be distinctly detrimental to the prosperity of that city, unless in some way the loss could be counterbalanced. It was then that the great canals came into use. As early as c. 4500 B. C., we read of Urukagina, king of Shirpula, constructing a canal to supply his city with water.[1] Some change in the course of the river had undoubtedly made such a canal necessary.[2]

4. But little change has taken place in the upper part of the rivers. The important variations do not begin until the current enters into the purely alluvial soil above Felujeh or Baghdad, where the rivers approach most nearly to each other. Indeed the Tigris, whose banks are higher and more firm than those of the Euphrates does not seem to have diverged much from

[1] Radau, Early Babylonian History, p. 48, seqq.

[2] Shirpula (Telloh) is situated to the east of the Shat-el-Hai, an ancient bed of the Tigris. Captain Gros, who has succeeded the late M. de Sarzec in the direction of the French excavations at this site, has now been able to determine the topography of the city. He found remains of a port or basin for shipping with the canal which connected it to the river. (L. Heuzey, C. R. Acad. Insc., 1905, p. 75 f.)

its present course until it reached Kut-el-Amarah.[1] Here the river makes an abrupt turn and after describing a great arc eastwards turns toward the south and unites with the Euphrates at Qurneh. From Kut-el-Amarah there was a second channel now practically dried up, except during the flood season when portions of it are navigable for small boats. This Shat-el-Hai, as it is called, ran down past Wâsit and can be traced to its outlet into the Euphrates below Warka. This western bed "certainly continued to be full of water as late as the middle of the fifteenth century, A. D. It is plainly thus described by all our Arabic and Persian authorities of the Middle Ages, to mention only the latest in date, by Hamd Allah Mastawfî, in A. D. 1330, by Alî' Yazdî, the historian of the campaigns of Timur, who took Wâsit, '*on the Tigris*,' in A. D. 1393, and by Hâfiz Abrû, who wrote about the year A. D. 1420."[2] It is probable that the current changed over into the eastern bed before the middle of the seventeenth century, for Tavernier, journeying down the river in the year 1652, followed the eastern bed to Qurneh. He mentions that there were two branches, and describes the river here as running "vers la pointe de la Mésopotamie." The eastern channel, which he followed, took its course "le long de l'ancienne Chaldée."[3] During the Sassanian period, however, the current took the eastern channel, *i. e.*, practically the same course that it now has. This we have on the authority of Ibn Serapion, an Arabian topographer who wrote about the year 945 A. D.[4] But while the river as represented by its actual volume of water, has fluctuated between the two beds, the *name* of the river has clung to but one branch, the western one, thus indicating that it must be considered either as the original channel or as the most important one originally. The Babylonian name of the Tigris was Idiglat or Diglat. In three of the Murashû texts found at Nippur, we have mentioned a Diglat labiri—an old bed of the Tigris.[5] This ancient name has been preserved in the Arabic Digla—or as it is locally pronounced at the present date, Digleh. But this name of Digla is applied only to the Tigris *above* Kut-el-Amarah. Below that point the river, *i. e.*, the present river is called the Shat-el-Amarah, the "river of Amarah." On the other hand, all the Arabian geographers give the name Digla to the Shat-el-Hai.[6]

5. There are but few specific references in classic and mediæval literature to the beds of the Euphrates. Most of those which do exist are vague and unsatisfactory. In its character the river differs in many ways from the Tigris. Its waters instead of keeping together in one stream have always had a tendency to spread over the contiguous country. This is due mainly to the banks, which are much lower than those of the Tigris and hence more readily subject to inundations. The inhabitants of the country during all periods have been quick to take advantage of these peculiarities and made extensive use of the river for watering their lands. This has given it a distinct superiority over the Tigris, whose steeper banks and swifter current does not adapt it so well to irrigation purposes. For this reason there can be no doubt that the Euphrates, instead of the Tigris, was the principal river of Babylonia and that it was upon its banks that the great development of the country took place.[7]

[1] Chesney in his maps of the Tigris shows an old bed extending from a point below Sammarrah to just above Baghdad. So also Capt. F. Jones, Bombay Gov't. Records, XLIII (map).

[2] Le Strange, Baghdad during the Abbasside Caliphate, p. 8 f.

[3] *Ibid.*, p. 8, 9, note.

[4] Le Strange, *Journal Royal Asiatic Society*, 1895, p. 301.

[5] Clay, Business Documents of Marashû Sons, X, p. 69

[6] Ainsworth, Euphrates Expedition, II, 264.

[7] For this reason on my map, Fig. 1, I have chosen to place all the cities, with the exception of Surghul, on the various mouths in the Euphrates delta. Surghul also may have been situated thus. The placing of Udnun (Bismya) on a branch of the same stream that passes through Kissura (Abu Hatab) and Surrippak (Fara) is suggested by Andræ's map in Deutsche Orient Gesellschaft, Mitt. 16. Note the

6. Unlike the Tigris, the Euphrates has not changed back and forth between two beds. While the course at present taken by the latter is very different from that which it originally followed, the change from the one to the other has been comparatively gradual and inevitable. When once it was complete the current never returned to its earlier course. Such minor variations as have occurred along the line of the modern bed are due to artificial causes, such as the construction of dams and the opening up of new irrigation canals. The great body of water must have begun to settle into the western or present course in pre-Christian times, because both Erasosthenes, 276–196 B. C., and Strabo, 63 B. C.–24 A. D., state that the river then formed the western boundary of Babylonia.[1] Ibn Serapion, writing in the tenth century A. D., gives some details of this western course. His account indicates that the main body of the river turned off to the west above Babylon and after flowing down past Birs and Kufa, emptied into a great swamp south of the latter place.[2] There are now a series of canals and lagoons extending from a point on the Euphrates above Babylon, to Samawa. At the lower end these pass through an extremely swampy region and correspond to Serapion's description, proving that the geography of this portion of the river has remained as it was in his time.[3] In 1890 Doctor Peters explored this western channel and found it practicable for navigation. In some places the volume of water running through it was in excess of that flowing through what usually is termed the main channel,[4] which flows a little to the east, past Hilleh (Babylon), Diwanijeh, Lamlum and Samawa, finally joining the Tigris at Qurneh.[5] These two branches comprise the river as we now know it. One or other of them most probably existed in approximately their present positions in very early times, but certainly could not have been important, because of the undoubted preëminence of the waterway which existed still farther to the east.

7. This third channel, which was the oldest and the most important in the history and development of Babylonia, originally ran through Sippara (Abu Habba), Kutha (Tel Ibrahim), Kis (El-Ohemir), Nippur, and southward. But there seems to have been a constant tendency on the part of the river to swing over into the smaller and later branch to the west on which were situated several smaller towns, among them Babylon. This was a constant menace to the continued growth and prosperity of the numerous wealthy cities which had grown up upon the banks of the original stream and efforts were made to keep sufficient water in the old bed to make it navigable. To these efforts we probably owe the Shat-en-Nil, extending from Babylon on the new channel to Kis (El-Ohemir) on the old channel, and also the Yusufijeh running eastward from Diwanijeh. The opening up of these brought Babylon, which until then had been considered hardly worthy of mention among the southern cities, into immediate rivalry with them. With equal natural advantages it now forged rapidly to the front, and ultimately assumed the supreme political and religious power in Babylonia. This power it retained "almost without a break to the period of the Seleucides."[6] The sudden change in Babylon's destiny gives us a clue to the date when the change in the river began to take effect, which must thus have been during the first half of the third millenium B. C. It was impossible to keep the old Euphrates from

Shat-el-Farahna flowing through Ebre towards Bismya. Between the latter and Abu Hatab there are also extensive swamps.

[1] Strabo, II: 1; 23 and XVI: 1; 21.

[2] Le Strange, Baghdad, p. 8.

[3] This western channel is probably the Pallocopas canal described by Arrian (VII; 21). This view is expressed also by Peters (Nippur, I, 313).

[4] Peters, Nippur, II, 314. The west channel includes the Hindijeh canal, the Bahr Nejef, the Shat-el-Khusif and Shat-Ateshan, in this order from North to South.

[5] This channel was called in the tenth century, the Sûrâ canal, As-Sûrân. Two hundred years later this came to be considered the main stream, as at present, and the name Nahr Sûrâ went out of use. Cf. Le Strange, Lands of eastern caliphate, p. 71.

[6] Rogers, History of Babylonia and Assyria, I, 386.

ultimately becoming but a part of the system of canals which crossed the country in every direction. The cities gradually declined as their great waterway lost its importance. As long as the Babylonians governed the land, their efforts were partially successful in keeping it open but with the advent of successive military dynasties, giving little if any attention to the preservation of the natural resources of the country, the channel rapidly filled up. Portions of it were filled with water as late as Mohammedan times. For instance Abu-l-Fîda mentions the town of Nilijeh as being situated upon the Nil canal, calling the latter the main stream of the Euphrates.[1]

8. The Shat-en-Nil is undoubtedly one of the three branches into which, according to Ammianus, 363 A. D., the Euphrates was divided.[2] It can be traced for a considerable portion of its original length, although in many parts it is completely dried up and even the banks obliterated. We find the first traces at Babylon. Abu-l-Fîda, with other Arabian geographers, says that "the Euphrates divided into *two* branches at Babylon, one flowing north of Babel, the other, called the Nil, flowing between Babel and the Mujeliba and Kasr."[3] From Babylon the Nil flowed nearly due east to El-Ohemir and Nilijeh[4] and in the ruins of the latter town Loftus found the remains of a bridge which had apparently spanned it.[5] The canal then turns more southeast, towards Nuffar, where we find it dividing the mounds into two parts. Just beyond this point all traces are lost in a swamp, the Khor-el-Affej; and to the south of Nuffar there are no further remains of the Nil, as such, until we reach Warka. Here Loftus found an ancient canal, known as the Nil, which passed along the eastern side of the mounds.[6] There is, however, a large canal, called the Shat-el-Kahr, filled with water at certain seasons of the year, which runs through the southern part of the country. This we must accept as a continuation of the Shat-en-Nil, in so much that it represents the lower portion of the ancient bed, or perhaps a later deviation of it. According to Loftus this Shat-el-Kahr is merely one of three branches of the Yusufijeh, a canal leaving the Euphrates at Diwanijeh.[7] Professor Hilprecht, on his map of Babylonia shows it as flowing southward from the lower end of the Khor-el-Affej, with a connecting canal — the Yusufijeh — running from Diwanijeh.[8] This is undoubtedly the proper arrangement ing of the streams, and not only shows that the two great canals were in a direct line with each other, but supports the theory that the Yusufijeh was constructed only as a feeder from the new channel to the older one.[9] With the exception of the trace of the Nil at Warka, we have

[1] Ainsworth, Euphrates Expedition, II, 18. This however refers principally to the *new* Nil canal, constructed under Mohammedan rule. In making this the older canal was cleaned out from Babil to Nilijeh and from there extended to the Euphrates. (Le Strange Lands of the eastern caliphate, p. 72 f.) See also note 9.

[2] Ammianus, XXIII, 6. He does not say where the division takes place. In all he speaks of *five* waterways: "This district is watered, . . . by the Narses (Nahr Sares ?), by the Royal river (Nahr Malca), and by that best of all, the Euphrates, *which divides into three* branches, and is navigable in them all." Later on, XXIV, 2, he mentions that the river "at this point" (Macepracta), is drawn off in large canals. "Another branch . . . the Nahamalca, . . . passes by Ctesiphon."

[3] Ainsworth, Euphrates Expedition, II, 17. This is the position assigned to the canal by Koldewey in his map of Babylon, published by Delitzsch (Circular 1, Deutsche Orient Gesell., 1899) and reproduced by Hilprecht in Excavations in Bible Lands, map 2. Kiepert likewise shows the Nil south of Babel. Weissbach, however, in his "Stadtbild von Babylon" (Alte Orient., V, 4, 1904) makes the bed of the Nil pass around the eastern side of Babel, although he also shows another "ancient canal" between Babel and the Mujeliba. On Chesney's map 8 the canal turns off some distance above all the mounds.

[4] *Ibid.*, II, 18.

[5] Loftus, Travels, 82 f.

[6] *Ibid.*, p. 237. Also map op. p. 160. As at Nippur, the mounds here are divided into two parts by a wide depression. (See Loftus, p. 164, and Dr. Banks, the latest visitor, in the Biblical World, April, 1905.)

[7] *Ibid.*, p. 160.

[8] Hilprecht. Excavations in Bible Lands, map 1. Redrawn in his "Ausgrabungen in Assyrien u. Babylonien," Part I.

[9] According to Le Strange, the canal which all modern travellers have called Shat-en-Nil, was in the 10th cen-

in the southern end of Babylonia no clue to the continuation or ultimate outlet of the Nil-Kahr channel. The whole of this part of Babylonia was once a network of small branches or outlets of the Euphrates, forming its delta.[1] The Tigris, although it had separate outlets into the Gulf, at the time when civilization first began to take root in the valley, ultimately emptied into the Euphrates near Ur (Mugheir), and added its various branches to the latter's. The old bed at Warka is one of the main outlets of the Euphrates. From this place it ran down past Mugheir to the Gulf. The other less important branches have long since disappeared.

9. From the cuneiform records we obtain the most authoritative data, respecting the ancient course of the Euphrates. The city of Sippar whose ruins are represented by the mounds of Abu Habba, now nearly six miles from the river, once was situated upon its banks as it gave its name to the river *below it*, just as the Tigris below Kut-el-Amarah is called the River of Amarah. The name of Sippar was written ideographically Ud-kib-nun-ki and the river was called the Naru Un-kib-nun-ki, signifying the "Euphrates of Sippar." This name Naru Ud-kib-nun-ki became the usual designation of the Euphrates throughout Babylonia.[2] At some later time the name was changed to Naru Puratu but still continued to be written with the same ideographic characters as before. In 1893 Doctor Haynes discovered at Nippur a collection of tablets, the records of Murashû Sons, a business firm of that city. Among them are sales and leases of land in the neighborhood of Nippur, which give the names of gates and canals of that city in their description of the different properties. A number of the texts — seventeen thus far published — mention the Euphrates in such a way as to leave no reasonable doubt that Nippur was situated upon it.[3] In fourteen of them the Euphrates is called the Euphrates of Nippur, and is written Nar Udkibnunki-Enlilki,[4] *i. e.*, "Euphrates of Sippara and Nippur." It is certain that the dual name implied that the stream connected the two cities Sippara and Nippur, but the reason for adding the last name is not so clear, because from three other texts of the same series, which give the name *without* the Nippur, we see that the river was known to the Nippurians and was accepted as a sufficient legal identification among them, by its simpler name of "Euphrates of Sippar," Naru Udkibnunki.[5] During the fall of 1899, on the last campaign, Doctor Haynes found a fragmentary tablet containing certain diagrams and inscriptions. It proved to be a portion of a map of Nippur itself, made in the first half of the second millennium B. C., its paleography indicating that it belongs either to the end of the Hammurabi dynasty or to the beginning of the Cassite period.[6] On this map are shown portions of the walls,

tury the Nahr-en Nars, called from Narses, the Sassanian king who constructed it after he came to the throne in 292 A. D. It left the Euphrates near Hilleh and "after watering Hammam Omar (El Ohemir?) and- other villages, reached the town of Niffar." At the same time a Shat-en- branched off *above* Babil, ran passed An-Nil (Nilijeh) and thence to the Tigris into which it emptied by two channels, the Upper and Lower Zab. ("Lands of the Eastern Caliphate," p. 72 f.)

[1] Cf. Fig. 1.

[2] Cf. Hommel, Geographie u. Geschichte des alten Orient, p. 265.

[3] These texts are published in Hilprecht-Clay. Business Documents of Murashû Sons, IX, p. 76, and more particularly in Clay, B. D. M., X, p. 70.

[4] Enlil-ki, the city of Enlil, or Bêl, was the ideographic writing for Nippur. The ending *ki* signifies in each name "city."

[5] As all the tablets belong to the fifth century B. C. we must infer either that the more ancient channel from Sippara via Kutha and Kis still was kept open or that the newer channel via Babylon and Kis was meant. At this late date the latter is the more likely, although we might wonder why in that case Babylon was ignored in the name of the river, when it was at that time far superior to Nippur. In my opinion the name Euphrates of Nippur is to be explained as a mere localism. The river originally was named after a city and we might expect that at Babylon it was called the Euphrates of Babylon — indeed we might see a reminiscence of this in Ptolemy's "River of Babylon"; or at Surrippak the Euphrates of Surrippak. (Cf. Hommel, 'Geographie des alten Orient,' p. 264.) In the same way the Nippurians called it the Euphrates of Nippur.

[6] For the date of this plan and other Assyriological data I am indebted to Drs. Ranke and Clay.

moats, gates of the city and the temple and several minor buildings, with the names of most all of them. Among others there is shown a canal coming down from the northwest and passing around the eastern side of the city. This canal apparently is marked "Naru Udkibnun-ki," while a canal shown occupying the position of the Shat-en-Nil, is called simply a "moat." The results of the excavations indicate that a large waterway did pass around the eastern walls of Nippur. Thus the depression through the center of the mounds was an artificial moat which afterwards became the bed of the river and finally of the great canal made in the efforts to keep communication open to the city.[1]

10. Other Babylonian texts record two other cities on the Euphrates further down its course, the ruins of both of which are approximately on the line of the Nil-Kahr channel. The first of these are the mounds of Fara, about thirty miles to the southeast of Nippur. They have been recently explored by the Deutsche Orient-Gesellschaft, and have been identified as the ruins of Surrippak. This is mentioned in the Babylonian account of the deluge as "the city of Surrippak, a city which thou knowest, which is situated on the banks of the Euphrates."[2] The second city is Larsa, the modern Senkereh, fifteen miles to the southeast of Warka. In one of the letters of Hammurabi, that king "orders the clearing away of the water-plants which had obstructed the course of the Euphrates between Ur and Larsa."[3] The river therefore after leaving Erech (Warka) either turned towards Larsa and thence southward to Ur, or else these these cities were on separate branches or mouths of the delta. This arrangement is the one I have shown on the sketch map (Fig. 1).[4] One branch made an arc to the southwest in nearly the line of the present channel, and another flowed past Larsa and Tel Medineh, reuniting with the last named one near Ur. Still another one of these old mouths must have existed farther to the east upon the banks of which were Udnun, Gischu and Shirpula.

§ 3. The Topography of Nippur.

1. Nuffar or Niffer is the modern name of the mounds covering the principal remains of the ancient city of Nippur. It is situated in lat. 32° 7′ 3″ N. and long. 45° 10′ E. (Greenwich); about 100 miles to the southeast of Baghdad and nearly 20 miles from Diwanijeh, the nearest town on the Euphrates. To the west and south stretch the Affej marshes. In summer these are merely scattered pools of water connected by a number of narrow winding passages, bordered by a dense thicket of reeds. The spring floods transform this swamp into a vast expanse of water, unbroken but for numerous palm trees and little patches of land, sustaining a few huts and tiny villages, which lift themselves above it. This flooded area extends from the Euphrates to Nuffar and in some years almost converts the latter into an island. For many hundred years the old city has been deserted, its ruins acquiring an evil name among the neighboring tribes of Arabs. The nearest fixed village, with the exception of a small settlement belonging to a Sheikh Sha'een, is Suk-el-Affej, a market town on the borders of the marsh, four miles to the south.

2. Nippur was divided into two parts. First there was a considerable group of large and imposing buildings, the official city, which is the part represented by the present mounds. Then there was an outer city, or more properly speaking, a suburban district, given up entirely

[1] A full description of this map and its application to the actual discoveries of walls, gates, etc., made during the excavations will be given under the heading § 3. Topography of Nippur, *seqq.*

[2] Hommel, Geographie, p. 264, 353.

[3] Johns, Babylonian and Assyrian laws, etc., p. 321.

[4] To the various authorities upon whom I have drawn for the construction of this map, I must add M. de Morgan's study on the geography of Susiana, in Delegation en Perse, Memoirs, I, pp. 1 32.

to dwellings. The arrangement was similar to that of our own cities; open residential suburbs surrounding a central solidly built district, which in the case of Nippur was devoted to religious observances, to the administration of the government, and to business.

3. THE OUTER CITY extended for a considerable distance around the inner part. Here were the villas of the merchants and wealthy men, with a far greater number of less pretentious houses occupied by the artificers, agriculturists and laborers. There are very scanty remains of this portion of the city, and these are only suggestive of the general character of the place and do not help us to define its precise arrangement or details. There are several natural reasons for this condition. In the first place the dwelling houses were built much less substantially than were the great public buildings. Even the better class of houses would have walls of *tofa*[1] or sun-dried brick, while the homes of the poorer class naturally would be constructed even more slightly, in most cases being entirely of reeds from the river banks.[2] These houses furthermore would not be crowded closely together, but scattered through the midst of the gardens and orchards which were to be found here. They thus were exposed to the full effects of the weather and would speedily fall into absolute ruin if not constantly repaired.[3] The mud washed down from the walls was spread over the surrounding earth and the accumulation of debris from this cause alone has raised the level of the ground in the neighborhood of the mounds from two to three meters above that of the plain.[4] This accretion and the quantities of potsherds, bits of glass, bricks and pockets of ashes, which are thickly strewn over and below its surface, are the sole indications of the previous existence of the populous suburbs. Dotting the plain in the neighborhood of Nippur are a number of little isolated hillocks, two to three meters in height. In one of these, a mile and a half to the southwest, Doctor Haynes found fragments of pottery, lumps of clay with seal impressions on them, and several smaller objects. Another, which we excavated a short distance to the east of the northeast city wall, was a mass of disintegrated masonry. These ruins are the remains of towers or guard houses placed around the outskirts of the suburbs and also at various points through it.[5]

4. THE INNER CITY has been preserved better owing to the radical difference between it and the outer city. The buildings were grouped together and much larger. As they were intended to be permanent, they were kept in perfect repair. The more important of them had the outer walls faced with baked brick, in addition often laid in bitumen. At different times when Nippur fell into the hands of an enemy, was sacked and then abandoned, the buildings did fall into temporary ruin, but the débris was retained by the heavy enclosing walls and not dis-

[1] *Tofa* is a mixture of clay and chopped straw well worked together with water. It was not moulded into bricks but laid up *en masse*. It was similar to the *adobe* construction of the southwestern United States.

[2] The system must have been like that employed by the inhabitants of Iraq-el-Arabi to-day. First small bundles of reeds are planted in two parallel rows, spaced according to the required length and breadth of the house. Then the upper ends of the opposite pairs are drawn together and firmly fastened, making a series of elliptical arches. Smaller bundles of reeds are then bound horizontally upon these, tying them together. Into this framework loose reeds are woven or else mats made of split reeds are spread over it. During the cold rainy season a layer of mud is spread over the mats for additional warmth and dryness.

[3] In Baghdad there are large numbers of *tofa* and sun-dried brick houses. After every rainstorm a number of them collapse into the streets; and fresh coats of mud on the external walls and new layers on the roofs are being added constantly.

[4] It is this elevation which prevents the water during the flood season, coming nearer than about a mile of the mounds hemselves, although as I have said, it nearly encircles them at such times.

[5] They correspond to the modern Arab *meftul*. While primarily intended as watch towers for the men engaged in looking after the orchards, fields and flocks, they served equally well to give notice of the approach of an enemy. In the latter event the people would have time to collect their herds and movable property and retire within the walled city.

tributed over the surrounding plain to such a large extent as that of the smaller isolated houses. When the site was re-occupied after such a disaster the accumulated débris was not cleared completely out of the buildings but its surface only was smoothed off to form a level bed for the new pavements. Such parts of the walls as remained were refaced or used as foundations for the new work, unless alterations in the plan of the buildings necessitated their removal. In either case the old materials were utilized. The present condition of the mounds

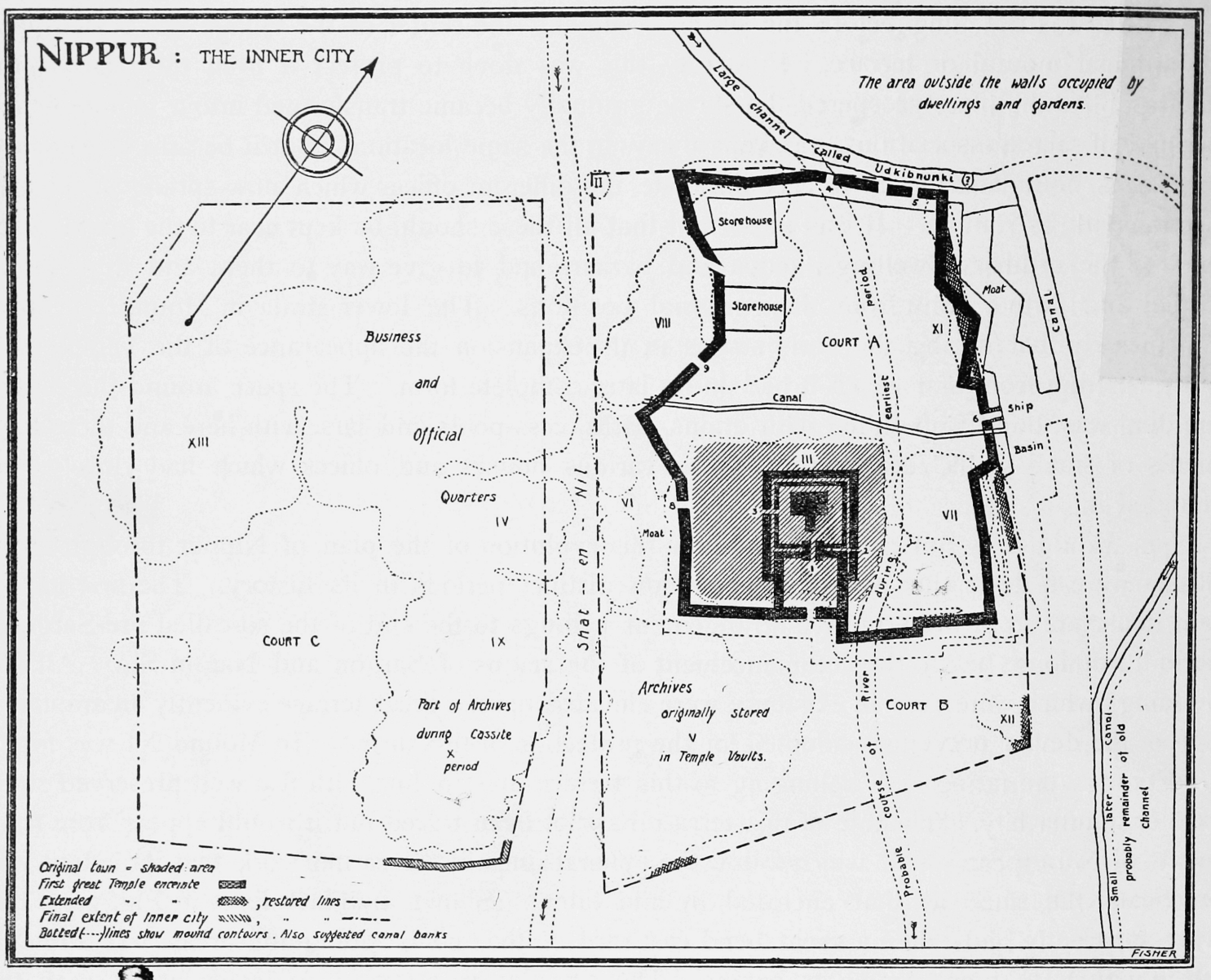


FIG. 2. Diagram of the topographical development of Nippur, showing the original site and the areas successively added to it.

is the result of the uninterrupted disintegration of the buildings after the final abandonment of the place. The chambers and streets gradually became filled up entirely, burying and preserving the lower parts of the walls and the pavements under the rubbish.

5. A deep depression called by the Arabs the bed of the Shat-en-Nil, subdivides the ruin-heaps of the inner city into two nearly equal groups. During the period when the plan of Nippur had reached its fullest development the group on the eastern side of this canal or moat was occupied exclusively by the Temple Complex, *i. e.*, the Temple with its storehouses, priests' dormitories and archive buildings. Previously, however, this area represented the whole extent of the city and Mound III,[1] forming its central feature, the site of the original settlement

[1] The mounds were numbered by Dr. Peters when he began excavating here in 1889. He adopted the scheme of numbering each mound in the order in which it was examined, for instance Mound I was the scene of the first excavations, Mound II the next and so on. As all the records of that and following campaigns refer to these numbers, I have continued to use them. Any change made would tend only to create confusion and perhaps result in errors.

beside the banks of the Euphrates. The latter at this time probably passed close to the eastern borders of the present mound, as I have indicated on the plan (Fig. 2), on which the shaded area shows the extent of the earliest settlement. The large beds of wood ashes and animal bones found in the lowest stratum of the temple Mound III are evidences of this early occupation. These beds, of varying thickness, are horizontal and determine the surface of the plain at the date when the first habitations were built upon it. This area was surrounded doubtless by some sort of defensive wall but we know absolutely nothing of its character.

6. It was not long before the shrine occupying the center of the village was raised upon an artificial mound or terrace. Evidently this was done to protect it from the yearly inundations. As the place prospered the shrine gradually became transformed into a temple which, because of sacred associations, was kept always in the same location. But it became necessary to extend its boundaries so as to accommodate the different offices which now sprang up in connection with its routine. It was important that all these should be kept near to the temple itself and so the ordinary dwellings, shops and bazaars had to give way to them and were forced farther and farther away from their original positions. The lower strata in Mound III prove conclusively that during the early stages in its expansion the appearance of the Temple was quite different from that which it had in its later complete form. The space around the central building was found to be filled with drains, baths, cess-pools and jars, with here and there fragments of small walls, the remains of the various houses and offices which had closely surrounded it.[1]

7. While it is not possible to follow this evolution of the plan of Nippur through all its phases we can determine its extent at certain distinct periods in its history. The first important departure from the primitive arrangement belongs to the end of the so-called pre-Sargonic period, not long before the commencement of the reigns of Sargon and Naram Sin. All the buildings which were then in existence were elevated upon a great terrace evidently an amplification of the device previously adopted for the protection of the shrine. In Mound XI was found a portion of the facing wall belonging to this terrace and in line with it a well preserved staircase or approach. The whole of this terrace has not been traced but it would appear from fragments of Naram Sin's wall, which follow the general lines of the earlier work, that its extent was practically the same as that enclosed by him later. (Shown by black lines in Fig. 2.) The river apparently had made a great bend eastward of the town, adding the areas VII and XI, which with VIII, now formed its extent. The city-plan was roughly a quadrilateral, with the main buildings grouped in the form of an L along its southwestern and southeastern sides. The Temple formed the angle of this L, while VII and VIII were occupied by Temple storehouses and other buildings of the town. The rest of the area was a great open court, "A" between VII, VIII and XI.[2] Extensive changes were made at this time in the Temple area. The sanctuary thus far had been only a low platform faced with a wall of plano-convex baked bricks. This now gave place to a massive pyramidal structure with several receding stories. The other buildings were removed to a greater distance from the sanctuary and the space around and in front of it laid out as two courts, arranged on an axis running N. W.–S. E. These were surrounded by a second wall, in addition to the main enclosing wall. That portion of the wall around the inner court, *i. e.*, the sanctuary, was double and contained a series of long narrow chambers in which were deposited the archives of the Temple.

[1] See Plates 16 and 17 for positions of these drains, etc., and also full description in Part III, The Temple of Bêl.

[2] In Plate 21 is given a photograph by Doctor Haynes looking across this court from XI towards the Temple in Mound III.

8. The next period of which we have definite remains is that of Naram Sin. In Mound XI a part of his enclosing wall was uncovered and found to follow the general lines of the previous work. It had a curious zig-zag contour, which probably did not originate with his work. Because the large staircase was utilized by him as an approach to a gate, it is reasonable to suppose that he adhered to the former line of circumvallation, entirely rebuilding the wall however, and making the angles true right angles.[1] He used large square bricks, flat on both sides and with his name and titles stamped, not inscribed, upon them. They are among the earliest of this regular stamped type found at Nippur, Sargon, his father, having introduced the use of brick stamps.[2] Naram Sin made no changes in the extent of the Temple enclosure, which from this time, until altered into the great fortress, remained practically the same. At the eastern corner of the stage-tower there is a solid L-shaped mass of Naram Sin's bricks just below the level of his pavement, clearly intended as a foundation for some new work on the tower itself. There are no remains of such work by him but, as the whole of the outer casing walls of this structure were several times rebuilt after his date, we can account for their absence.

9. So far as the topography of the city at this era is concerned, we may consider the enceinte of Naram Sin and the preceding pre-Sargonic one, together. We are fortunate in having contemporary material on which to work. In the fall of 1899 Doctor Haynes found a fragment of tablet on which were drawn the buildings, walls and canals of a town, with their names.[3] This was identified later by Professor Hilprecht as a plan of Nippur. Both Doctors Ranke and Clay agree in assigning this tablet to the first half of the second millenium B. C. because of its paleography. The map must then either have been prepared from historical data as a record of the plan of the enceinte at a former period or else it was a copy of an earlier map, because its topographical details prove that the plan is not the enceinte as it existed in the period to which the map has been assigned, but as it was in the periods which we have under discussion.[4] The enclosing wall has the unmistakable zig-zag course characteristic of the pre-Sargonic and the Naram Sin periods. The wall in its next reconstruction, which was also its last, was straight and regular. The temple is shown with the two courts which were its features from the earliest construction as a separate walled enclosure down to the time when it was altered into the fortress. On Plate 1, I give a photograph of the original map (1) and beside it a drawing of it to the same scale (2), on which is indicated as far as possible the interpretations of the various parts.[5] Although the edges and corners of the tablet are badly broken we can determine approximately its original size from the two portions of the edges which remain intact.[6] One of these is at the top and the other near the lower left-hand break. From these we see that the tablet was intended as a plan of the Temple enclosure only and included

[1] It is important to remember that such main features of Nippur — and the same can be said of all Babylonian cities — as the Temple gates, etc., were fixtures and seem never to have lost their identity. Of course this would not hold good after the country fell into the hands of strangers, who had no knowledge of the ancient traditions and no respect for them.

[2] The pre-Sargonic bricks are plano-convex, and none of those found at Nippur bear any inscription. But both De Sarzec and Banks, excavating at Telloh and Bismya respectively, have found several examples of the same type *with* inscriptions.

[3] See Plate 1.

[4] This was a period of great literary development, when the archives of the Temple were increasing rapidly and every possible care was taken to preserve them. It would be quite natural, therefore, to find them making copies of such of the older ones as were especially valuable, just as was done in Assur-ban-Apal's reign, centuries later.

[5] It is to be regretted that a complete translation of this most important tablet has not yet been published, although it is now six years since Doctor Haynes discovered it. For the translations I have used on my drawings, with the one exception given in Note 1, p. 13, I am indebted to Doctors Ranke and Clay, who carefully studied the tablet on a print from Doctor Haynes' negative, the tablet itself not being available.

[6] About 15.0 cm. × 20.0 cm. restored.

the space now covered by Mounds III, VI, VII, VIII and XI, V probably being excluded. In the center is written En-lil-ki, the ideogram for Nippur.[1]

10. Of first importance to us are the lines of the enclosing wall. We can trace this along the top of the map, and on both sides as far as the tablet remains intact. The scribe has been careful to show every variation in the contour, although as he did not use a scale, they are not in proportion; and has drawn all the lines with a straight edge, not free-hand. As additional data he has very carefully marked the length on each section of wall.[2] The upper edge is the northwest wall; north being at the upper right-hand corner.[3] Of the five lines drawn here the first or upper two are the banks of a canal which apparently bears the name Naru Udkibnunki[4] or "Euphrates of Sippara" and hence is the old channel of that river. It approaches the wall from the northwest, follows it as far as the north corner and then makes a turn a little east of north[5] and is lost in the broken corner. The next pair of lines represent the northwest wall itself. This is pierced by three gates, each one marked with its name. The one nearest the west angle is called the Abullu GULA.[6] The two other names are too indistinct to be read satisfactorily. Inside the wall there is still a fifth line, which extends from the north corner along the whole length of the northwest and part way down the southwest side. The only explanation of this is that it indicates a row of rooms along the inner face, similar to those actually discovered along the inside of the northeast wall, belonging to a subsequent period. Between the outer face of the wall and the river there is a terrace giving access to the different gates along the wall.

11. The northeast wall makes a right angle with the northwest wall, and after several zigzags finally turns out sharply to form a great bastion in which was placed a gate. Unfortunately the name of this gate is broken away almost entirely. It was at this spot, however, that we found the remains of the great staircase which was an approach to a gate in the wall. From its position on the waterway over which passed most of the traffic of the country this gate must have been undoubtedly one of the most important of the city's entrances and it may have been the Abullu E–MAH or E–GAL–MAH of the inscriptions, especially as the latter was the largest gate of Nippur.[7] Outside the wall there is a wide moat,[8] with a terrace between it and the wall. This moat ends abruptly at its upper end, but the drawing here suggests a sort of sluice connecting the moat with the river. Both terrace and moat follow the contour of the wall, the moat widening out opposite the bastion into a basin. This in turn is connected with a canal, "Naru . . . .",[9] which runs in a straight line from the main stream near the north angle, parallel to the general trend of the wall. Beyond this point the tablet is hopelessly ruined.

[1] Cf. Hilprecht, Explorations in Bible Lands, p. 519.

[2] As for example the "30" near lower left-hand corner.

[3] With the map placed in this position it is easy to compare it with the expedition maps of Nippur and plans of the temple, as well as with Field's relief map of the mounds given in Peters, Nippur, I, 194; Hilprecht, Old Babylonian Inscriptions, Part I, pl. XV; and in his Explorations in Bible Lands, p. 305.

[4] According to Doctor Ranke, who reads it thus, the name is quite clear with the exception of one sign ("nun").

[5] About 150 meters east of Mound VII we found the remains of an ancient channel, doubtless the continuation of this stream, in a later much contracted form. (See Fig. 2.)

[6] It is mentioned in several of the Murashû texts Cf. Hilprecht-Clay, Business Documents of Murashû Sons, IX, 75 and Clay, B. D. M., X, 69. In order to avoid needless repetition in footnotes it is sufficient to state here that all the names of gates, etc., mentioned in this section are from these two volumes.

[7] Cf. Hilprecht, *Sunday School Times*, May 26, 1900. The name Abulla E–MAH may be translated: "Gate of the high (mighty) House," *i. e.*, the Temple.

[8] It is marked simply *hiritum*, lit. "dug out," a ditch, or moat.

[9] The blanks here and in other names indicate that the rest of the name is either missing or illegible.

12. The southwest wall is the most irregular of the three. It forms with the northwest wall a curious acute angle pointing west. On this side there are three gates, making seven in all given on the map, exclusive of such as may have existed on the missing side. None of the names of the last three have been translated. In the Murashû texts, in addition to the two already mentioned we have the names of five gates: Abullu Shi-bi-Uru(ki)-ku, or Gate of Uru (*i. e.*, on the route to Uru); Abullu LUGAL–SI–DI; Bab Ha-an-ba-ra; Bab-ka-lak-ku; Bab ma-la-hu and another, Babu sha Gu-bar-ru, which was probably a sluice-gate.[1] Outside this wall we have a terrace and a wide moat equal to that along the northeast side. The terrace stops near the end of the row of rooms on the inside while the moat continues on around the west angle, finishing against the northwest wall to the left of the point where the river approaches it. This moat like the one on the northeast side is marked simply a "ditch" or moat and it is evident that at this time no important stream, certainly not a great canal, was to be found here. The so-called Shat-en-Nil which now runs along the western edge of the eastern group of mounds must be a much later development of this artificial moat.[2] The lower portion of the map is gone completely but just to the right of the temple the break has followed incisions made by the stylus. These lines may represent the inner face of the southeast wall, in which case the main enclosing wall coincided with the southeast wall of the outer court.

13. The damage to the lower part of the map has fortunately affected but slightly the plan of the Temple. The two courts are shown very clearly, with a name inscribed in each, E–KUR in the inner court and E–KI(DI)–ZU[3] in the outer one. At first examination it would appear that the scribe has made a mistake in his drawing of the temple, for while he shows two lines around the E–KUR court he gives but one around the E–KI–ZU. This is not, however, an error, but a method adopted by the scribe to indicate the peculiar construction of the Temple walls. Doctor Haynes' excavations showed that the wall around the E–KUR instead of being single is really a double one. There are two separate walls with a space between, forming a series of long narrow chambers that were used for the storage of the Temple archives at this period. Each line then, in the Temple plan, stands for a wall and as we find that the same is true of *all* the other buildings given on the plan, we are led to the conclusion that the scribe adopted this method in order to make a distinction between the main wall and the walls of single buildings within the enclosure.[4] As additional proof of this we can note the different ways the scribe has of drawing gates. In the main wall where he has used double parallel lines every one of the seven openings is indicated by two cross strokes which run entirely through the wall, and the lines of the latter where they cross the opening have partially been erased. In the three gates shown in the Temple, the cross strokes are made on each enclosing line quite independently of each other. Then, too, the gate on the right side, which in any other interpretation of the drawing might appear to be entering a solid wall, becomes nothing more nor less than a gate giving access to the archive chambers built between the two parts of the southeast wall of E–KUR. The gate connecting the two courts was found in an excellent state of preservation in the position shown on the old plan, as were portions of the walls of the outer court.

14. The building in the west corner referred to above, bears the name "House of . . . ,"

[1] Cf. Clay, B. D. M., X, 69.

[2] The conversion of this moat into a great channel probably took place during the reign of Samsu-iluna. (See paragraph 16 *seqq.*)

[3] Doctor Ranke. Thus E–KUR is the name of the chief court only and not of the entire temple. Compare, however, Hilprecht, Explorations, pp. 464, 465.

[4] Curiously enough the scribe has *started* to draw a *second line* around the building in the west corner, plainly to be seen in its lower side. Having then changed his intention he has tried to erase the extra line.

and probably accommodated the numerous priests connected with the temple worship. The one next to it was undoubtedly a storehouse, as we gather from its name, "A fifth . . . of the God . . . . ,"[1] that is containing a fifth part of the tithes or revenues of the God for whom it was reserved.[2] Between this building and the temple is a small canal shown traversing the enclosure and passing out through the walls on either side ; just below the great gate on the northeast. This was a drainage canal, for carrying off the water and wastes from the temple and other buildings bordering on it. As we shall see later several of the drainage systems in the temple area were graded in this direction. To the right and left of the temple the tablet is so broken that little can be said of the arrangement here but there is no indication of any buildings such for example as those shown in the west angle.

15. Our last period in the development of the eastern side of Nippur has been assigned to the reign of Ur Gur. As we have mentioned above the character of the new wall was changed and the area enclosed by it somewhat increased. It has been traced throughout the entire length of the northeast side, some 800 meters. Instead of turning at the end of Mound VII as formerly, it continued on to XII and then turned at an oblique angle towards the south, so as to include Mound V, along the southeast edge of which a small portion of it was discovered accidentally. Throughout the rest of the northeast and northwest sides it followed the direction of Naram Sin's wall. At the upper end of VIII there is a narrow ridge representing its course at that point. We have as yet no trace of it along the southwest side, but as the wall was straightened here as it was in XI and VII, it doubtless continued in a straight line along the southwest sides of VIII, VI, and V. In Mound XI the new wall was found directly over Naram Sin's work, so that the characteristics of each could be compared. This "Ur Gur" wall was quite straight in XI and also in VII and XII. Its outer face was decorated with panels varying but slightly in their width and spacing. As the Naram Sin wall made great angles at intervals along its course, only those portions of it which lay directly below the new work could be used as foundations. The lower portions of the projecting angles which were too solid to be removed easily were covered up by the new terrace which was built along the outer face of the wall, following the previous scheme. The surface of the plain and consequently of the water in the canals and moats had been rising slowly above its original level so that in each reconstruction of the wall and terrace the level of the latter had to be raised. An important alteration was made in the appearance of the Temple without, however, affecting its size. Instead of the two courts remaining on a level, the inner one was filled with a well packed mass of worked clay or *tofa*, raising it some distance above the outer one. The walls remained exactly the same as before with the exception that the one around the inner court had now the character of a retaining wall. The gate between the two courts was retained but a long incline or series of low slant steps was constructed through it in order to give access to the elevated inner court or platform. On the latter the Ziggurrat was remodelled around the original core. It is not probable that this had more than four stages now or at any later period. The small amount of débris remaining above the topmost of the three stages discovered by Doctor Haynes, and also the rapid decrease in the size of the successive platforms would preclude such an arrangement. The different stages were reached by means of staircases. The first or lowest platform had a long wide flight starting in the court near and to the left of the gate between the two courts. The upper stages had

[1] Names of both these buildings by Doctor Ranke. The full titles will doubtless be given in the volumes of Series A, in preparation.

[2] The principal dieties worshipped at Nippur were Bêl (Enlil) and Bêltis. According to Hilprecht, Explorations, p. 480, there were "besides Bêl, at least twenty-four other dieties" having "houses in the sacred precincts of Nippur."

smaller flights arranged in pairs placed against the façade of the building. The change in the level of the inner court converted the long wall-chambers into vaults accessible only from above and the archives which had, moreover, outgrown this limited space were removed in their entirety to the added area V. A second court "B" was enclosed in the lines of the new walls. Adjoining the southwest side of the Temple was built a palace—for the patesi or chief priest—probably on the site of an earlier one. Part of the ruins of a palace were uncovered here by Doctor Peters in 1889. The rest of the complex was occupied by storehouses and subordinate structures.

16. The eastern section of Nippur, whose growth we have traced thus far, now became devoted exclusively to the religious department of the city life and formed what is called the Temple Complex. All other civic offices were now to be found only beyond the moat which ran along the southwestern side of the complex. It must not be supposed, however, that the western part of the city did not begin to be settled until this change occurred. On the other hand we find here in the lowest stratum, beds of wood ashes and animal bones on the plain level similar to those which were marked features of the lower levels in Mound III. Pre-Sargonic wells and fragments of bricks have been found also but not in connection with any walls or great buildings. These are unmistakable evidences that this area was occupied by a portion of the inhabitants, doubtless the same class of workers that formed the mass of the population, which lived entirely outside the walls, after the settlement had progressed to the city stage. But it was not until the entire eastern section was usurped for religious purposes that the western part began to be built up with massive buildings, and assumed any importance. This change was gradual, just as was the growth of the temple itself. We cannot say just when and where the first durable buildings were established, but at the southern end, in Mound X, there was discovered a long wall in which several distinct periods were distinguishable, showing extensive additions in area to this portion at different times. An examination of this part of the site shows us that instead of being divided into isolated mounds like those belonging to the eastern side it is really one great mound. Such partial divisions as do exist are made by gulleys, washed out by the rains. This massiveness in itself is an indication that the buildings located here were crowded together and were not governed by established custom in usage in either their shape or grouping. In Fig. 2 I have indicated the probable boundaries of this portion of the city during the period of its fullest extent. A third court "C" is included between the two arms of the L-shaped mass of buildings. Besides the expansion of this side there were no radical changes made in the plan or arrangement of the city, until the Cassite period, when it would appear that the archives of the Temple had increased again to such an extent that a division of them was necessary. A large part of them were transferred to Mound X, in the newer quarter of the city across the Shat-en-Nil. A large quantity of tablets—exceeding in number those so far found in V—relating to the current business of the Temple, such as receipts for tithes and taxes, expenses, lists of servitors, salaries, etc., were discovered here.[1] During the reigns of Sinmuballit, father of Hammurabi and of Samsu-iluna, the latter's son, the walls of the enclosure were repaired and made higher. In addition to his building operations Samsu-iluna made an important change in the topography of the city. He diverted the course of the river from the old channel to the east of the walls to a new one running *through* the city, *i. e.*, between the Temple complex and the business district. A small cone of this monarch found in the débris near the east corner of the inner court of the Temple recorded these changes and this Professor

[1] A portion of these have been prepared for publication by Professor Clay, and are to be issued shortly in Series A, Publications Bab. Ex. U. of P.

Hilprecht has translated in part as follows: ". . . he (Samsu-iluna) raised the wall of Bêl, . . . surrounded it with marshy ground (*apparam*), dug the Euphrates of Nippur, and erected the dam of the Euphrates of Nippur along it."[1] The fact that the wall was surrounded by artificially made "marshy ground," which might be taken to mean something in the nature of a moat, shows that it could not be the wall around the inner court[2] which is referred to but the main one around the whole Temple enceinte. The words referring to the river are interesting. He *dug* the river, that is, a new bed for it; deepening and enlarging the wide moat along the western side of the enclosure and diverting the water into it by means of a dam across the old bed. This explains the otherwise peculiar phraseology, "dug the Euphrates" and then "erected the dam of the Euphrates *along it*." For since the old stream turned east of the eastern group of mounds and the moat, the "Shat-en-Nil," passed to the west of them (see Plate 1–2, and Fig. 2), such a dam *across* the old bed at the bifurication near the west angle would naturally extend *along* the eastern side of the new channel. Hence, too, the repetition of the name of the river, which belonged to the old as well as the new bed.[3]

17. The history of the last millennium of Nippur's existence as a city is a record of decay and constant struggle against extinction. Some time before this Babylon had gained the leadership over the other cities and now was established securely as the political and religious capital of the country. This supremacy it maintained until the final overthrow of Babylonia at the hands of foreign invaders. The period that followed was one of mobility and change. Persians, Greeks, Seleucids, Parthians and Romans in turn overran the country, eradicating its ancient customs and despoiling its sanctuaries. Nippur already had suffered severely from the growth of Babylon and now its passing out of history was both rapid and complete. But one thing kept it for a time alive under the new régime. The military commanders recognized its strategic value and converted it into one of the numerous strongholds built by them at various points throughout the country to protect their conquests. The old Ziggurrat towering above the rest of the city was selected as the site of the fortress. Enlarged and with great flanking wings or buttresses added to its four sides, it became transformed into a citadel. The space around it, formerly occupied by the inner court, was filled up with blocks of sun-dried clay, forming a platform on which the main buildings of the fortress were erected. The first line of defenses was built on the remains of the old Temple wall as a foundation and outside of this a second much heavier wall was constructed, separated from the inner one by a deep fosse or dry moat. The rest of the eastern enclosure, except some auxiliary fortifications in Mound VII, was abandoned and the old wall where it approached too near to the fortress was razed, the materials in it being used for the new bricks in the thick platform and heavy walls of the latter.

18. In its plan the fortress remained unchanged, but several minor alterations, chiefly in its inner level, are apparent during its occupation. These were due entirely to the rubbish,[4]

[1] Cf. Hilprecht, Explorations, p. 481.

[2] As Hilprecht believes. Explorations, p. 482.

[3] Hilprecht, Explorations, calls the new bed the Chebar (p. 481), which he previously (p. 412) identifies with the Shat-en-Nil.

[4] Although it would seem strange that rubbish should have been allowed to accumulate during the occupancy of a place to such an extent as we find evidenced in the fortress, it was after all a natural condition hardly to be avoided. The country around the town was absolutely flat, so that any depositing of rubbish outside the walls would in time only have resulted in huge unsightly and inconvenient dump heaps. In our Babylonian towns, where all the buildings were of perishable clay, subject to constant disintegration, it was simpler to allow the town to rise higher and higher on the débris of its former periods. Besides, the added elevation gave the town better protection against the floods and enabled it to be defended more easily. In Egypt, where the main buildings, the Temples, were of stone and practically permanent, while the rest of the houses like those of Babylonia, were of clay, we have the curious result of the main body of the town gradually rising in a ridge around the Temple which remained as it were at the bottom of a vast amphitheater.

washings from the walls and roofs, etc., which accumulated in the rooms, corridors and courts. During the later days the fosse between the two walls was filled up and a series of small rooms cut out in the solid outer wall. These all opened to the inside, so that the outer face of the wall remained unbroken. In several of these rooms were found burials of the common slipper type. In fact Nippur after this became a vast cemetery. Even when a considerable settlement was scattered over the surface of the mounds during the Jewish and Cufic periods, burials were made in the earthen floors of the houses while the latter were occupied as dwellings.[1] The remains of the two last mentioned periods, although they covered a large extent of surface, embraced no large buildings and have little architectural interest for us. The houses were small, with thin walls, and for the most part very incomplete. The Jewish stratum was traced by the quantity of pottery, chiefly inscribed bowls, buried singly and in clusters, in and near the houses. The Cufic stratum also contained pottery, with numbers of coins.[2]

19. Having now given this topographical survey of the mounds marking the city and their general contents we can proceed to a detailed description of the various walls and buildings which have been mentioned in it. It is not practicable to follow throughout any chronological sequence in our description of them in their relation to each other, owing to the unfinished state of our excavations in many parts of the mounds. It is natural, however, to deal first with the enclosing walls. Then we will take up the fortress, followed by the Temple which it covered. The palace in Mound I deserves a place by itself, while the minor buildings and excavations will be placed together.

[1] The same custom is prevalent to-day in Baghdad, despite the more or less inefficient efforts of the government to put a stop to it. For this reason it is impossible to gather statistics of the death rate, especially during the plague or other epidemics. In order to keep a death secret the family will bury the body under the pavement of the court, oftentimes only a foot or two below the surface.

[2] Several hundred silver coins of this period were found in 1899–1900. In two cases we found these in masses just below the floor of a room, evidently buried in a bag.

II. THE ENCLOSING WALLS.

§ 1. Introductory.

1. As a rule the extensive débris and walls of the last great building period at Nippur so cover the remains of the older Babylonian and pre-Babylonian work, that it is impossible to determine, from a mere superficial survey of the mounds, the definite character of the ruins which may lie beneath them. The chief exceptions to this are the ruins of the enclosing walls. Throughout the greater part of their history these were repaired and rebuilt in pretty much the same position and never overlaid with massive buildings. As a result the mounds appear as long ridges, impossible to confuse with any other sort of construction. Thus W. K. Loftus, in 1850, easily recognized the position of the northeast wall. He says "at a distance of a few hundred yards on the east of the ruins may be distinctly traced a low continuous mound — the remains probably of the external wall of the city."[1] This is Mound XI, and in a direct line with it the continuation of the wall can be traced just as plainly along the outer edge of VII. Loftus did not visit Nippur with any intention of excavating. In the following year, 1851, A. H. Layard, did come prepared to examine the contents of the different mounds, but ill health and a paucity of tangible results made him abandon the site after less than two weeks' work, without having attempted to solve any of its interesting topographical problems.[2] Nothing more was done at Nippur until 1889, when the first Babylonian expedition of the University of Pennsylvania began systematic excavations there under the direction of Doctor Peters. Unfortunately owing to trouble with the neighboring Arabs the work was terminated after "but little more than two months'" work had been done; and before the director had had an opportunity to examine the northeast walls.[3]

2. When work was resumed in the following year, Doctor Peters made some excavations in Mound XI and found it to contain the remains of "an enormous wall of Ur Gur, readily recognized by the characteristic small-sized bricks of that monarch."[4] In the summer of 1894 — during the third campaign — Doctor Haynes, at the suggestion of Doctor Peters,[5] who was then acting as scientific director,[6] undertook to investigate the wall discovered by his predecessor. By a series of trenches and tunnels during this and the next summer he discovered that below the wall of Ur Gur, was an earlier wall built of large sun-dried bricks, inscribed with the name of Naram Sin.[7]

[1] Loftus, Travels in Chaldæa and Susiana, p. 101.

[2] Layard, Nineveh and Babylon, chap. 24.

[3] Cf. Peters, Nippur, II, p. 110. I shall frequently be obliged in the following pages to acknowledge the use of material taken from the records of this campaign and to the two which followed it. Only within the last two years have these records been deposited in the Museum, and thus made accessible.

[4] *Ibid.*, II, p. 212.

[5] *Ibid.*, II, pp. 212, 372.

[6] Cf. Peters, The Nippur Library, in *Jour. Amer. Oriental Soc.*, XXVI, p. 151.

[7] Peters, Nippur, II, pp. 212, 372; Haynes' Reports, September 8, 1894, and August 3, 1895; Hilprecht, *Bab. Ex.*, Series A, I, p. 20 f. (note on p. 21). The data supplied by Dr. Haynes is of great importance to us for our understanding of the wall in its earlier periods, although later excavations have corrected the dimensions given by him in one particular. Doctor Haynes naturally supposed that the axis of Naram Sin's wall was the same as that of Ur Gur's and of the ridge of débris. He therefore, to determine the thickness, drove two tunnels through the wall perpendicular to this axis. Mound XI, however, represents only the débris of the later wall which, as already pointed out, was very different from the one below it. The main one of these two tunnels — in which the wall is shown more clearly — cut through one of the great projecting angles of the wall, so that his figures, being taken slantwise of the wall and at

During this campaign most of the time was spent in carefully exploring the Temple enclosure and it remained for the last expedition to explore more fully the outer walls. In October, 1899, Doctor Haynes began digging in the open space between Mounds VII and XI, in the hope of finding the ruins of a gateway in line with the ridges on either side. There was not a single clue on the surface to guide him in the search, and it was not until December that a long low wall of brickwork was found, which on further investigation proved to belong to the much-desired gate, or rather to a staircase which formed the outer approach to it—the gate itself having been demolished. After this had been excavated thoroughly and wide trenches extended for a considerable distance on both sides of it in an attempt to find its direct relation to the walls beyond the break,[1] excavations were begun along the line of wall in Mound VII. The Ur Gur wall was found and followed until it seemed to peter out in a mass of débris. In a small break[2] between VII and XII a finely preserved wall of baked brick was found built in between two parallel walls of sun-dried brick perpendicular to it. This suggested that an opening which had formerly existed in the wall here had been blocked up during a late period, especially as an old water-course was preserved at the bottom of the new work.[3] Work was stopped at this point and the efforts of the whole of our force directed upon the excavations in Tablet Hill. It only remained to connect up these scattered sections of the walls as far as possible, and this was done during the following March and April, under the direction of Professor Hilprecht.[4] The wall was then traced along its whole northeast side for a distance of nearly 830 m.[5]

3. In the course of his excavations in the open space between VII and XI, Doctor Haynes discovered traces which explain the non-existence of the wall in this break of 114 meters. It appears that for this distance the exposed portions of the old wall had been torn down, most probably during the period when the great fortress was built. At this time all the space north of III and VII was outside of the line of circumvallation as laid out by the fortress-builders. Hence they could avail themselves of the fine building materials in the old wall, from which to manufacture the quantity of bricks required by the massive style in which their buildings were constructed. The bricks were broken up and the clay reworked in a large "mortar-bed" on the spot, on and around the site of the gate.[6] Some of the water used in the mixing worked its way down through the parts of the wall which had been left undisturbed below the surface and completely disintegrated them. On this account it has been impossible to find any definite face

a point where it was much thicker, are excessive. The dimensions approximate more nearly those of the pre-Sargonic work below.

[1] This was unsuccessful, for the reasons given in paragraph 3 *seqq.*

[2] Due to the removal of the wall, probably at the same time as in the gap VII–XI.

[3] The bricks used in this wall have the yellowish color and general characteristics of all the later bricks such as those in the facings of the wall in X, the shrine west of the temple and in various houses and rooms of the upper strata.

[4] Professor Hilprecht arrived at Nippur during the afternoon of March 1, 1900, and assumed charge of the expedition from that time until the cessation of the work, May 11, ten weeks later.

[5] At this time one of the trenches made by Doctor Haynes on each side of the staircase was extended beyond the inner line of the wall, a furrow drawn from the ends of the wall in VII and XI serving as a guide. (See Plate 2[A].) But no face of wall was discovered.

[6] On Plate 2[A] the remains of this "mortar-bed" can be seen in the side of the deep trench in the center of the picture and also in the cutting in the immediate foreground. There is visible a distinct line which is depressed in the center and rises at either end. Above this line the soil is friable, and for the most part composed of detritus and drift sand, while below it is a mass of tenacious worked clay. The builders recognized the superiority of old worked clay over fresh material for purposes of brick making. The modern way of mixing up *tofa* suggests the method employed by them. A large bed having a low ridge of earth around it, is prepared. In this the thoroughly wetted clay and chopped straw are thrown and then mixed well together by men and boys walking and jumping about in it, others throwing in water from time to time until the mixture attains the proper consistency.

of the wall on either side of the steps, although the whole soil here is finely worked clay with traces of straw. Occasionally in this one can see faintly the joints in the old brickwork.

4. Excavations had been conducted during the first week of the campaign (1899), along the southern edge of Mound X, on the opposite side of Nippur. A low fragmentary wall was uncovered for a length of over 120 meters without either end being reached. This wall was built of yellowish baked bricks carelessly laid in mud mortar. Its outline was very irregular; a series of slight offsets dividing its outer face into short lengths which had slightly different magnetic bearings, so that the wall instead of being straight, has a bent appearance, following somewhat the contour of the mud. During the last months of the campaign this wall was followed as far as it remained *in situ*. It represents a part of the wall enclosing the platform on which the business and civil buildings were erected. Several distinct periods of enlargement and restoration were found, showing clearly the growth of this half of the city. At its eastern end the wall turned at an abrupt angle up the bank of the Shat-en-Nil, showing that this side of Nippur was wholly separate from the Temple Complex opposite to it, its walls having no connection with those of the latter. The size and character of the Shat-en-Nil itself also indicate this.

§ 2. The Northeast Wall.

Pre-Sargonic Period. The Staircase.

1. The most important structure belonging to the wall of this period was the staircase in the gap between VII and XI (Pl. 4, 2 : 1).[1] The surface here sloped from the court, A (see Fig. 2), towards the open plain ; the result of débris from the mounds surrounding the court, and from the surface of the court itself, washing out through the opening between the two ridges.

2. Two periods were represented in the staircase, shown by the size of the bricks used and by the construction. The ruins of the first period were more extensive than those of the second, and consisted of a central passage flanked by two narrower passages at a higher level reached by steps. Of the latter, only that on the right side — as one approached the staircase — was preserved entire, while the opposite one was a heap of worn and shapeless masonry. The remains of the second period were limited to the series of steps leading from the earlier passage to the higher level of the later terrace (Pl. 2^B).

3. The central passage was 4.62 m. wide. At the outer end this was reduced to 3.74 m. by the buttresses supporting the steps (Pl. 2, 3). Between these it was paved with baked bricks laid in bitumen, and of the same size as those in the steps. The level of this pavement was 1.50 m. below the bottom of the low wall or parapet running along the inner side of the foot passage. Its width was about 2.45 m., extending from the face of the brickwork of the adjoining buttress, *K*, but a considerable portion had been destroyed, leaving eleven of the fourteen rows of bricks which probably formed the original pavement. The bricks in the main pavement, *A* (Fig. 3), of which the first remaining row was 0.58 m. from the outer edge of the buttress, were laid crosswise of the passage with their convex indented faces up, and but one course in depth. The remaining rows, *B*–*D*, were arranged differently, and together formed a strip c. 67.0 cm. wide extending across the passage but broken away for a distance of 1.20 m. at the right side. The first of these, *B*, was a single course of bricks laid on edge and sunken 3.5 cm. below the level of *A*, forming a shallow channel 23.0 cm. wide. At a distance equal to the thickness of two bricks on edge, from the left end of this, was a small roughly hewn gypsum block built into the bottom of the channel. There was a similar stone, *x*, near the center, 1.40 m. from the first one (Fig. 4). The

[1] The staircase was situated in block D 13 on the general plan of Nippur (in pocket at end of volume).

tops of both of them were approximately on a level with the pavement, *A*. Probably one and perhaps two more stones existed in the missing portion of the channel. They were not large enough to have been sockets for a gate and bore no traces of any such use. In fact the construction of the passage itself at this point rendered any such barriers unnecessary. The back edge of the channel was formed by two rows of brickwork laid in a different way from any of the others. The first row, *C*, was not uniform in its structure. For the greater part of its length the

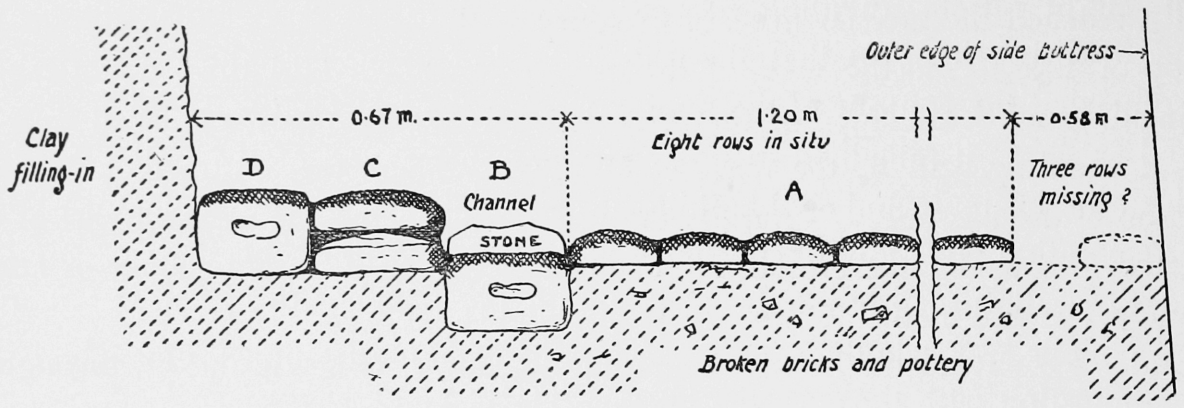


FIG. 3. Section through brickwork at foot of central passage. (*A*) Main pavement; (*B*) channel; (*C*) double course of bricks; (*D*) bricks laid diagonally. Cross-hatching shows exposed surface.

bricks were laid flat like those in *A*, but running lengthwise instead of crosswise of the passage. There were a few bricks of a second course still *in situ* upon the first one, which was preserved as far as was the channel, *B*. But at the right end there were a number of bricks on edge, as were all those in the lower course of the row, *D*, which, however, differed again from the others in having them arranged diagonally across the passage. These two rows, *C* and *D*, were apparently the remains of a much higher wall, as we found five or six badly broken courses of bricks at *F* (Figs. 4 and 5) which extended at a right angle to the portion of the side steps, *H*, and covered the ends of the two courses just mentioned. Along the inner edge of the wall, *N*, there was a slightly projecting ridge in the brickwork showing where the wall had joined this side (clearly seen in the side view of the staircase, Pl. 2^C, 2, and in the front view, Pl. 2^A). The inner edge of the last row, *D*, was as regular and even as the shape of the bricks permitted it to be, and was without doubt the end of the baked brick paving. Although the central space, *E*, was excavated below the level of *A* for nearly half its length, not a single trace of a continuation of the pavement was discovered. The earth here was a solid mass of hard packed clay, with every indication of its being an artificial filling-in. The bricks forming the side of the steps, *N*, did not extend much beyond this edge of brickwork, *D*, and ended in a straight line which had a slight slope backward (see Pl. 2^C, 2). The walls, *M*, along the side of the passage, *L*, were only 0.26 m. below the level of the pavement in the latter and like it, rested directly upon the mass of clay. When we consider how carefully the rest of the structure was built it is difficult to believe that the sides of the central passage should have been left unprotected by baked brick, with the result that in a very short time the foot passages would have been undermined. Yet such would have been the case if the central space had been occupied by a slope or even a series of long low steps, leading from the outer level at *A* to the level of the inner end of the foot passages.[1]

[1] This was our first supposition after the structure had been uncovered and when we believed it to represent the remains of a great gate. It appeared that the central space was a slope for the animals while the two side passages were reserved for pedestrians. We now see that this arrangement, so far as the central space is concerned, is scarcely possible. The ruins belong to a staircase which, while it doubtless did lead up to a gate in the wall at this point, was not part of its structure. The character of the staircase and its surroundings indicate another explanation for the somewhat curious arrangement we have just described.

4. Combining the evidence presented by: (1) the extent of the pavement, *A*, with (2) the low fragment of wall, *F*, still *in situ* at its inner end; (3) the abrupt end of the brickwork under the steps on the right side, and (4) the shallowness of the walls, *M*, extending the full length of the side passage, the most natural arrangement to which we are led is that embodied in the drawing showing a section through the central passage, CD (Pl. 2, 2). The inner part of the passage, *E*, was about on the level with the bottom of the low side walls and extended out on this level until it reached the heavier mass of masonry of the steps at *4*. At this point there was an abrupt drop of 1.50 m., to the level of the pavement, *AD*. This drop doubtless had a slight batter, coinciding with the slope of the brickwork in the steps, and was faced with baked brick, serving as a retaining wall to the mass of filling-in. There was no trace of paving along the upper portion of the passage. Naturally the facing wall, being the weakest part of the structure and subjected to considerable pressure from the clay behind it, would sooner or later have been overthrown. The fragment, *F*, was a part of it.

5. Under the pavement, *A*, was a stratum of clay, *G* (Figs. 4 and 5), through which were scattered pieces of bricks and pottery. This had a depth of c. 1.0 m. and rested in turn upon a series of large gypsum blocks, *F*, laid in bitumen. These were of different sizes and shapes, but

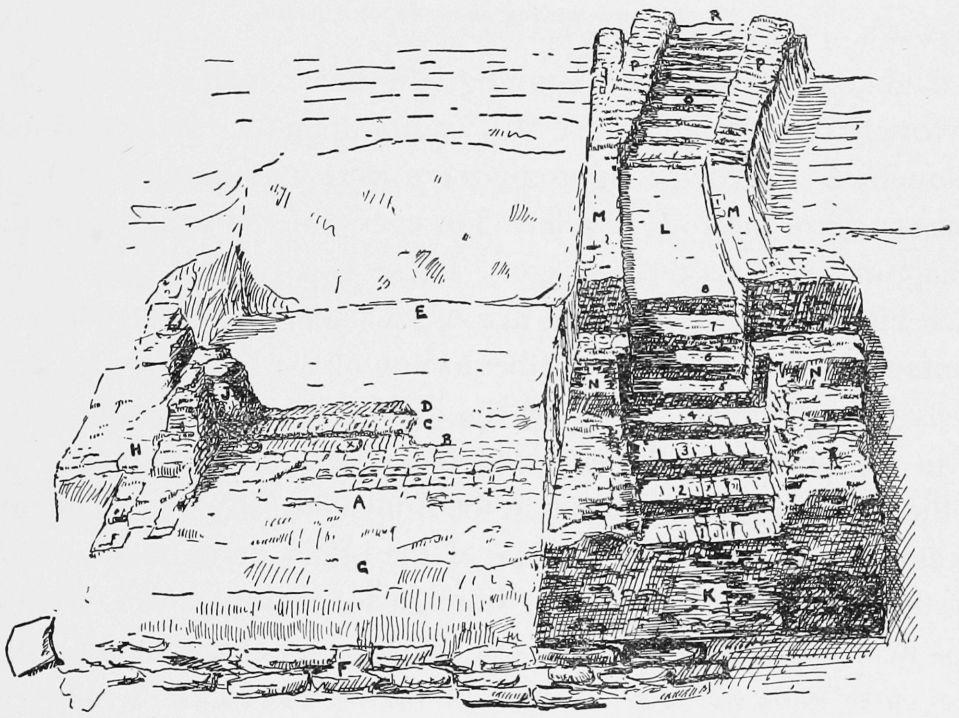


FIG. 4. Sketch of staircase from northeast. (*A*) Main pavement in central passage; (*B*) channel with stones, *xx*; (*CD*) bricks at rear of same; (*E*) central passage excavated below level of *A*; (*F*) stone foundations; (*G*) clay containing sherds; (*H*) fragment of left side; (*J*) portion of facing wall across central passage; (*K*) brickwork below steps; (*L*) passage of Period I; (*MM*) side wall of same; (*NN*) buttresses at sides of steps; (*O*) steps of Period II; (*PP*) side walls of same; (*R*) passage of Period II.

laid for the most part in two courses to an average depth of 0.65 m. They extended completely under the central passage and part way under the masses of masonry under the steps at either side, a total distance of nearly 7.0 m.

6. The remains of the left portion of the approach were so fragmentary and shapeless that while we can determine them to have formed a portion of a structure similar to that preserved on the right side, we are unable to give exact details of the original size and extent. We may suppose it to have been practically a duplicate of the steps on the well-preserved side. There was a portion of brickwork, *H*, barely 1.0 m. long, parallel to the wall, *N*, at the other end; and at the inner end of this was the fragment of cross-wall, *F*, which we have mentioned before, at right angles to it.

7. The better preserved steps and passage on the right, or northwest side, give us the plan of the side passages. From the edge of the brickwork, *K*, to the inner ends of the low walls, *MM*, the length was 14.4 m. The entire structure was built of plano-convex bricks 22.3 cm. by 15.3 cm., and varying in thickness from 4.0 cm. thick at the edges to 5.7 cm. at the center. They were baked a dull red color, were porous in texture, and full of the minute holes left by the straw which had been mixed with the clay. In the center of the convex side there was a single deep thumb-mark (cf. Pl. 4, 7 : I).[1] They were laid without exception in bitumen, like those in the central

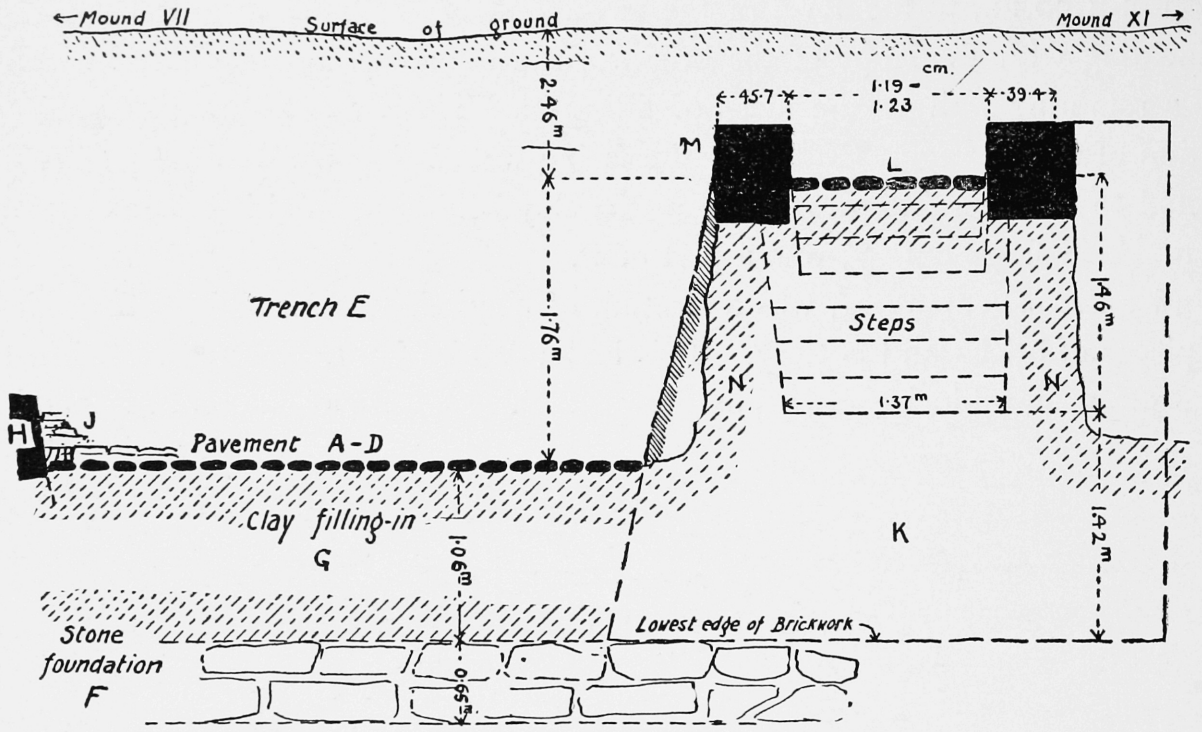


FIG. 5. Transverse section through central and side passages of staircase, Period I. (*E*) Central passage; (*H*) fragment of left side; (*J*) cross wall; (*K*) lowest step; (*L*) side passage; (*MM*) walls of same; (*NN*) buttresses at side of steps.

space, *A*. The side passage consisted of a long corridor, *L*, sloping slightly upwards from a flight of eight steps enclosed in a mass of masonry, *NN*, more solidly built than the rest of the structure. This brickwork had a depth of 1.42 m. below the lowest step at *K*. At the bottom course it was 3.50 m. wide and rested upon the stone foundation, *F*, which, however, extended only under the left buttress and nearly half way under the steps, and not under the whole of the structure. The face of *K* had a batter of 19.5 cm. in 1.42 m., or nearly 1 : 7. Below the right buttress the outer face of this was broken away as far as shown by the darker shading on Fig. 4, *K*. The faces of the two side walls, *NN*, were broken away but at the lower ends where they remained undamaged they had the same batter as *K* and were a continuation of it (Comp. Pl. 2, 1–2). The buttress on the left was 0.88 m. wide, on the level of the lowest step *1*, but both faces of it had a considerable taper. On the side toward the central passage where the full depth of the face was exposed, the batter was approximately 2 : 11. This would have resulted in its being narrower at the top than the wall along the side of the corridor, which joined it, were it not for an offset of 20.3 cm. at the fifth step which made the top width 0.48 m. The exposed face extended in along the central passage to *4*, a distance of 2.50 m., ending, as we have noted, in a regular edge in the same line as the inner end of the pavement, *A*. The buttress on the right was heavier than the left one. At the lowest step it was 1.0 m. wide. The face towards the northwest was perpendicular and the inner one had so slight a batter that at parts it scarcely varied from the per-

[1] This type of brick when used flatwise was laid with the convex side up. The thumb-mark was a device for giving a firm hold for the mortar or bitumen in the joints. As the bricks become flatter we find these marks decreasing in depth until they are entirely missing in the fully developed flat tiles of the later periods.

pendicular. The thickness was increased by offsets of 17.8 cm. at the fifth step similar to the one on the left side, and another one of 5.1 cm. at the middle of the sixth tread. These made the buttress 1.19 m. wide at the top. The outer wall on this side ran back 3.20 m., at which point, *6*, there was an offset of 0.80 m. from the low corridor wall on this side. Both side walls had a well preserved face, *5*, in line with the sixth step. This extended to the level of the top step and the wall then ran out horizontally until broken away, the outer portion being wholly defaced. It would seem that *5* was the only break in the contour and that the lower part of the wall had the shape shown in the two sections (Pl. 2, 1–2).[1]

8. The space occupied by the steps varied in width. At the edge of the lowest step, *1*, which was 1.42 m. above the bottom of the brickwork, *K*, the space between the two buttresses was 1.37 m. This increased with each step until at the riser of the fifth step it was 1.52 m. Here two offsets of 20.3 cm. and 17.8 cm., on the left and right sides respectively, contracted it again to 1.14 m. Above this it continued to increase and although reduced by a second offset of 5.1 cm. on the right side, was 1.19 m. at the edge of the top step. It is very evident that these offsets were used mainly to overcome the gradual widening, which *was caused by the sloping sides* of the adjacent buttresses, and make the width at the top equal to or even somewhat less than it was at the bottom. Otherwise the corridor would have been much wider than the steps leading up to it and out of all proportion to them. Of the eight steps in the stairway of the first period no two were exactly the same in both tread and riser. Apparently an attempt was made to decrease the width of the treads of the steps from the lowest to the highest. The lowest tread was 38.1 cm. wide; the second, 33.6 cm.; third and fourth, 28.0 cm., fifth and sixth, 25.4 cm. The seventh was, however, 36.9 cm., nearly the same as the lowest step. Certainly the difference in the height of the steps was due to the variation of the bricks, since every riser except the eighth contained three courses. The second riser—the first, as we have said, being the deep bottom one—was 21.6 cm. high; the third and sixth, 22.9 cm.; the fourth, fifth and seventh, 20.3 cm.; and the eighth 17.8 cm. Most of the steps had been repaired with the larger bricks of the second period. This makes it difficult to determine whether the treads were built uniformly in the original steps or not, but if we assume that where the smaller bricks still remained, they had *never* been disturbed, they showed that no system was used. For example in the sixth step, which was wholly of small bricks, the edge only was constructed of headers,[2] the rest of the step being laid with stretchers. In the fourth step there were small bricks laid as stretchers, both along the inner and outer rows. The inner row of the third step had small stretchers and the two lowest steps small headers in back. The edges of all the steps, with the exception of the sixth and part of the fourth, had the large bricks built into them both as headers and stretchers.

9. The length of the passage, *L*, was 12.0 m. At the inner end the walls, *MM*, ceased in line with each other and probably marked its original length. Its width varied from 1.19 m. at the top of the steps to 1.23 m. at *8*, where the second flight began. There must have been an offset in this passage, because the width at its extreme inner end was but 1.0 m. As the left wall continued in a straight line throughout its length, the offset was on the right side, beneath the work of the second period, most probably at or near the lowest step (Pl. 2, 3). The passage was built so as to drain towards the front, but the sinking of the structure had so altered its level that it was impossible to tell what the original slope had been.[3] The inner end of the

[1] Formed by producing until they intersect, the sloping face of *K* and the top of the wall on a level with the top step.

[2] A *header* is the term applied to a brick laid crosswise with the end showing, while a *stretcher* is one having the side exposed or running lengthwise of the work.

[3] In the side view of the staircase (Pl. 2^C, 2) this slope appears more than it actually was, owing to the position of the camera.

passage as found was c. 40.0 cm. above its outer end.[1] The uneven subsidence resulted in the low walls cracking away from the larger main buttresses, *NN* (cf. Pl. 2^C, 2, and Pl. 2, 2). Below this crack, *9*, were several irregular courses of bricks, not belonging to the original construction, and indeed appearing to have been inserted after the first subsidence and consequent rupture had taken place. The passage was paved with baked brick. The two low parapets had a height of 32.4 cm. above the pavement. The tops were a continuation of those of the large buttresses, *NN*, at the steps, but the tops of the latter sloped upward until, at the edge, they were 45.0 cm. above the top step.[2] The side walls extended 26.0 cm. below the level of *L* and with it rested directly upon a mass of clay similar to that filling the central passage. The left parapet was 45.7 cm. thick and its inner face flush with the inner face of its buttress. Between the outer faces a difference of 2.5 cm. was taken up by an offset, *4*, where the low wall connected with the larger structure. The right wall was 53.4 cm. wide, but for a portion of its length some of the upper courses were missing, reducing the width to 39.4 cm. The upper courses in both walls had been repaired in part with the later bricks.

10. The steps of the second period, *O*, were a continuation of the lower passage. They were made necessary by the raising of the level of the great platform upon which the Temple buildings were built. The bricks used had the same shape and texture as the earlier ones, but were larger — 28.7 cm. by 17.2 cm. by 5.7 cm. thick at the edges.[3] They were laid in clay mortar instead of bitumen, although traces of the latter could be seen throughout the work.[4] The construction of the whole edifice showed less careful workmanship than was displayed in the lower flight, for the steps had no foundations, but rested upon crude clay filled in over the inner end of the first passage, up to the new level. Owing to this slight construction and insufficient foundation the upper staircase had sunken below its original level. This can be seen in the slope down and in of the various steps and of the short length of passage, *R* (Fig. 4), which was only 1.25 m. above the level of the lower passage.[5] Still more important was the displacement towards the right, due to some excessive side pressure. In Plate 2^C, 1, the inclination of the upper passage and steps resulting from this is well shown, as is also the decided leaning outward of the right wall.[6] While it may be possible that the upper flight of steps was planned originally at an angle with the lower passage, it is quite certain that most if not all of the variation now apparent is due to its partial collapse. (Pl. 2, plan 3.) There were ten steps in this flight. The face of the lowest one was 4.24 m. from the top of the first series. At this point the lower passage was 1.23 m. wide and the new work of the left wall being built out 17.8 cm. in the form of an offset, made the first step that much less than the passage from which it started. The vertical heights of the various steps had not been altered by the general distortion of the structure and it is perfectly evident that they were not intended to be regular. The first

[1] In Fig. 2 on Pl. 2 there is an error in the figured dimensions. The height of the inner end of the passage is given as 2.88 m., the same as at the outer edge. It should have been 3.28 m., *i. e.*, 2.88 m. + 0.40 m. as given on Fig. 1. The apparent discrepancy of 6.0 cm. between the heights at the outer edge in Figs. 1 and 2 is due to the measurements having been taken at two different points over the very irregular brickwork. Those in Fig. 1 were made on the axis of the side steps and those in Fig. 2 in the central passage near the wall, *M* (compare Fig. 5 in text).

[2] At this point the passage was 2.46 m. below the sloping surface of the ground and 1.76 m. above the pavement, *A*, in the central passage.

[3] For sketch of brick of this period of staircase see Pl. 4, 7 : II.

[4] Suggesting that they had been used somewhere else laid in that material, before being built into the staircase.

[5] The total height of the risers was 1.67 m. and this represents the height of the second passage if it was level, but as it doubtless had a slope down towards the steps in order to drain its surface, its height at the inner end must have been somewhat more.

[6] This illustration has already been published (cf. Hilprecht, Explorations, op. p. 494) and I use it here especially to show the distortions mentioned.

one was 14.0 cm., the second, seventh and eighth 20.3 cm., third 22.2 cm., fourth 21.0 cm., fifth 19.0 cm., sixth 18.4 cm.; while the ninth and tenth were only 5.7 cm. In the treads there does seem to have been an attempt made to decrease regularly their width from the bottom upward towards the top, but we could not definitely determine this because the general displacement had altered them. The first step was 35.5 cm. wide, and the others from the second to the fifth 31.7 cm., 31.1 cm., 29.8 cm., 24.1 cm. respectively. The sixth step was as wide as the third, 31.1 cm., while the seventh was 23.5 cm., and the last two 20.3 cm. On the plan of the staircase (Pl. 2, 3) it will be seen that the steps did not conform to the curvature of the sides, *i. e.*, they were not arranged radially, but were very nearly perpendicular to the sides of the lower passage.[1]

The passage, *R*, was 1.45 m. long, and this was apparently its original extent, because the edge, all but a fragment at the left corner, was straight and complete. The walls, *PP*, on each side of it were only 15.8 cm. high. They did not extend below it like the walls, *MM*, of the lower passage, but were built upon the tops of the treads and pavement, *R*. A fragment of wall (?) ran from the right side of the inner end of the upper passage, *R*, the top being about on the level of the pavement of the latter. The builders of the upper passage still continued to make use of the lower steps, since they refaced the worn edges of all of them with their larger bricks. Thus so far as the sides of the approach are concerned its character remained the same. What disposal was made of the central passage during this later period we cannot say. A large hemispherical vase of reddish pottery 1.0 m. in diameter was found to the southeast of the lower steps, its outer edge on a line with the face of the deep lowest step and its center 3.8 m. from the nearest edge of the ruined side of the staircase, *N*. The jar was upright and its top was on a level with the paved portion of the central passage.

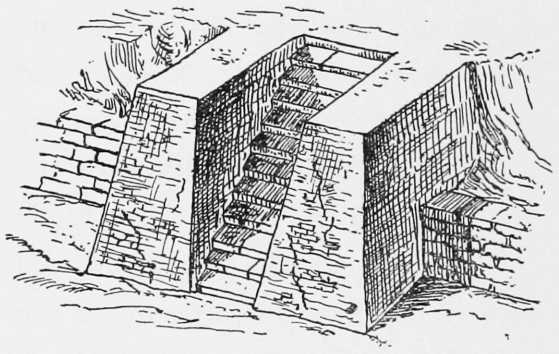


FIG. 6. Staircase at Abu Shahrein.

11. There is one other edifice thus far discovered in Babylonia which offers a comparison with the staircase at Nippur. This is the staircase discovered by J. E. Taylor, at Abu Shahrein, in 1855 (Fig. 6),[2] which was contemporaneous with the Nippur structure, the bricks in both being of the same plano-convex variety and laid entirely in bitumen.[3] The staircases resembled each other in that they gave access to the great platform of the temple enclosure in their respective cities. The one at Abu Shahrein, however, had but a single flight of steps, complete, as shown in Fig. 6. Mr. Taylor distinctly states that he "found the usual stone wall *joining it on either side*," the wall referred to being the massive wall surrounding the platform, which he

[1] This is what we would expect if the structure had been built in line with the earlier works, and then partly overthrown. The lower ends of the side walls being tied into the walls of the earlier work were held in place while the upper part slipped sidewise, thus distorting the plan.

[2] This figure is taken from Perrot and Chipiez's Art in Chaldæa and Assyria, I, p. 191. While it gives a general idea of the staircase, its proportions are not at all according to those recorded by Taylor. For instance the two side buttresses are shown equal in size, whereas Taylor states that the right one was much larger. It was 5′ 0″ wide at the bottom and 2′ 3″ at the top. The left one tapered from 4′ 0″ at the bottom to 1′ 3″ at the top. The stone walls are shown not quite half the height of the buttresses and one stone in thickness. They were actually *in situ* to the height of 7′ 0″ and hence only 1′ 0″ short of the top of the buttresses, as the latter were 8′ 0″ high ; and furthermore they were 6′ 0″ thick. Even Taylor himself, in his sketch of the steps, does not show as much difference between the two sides as his dimensions call for. (Cf. Taylor as in following note.)

[3] Taylor, *Journal Royal Asiatic Society*, XV., p. 409. He describes them as "thin at both ends and thick in the middle, the under part perfectly flat."

uncovered at several points.[1] The steps appear to have started directly from the ground level[2] and extended some way into the platform, the top giving at once upon the broad platform, so that no further passage, with protecting walls on each side, was necessary. The Nippur staircase, on the other hand, was more important. It will be remembered that a wide moat or canal, connecting with the Euphrates, flowed along the northeast wall of the city. By way of this canal a great part of the traffic up and down the river arrived and departed from Nippur, so that the gate on this side was the center of the busiest and most important part of the town. There are numerous evidences that the waters of this canal washed the outer end of the staircase.[3] For instance the débris in the lower stratum outside the steps has the clean appearance, free from sherds and bricks, that characterizes the soil which gradually accumulates in the bottoms of mud-bearing streams. Scattered through this we noticed the whitish remains of several large palm logs and smaller pieces, apparently poles, some standing upright. It appears to me most probable, considering the solidity of the lower portion of the staircase and the stone footings laid in bitumen below it, that the structure served as a landing stage for the great entrance to the city at this point. The depth of the lowest step, hardly to be explained in any other way, was to enable passengers to make an easy landing, as the level of the water in the canal rose and fell at different seasons of the year. In the central space merchandise could be unloaded without interfering with the arrival or departure of the people. The passage-way, *L*, was built upon the gently sloping surface of the terrace which ran along the outer face of the wall,[4] and connected the steps with the gate, which was probably on the same axis as the outer structure.

Pre-Sargonic Wall.[5]

1. The only portion of this wall thus far found at Nippur was a fragment c. 9.0 m. long, which was uncovered by Dr. Haynes in 1894–95 by means of a trench along the inner slope of Mound XI, at the end nearest to the staircase.[6] The structure, as excavated by him below the water level, was laid on solid clay.[7] It was composed of "worked clay mixed with straw, laid up *en masse*, with roughly sloping or battered sides." On the outside it remained *in situ* to a height of 4.87 m. At this height it was c. 13.5 m. wide.[8] The structure, although forming a solid homogeneous mass, was really divided vertically into two parts which were recognized by Dr. Haynes as indicating two separate periods in its construction. The outer part, *d'* (cf. Pl. 4, 4), was c. 10.5 m. thick and the inner one, *c*, c. 3.0 m. Both were built of similar materials, but the inner one remained to a height 0.76 m. above *d'*, a total height above the base of 5.63 m.

[1] *Ibid.*, p. 408.

[2] Taylor must have excavated the structure to the bottom as he says he found it, with the connecting walls, resting upon sand. We may therefore assume that his sketch represents the appearance of the steps as fully uncovered.

[3] Cf. also Hilprecht, Explorations, p. 495, note.

[4] Cf. map on Pl. 1, 1–2, and Fig. 2 on p. 10. Also text, pp. 8, 13.

[5] The description and dimensions of all walls under this section have been taken from the reports of Dr. Haynes. Direct quotations are indicated.

[6] At the point near Haynes' tunnel, *C'*, on the plan (Pl. 4, 2). The inner face practically coincided with the dotted line of the later wall, *i. e.*, about 52° west of north.

[7] Dr. Haynes says that the bottom was two feet (0.61 m.) below the water level. (Report of August 3, 1895.) It is necessary to state that this level is a very variable one. For instance when we uncovered the staircase in December, 1899, water was not reached at all, even at the bottom of the stone footings, which were considerably below the level of the wall excavated by Dr. Haynes. (Compare note 4 on page 29 *seqq.*)

[8] Cf. note 7 on page 19. Both faces had been damaged so badly by exposure from 1895 to 1899, when I first saw them, that the original faces had become lost. I depend entirely upon Dr. Haynes' records for dimensions and details. Extracts from his Reports relating to this portion of his work have been published by Hilprecht, *Bab. Ex.*, Series A., Vol. I, p. 21, note.

The later wall of Naram Sin was built immediately on top of both of them.[1] It is clear, however, that they were not constructed as a foundation for his work, because the lines of the latter do not coincide with the general direction of the lower wall. The subsequent discovery of the staircase gave us an explanation of the purpose of the walls. As both wall and staircase are pre-Sargonic, it is natural to suppose, although all direct connections between them[2] are lost, that the two periods in the one correspond to the two in the other. As we know that the steps led to a great platform which was higher than the surrounding plain, it follows that *c* must have been a portion of the original retaining wall, as it reached down to virgin soil and was built against the face of the platform.[3] At a subsequent period the retaining wall was enlarged by the portion *d*, probably at the same time that the level of the platform was raised.[4] If we restore the second flight to the level which the total height of its various steps would indicate, its top would be on a level with the top of the wall, *d*, *i. e.*, on the level with the base of Naram Sin's wall.[5]

2. In excavating along the inner face of this early work, Dr. Haynes discovered a low wall of baked bricks of an unusual size and shape (Pl. 5, 1). This wall, whose top was 2.40 m. below the surface of the ground inside the enclosure, was c. 5.50 m. long, six courses of bricks in height and of varying thickness, with the side toward the ridge apparently a face.[6] It ran at an angle to the ridge and coincided with the direction of Naram Sin's work. The bricks were 20.3 cm. by 9.2 cm. by 6.0 cm.[7] They were perfectly regular and flat, quite distinct from the pre-Sargonic type and belong to a much later period in the development of brick making. Nearly a meter below this and between it and the main wall there were fragments of another construction in much larger bricks, 39.4 cm. by 19.0 cm. by 8.9 cm. in size.[8] These formed portions of the walls of a well which had been sunk from the level of the platform, probably first shortly after the time of Naram Sin.

[1] Dr. Haynes at first supposed that the walls, *cd*, were the work of Naram Sin. As his excavations progressed he changed this view. In his report of Aug. 3, 1895, he states: "Had the superstructure been built upon the original base — here he refers to *d* (Fisher) — as it was begun, it would naturally appear that the entire structure from its foundation was the work of Naram Sin; yet because Naram Sin *changed the proportions of the wall*, it may with some show of reason be assumed that Naram Sin himself *began to build upon the foundation of a predecessor*, perhaps of his father, Sargon, with the intention of completing the original design, and that (he) . . . then began to fix upon a different or at least upon a larger plan requiring a wider base to build upon," *i. e.*, *d* + *c*. Compare note 3 below.

[2] Page 20, § 2 and notes 1, 5.

[3] Dr. Haynes, however, probably because of the difference in size, supposed that *d* was the original wall and *c* the addition, at the same time recognizing the fact that they were earlier than the wall of Naram Sin above. (Report of August 3, 1895.) It is very unlikely that the builders when increasing the strength of the facing wall would have excavated along the inner face, where they would have had to cut away the solidly packed earth of the platform. They would rather have chosen the simpler, more practical method of adding material to the required thickness on the outer part of the wall, where it was open down to the level of the plain.

[4] Figs. 3 and 4 on Plate 4 have been drawn to show the relative levels and positions of the walls in ridge XI and the stepped approach. Dr. Haynes' excavations extended to over half a meter below water level but it is probable that the wall was built originally upon the same level as the staircase, and so I have shown it. Actually the bottom of the stone work under the staircase was c. 0.30 m. lower than the bottom of the wall as given by Dr. Haynes.

In Fig. 4 two distinct sections are combined. The early walls, *cd*, are from section *D′C′*, while the upper and later periods are from *DC*, where the ridge was not excavated below the Naram Sin level.

[5] Cf. note 5 on page 26.

[6] Cf. Reports of July 21, 1895, and Aug. 3, 1895.

[7] The nearest approach to this peculiar size were bricks discovered by Dr. Banks at Bismya. These were flat and 25.0 cm. by 11.0 cm. by 8.5 cm. and yellowish in color. (Cf. Reports Univ. Chicago Exped., diagram of bricks, type 8.)

[8] Dr. Haynes believed them to be the half bricks of Naram Sin. A single whole brick of approximately the same dimensions, 39.0 cm. by 39.0 cm. by 9.0 cm. was found near the water conduit on the outer face of Naram Sin's wall. Those in the conduit itself were somewhat larger.

§ 3. Northeast Wall. Naram Sin Period.

1. Although the wall of Naram Sin was exceptionally large and finely built, so much of it had been removed by subsequent builders, or else incorporated with their own foundations, that the remains were very disappointing. Only where it had been preserved under the late work were we able to find any trace of it. As much of it as was discovered in Mound XI, a total length of nearly 111.0 m. including offsets, is shown on the plan and elevation (Pl. 4, 1–2). The wall *e* was superimposed immediately upon the remains of the two early walls *c d'* (Pl. 4, 4) six courses of bricks first being laid over the part *d'* to bring it up to the level of *c* and the rest of the wall then constructed over both.[1]

2. The bricks, 49.3 cm. square and 9.0 cm. thick,[2] were the largest and finest bricks found anywhere in Nippur, being unsurpassed in any subsequent period. They were composed of clay and chopped straw well worked together and sun-dried, and dark gray in color. Nearly all of them bore in the center Naram Sin's legend:[3] "Naram Sin, builder of (at) the temple of Bel."[4] In every instance this inscribed face was laid downward in the wall. The bricks in each course were laid in parallel rows side by side, but a perfect bond was obtained by making each brick cover the quarters of four bricks in the course below it[5] (Plate 4, 6). Plain mud mortar was used in the joints which were more uniform than in most of the later work and thinner, only 1.0 cm. thick. In a few of the courses there were whitish traces of reed matting, but these indications were not extensive enough to establish whether they had been used in any regular system or not.

3. When we came to uncover the outer face of the wall, we started from the exposed position of wall at the tunnel of the previous campaign and found at once that this had cut through and partially destroyed the corner of one of the great projecting angles of the wall (7) (Pl. 4, 2) but by prolonging the lines of the two faces we were able to establish the position of it beyond question. To the south of this angle the wall extended straight for a distance of 17.6 m. then turned out at a right angle (6), 0.91 m., continuing again parallel to the first face, a further distance of 5.03 m.[6] At the end of this a fragment of wall 4.72 m. thick—both faces being found—extended out perpendicular to the main wall. Where it left the main wall not more than six courses could be distinguished *in situ* and the bottom of it as far as could be determined was not on a level with the bottom of the main wall, although it was composed of the same large tough bricks of Naram Sin. It is difficult to determine the purpose of this wall. The face nearest to the great staircase appeared to run back to within a few centimeters of the main wall, as at 6, and then ended in an offset whose dimensions were about 2.0 m. each way, but as there were only two or at most three courses traceable and these near the sloping surface at the end of the mound, neither faces nor figures can be considered as more than approximations.

4. Returning now to the angle at the tunnel, we find that the wall turned at an angle of 90° and extended in under the mound 10.0 m. or nearly to the line which had been supposed

[1] Cf. Haynes' Report of Aug. 3, 1895.

[2] This is the size of one of the finest of them, which was removed from the section of the wall in the tunnel soon after it was opened. It is now in the Museum of the Univ. of Penna. at Phila. Measurements of other bricks *in situ* varied between 49.3 cm. and 49.9 cm., one being as much as 50.8 cm. The horizontal measures were easy to obtain as a rule, but the thickness, owing to the enormous weight of the wall above having crushed bricks and mortar together, was rarely to be distinguished.

[3] Cf. Hilprecht, Explorations, p. 500.

[4] *Ibid.*, p. 389.

[5] It was while studying the system of bonding in the roof of Haynes' tunnel, that I noticed that the joints did not follow the line of the mound but ran diagonally to it, thus indicating either that the bricks in the wall had been laid in some unusual way, or else, as the subsequent excavations along the outer face of the wall showed, the wall did not have the same magnetic bearing as the later wall or of the ridge.

[6] The main face of this wall was N. 41° 40′ W., so that it makes an angle of 10° 30′ with the wall above it.

to mark its inner face. It then turned[1] again parallel to the faces already described. At 6.40 m. from the angle there was a small offset — extending out — of 0.7 m. and beyond this the wall continued 28.8 m. more to another angle (9). Here it made another turn of 2.13 m. inward, and in the angle thus formed was a vertical conduit or drain. The wall continued in the same direction, becoming more and more indefinite, until at 29.0 m. from the angle (9) the face was lost. At this point a cross trench was driven into the wall and although the bricks of Naram Sin were found *in situ*, the face was not again found. Most of this length of the wall, where it existed under the later wall inside the mound, was traced by a tunnel with numerous openings for light. Throughout its greater part the wall was only a few courses in height. The highest part was at the angle (9) where the more durable baked-brick conduit preserved the wall immediately around it. It was only at this point that it was possible to determine the existence of any batter, and this also was due to the remains of the conduit itself.

5. It was impossible to find the inner face of the wall. The discovery of the great reëntrant angle (7) proved conclusively that the inner face of the Naram Sin wall must have been considerably inside that of the later wall, as the angle came within 2.50 m. of the face of the latter restored. Trial cuttings were made below the surface at various distances inside the mound, in an endeavor to find the limits of the Naram Sin wall. So far as determining the face of the wall these cuttings were fruitless, but in one of them, opposite to the projection (5) on the exterior of the wall, we came upon the Naram Sin bricks *in situ* laid in exactly the same diagonal position as those found in the tunnel. They were undoubtedly part of the main wall and as they were c. 12.0 m. inside of the outer face, the wall had at least this thickness.[2]

6. The principal feature of the wall was the conduit (9). This was built of yellowish baked bricks 42.3 cm. square and 9.0 cm. thick, laid in bitumen throughout. From the character of its construction this did not form a part of the original wall, but seems to have been built into the angle at some later time. The joints were not nearly so regular or so carefully made as those in the main wall (Pl. 3^4, 1), being from 1.2 cm. to 2.7 cm. in thickness. The drain consisted of two walls, *b* and *c* (Fig. 7), projecting at right angles from the main wall and resting on a heavy base, *a*.[3] This base, *a*, was a solid mass of brickwork, 1.93 m. wide and more than 2.50 m. long, built against the offset and partly into the main wall, *e e*, the outer edge even with the face of the wall (9). It was 0.65 m. high and contained seven courses. The lowest course projected 8.9 cm., forming a plinth, *m m*, which extended the whole length of the front and also the length of one brick along the exposed side of the conduit at *g*, but here it was only 1.30 cm. wide. On the top of the base was a layer of bitumen, thicker at the back and sloping towards the front edge, so as to drain off the water. In connection with this a shallow gutter, *n*, was cut out of the edge of the base nearly in line with the conduit behind it. In this no bitumen remained. The two upper walls, *b c*, were built of the whole and half bricks, with a few quarter ones. Both were one and a half bricks in width, although owing to the irregularity of the

[1] All the angles in this wall were practically right angles.

[2] In the plan (Pl. 4, 2) are indicated with dash lines the probable position and contour of the inner face of Naram Sin's wall, as well as the extension of the outer face to the staircase. The gate as restored at the inner end of the latter is based upon the second flight of steps, being built at an angle intentionally (cf. p. 26, also Hilprecht, Explorations, p. 497). If, however, as I am more inclined to believe, these were displaced accidentally from the axis of the first period, the position of Naram Sin's gateway may have been more approximately that shown by the dotted lines for the later period. But in such a case the wall must have made a change in its direction at this point (cf. p. 26, 10).

[3] The same arrangement was used in the vertical conduits on the northeast and southwest faces of the Ziggurrat of the Temple, *q. v.* Similar conduits were found by Mr. Loftus on the Ziggurrat at Warka. Loftus, Travels, pp. 167, 169.

joints there is a slight difference between them, *b* being 66.2 cm. and *c* 1.0 cm. less. They begin 0.85 m. from the edge of the base, *a*, and were also set in from the sides of the lower part. Thus the outer corner of *c* was 5.1 cm. from the edge of the base and the opposite buttress 9.0 cm. from the corresponding lower face. At the outlet these two buttresses were 49.5 cm. apart, but converged to 45.0 cm. at the wall forming the back of the conduit, 1.48 m. from the face. There were still twelve courses, *in situ*, rising to a height of 1.15 m. above the base. Each course was set back a trifle from the face of the one below it, producing the effect of a rough batter. This probably resulted from the conduit being built to conform to the face of the wall and thus gives the approximate slope of the Naram Sin wall. As no other conduit was found along the outside of the wall, it is probable that this one drained a considerable portion of its top, the water being conducted to it by horizontal gutters.

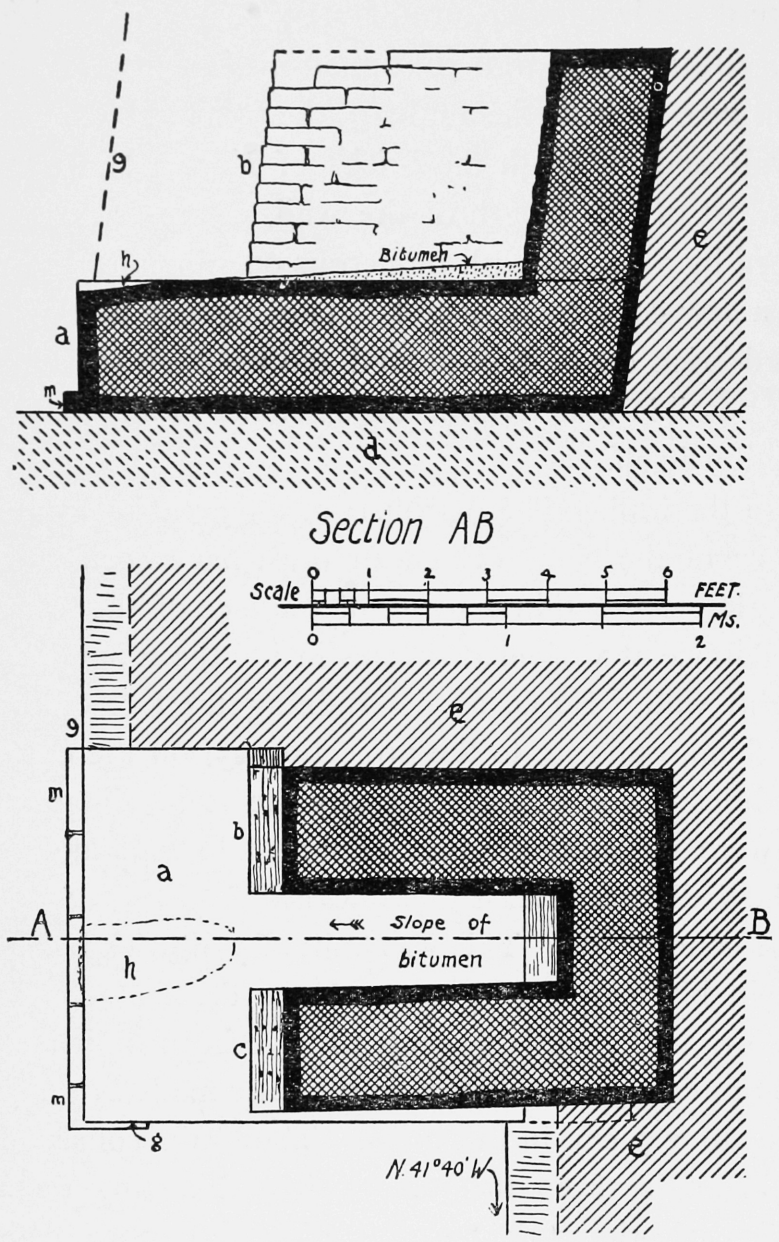


FIG. 7. Water-conduit in angle (9) of Naram Sin wall.

7. In the débris which had collected along the bottom of the wall, between the points 6 and 7[1] (Pl. 4, 2) great numbers of solid terra-cotta cones were found (Fig. 8). Many still retained traces of coloring on their bases, black and red apparently being the two predominating colors. Among these were other larger hollow ones of somewhat similar shape.[2] These had evidently been used in an ornamental frieze along the upper part of the wall as none were found in the lower portions of the wall still *in situ*. There were also found here fragments of several water-spouts or gargoyles which had projected from the upper edge of the wall.

§ 4. NORTHEAST WALL. UR GUR PERIOD.[3]

1. From the last traces of this wall in Mound XI to those in XII was a distance of 830.0 m. This practically represented the original length of the wall on the northeast side of the city. For at the lower end, XII, were indications of an angle, where the wall turned towards Mound V, while the ridge along the northwest edge of VIII —— the continuation of the enclosing wall

[1] This portion of the outer face had been uncovered by Dr. Haynes in 1894–95.

[2] Haynes' Reports of July 21, 1895, and August 3, 1895. I have not been able to trace the hollow cones mentioned here. There are in the Museum quite a number of small conical terra-cotta pipes open at both ends, which were inserted into one another to form a continuous duct. Dr. Haynes surely alludes to ornamental cones, as he says (July 21, 1895), "there were hollow cones of larger sizes, evidently interspersed among the solid cones of smaller size. At Erech the solid cones are abundant, but I am not aware that the hollow cones have been found elsewhere in Babylonia."

[3] For convenience in reference I have grouped under this name the original panelled wall and all its subsequent restorations. Comp. note 3 on next page.

at that point——show that the northeast wall could not have extended much farther to the northwest beyond the end of XI, but must have turned off to join the one in VIII.[1] While the wall was followed throughout the greater portion of this length, only that part of it remaining in Mound XI was uncovered in its entirety. This portion had a length of 224.0 m. and extended from the northwest end of the mound to within 77.0 m. of the pre-Sargonic staircase—the panelled face disappearing nearly over the spot (7) at which Dr. Haynes' tunnel was driven.

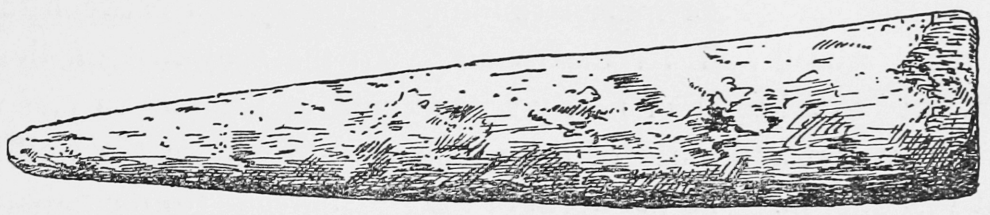


FIG. 8. Terra-cotta cone, with red end, from Nippur (northeast wall ?).
Scale, 1 : 1 (c. 3.0–5.0 m. along wall).[2]

The magnetic bearing was N. 52° 10′ W. At the southeast end, where the several strata could be studied in connection with each other, the panelled wall was found to be superimposed immediately upon the remains of the Naram Sin wall, with no traces of any intervening period.[3]

2. The bricks in the wall were sun-dried, very tough and well made. They were brownish gray in color and contained cut straw. Although quite flat, they had five shallow strokes roughly parallel, running lengthwise of the bricks, apparently made by the fingers.[4] This corrugated surface—which was a direct development of the single deep thumb-mark of the pre-Sargonic period—gave the bricks such an admirable bond, even with the common mud mortar which was used, that only a few could be taken out whole, most of them breaking in the attempt (Pl. 4, 8). Their size was 22.0 cm. by 16.0 cm. by 7.5 cm.[5] Because of the erosion of

[1] Cf. plan (Fig. 2), p. 10 and Pl. 1, 2.

[2] Figures in parenthesis after the scale of an object, indicate the depth at which it was found below surface, in meters.

[3] It is a question whether the original panelled wall was built by Ur Gur or whether he was only one of the several restorers of it. It can easily be shown, however, that the erection of this wall was not long after the Naram Sin period, certainly not as long as the 900 years supposed to have elapsed between Naram Sin and Ur Gur. In the first place Sargon and Naram Sin appear to have been responsible for the introduction of the flat square bricks. These so closely followed, in point of time, the loaf-shaped pre-Sargonic varieties that we find the latter often used to piece out the pavements of Sargon and Naram Sin in the Temple area. The difference is so great between the two types that the one certainly can not be said to be a development of the other. Especially must we realize this when, as we shall see later, the wall *following* that of Naram Sin contained in its core, *i. e.*, its earliest portion, bricks which *were* undoubtedly a direct development of the pre-Sargonic type, as they had the same proportions with nearly the same size and had a like contrivance for keying the mortar. Only, as they had become flatter the single deep thumb mark of the pre-Sargonic variety had developed into a series of shallow strokes. It is evident that the radical type introduced by Sargon and Naram Sin had not yet had time to supplant altogether the form previously in use, although at a still later date we find that it did succeed in doing so. It is necessary to note here that the bricks of this wall were similar in size and shape to those in the core of the Ziggurrat and also in the panelled wall which surrounded the two courts of the Temple, indicating that the change in and entire reconstruction of the outer enclosing wall, and the erection of the great Temple on a new plan were the work of the same ruler. Dr. Peters (Nippur, II, 161, 212); Dr. Haynes (Report of Sept. 8, 1894); and Prof. Hilprecht (Explorations, p. 498 f.), agree in assigning the bricks in the enclosing wall and in the Temple to the reign of Ur Gur, who appears to have been one of the extensive builders of Babylonian history. But as the bricks of this period in *every case* rested upon the remains of the Naram Sin period, it will be necessary to shorten considerably the time between the reigns of Naram Sin and Ur Gur or assign the extensive remains of this period to some king, as yet unknown, who came between Naram Sin and Ur Gur.

[4] In the better preserved specimens these corrugations could be seen on both top and bottom.

[5] The following variations from these figures were noted. In the core of the wall as exposed in the gap (18) bricks were found 23.0 by 16.0 by 7.8 cm.; in the outer face at section *EF*, 23.5 by 15.5 by ?; 24.5 by 15.2 by ?; in the inner face north of the gap (18), 22.5 by 15.5 ? and 23.0 by 16.0 by ?; near the jar (23), 23.0 by 16.2 by ? and 22.7 by 16.5 by ?. Where the thickness is not given it could not be determined for several reasons. Cf. note 2, page 30, on conditions existing in the Naram Sin wall.

the inner face, like that of the Naram Sin wall, the thickness could be obtained only near the series of rooms. Near the end of the corridor (24)[1] a single buttress, similar to those along the outer face of the wall, had been preserved, which while part of a later restoration, probably was erected on approximately the same line as the original face. Exclusive of the projections of the buttresses on both faces, the thickness of the wall at this point was 7.50 m. The thickness at the rooms was 7.80 m.—exclusive of the outer buttresses only. This was owing to a layer of bricks having been built against the inner face filling up the spaces between the buttresses and forming a more regular back wall for the rooms.[2] To the southeast of the conduit (9) the panelled wall remained to a height of nearly 2.50 m. and at the section *EF* where all débris was scraped away from top and sides of the wall, so as to expose the well-preserved bricks *in situ*, the height was 2.75 m.[3] To the north of the small break (18) the remains became lower and lower until they died away altogether with the end of the mound.

3. The exterior of the wall was relieved by a series of shallow buttresses, projecting 0.60 m. In the length of wall uncovered seventeen of these were found, but there can be no doubt of the former existence of another one in the gap 18, as the distance between the two buttresses remaining on either side is equal to the width of two average panels plus a buttress. The buttresses varied in width between 3.20 m. and 3.45 m., with one — the second from the southeast end of the wall — 4.21 m. wide.[4] The spaces between them were from 8.49 m. to 9.62 m. wide. The faces of both panels and buttresses had a pronounced batter of 1 : 3 and were plastered with mud 30 to 40.0 cm. thick. The inner face of the wall had been similarly protected. Running out from the seventh buttress was a small low brick wall (13) c. 2.13 m. wide, which had obviously no connection with the scheme of the original wall and was rather a later construction, possibly the remains of the walls of a house, similar to those along the inner face.[5]

4. Along the outer face extended a terrace. Portions of it were found between sections *C′D′* and *CD*, and again at *EF*. This terrace had been a feature of the wall from an early period.[6] The lower and wider terrace may have belonged to the original wall, but the upper one (14, 15) was certainly part of one of the later reconstructions, as it was built against the panelled wall, partially concealing the lower ends of the buttresses. In the surface of the lower terrace were found sun-dried bricks 28.0 cm. square and 10.2 (?) cm. thick, apparently forming only a facing or pavement, since the rest of it was a mass of *tofa*. The traces of the lower terrace extended 13.0 m. out from the base of the panelled wall.[7] The upper terrace *a b* at *C′D′* and 14 and 15

[1] Numbers refer to the large folding plate of wall (4) unless a text figure is specified.

[2] Note, however, the projections in rooms 28, 29 (Fig. 11).

[3] Near the tunnel Dr. Haynes counted thirty courses of bricks of this period still *in situ*. (Report of Sept. 8, 1894.)

[4] The dimensions of the various panels and buttresses, beginning at the southeast end were as follows: Panel I (broken by tunnel), 5.60 m.; buttress I (*the narrowest*), 3.20 m.; panel II, 9.47 m.; buttress II (*widest*), 4.21 m.; panel III (*narrowest*), 8.79 m.; buttress III, 3.22 m.; panel IV (above conduit in Naram Sin wall), 9.48 m.; buttress IV, 3.40 m.; panel V (*widest*), 9.62 m.; buttress V, 3.40 m.; panel VI, 9.52 m.; buttress VI, 3.30 m.; panel VII, 9.32 m.; buttress VII (cross-wall here), 3.30 m.; panel VIII, 9.32 m., buttress VIII, 3.30 m.; panel IX, 9.54 m.; buttress IX, 3.44 m.; panel X, 9.50 m.; buttress X, 3.32 m.; panel XI, c. 8.70 m. remaining; at this point occurs the break (18). Distance between remaining buttresses on either side X–XII, 22.07 m.; buttress XII, 3.35 m.; panel XIII, c. 9.00 m.; buttress XIII, 3.49 m.; panel XIV, c. 9.00 m.; buttress XIV (angle broken by drain 20), c. 3.30 m.; panel XV, 8.69 m.; buttress XV, 3.50 m.; panel XVI, 8.99 m.; buttress XVI, 3.27 m.; panel XVII, 9.12 m.; buttress XVII, 3.65 m.; panel XVIII, 8.49 m.; buttress XVIII, 3.65 m.; panel XIX (broken end of mound), c. 2.0 m., traceable.

[5] Compare this with the wall (5) belonging to the Naram Sin period.

[6] Cf. pages 11 and 15. Also Pl. I and Fig. 2 on page 10.

[7] Owing to its being constructed of clay and the outer edge exposed to the washings of the canal which ran along this side of the city, the full width could not be determined.

at *EF* was 2.13 m. wide and had a batter of 0.73 m. in a slant height of 1.80 m. The surface on which this was taken, was badly broken so that the original batter may have been quite different. (Cf. section, Pl. 4, 5.)

5. At several points there were evidences of different restorations of the wall. The solitary buttress on the inside of the wall, near *EF*, was built of bricks 27.0 cm. by 17.5 cm. by ?. In the curious piece of wall (30), there were bricks 29.5 cm. by ? by 9.5 cm., with a few as much as 32.5 cm. in length. On the exterior of the wall, between *C′D′* and *CD*, there were two layers of *mixed baked bricks*, some 31.2 cm. square by 7.5 cm. thick and others 39.3 cm. square and 7.5 cm. thick. These rested on the remains of the panelled wall and formed the dividing line between it and a later construction of bricks of a peculiar greenish color. In plan this had the shape shown by the black line 11–12 on the plan (Pl. 4, 2). As found it consisted of a recess 20.0 m. long and 2.40 m. deep, with a slight projection 2.50 m. wide at the right end, beyond which the bricks extended 5.0 m. and then ceased abruptly. At the other end the wall ceased just beyond the angle of the recess (11). The bottom of the two courses was 1.40 m. above the remaining top of the conduit (9), while the whole construction had the same magnetic bearing as the panelled wall. The top of the terrace, *a b*, was on a level with these two courses, suggesting that it belonged to the wall as restored above this level. In that case the two courses of baked brick were intended as a sort of footing to preserve the lower part of the wall from a too rapid disintegration.

6. A circular mill of hard stone was found 1.10 m. below the sloping surface of the mound (Fig. 9).[1] It was 56.0 cm. in diameter at the base and 23.0 cm. deep, tapering towards the top. The upper surface was hollowed out smoothly to a uniform depth of 1.50 cm., a rim 7.6 cm. wide being left around it. At one side an opening was left in the rim, and in a vertical line below this, the side of the stone was roughly chiselled away. As the stone was found resting upon its

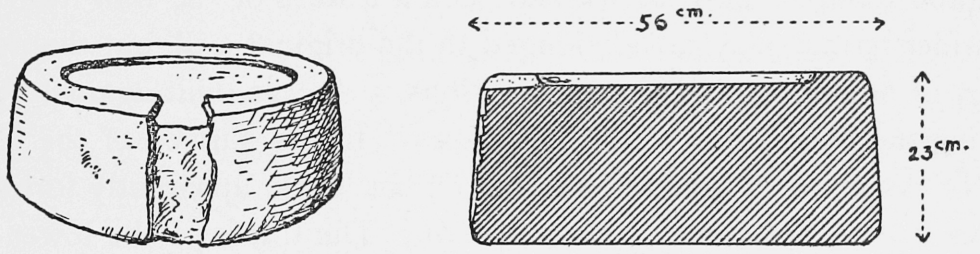


FIG. 9. Stone mill outside of wall (XI).
Scale, 1 : 10 (1.10 m.).

base in its proper position, we can consider it as being *in situ*, especially as it was approximately on the level of the broad lower terrace. Taken in connection with the fragment of wall (13), which I suggested was a portion of a house wall,[2] it indicates that the terrace outside the wall was used for domestic purposes, at least during the later periods.

7. Three vertical drains were found along the outer face of the wall, all belonging to a period after the latter had become the ridge of débris such as we found it. The positions of the drains proved this. The first of these (19) was opposite to the second buttress northwest of the gap (18).[3] It was 1.80 m. from the face of the wall and its top 2.0 m. above the level of the plain, and just below the sloping surface of the débris of the wall. It was of the common ring pattern, with slight projecting rims around both ends of each section with a diameter of 0.68 m. The second one (20) was about 0.40 m. in diameter and apparently of the same character as the last mentioned one—but broken into pieces. Sunk vertically, from the sur-

[1] The center of the stone was 1.50 m. from the face of Naram Sin's wall and 7.50 m. from the angle 7.

[2] See above, paragraph 3.

[3] Opposite buttress 13 from southeast end.

face, it had cut through and destroyed the outer angle of the third buttress[1] from the gap, plainly showing that when it was put in place, the old wall had been covered up and entirely lost sight of. The last drain (31) was located, like 19, a short distance away from the face of the wall and several meters beyond where it disappeared at the northwest end of the mound. The diameter was 0.53 m. and its broken top nearly projected above the surface. Considerable interest attached to it as the center of a group of inscribed Hebrew bowls. These lay from 30 cm. to 60 cm. below the surface and were placed mouth downward in the soil. Under one of them was found a fragment of egg shell with an inscription upon it.[2] Near the bowls was a small yellow vase.

8. We turn now to the interior of the wall. As has been stated this face had been so eroded by the weather that only a fragment of it could be determined. We found, as on the exterior, that a terrace or platform had existed along the inside of the wall, a portion of it being excavated in the neighborhood of the rooms. The width could be traced 7.0 m. from the wall, but the edge was uncertain. The platform must have been raised only a short distance above the level of the main courtyard, *A* (cf. Fig. 2 on p. 10), so that it could be reached directly by one step at any point or by several steps at frequent intervals. In it were incorporated probably the inner projections of the Naram Sin wall, if indeed the presence of these tenacious masses of masonry did not suggest the continuation of the northwest terrace along this side as well, but as the excavations here were not carried below the level of the panelled wall, we cannot be certain of this point.[3] Upon this platform were built a series of rooms which were

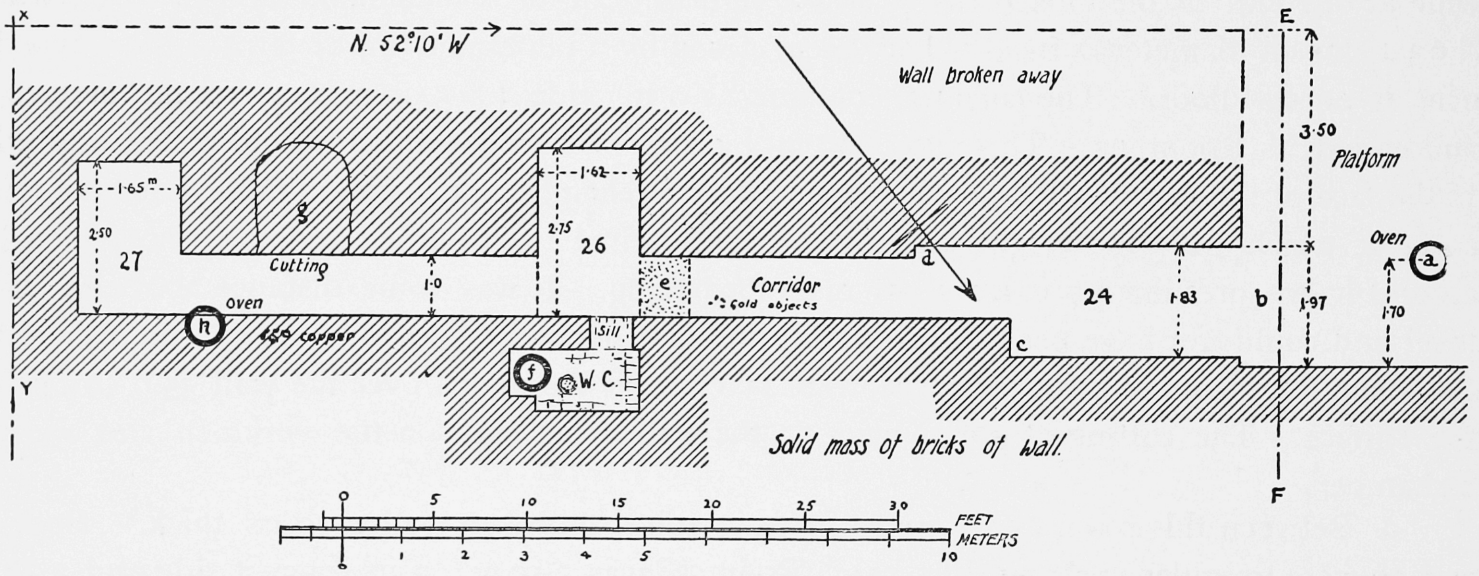


FIG. 10. Plan of Rooms 24–27 inside wall (XI); continued in Fig. 11.

not continuous along the whole northeast side of the wall but arranged in groups (Pl. 4, 1). At least this is what is indicated by the five that were fully excavated (Figs. 10 and 11), as they formed a group unconnected at either end with any similar construction. The outer wall of these rooms was well out in the talus of the mound and therefore had little height remaining, its outer face, excepting outside of Room *29*, having disappeared. What was left showed that it was surprisingly thick and massive, giving to the rooms more the character of cells rather than shops for the sale of merchandise.[4] This group of rooms was 31.0

[1] Buttress 14.

[2] Cf. Hilprecht, Explorations, p. 448.

[3] In the ancient map of Nippur (Pl. 1) we saw that the terrace existed along the northwest wall at that time, but not along the northeast wall. It must, therefore, have been extended at a later period (cf. p. 10). By constructing the terrace, so as to cover up the remains of the early wall, the immense amount of labor, which would have been necessary to remove its solid masses of brickwork, was avoided.

[4] Comp. Hilprecht. Explorations, pp. 488, 489.

m. long and 5.5 m. wide containing five rooms, two of which appeared to be isolated from the rest, as no doors to them were found. The other three opened into a long passage, *24* (Fig. 10). At its commencement, *b*, this corridor was 1.83 m. wide, but before reaching the first room it was narrowed by two unequal offsets, *c* and *d*, one on either side, but not opposite to one another. The offset on the outer side of the corridor was 0.22 m. deep and *c*, 0.61 m., probably representing an edge of one of the old buttresses. The corridor extended more than 10.0 m. without any rooms being found opening from it. In the débris which filled it were found several small gold ornaments, 1.40 m. below the surface and approximately on the floor level of Room *26*, which probably was on the same level as the corridor. At the inner end a low wall of rubble *e* partly blocked the trench carried along the passage, but its top was only a few centimeters above the door sill of the closet opening out of Room *26*. This room was 1.62 m. by 2.75 m. and completely filled with rubbish in which no objects were found. In the northeast end a door 70 cm. wide, having a low ridge of bricks for a sill,led into a small water closet, 1.0 m. wide and 2.10 m. long. This was cut out of the solid brickwork of the wall, as the bricks visible in the floor, walls and ceiling were all of the small size belonging to the original wall. The exposed portions were not all faces, for many of them showed evidences of having been cut through when the room was made. The ceiling was simply one of the regular courses of the wall, and it was not arched, neither was there any trace of wood or other support having been used to keep it in place. In fact the extraordinary compactness of the wall had been sufficient to prevent the collapse of the ceiling of the closet.[1] In a recess 0.76 m. wide at one end of the closet was placed a vertical drain of the common flanged ring pattern, *f*, 63.4 cm. in diameter. Its top had been closed by a perforated lid of terra-cotta, which lay near it on the floor.[2] The corridor continued 1.0 m. wide, for 5.90 m. beyond the first room and ended in Room *27*. This was 1.65 m. by 2.50 m. and contained no objects of any kind. In the face of the main wall near the entrance to this chamber was a single tall cylinder of terra-cotta, *h*, which, from the bright redness to which it had been burned and the traces of ashes around it, we presumed was a sort of oven for baking. It was some distance above the floor level and could not have been in use during the first period of occupancy of the rooms. Near this oven fragments of a copper vessel were taken from the débris over the wall 35.0 cm. below the surface. The cutting at *g* was made in the wall as an exit for the workmen and was not a chamber.

9. Between this room and Room *28* was a solid unbroken wall 2.10 m. thick.[3] Both *28* and *29* were irregular in shape (Fig. 11). Room *28* was 3.10 m. on its longest side and 2.75 m. wide exclusive of the offset at *m*.[4] Along the wall separating it from *27* ran a ledge, *p*, 12.7 cm. wide. Its top was uneven and broken and only raised slightly above the top of the hearth, *n*, which determined the floor level of the chamber. The hearth was 89.0 cm. by 81.2 cm. and 23.0 cm. out from the ledge (Fig. 12). It was a bed of clay surrounded and supported by a rim of baked bricks 32.2 cm. square and 7.6 cm. thick, partially imbedded in the clay floor of the room and extending 3.0 cm. above the clay bed inside. On the side towards the room

[1] That none of these precautions were taken is a further proof that the chamber was not part of the original plan.

[2] Similar lids were found in the Temple area, and drawings of them will be given in the section describing that portion of the excavations.

[3] Half of this wall is in Fig. 10; the other half in Fig. 11.

[4] This offset, *m*, taken in connection with *s* in the adjoining room, suggests that they were one of the original buttresses. They were in line and the space between them, 3.38 m., approximated the width of the buttresses along the outer face of the wall (cf. p. 34). The projection, however, was not quite half as much as that of the latter. This would, however, be accounted for by the partial filling in of the panels.

there was a projection 35.5 cm. wide and 16.0 cm. long, the line of bricks being turned out on each side of it, leaving an opening in the center. This was undoubtedly an arrangement for cleaning out the ashes from the hearth. The clay bed had been baked quite hard by successive

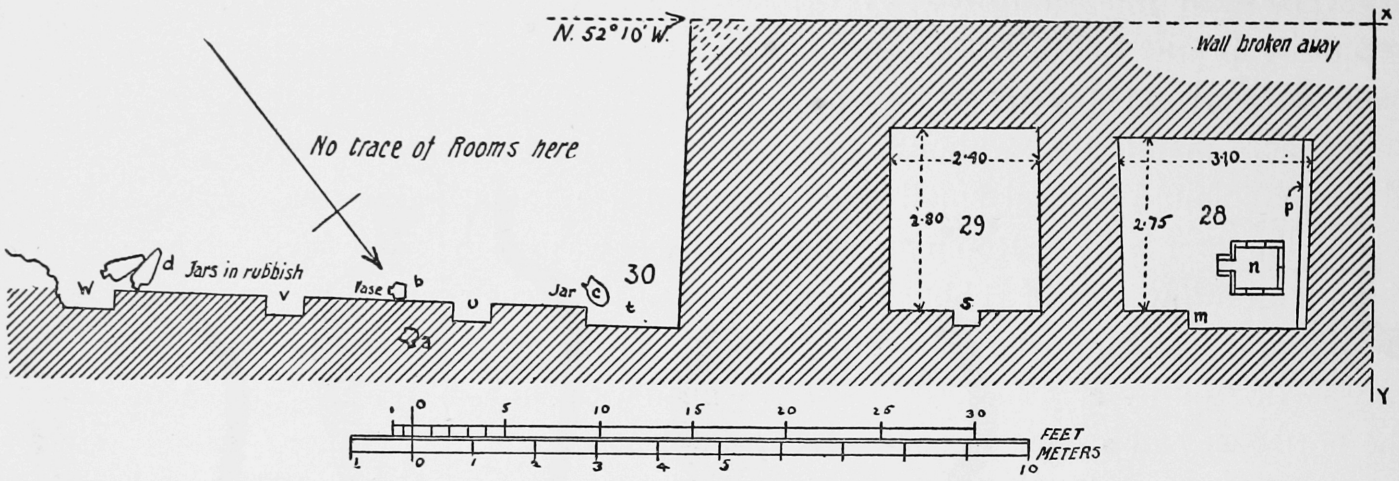


FIG. 11. Rooms 28–29. Continuation of Fig. 11, joining at XY.

fires and on it still remained a thin layer of ashes. A wall 1.24 m. thick separated this room from Room *29*, 2.40 m. by 2.80 m. in size.[1] The only thing of note in this room was a small niche, *s*, 46.0 cm. wide and half as deep, in the center of the northeast wall. A heavy wall 3.40 m. thick, formed the end of the series, and no additional rooms were found to the southeast.

10. At 30 was a short length of wall of a rather curious character, running at a slightly different angle to the main wall. This was traced for 10.0 m. and then lost. The face was divided unequally by small niches — one could scarcely call them panels — 33.0 cm. deep. The one nearest the rooms, *t*, was 1.47 m. wide, while those at *u* and *v* were each 0.61 cm. wide and the fourth one, *w*, which was broken away, apparently had been the same. So far as could be ascertained the object of these was purely decorative. In the débris over and in front of this portion of the wall, five specimens of pottery were found. Taken in the order of their depth below the surface these were as follows: (1) The lower portion only of a vase of yellowish pottery, 0.12 m. below the surface and just over the remains of the wall, as shown at *a* (Fig. 11). It was bulb-shaped, 8.4 cm. in diameter at the thickest part, with a small stand or base (Fig. 13, right). (2) Near this, but inside the line of wall, 0.37 m. below the surface, was a perfect squat vase, *b* (Fig. 13, left). This was 9.5 cm. high and 9.8 cm. in diameter, with a wide flat bottom. The neck was low and the opening in it 5.0 cm. wide. (3) Next to the face of the wall and near the angle 30, 1.03 m. below the surface, was a large egg-shaped jar, *c*, with the upper part of the neck missing. The remaining part was 44.0 cm. over all and the diameter was 30.0 cm. at 32.0 cm. above the bottom. The opening was 13.3 cm. (Fig. 14, right). (4–5) The two largest specimens, *d*, were found together a little farther along the wall near the niche, *w*, and 1.50 m. below the surface (Fig. 15, left). They were of the same type as *c*, but more pointed at the bottom. The best preserved one was 52.0 cm. long from the bottom to the broken part of the neck, and 35.0 cm. in diameter at a point 39.0 cm. above the base. The opening was 13.0 cm. Beyond this wall all the face was so badly disintegrated that no trace of it could be found until near the tunnel at the southeast end, where traces of a wall of small bricks were found with offsets some-

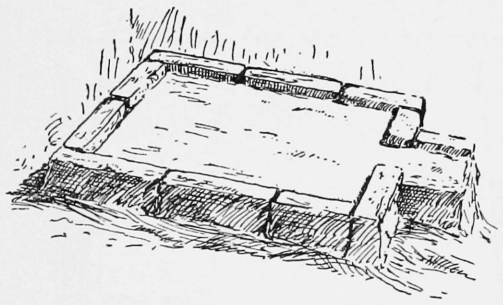


FIG. 12. Hearth in Room 28.

[1] We found no means of communication between these two rooms or with the court outside. If there were doors in the southwest side, they must have been placed in the upper part of the wall, now destroyed.

what like those at 30. This also ran at a slight angle to the main wall and had the same relation to it, but the remains were so low and crumbling that no reliable or satisfactory details could be obtained of them.[1]

11. The most interesting remains were found in the trench carried along the inner face, beyond the gap (18). The first of these was a unique vessel in the form of a jar, found at 23 (cf. plan, Pl. 4, 2). This was 28.4 m. from the edge of the wall on the northwest side of the

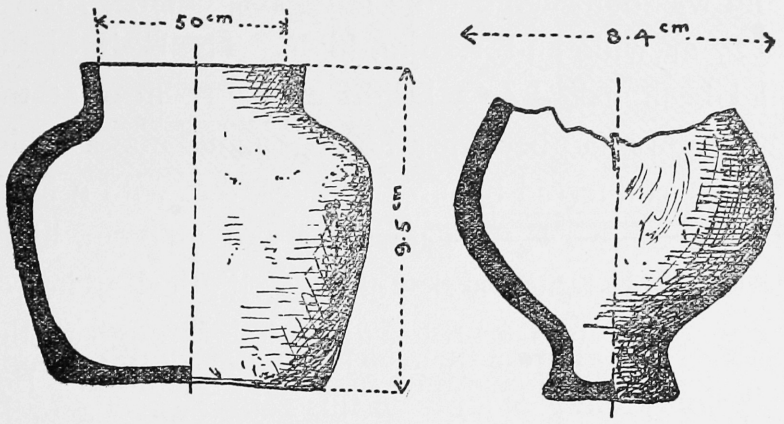


FIG. 13. Small terra-cotta vases from débris along wall (XI). *Scale*, 1 : 2. (0.37 m., 0.12 m.)

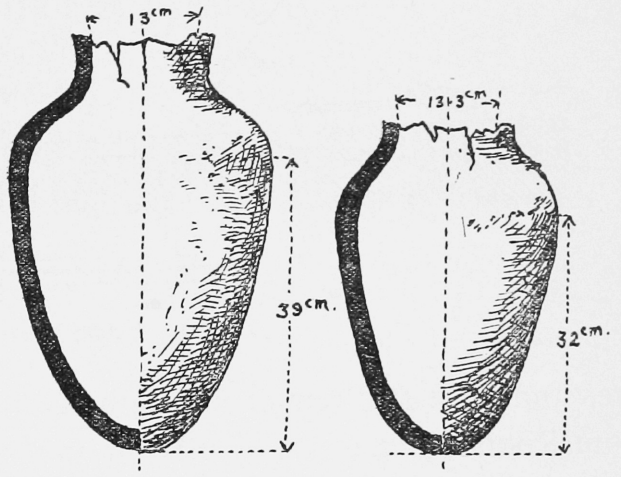


FIG. 14. Jars in upper stratum of mound XI. *Scale*, 1 : 10. (1.50 m., 1.03 m.)

break and close to the line of the inner face. Most of the jar (Fig. 15) was missing and even the lower portion was not wholly intact. The base, which was 1.50 m. below the surface, was a disc of reddish terra-cotta, 50.0 cm. in diameter and 2.5 cm. thick, on which a layer of bitumen 4.5 cm. thick was spread. This was continued up all around to form the sides of the jar, but beginning a short distance above the bottom a core of crude clay was introduced, evidently with an idea of economizing bitumen, so that the upper portions of the sides were really formed of unbaked clay with merely a thin coating of bitumen inside and out. Such construction would have made the jar very weak, but apparently the intention was to make it waterproof instead of strong. This would suggest, too, that it was originally partly, if not wholly, sunk below the ground level and was in fact similar in character to the curious cachettes found at Telloh.[2] In this case it seems to have been used for preserving records, as several small account tablets were found in it, belonging to the dynasty of Ur, c. 2600 B. C.[3]

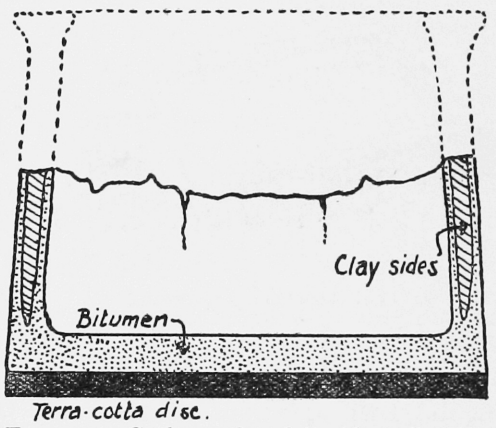


FIG. 15. Cachette found beside wall (XI). Contents: Tablets. *Scale*, 1 : 8. (1.50 m.)

12. At 22 was a construction of baked bricks resembling a short flight of steps (Pl. 5, 2). It was near the top of the mound, resting immediately upon the mass of the wall, and contained nine courses of different-sized bricks of poor quality, laid very roughly. Two courses of a low narrow wall extended part way along the southeast side and beyond this again were two bricks side by side (see on right in photograph) which had no direct connection with the larger structure. At 21 was a small hearth or fireplace like the one in Room *28*, but smaller and less carefully built, consisting of the usual clay platform surrounded by a row of bricks on edge.

[1] These fragments were on the borders of the trench sunk along the inside of the wall by Dr. Haynes in 1894–95. They were high up on the slope, and the lowest traceable courses were above the level of the base of the Ur Gur wall.

[2] Cf. De Sarzec et Heuzey, Une villa royale chaldéenne, p. 57.

[3] Cf. Hilprecht. Explorations, p. 488. Tablets have been found enclosed in the ordinary pottery jars both here and at other sites.

It was 80.0 cm. by 46.2 cm. in size and over a meter from the wall. A quantity of ashes had collected on and around it. A terra-cotta saucer and several fragments of copper were taken from the débris 1.48 m. below the surface, about 2.40 m. to the northwest of the "steps" and immediately over the wall, half a meter beyond the saucer and 0.61 m. below the surface, was a mass of blackened grain.

13. One of the most important finds along this portion of the wall was a well preserved kiln for baking pottery[1] found at 20 (Pl. 3[4], 2).[2] This had been erected upon the platform which ran along the inner face of the wall,[3] and was built against the latter (cf. details, Pl. 3).[4] The general dimensions were 4.35 m. long, 2.17 m. wide and 1.20 m. high. The body of the kiln was wholly of sun-dried bricks, which had been baked to a bright cherry redness at the parts directly exposed to the fire, and bricks and joints had become a homogeneous mass. The arrangement was simply a long baking furnace, *a a*, connected by sloping flues, *b b*, with a horizontal flue, *c c*, extending along the back. The furnace, *a a*, 82.0 cm. wide and 75.0 cm. high, ran the length of the interior of the kiln. It was covered by a series of nine elliptical arches of irregular thickness, separated by spaces which over the furnace proper extended through to the top, leaving long rectangular openings which gave it the appearance of a huge gridiron. Between the arches bricks had been inserted to keep them firmly in position. Three of these—in the first three spaces southeast,—braces being in position when the kiln was uncovered (see half-plan of top, Pl. 3, 3). At the back, these spaces were filled up to form the bottoms of the vertical flues, *b b*, which beginning 30.0 cm. above the bed of the furnace, sloped up at an angle of 45°. At the top they opened into the horizontal flue, *c c*, 12.0 cm. wide and 27.0 cm. deep. The mass of the sun-dried brick of the kiln and wall formed the inner side of this flue, while along the other edge was a double row of baked bricks, *e e*, 35.0 cm. square and 7.0 cm. thick. These were fixtures and reduced the height of the outlets of the various vertical flues to about 10.0 cm. Along the top of the horizontal flue was a row of similar bricks, *g g*, but loose, so that they could be removed and replaced at will. Several tiles, *f f*, of similar size were still in place over the vertical flues, *i. e.*, where they were open on the top of the kiln, showing that they also were covered. It is evident that when all the tiles were off there could not have been sufficient draft to make the kiln of much service, no matter for what it was used. But when all the vertical spaces, *b b*, were closed almost any degree of heat could have been obtained in the furnace by covering the flue, *c c*. The kiln, however, was certainly intended originally for baking pottery and not for cooking purposes.[5] The kilns in modern use, while they have many improvements, do not differ in general principles from this one. For example, Fig. 16 gives transverse and longitudinal sections of a kiln, known as the Virollet continuous kiln, used particularly for baking tiles. Instead of there being only one firing chamber there are a series

[1] Other kilns for baking pottery and tablets have been found in mounds V, VI and X (cf. Peters, Nippur, II, p. 205).

[2] This view shows the kiln as found, excepting that the bricks which were in place over the horizontal and vertical flues have been removed. The upper portions of the last three arches, one forming the door at the northwest end, had fallen in. A copy of this photograph is given in Hilprecht. Explorations, p. 490.

[3] The bottoms of the kiln (20), the fireplace (21), and the tablet jar (23) were approximately on the same level, which was also that of the platform at the rooms 24 to 29.

[4] The drawings on Plate 3 are: (1) Longitudinal section through furnace on line *C D* of plan 3, showing the vertical flues, *b b*, separated by the arches and connected with *c c* by small openings. The arrows show direction of the draft when furnace was in use. (2) Transverse section *A B* through one of the vertical flues, showing slope of flue, top bricks in position and one of the braces between arches. (3) Two half plans, one on the level of the furnace, *E F*, the other on the top, with several of the movable tiles in position over vertical flues. All these show the kiln restored.

[5] Comp. Hilprecht, Explorations, p. 490.

of them, *a a*, so that while one is being fired others are in the different stages of cooling off, emptying and refilling. Each chamber is filled through the door, *b*, which is then closed. Air is admitted through ducts constructed in the walls, and the smoke and vapors carried off

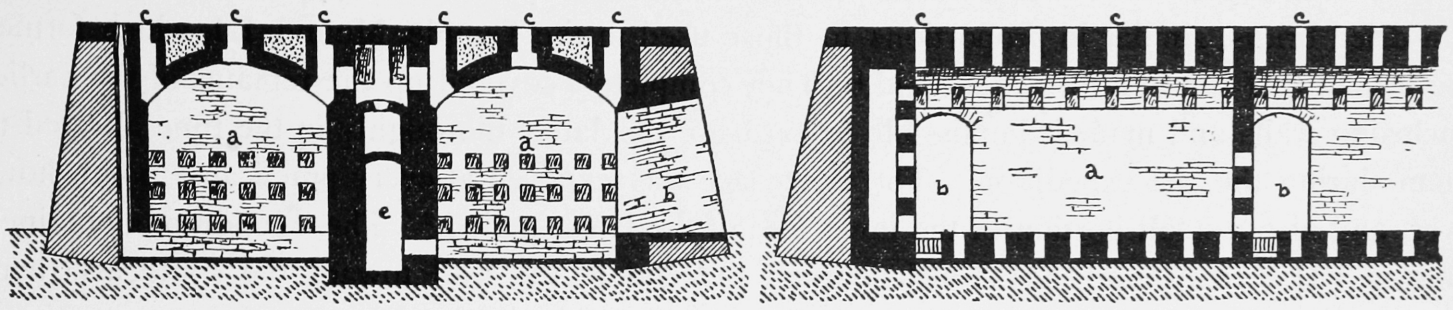


FIG. 16. Sections of a modern kiln. (*a*) Firing chambers; (*b*) doors for filling and emptying chambers; (*c c*) openings in roof for fresh fuel ; (*e*) duct through which smoke and gases are removed.

through a central channel, *e*, fresh fuel being added from time to time through openings, *c c*, in the roof.[1] Turning now to the Nippur kiln, the process must have been much the same. First a bed of fuel was spread over the bottom of the furnace *a*. Upon this were arranged the jars and other objects, previously well dried in the sun. Between the various pieces small terra-cotta stilts (Fig. 17) were placed, both to prevent them sticking together and to allow the heat to circulate around them more evenly.[2] Additional fuel was heaped around the pottery until the furnace was filled and after the fire was lighted, the open arch at the end was closed with bricks or clay, a small inlet being left for air. All the openings in the top were closed with tiles, with possibly wet clay plastered over the joints to make them tighter. Bricks were also placed along the horizontal flue, *c c*, the amount of opening left in the latter regulating the heat. As fresh fuel

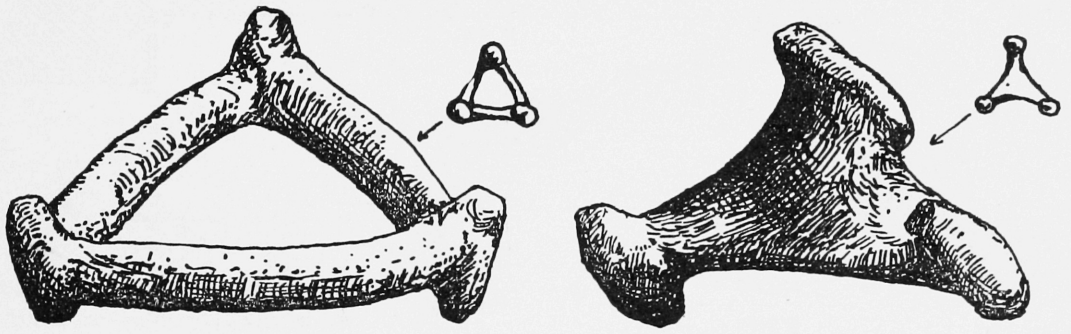


FIG. 17. Hollow and solid tripods or stilts. *Scale*, c. 1 : 1.

was needed it could be introduced through the openings in the top,[3] the cover tiles being lifted off for the purpose and afterwards replaced. When the pottery had been baked a sufficient length of time, the fire was allowed to go out and the kiln cooled off.

14. Six burials were found in the trenches connected with the wall in Mound XI; four of them in the loose earth, without covering of any sort, and two enclosed in jars.[4]

[1] These drawings are from Lefevre, Architectural pottery, p. 315. Other plans of kilns, based on the same principles, are given on pp. 198 ff. of the same work.

[2] These stilts, which resemble those in use to-day, were found in great abundance all over Nippur. (Cf. Peters, Nippur, II, p. 389, Illus., Plate V, 16, 19, 21, 22, and also Hilprecht, Explorations, pp. 313, 491, Illus. on p. 491.) They were of terra-cotta and the majority of them of the shape shown on the right in Fig. 17 although quite a number had the hollow form shown on the left. Many also were enamelled and these were doubtless used as stands for round bottomed vases when in actual use, as well as during the firing of them. Tripods for baking tablets, of a slightly different shape, *i. e.*, with the legs projecting on one side only, have been found at Susa (de Morgan, *Délégation en Perse*, Memoirs, IV, p. 123, Fig. 270).

[3] The fuel of the country was probably limited, as at present, to roots and branches, etc., of small diameter, which could easily be passed through these openings.

[4] A complete description of them will be found in Part VI, Burial Customs, and therefore need not be given here. The numbers of the six burials, however, are given for reference, as follows: Earth — Bur. XI. 1; XI. 2; XI. 4; XI. 5. Jars — XI. 3; XI. 6.

§ 5. Northeast Wall. Mounds VII and XII.

1. The ridge over the portion of the wall in VII was considerably higher than that at XI. This was due to the extensive remains of the late fortress period, recognizable from the large sun-dried bricks, similar in proportions to those used in the Temple Mound, III, which formed more than half the bulk of the mound.[1] They completely covered up the remains of the earlier enclosing walls and made it impossible to excavate the latter thoroughly in the time allotted to them during the last expedition. The outer face was exposed at every practicable point, however, and also a small portion of the inner face of the latest period.[2] These conditions obtained only in VII. In Mound XII, which marked the end of the wall toward the southeast, there were no evidences of the fortress period. On account of the incompleteness of the excavations, it is necessary to describe the contents of the trenches as a whole, rather than the different periods of the wall separately.

2. At the end of the ridge nearest to the pre-Sargonic staircase, a trench was started into the outer slope on the plain level and continued until it reached the remains of a wall running north 39° 45′ west (Fig. 18), which was then followed in both directions.[3] This wall was built

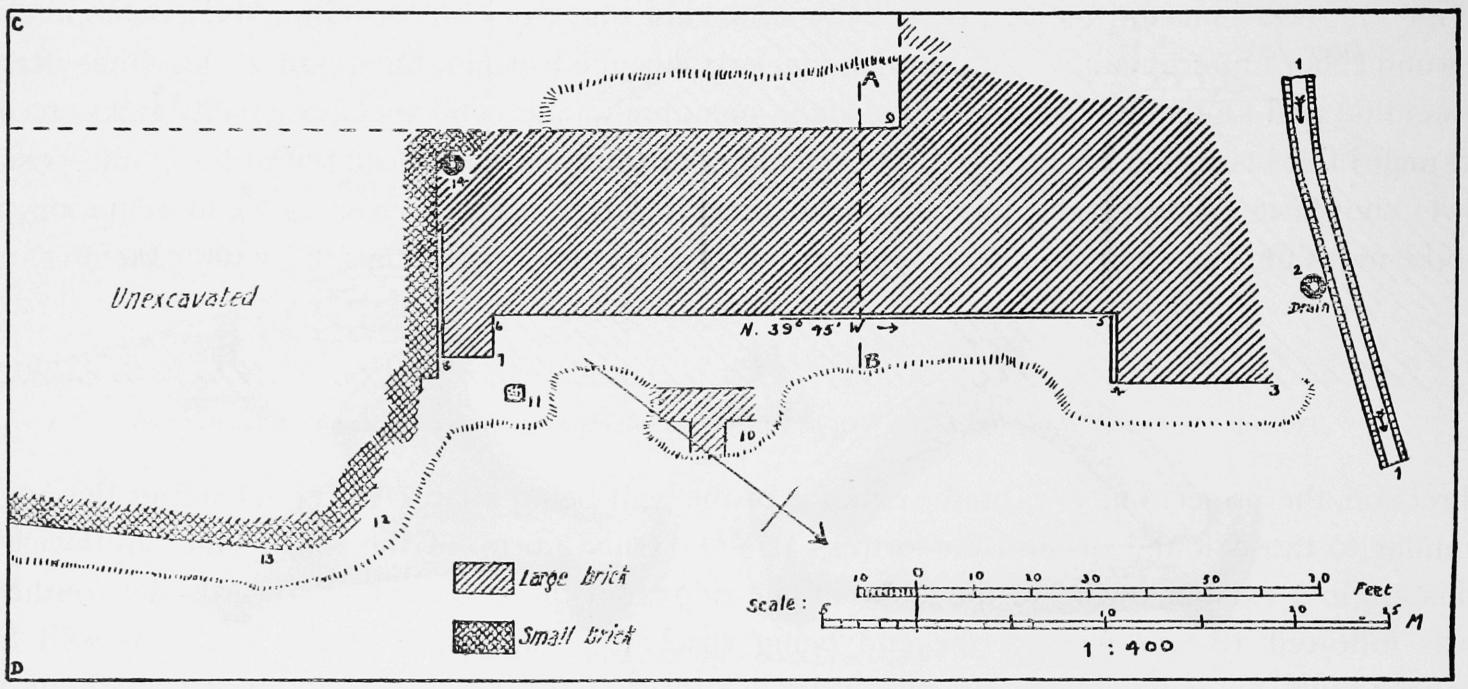


Fig. 18. Excavations in Mound VII, northwest end. (Continued in Fig. 20, *C D*.)

of large bricks, 33.0 cm. square and 21.0 cm. thick, laid in mud mortar.[4] At *5* it ran outward for 3.70 m.; then turned again parallel to the first face for 7.84 m. more and was lost finally in the edge of the slope at *3*. A water-conduit, *1*, running north 32° 45′ east,[5] crossed the line of this last face at 13.3 m. from the angle, *4*. The bottom of this was c. 1.50 m. below the surface of the ground and below the lowest traces of the great wall of the late period. Nearly 19.0 m. of it was *in situ*, sloping towards the outside of the wall. The channel was 44.5 cm.

[1] In Mound XI there was no important débris of periods later than that of the panelled wall and its various restorations, and nowhere was the height of the ridge more than 5.0 m.

[2] The excavations extend through blocks E 13–J 13 on the general map.

[3] All of the exterior of this wall, *i. e.*, between *3* and *8* (Fig. 18), as well as the edge of the earlier wall at *8*, had been uncovered fully by the beginning of January, 1899. The trench along the inner face and the continuation of that along the outer face was made after March 1, 1900. (Cf. note 4 on p. 20.)

[4] Near the wall of small bricks at *8*, bricks were found somewhat smaller than this: 30.5 cm. square, thickness uncertain (c. 20.0 cm.).

[5] At its inner end it turned more towards the southwest. (Comp. Fig. 18.)

wide, paved with baked bricks and the sides formed of rows of similar bricks. These were of different sizes, from 30.5 cm. to 33.0 cm. square and 7.0 cm. thick. To the left of the channel, near its center was a vertical ring drain, *2*, 0.70 m. in diameter, having no apparent connection with the horizontal conduit. The face of the main wall extended 32.6 m. in the opposite direction from the angle *5–6* where it turned out again in an offset, *7–8*, 2.13 m. deep by 2.50 m. wide. Outside this line of wall was a T-shaped fragment of wall, *10*, with what seemed to be a face parallel to the main wall and 3.83 m. distant from it. This contained the same large-sized bricks as the latter, but apparently formed part of a building outside of it, as it was detached entirely from it. Near the offset, *7*, stood a single isolated pier, *11*, roughly a half meter square, built of baked bricks, salmon and buff in color, laid in bitumen. All of them were half sizes, 30.5 cm. by 15.2 cm. and 7.0. cm. thick. While the trench along the exterior was being cut a second one was made on the inner slope of the ridge and in this the inner face of the same wall was found some 3.0 m. above that in the first trench (Fig. 19). At *9* this face turned at a right angle towards the main fortress in III. This marked the limits of the wall in this

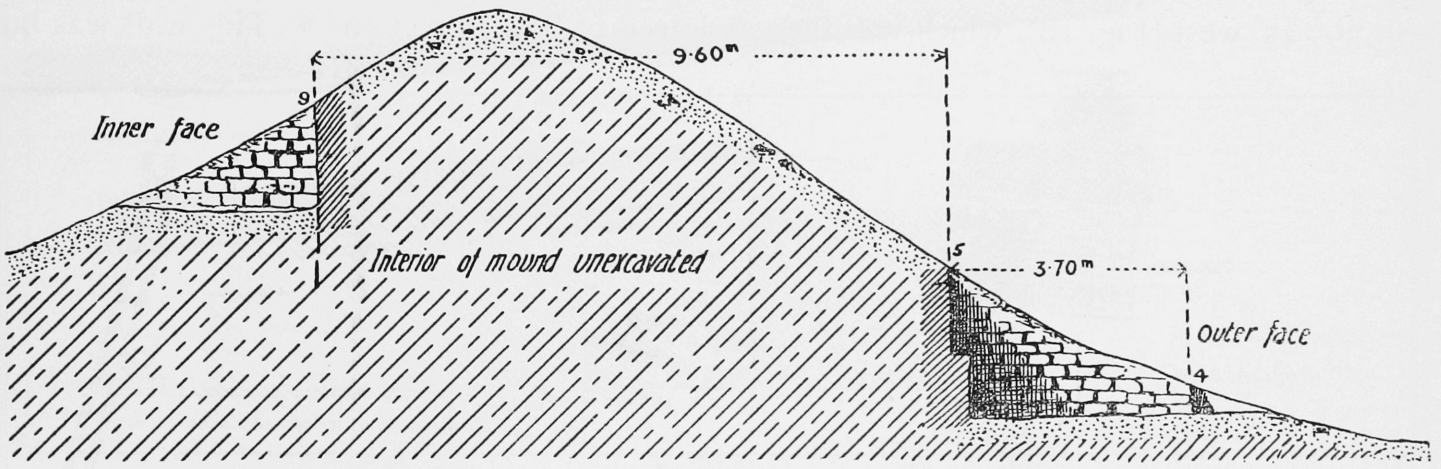


FIG. 19. Section *A B*. (Fig. 18.) Wall of Fortress period, showing levels of inner and outer trenches.

direction, the projection, *3–5*, on the exterior of the wall being a large tower defending the angle, similar to those found around the fortress itself.[1] Only 4.0 m. of the wall to the southwest of this angle *9* existed, owing to the slope of the ridge, but the face running towards the southeast was followed 18.0 m. without the end being reached. The whole of this wall was well and solidly built, extending down practically to the level of the present plain, and throughout the part thus far described, no traces of previous walls were found with it.

3. Not until the point *8* was reached did we come upon earlier constructions. Here began a wall of small bricks 24.1 cm. by 16.5 cm. by 7.6 cm. corresponding to those in the "Ur Gur" wall in XI.[2] What may have been a face of this wall ran back under the mound and against it the later brickwork had been built, a space of from 7.6 cm. to 17.8 cm. wide separating the two periods. This was followed by a tunnel for 11.0 m. until the small bricks turned in the same direction as the large brick wall. In this angle were fragments of a vertical drain, *14*, too badly crushed to be measured accurately, but from 0.50 m. to 0.60 m. in diameter. Outside of the line of the later wall, the face of this wall was broken away, but could be traced in an irregular curve to *12*, c. 13.0 m. beyond the point *8*. From *12* it extended in a straight line, north 34° 15′ west, 74.4 m. to *17*. The only break was buttress *15*, 22.0 m. from the edge *12*, 3.10 m. wide and pro-

[1] The area belonging to the fortress period east of Mound III embraced Mound VII only. In addition to the boundary towards the northwest described here there was a distinct continuation of the ridge along the southeast edge of the mound, marking the extent of the enclosure on that side. (See general plan of mounds.)

[2] Cf. p. 33, note 5. There were some variations: 23.0 cm. by 16.0 cm. by ?; 23.0 cm. by 16.3 cm. by 7.7 cm. These were mainly in the stretch of wall at *15* (Fig. 20).

jecting 0.50 m. from the wall. On the farther side of this buttress was the beginning of a panel 0.53 m. deep, extending c. 9.0 m., beyond which the wall continued in line with the first part. Below the panel, the lower courses projected as a ledge slightly beyond the main wall. A square drainage or drying opening, *16*, pierced the wall above this ledge, 2.50 m. from the buttress. Sixteen courses were *in situ* here, the bricks being the same as those in the face running into

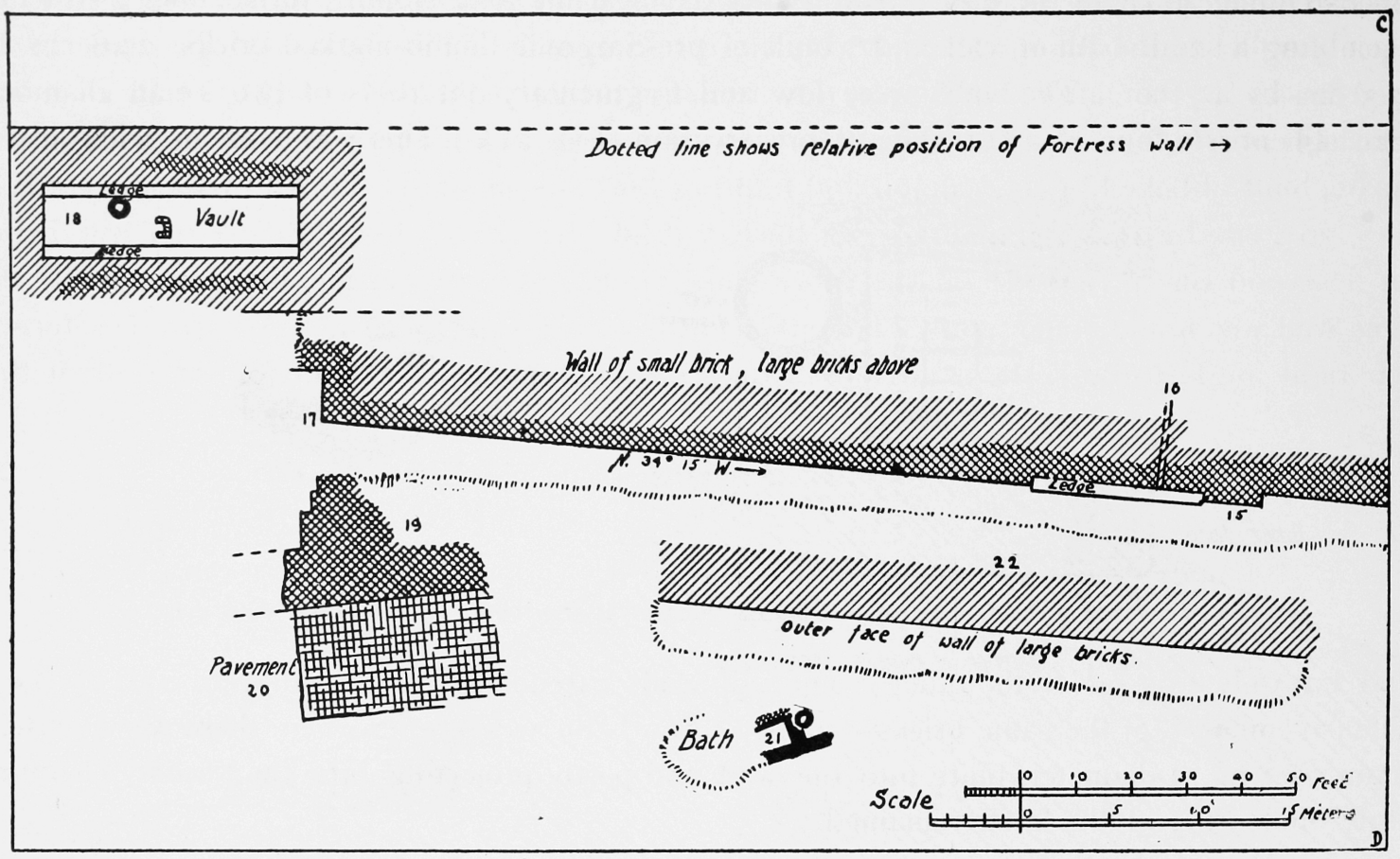


FIG. 20. Excavations in VII, continuation of Fig. 18.

the mound at the later wall. Towards its southern end this length of wall had to be followed by a tunnel, as a large spur of the mound extended out into the plain over it. The large bricks of the fortress period overlaid this work, and could be traced distinctly as far as the opening *16*, but beyond here they had disappeared. An outer face of a wall of these same bricks was found at *22*, 8.20 m. beyond the wall of small bricks, parallel to it. The tunnel at *17* opened into a deep gulley extending some way into the mound, in which were found the remains of a room, *18*, 14.0 m. long and 3.80 m. wide, directly in line with the wall of large bricks at the northern end of the ridge. (See Figs. 18, 20.) As here were traces of bricks belonging to the same fortress period, the room must have been a part of the later wall. Indeed none of the bricks in it were like those in the earlier wall. Those in the lower portions of the walls, evidently belonging to the original structure, varied in length from 23.5 cm. to 26.5 cm. The walls had later been repaired with bricks 33.5 cm. square and 10.0 cm. thick, resembling those used in the fragmentary walls in the Temple area, presumed to belong to a series of fortifications antedating the last great fortress period. Finally there were over and around the chamber large bricks like those found at the northwest end of the mound (Fig. 18). Ledges 0.35 m. and 0.60 m. wide ran along its inner and outer sides respectively. In the room were the fragments of pottery rings belonging to a common vertical drain and also a rough fire-place of bricks.[1] At *17*, beyond the end of this tunnel, the wall turned in 2.80 m. and then parallel again to the main part. Outside of this end was a curious recessed fragment of wall, *19*, of the same small-

[1] This chamber was like the vaults found in the walls surrounding the inner court of the Temple, *q. v.* Mentioned on pp. 15, 16.

sized bricks. This appeared to line up with the return face of the long wall at *17*, and then had a series of offsets from 0.35 m. to 1.8 m. wide ending in a wall 3.4 m. thick, which was *in situ* for 12.6 m. The outer face of this construction had a bearing of north 47° west, which is more nearly that of the panelled wall in XI than any other face in VII. Along this, beginning 1.64 m. from the end of the broken wall, was a rough pavement of broken bricks, *20*, 5.80 m. wide and extending as far as the wall. Still farther out near the long sloping surface was a structure resembling a small bath or closet, *21*, built of pre-Sargonic thumb-marked bricks, 29.8 cm. by 17.3 cm. by 4.7 cm. The walls were low and fragmentary but parts of two small chambers were still *in situ*, one in a fair state of preservation (Fig. 21). This was 1.22 m. wide at one

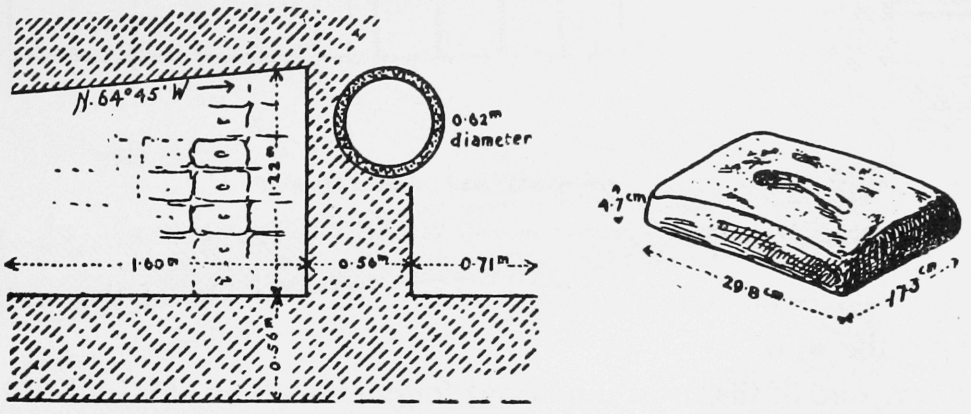


FIG. 21. Bath or closet in pre-Sargonic bricks. Mound VII (Pavement c. 1.00 m. below outer slope).

end but only 1.07 m. at the other. The side walls extended 1.60 m. and were 0.56 m. thick. The pavement — of the same bricks — sloped towards the west corner where there was a vertical drain 0.62 m. in diameter, built into the wall and partly projecting into the second chamber. Only one corner of the latter remained.

4. Beyond the hollow in which the vault was discovered no further traces of the early enclosing wall were found in VII, although trenches were carried into the slope of the mound at two points in an endeavor to find it. In both of them, however, were remains of the fortress period. The first (*22* on map) struck a face of large-brick wall which was followed for over 14.0 m. (Fig. 22). In this, 4.58 m. apart, were two recesses 2.50 m. deep and 1.60 to 1.74 m. wide.

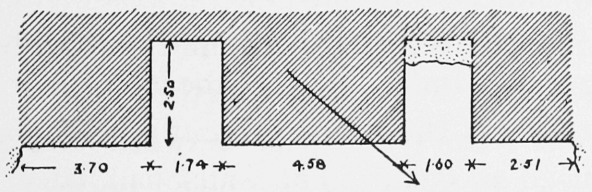


FIG. 22. Recessed wall of Fortress period, near southeast end of Mound VII.

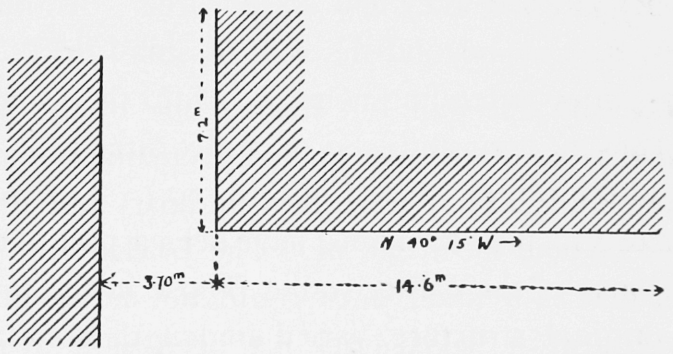


FIG. 23. Angle in wall of Fortress period.

In the second cutting (*23* on map) at the corner of the mound, where the ridge turned towards the southwest, were two walls of the fortress period separated from each other by a passage 3.70 m. wide (Fig. 23). The main wall, whose face was followed for 14.6 m., ran north 40° 15′ west, and at the east end turned at a right angle toward the southwest, following the ridge.

5. Between Mounds VII and XII was a gap not so wide as that between VII and XI, but resembling it in sloping outward from a higher level. At *24* (map), near the surface of the ground, was a conduit of baked bricks running south 42° 30′ west, across the northeast wall line (Fig. 24). The channel itself was 0.38 m. wide and two courses of bricks in depth. The sides

had originally been part of a pavement, but of this, only one row, bordering the conduit, was entire. On the northwest side were scattered fragments of the pavement. At the inner end were two masses of stone, placed in line with either side of the channel. In the construction of the sides of the water-course itself smaller pieces of stone had been intermingled with the bricks. The latter were fine, hard, red specimens, 39.6 cm. square and 7.2 cm. thick. The

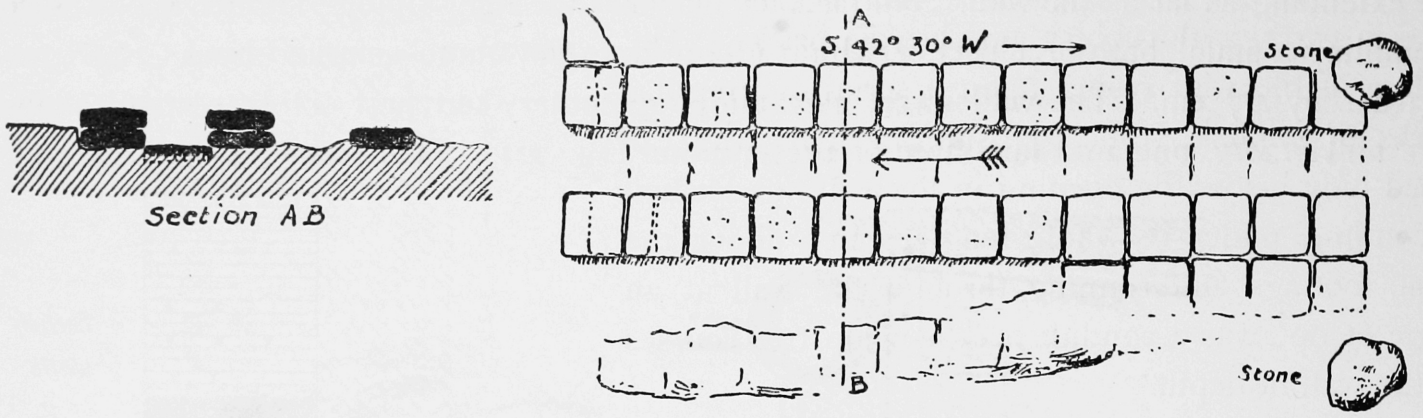


FIG. 24. Water conduit between mounds VII–XII. (0.75 m. below surface.)

water-course was still 5.20 m. long, sloping towards the outside of the walls, as did all the other conduits along the wall.

6. Near this was one of the most important fragments along this end of the northeast side (*25* on map).[1] Originally a gateway or opening had existed in the wall here, coinciding approxi-

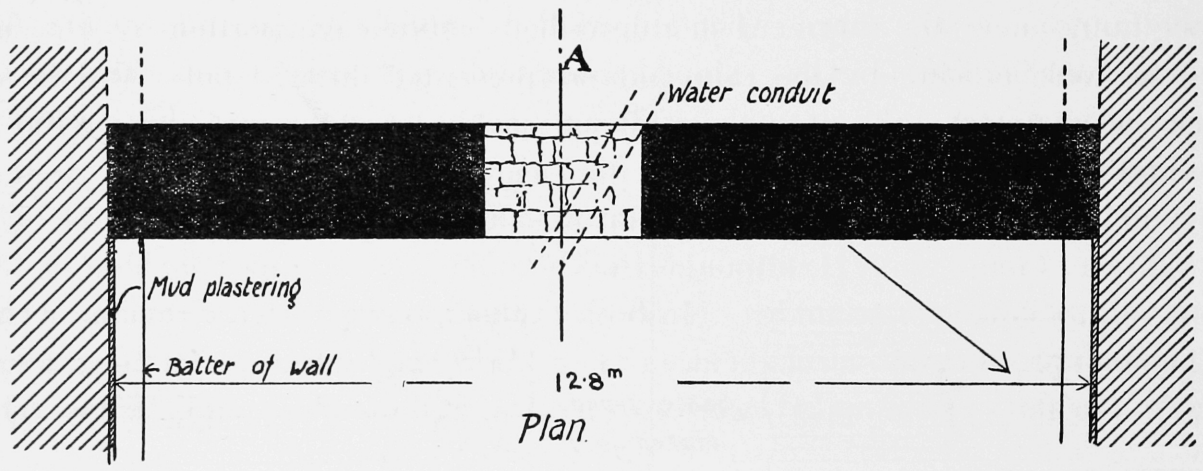


FIG. 25. Late wall between VII–XII. *Scale*, 1 : 100.

mately with the gap, but during one of the later periods this had been walled up. The two parallel faces of the old opening remained *in situ*, perpendicular to the general axis of the enclosing wall. They were 12.8 m. apart and their faces, heavily coated with mud mortar, had a batter of 0.37 m. in 3.0 m. The bricks were sun-dried and so pressed together into a solid mass that individual ones could not be distinguished. Across the space between these two walls a wall of baked brick had been built, at right angles to them, its face being north 38° 30′ west (Fig. 25). Its two ends were built to conform roughly to the batter of the walls, although the face of the wall itself was practically vertical (cf. section, Fig. 26). The bricks were of poor quality, baked only to a pale greenish yellow color, brittle and crumbly, and laid in mud mortar. They varied considerably in size, the majority being 29.2 cm. square and 7.3 cm. thick.[2] The

[1] This wall and the old entrance which it closed was part of the work completed before the trenches were continued along the whole ridge (cf. p. 20, note 4).

[2] Variations were from 28.6 cm. to 27.9 cm. and from 7.6 cm. to 6.3 cm. in thickness. These bricks as well as those in the facing walls of the fortress citadel, in the small shrine north of VI and in the wall along the edge of X, belong to a comparatively late period at Nippur. All the earlier bricks besides being as a rule stamped were better baked, red or pink in color, and towards the end of the Babylonian period, tinged with green. They were superior in every way to those we have mentioned above. While they

wall was 1.48 m. thick, and 32 courses of it equal to 3.20 m. in height, remained *in situ*. The top course was 1.70 m. below the sloping surface in the gap. The ten bottom courses extended completely across the wall, but the central part of the upper ones were entirely missing. This apparently had been done intentionally after the original erection of the wall (Fig. 27). This space, c. 1.98 m. wide, extended to the top, and had been filled in partly with rubbish and broken bricks. The bottom of the wall rested upon a series of irregular blocks of whitish stone (gypsum?). This was exposed only below the opening in the wall but seemed to continue under its whole length. Just above the stone footings and running through the wall at an angle of 60°, was a conduit 0.33 m. wide, two courses of the wall in depth.

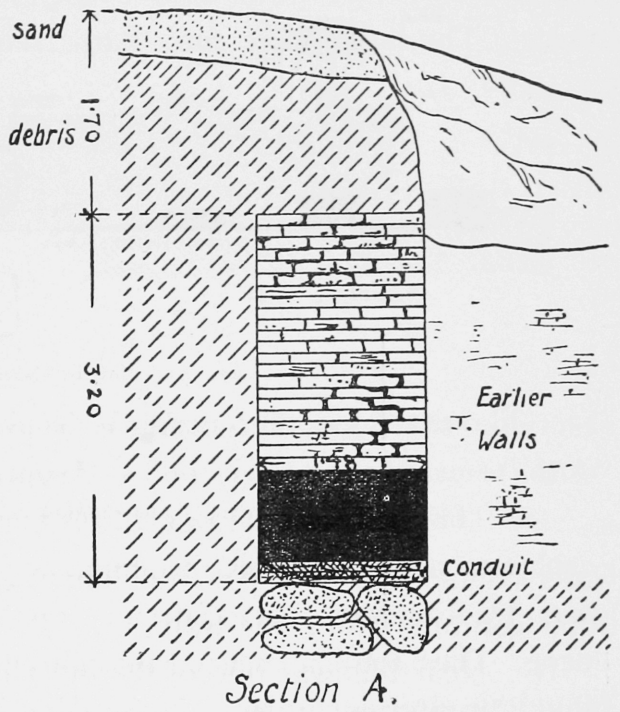


Fig. 26. Section *A* (Fig. 25).

7. Along the outer slope of XII the wall of small bricks was found again running north 38° 15′ west. Here were remains of buttresses, like those which were such a feature of the wall of the same period in XI (Fig. 28). From the northern end of the mound trenches were cut along both faces of the wall, beginning near the fragment just described. Extensive portions of the actual faces on both sides were eroded by the rain and so presented little detail. On the outer face, where bricks were found 23.6 cm. by (?) by 7.6 cm., as shown on the plan (Fig. 28), were a buttress and a panel of nearly the same dimensions as those in the wall at the opposite

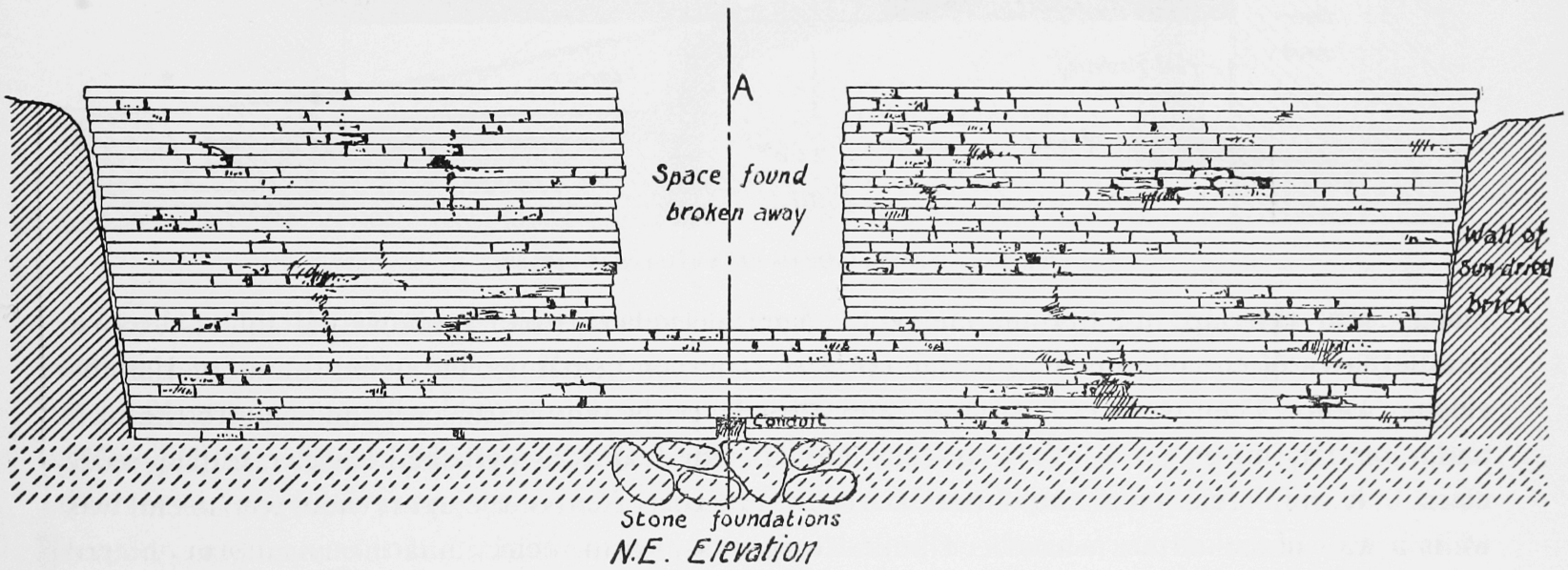


Fig. 27. Late wall between VII–XII. This elevation and the section (Fig. 26) are drawn one third larger than plan (Fig. 25).

end, XI, of the enclosing wall. The buttress was 3.05 m. in width and the only entire panel 8.07 m.[1] At the eastern end was a double offset beyond which the whole outer face was damaged. A terrace, 6.60 m. wide, existed here, corresponding to that in XI (Fig. 29).[2] Although

varied slightly in every dimension owing to shrinkage in drying and baking, there never were the wide ranges in size noticeable here and to a greater extent in the bricks used in the wall in X, *q. v.* Furthermore it is probable that all these constructions were built of bricks obtained from various other walls. This would at once account for the mixed sizes and colors of bricks found in them.

[1] In both cases smaller than those in IX. Comp. measurements of latter on p. 34, note 4.

[2] The latter was 13.0 m. Comp. p. 34, para. 4, and note 7.

the wall was so badly damaged, all the remains indicated that an angle must have existed here, as shown on the plan, although the actual corner was not found. For in a trench cut into the southern slope of the mound, masses of brickwork were uncovered, as well as portions of a ter-

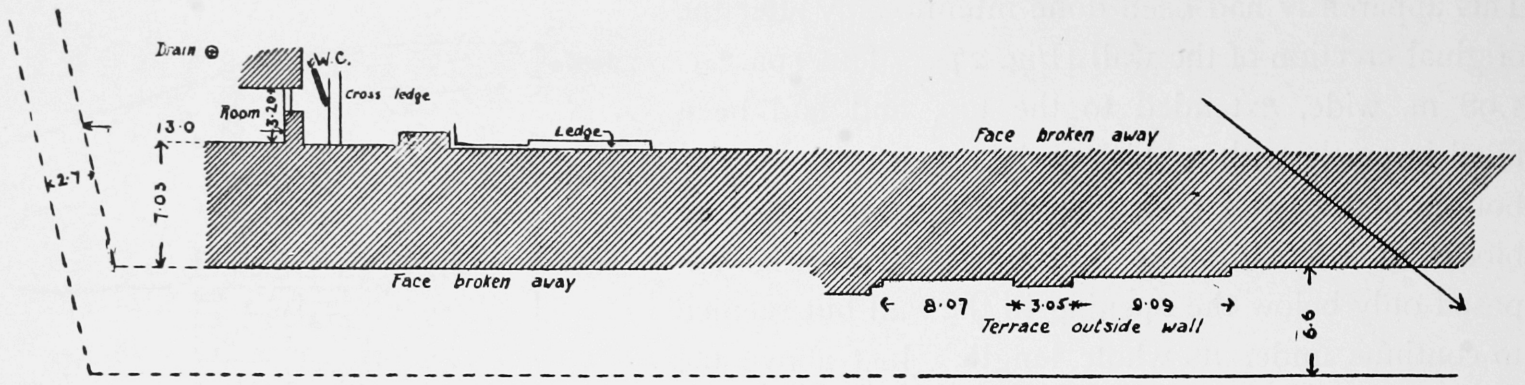


FIG. 28. Wall in Mound XII, forming east angle of northeast enclosing wall.

race like that along the northeast façade, but only c. 2.70 m. wide, and these traces ran west of south, towards the lower end of Mound V.

8. The wall was 7.03 m. to 8.15 m. in thickness. On the inside were a series of footings, each two courses of brick in depth and projecting unevenly 0.05 m. to 0.15 m. The lowest one was at its widest part 0.58 m. On this face was another buttress 3.09 m. wide and 0.58 m. deep. The footings turned into the mound here, forming the edge of a sort of platform which filled the interior angle. In the débris in the trench along this inner face were several bronze rings, 1.06 m. below the surface, and for the most part in fragments, but among them two

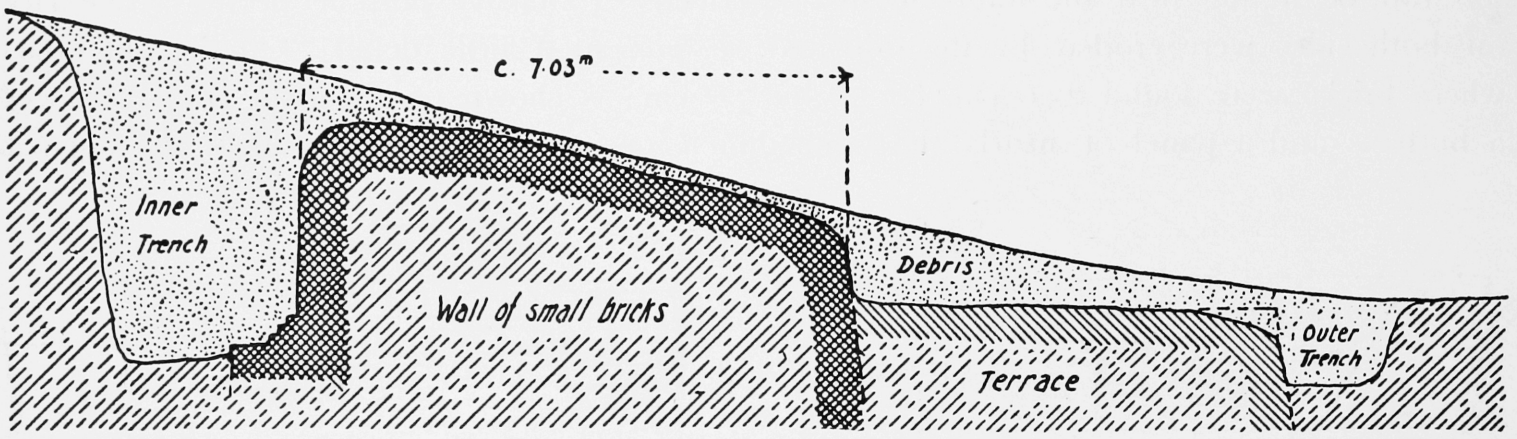


FIG. 29. Section through wall and terrace in Fig. 28.

which still encircled joints of the fingers. Near these were two fragments of tablets 1.30 m. below the surface, while in front of the buttress were two small bowls on the same level as the rings. Beyond the buttress a low ledge extended across the trench, perpendicular to the wall and near the inner end of this a conduit, with bottom and sides of baked brick, ran diagonally to it. Nearly 6.12 beyond the buttress were the remains of a room 3.20 m. wide, whose end was lost in the surface of the mound. The end wall was 1.06 m. thick, and the room was entered through a door 1.45 m. wide in it, having a sill only 0.25 m. wide. Just outside of this door was a fine bronze adze, lying 1.90 m. beneath the surface.

9. The supposed southeast face of the main wall passed 13.0 m. beyond the corner of the room. Along this side a most interesting drain was found, 12.2 m. from the east angle restored and 8.65 m. in from the face. It consisted of a large spherical vase buried in the earth, with a cylindrical section of terra-cotta pipe slanting down into it. This pipe led from a gutter or pavement of thumb-marked bricks above the vase, of which only a few remained. There were, however, traces of sun-dried brick laid in bitumen all around it. The sediment in the vase had been deposited in clearly defined strata, from which we can infer that the drain had not been

used continuously, but at intervals. The whole arrangement was unsanitary and not up to the standard of excellence displayed in the sewerage systems belonging to the early periods, rather resembling the closets unearthed in the garrison rooms of the fortress. According to its arrangement and the utter lack of skill displayed in its construction, I would be inclined to assign it to a date not long before the erection of the fortress. The presence of the thumb-marked bricks and the use of the bitumen and clay together, however, indicate a much earlier date for it.[1]

§ 6. The South Wall, Mound X.

1. The remaining fragments of this wall extended along the southern talus of Mound X and were buried so completely by the débris that there was no distinctive ridge over them and not even the slightest trace on the surface to indicate their position. The wall was found unexpectedly while a trench was being carried into the base of the mound from this side.[2] It differed in every respect from that on the northeast, so that it could not have formed a part of the scheme of circumvallation of the Temple area; which furthermore was separated from it by the broad canal, the Shat-en-Nil.[3] None of the traditional conditions, which to a large extent determined the extent of the walled Temple area, seemed to have obtained on this side of the canal. Here the area was changed at successive periods with little regard to its former size. Then again such characteristic features of the Temple wall, as the great reëntrant angles of the Naram Sin period or the panelling of the later wall, were missing and the wall did not present the same regularity of construction or straightness of contour. Upon examining the details of the wall in X, especially the part built of baked brick which was its most prominent feature, it became apparent that the structure could not be considered as an enclosing wall in the proper sense of the term, but was rather a facing or retaining wall of a great platform,[4] such as the Temple enclosure was before the erection of the Naram Sin wall.[5] Only the outside of the

[1] The use of bitumen as a bond for anything but baked brick and stone was rare. Indeed the only other examples of it are in some unmistakably early drains in the conduits in the Temple area. We have already seen how it was employed in the construction of the cachette (p. 39). The closet described above was a small domestic one and cannot be compared with even the commonest drains of the latest type found so plentifully all over the city.

[2] Dr. Haynes started the work of the last campaign, in February, 1899, at this point, near the place where operations had ceased in the previous campaign. After finding the wall of baked brick, he followed its outer face over 120 meters. He then discontinued work upon it, partly owing to the caving-in of the trenches and partly because, the architects not having arrived at Nippur (cf. Hilprecht, Explorations, pp. 432, 441), no plans could be made of it and portions removed to show its inner structure. Later Professor Hilprecht took up the work and completed, as far as possible, the examination of the wall. Mr. Geere was placed in charge of the men working along it and all the dimensions and details are obtained from his notes and reports.

[3] Cf. pp. 14, 16; also Pl. 1 and Fig. 2 on p. 10.

[4] Cf. pp. 11, 7; 26, 10; 29, 1.

[5] This interpretation differs from that given by Hilprecht (Explorations, pp. 553 ff.) and some explanation is necessary. Before the interior of this wall had been examined fully, the members of the staff were of the opinion that it represented a part of a wall of the city at a late period. After Prof. Hilprecht arrived and the rest of the wall had been excavated, he arrived at a similar conclusion. In his report to the Committee (Report III, Nippur, March 16, 1900), referring to the "long wall south of X," he states: "*We have excavated now the entire length* over 600 feet. It is the later basis of a fortification of the city, by probably one of the Assyrian kings (Sargon, I think, c. 710 B. C.)." Soon after this, in a semi-official report to the *Sunday School Times*, which appeared in that paper May 26, 1900, he states: "With a view to determining the southern limit of the city, I examined a wall partially laid bare by Dr. Haynes . . . following the *entire length of the wall and determining the exact character and age. . . This wall . . . nearly six hundred feet long . . . represents the southern façade of a large pre-Sargonic palace. . . . From a careful examination of all the details obtained within the last five weeks, it follows that it was at least two stories high, had small windows near the ceilings of its rooms, and was paved with the same excellent bricks which formed its southern façade.*" According to Professor Hilprecht's instructions, all notes and drawings of this wall were labelled "The pre-Sargonic palace"; although not being able to recognize these details of the building, we could not accept this identification. However, in his "Explorations in Bible Lands"

baked brick wall was a face, the other side being fitted into the mass of sun-dried brick behind it. The wall throughout its history must have been of this nature since the baked brick portion was built against an earlier wall and later walls were built in turn against its outer face. These different periods were marked very clearly.

2. What was presumably the original platform was found at but two points, *17* and *18* (Pl. 6, 1).[1] These were in trenches extending well into the mound, which was so massive at this point that it was impossible to follow along the whole length of the face. In both cuttings the division between this period and the one following it was shown by a distinct vertical line in the mass of sun-dried brick. While this line may not have been the exact position of the original face of the first period — owing to this having been worn away by the weather — it certainly marked the beginning of the later work built against it. At *18*, however, was the clearest trace of the two periods. Here an undoubted face of the original wall turned at an angle of 90° and ran in under the mound, while the second wall continued on in the same straight line. At *17* the dividing line was parallel to the outer face of the baked brick wall, running N. 63° 20′ E. The body of the masonry was so disintegrated by infiltration that no joints of the brickwork could be distinguished in it, so that it cannot be determined at present whether the platform was constructed of sun-dried brick or simply *tofa* laid up *en masse* like the pre-Sargonic wall in XI.[2]

3. The next period was structurally the most important in the development of the wall. The platform was extended and its exposed face protected by a casing of baked brick. The space between this and the earlier work was filled in with sun-dried bricks, from 30.5 to 34.0 cm. in length, and 14.0 to 13.5 cm. in width, the thickness being indeterminate.[3] At *17* this filling in was 6.40 m. in thickness, from the inner face of the facing wall, *5–6*, to the face of the original platform; and 4.80 m. thick at *18*. This wall remained the southern boundary of the platform until the fortress period, when the whole terrace was enlarged and altered, and the facing wall completely covered up beneath great blocks of sun-dried clay. But before this last period, the wall was restored and strengthened, and apparently extended towards the Shat-en-Nil, on the east. While this properly is a third period in its history, it is so closely connected with the second one, that they can be studied best together.

4. The bricks in the facing wall were made of clay containing chopped straw, well moulded and baked to a yellowish color. They were rather brittle and fairly uniform in texture,

(1903), he makes no mention of this great palace, with its two stories, windows, etc. Instead appears the following description of the structure: "After my arrival at the ruins in March, 1900 (p. 533), we resumed the excavations at this place, and *having followed the wall its entire length, I succeeded in ascertaining its real nature* . . . (p. 535 f.). There can be no doubt that the long wall was a regular facing or boundary wall. . . . It supported the light masses of ashes and dust of the fire necropolis of Nippur. In view of the characteristic form and size of its yellow bricks, which are similar to those found in the section of the Nimit Marduk, to the east of the Temple, we can state positively that this buttress belongs to a period immediately preceding Sargon I." The bricks stated here as similar to those in this wall are those in the fragment of wall found between Mounds VII and XII (cf. pp. 46 f. and Figs. 25–27). As Hilprecht states in a note to p. 536 in Explorations, there was a difference in the size of the bricks used in the two structures. According to their color, size and quality, they can only have belonged to the latest period of Babylonian brick-making (cf. note 2 on p. 46).

[1] The numbers in italics in this section refer to Plate 6, unless otherwise stated.

[2] Cf. p. 28, 1. In fresh cuttings, made as these were, at the end of a rainy season, it is always impossible to distinguish the minor details of a wall of sun-dried wall. But by leaving the wall exposed to the hot sun for several months, the mass can be dried out so that it becomes possible to see the difference between the well worked clay of the bricks and the mud used in the joints. As the campaign closed a few weeks after the opening of these trenches, and before the hot season had set in, this test could not be applied.

[3] Comp. note 2, p. 30.

but varied considerably in size. According to the dimensions obtained from a large number of them at different points along the wall, it is possible to group them roughly into two series, one containing smaller sizes than the other. All the various sizes, however, were found mixed together promiscuously so that the two series have no connection with the two periods mentioned above. The smaller bricks measured 30.8 to 32.3 cm. square and 7.2 to 8.8 cm. thick and those of the larger series, 35.0 to 36.2 cm. square and by 7.1 to 9.4 cm. thick. In addition to these there were a few 34.0 to 34.4 cm. by 7.4 to 9.0 cm.[1] The fact that such a variety of sizes were found built into the same length of wall indicates that the wall was erected with materials taken from other older work.[2] And this in connection with the careless construction and irregularity establishes the comparatively late origin of the work. There was none of the solid painstaking work, such as is found in the early Babylonian work. The courses were laid unevenly and little attention was paid to breaking joints in the bonding.[3] Mud was used for mortar, very sparingly on the exterior of the wall but more extensively in the interior, to fill in gaps in the masonry. The "various sections of the wall (were) not built up from a uniform level. Thus between the bottom of the section marked *8–9* and the bottom of that marked *6–7* there (was) a difference of five courses, equal to nearly 0.50 m."[4] Thus the foundations of the wall were not dug out to a uniform depth. Most probably the loose upper soil was removed and the wall built upon the more solid earth beneath whose depth would of course vary at different points.[5]

5. With the exception of a break of c. 6.50 m. between *11* and *12*, near the northeast end, there was altogether 180 m. of the facing wall *in situ*. This length was divided by small offsets into a series of shorter faces, which were not built in parallel planes, so that in plan the whole wall had a decided bend.[6] A large part of the brickwork had been removed to supply the needs of later builders, there being only from one to thirty-nine courses left at different points.[7]

[1] The following are the exact sizes of bricks in this wall :

Small Series.	Large Series.
30.8 × 7.9 cm.	35.0 × 7.9 cm.
31.2 × 7.3	35.0 × 8.2
31.2 × 8.2	35.0 × 8.8
31.4 × 7.7	35.2 × 7.1
31.5 × 8.1	35.2 × 8.0
31.5 × 8.8	35.2 × 9.3
31.6 × 7.2	35.3 × 7.5
31.6 × 7.4	35.3 × 8.0
31.6 × 8.0	35.3 × 8.5
31.6 × 8.6	35.4 × 7.7
31.8 × 8.0	35.4 × 8.0
31.9 × 8.1	35.5 × 8.1
32.0 × 8.2	35.5 × 8.7
32.3 × 7.7	35.5 × 9.4
32.3 × 8.4	35.6 × 6.8
	35.7 × 7.9
34.0 × 7.4	35.7 × 8.1
34.4 × 7.8	35.8 × 7.3
34.4 × 9.0	36.2 × 8.0

Compare these with the porous yellow bricks in the late domed building in Mound VI, 31.8 cm. square by 7.0 to 7.6 cm. Also the bricks in the facing walls of the citadel in III, small size 31.7 cm. by 8.6 cm., large size 35.0 × 8.9 cm.

[2] This condition existed in the first as well as the restored parts of the brick wall, so that we cannot say it resulted from a demolition of both periods and a second reconstruction from the materials of the first two walls.

[3] Although, as Geere points out, the builders knew how to make a good bond by using half or broken bricks, as shown, for example, in the short return face at *9*. (Pl. 6, Fig. 7.) Even here the system was not carried out in all the courses.

[4] "The height of ten (consecutive) courses varied from 91.2 cm. to 1.0 m., and the average may be called 95.0 cm."

[5] Geere, in his report, from which the above is taken, goes on to suggest that "the wall had been commenced at various points simultaneously on a very roughly leveled base; and the difference of level must have been either wilfully ignored or allowed to pass in order to avoid the trouble of pulling down and rebuilding."

[6] The difference in magnetic bearing between the two end faces was 7° 40′.

[7] Some parts of the wall had to be followed beneath the mass of débris by means of tunnels, so that there were several courses of brick work not uncovered. This was the case along the face *8–9* and the western end of *7–8*. At *8*, the highest point uncovered on the exterior, there were thirty-three courses. The thirty-nine mentioned above were on the interior at *10*. (Geere.)

This destruction was more noticeable at the ends of the wall. For example, at the northeast end there were only two courses and at the southwest end but a single one in place.[1]

6. The face at the southwest was 34.2 m. long[2] and 1.0 m. thick, having a bearing N. 63° 30′ E. Beyond was a curious projection in the wall, *2–5*, resembling the lower portion of a tower, although there were not over five courses left at any part of it. On the side next the first length of wall there were several offsets, *2*, *3* and *4* which carried the wall out 3.26 m. beyond the former. The lateral faces of these offsets were 2.57 m. and 0.15 m. respectively. They ended in a straight face, *4–5*, 10.89 m. long, 1.62 m. thick, and running N. 63° 20′ E. This, at its farther end projected only 0.71 m. from the continuation of the wall. Within this projecting wall was a pavement of baked brick like those used in the wall itself.[3] The east end of this pavement was broken away, but the other finished against a cross wall of bricks at right angles to the outer face and in line with the offset, *3–4*. Only a few partly displaced courses remained, extending in a distance of 6.0 m. The paving evidently belonged to a vault or chamber within the wall, constructed at the same time as the first facing wall.[4] It was filled in subsequently with sun-dried bricks, the remains of which were found as far in as *17*.[5]

7. At its eastern end the "tower" projected only 0.71 m. from the main wall, which continued beyond it in a straight line running N. 61° 28′ E. for a distance of 17.63 m. This was twenty-two courses high and nearly 2.0 m. thick at its base. Along the outer face the bottom courses projected c. 15.0 cm. beyond the upper ones, forming what apparently was intended as a ledge. A similar projection existed along the interior, so far as it was excavated. At *6* a wall 0.64 m. long returned to another short face running slightly outward — N. 64° 30′ E. This fragment was only 3.85 m. long, but proved to be one of the most interesting, if not the most important part of the whole wall. A section of it, about one meter wide, was removed so that the construction of the interior could be examined. It was found that the wall which here reached its maximum thickness, 3.32 m., was not a uniform structure, but really contained the remains of two separate periods, built into and over one another.

8. In the section CD (Pl. 6, Fig. 4) there is first a wall 0.55 to 0.86 m. thick, consisting of nine courses of baked brick, keyed into the mass of sun-dried brick. Another wall, c. 0.60 m. thick, rests upon the latter, with its face set back 2.52 m. from the lower wall. Of this there were in all sixteen courses remaining, and, like the lower wall, its bottom and inner face were keyed into the main mass. (See Pl. 6, Fig. 3.) Both these walls were of the same period. Upon them at a later time, a mass of baked brick had been built, flush with the lower wall and extending farther in than the upper wall, which it completely covered. This work also was joined to the mass of the wall by a projecting ledge two courses deep and 17.0 cm.

[1] Geere suggests that "this is what would naturally be expected, for in the process of removing their material, the spoilers would certainly commence at either end and work towards the center."

[2] "Whether the wall originally extended further in a westerly direction it is not safe to say definitely at present; but trenches were dug with a view to seeing if traces could be discovered and none were found; and the fact that the wall practically ceases at the point where the boundary of the mound turns Northwards makes it appear probable that no such traces would be found. The wall may have turned to the North, in the same direction as the mound, or it may have been merely a facing wall on the principal façade of the building, while the other exterior walls were of crude bricks." (Geere's report.) I believe that the wall most probably followed a course approximating the present shape of the mound, *i. e.*, bounded the platform containing the civic buildings. Another wall, probably of sun-dried brick, enclosed the court to the west of this platform. (See p. 16 and Fig. 2 on p. 10.)

[3] Cf. Hilprecht's remarks quoted on p. 49, note 5.

[4] Compare with the vaults in the wall in Mound VII (p. 44) and those in the Temple (pp. 15, 16).

[5] Cf. paragraph 3 on p. 50.

wide. There seems to have been a panel in the upper part of the exterior, as the last four of the twenty courses *in situ* were set back half a brick.

9. In the opposite side of the cutting, Section BA,[1] the construction was similar to that in CD. There were, however, eleven courses in the lower wall, making its top two courses above that in CD, although the thickness and arrangement of the keying was identical. While the remains of the upper wall were not so complete, it was plain that its thickness was equal to that in CD and its face set back the same distance. The bottom of the later work began two courses higher on this side, corresponding to the extra height of the lower wall, but the narrow tie along the back extended through on the same level as in section CD. Only twelve courses were uncovered. On the exterior was a panel, 14.0 cm. deep, extending from the top of the earlier work, through the whole remaining height of the wall.[2]

10. Nowhere else along the entire wall was there any other construction resembling this face, which might have helped to explain it, and we are therefore unable to determine its precise purpose. It is evident, however, that in the first of the two periods, the wall at this particular spot was built in two stages. The lower one was a short, low terrace, formed of the same sort of sun-dried bricks as used in the core of the main wall, and faced with baked brick. This terrace was 2.52 m. wide. The second stage was faced with a similar wall. In Fig. 3, I have indicated the platform inside the wall about on a level with the fifth course of the upper facing wall.[3] There was no evidence other than the arrangement and height of the keying, that such was its approximate position. When the wall was reconstructed, the accumulations along its exterior had not been sufficient to change the level very appreciably,[4] and the new work followed so exactly the earlier wall, that from the outside no difference between the two could be distinguished. At this time the platform was raised considerably above the previous one, sun-dried bricks still being found in place up to the top of the facing wall. As, however, the traces of panelling along the exterior show that the wall was originally much higher than we found it, it would seem that it still continued to form a rampart around the platform.[5]

11. We now come to the best preserved portion of the wall, *7 8*. This was set back 0.83 m. from the last and extended N. 63° 5′ E. for 30.0 m. It was of a uniform thickness of c. 2.30 m. and had over thirty-three courses still *in situ*.[6] At the western end were the suggestions of a panel like those in *6 7*, but deeper. The wall made another offset of 1.40 m. and continued again 29.26 m. in a different direction from *7 8* — N. 58° 45′ E. The lower part was 1.75 m. thick and along the bottom part of it "there seems to have been a wide ledge, 0.69 m., running along its exterior."

[1] These two sections — shown in detail in Fig. 4 — are the two sides of the cutting in the wall (Pl. 7^4,1). Section CD is drawn as in Fig. 3, but BA is reversed. They appeared thus in the two walls of the cutting and can be compared better in this position. BA is the side looking west and CD east, the direction being indicated by the arrows in Fig. 4 and also on the plan (Fig. 1).

[2] This did not correspond at all with the panel at the opposite end of this face.

[3] It is probable that this wall, besides being a retaining wall for the platform, rose somewhat higher, forming a protective rampart around it.

[4] This is one of the surest proofs of the late origin of the whole series of walls. It is probable that some effort was made to keep the terrace wall free from rubbish, but this was unusual (cf. p. 17, note 4) and would not account for the non-accumulation of débris during the periods when the wall fell into disuse. Even in the fortress period we find that the large blocks of sun-dried clay were laid on a level *only 31.5 to 45.7 cm. above the lowest trace of the earlier work*. It is not likely that excavations were made along the wall to enable the foundations to be carried down to the original level. We have already noted that the first baked-brick wall was laid on the uneven surface of the plain. (Cf. p. 51.)

[5] As I have already suggested was the case in the previous period (cf. note 4).

[6] At the western end there were more than this, but the upper part of the wall, in the roof of a tunnel, was not uncovered.

12. At *9* was a gap in the masonry over 0.80 m. wide, with no indications of there having ever been any connection between the short face running back from the last façade and the long one, *10–11*. There was in fact almost a complete absence of bonding in this part of the wall.[1] It is probable that this was the limit of the wall in this direction during the first baked-brick period. The wall at that time turned at a right angle to the main face, following the plan of the earlier work at *18* (see plan, Fig. 1). Subsequently the wall was extended from this point to *15*, the angle being brought out to the latter point, and the wall then continued in the same way up the banks of the moat. This new work was begun 1.09 m. back from the angle *9* and extended N. 58° E. for a distance of 13.03 m. It ceased abruptly at *11*,[2] but continued again about 7.0 m. beyond, at a slightly different angle. Near *9* the wall was in the best state of preservation. Here two periods were found, identified by walls of very different thickness, built one above the other. (Section EF, Pl. 6, 5.) The first one, which was 1.60 m. in thickness, was built on a lower level than any other part of the wall, its bottom being 45 7 cm. below the lowest course of the wall at *6 7*.[3] The upper wall was 0.68 m. thick, with its outer face set back 0.69 m. from the edge of the lower one. Near the angle a narrow water-conduit or sluice, *10*, pierced the upper wall (Fig. 9). It was 9.0 cm. wide and 40.5 cm. — five courses — high, the top being spanned by a single brick laid in the regular horizontal course. The bottom of the opening was 2.13 m. above the base of the lower wall, *i. e.*, on the top of the latter, so that it was intended to drain the water from the inner platform when the level was raised to that point. Inside the wall was another vault, similar to the one at its western end, with a pavement of baked brick laid 15.0 cm. above the bottom of the outer wall. The rear and west walls, *19*, of this chamber, constructed of sun-dried brick, were *in situ*, so that we ascertained its width to be 4.42 m. The eastern end was broken away in line with the break in the main façade.

13. Beyond the break the continuation of this face of the wall had at most but seven courses remaining, 0.75 m. thick and 5.26 m. long. It ran N. 55° 45′ E.[4] At its end, *13*, was the smallest of the series of offsets, 0.12 m. deep. Just behind this a cross wall extended into the mound (Pls. 6 and 7, 2). This apparently did not enclose a vault like the cross wall at *3*, as no trace of paving was found in connection with it; and the interior face, *20*, of the sun-dried core was here only c. 2.25 m. from the inner face of the casing wall. At *14* were found evidences of an opening in the wall, suggesting another but much wider sluice than *10*. Nothing, however, could be ascertained satisfactorily about the details of this wall, as its height through its whole length averaged but two courses, except where the cross wall had reinforced it. Even here and in the cross wall itself only from five to six courses could be found (Pl. 7, 2). After extending for 10.55 m. in nearly the same direction as the adjoining face — N. 55° 50′ E. — the southeastern façade ended finally at the angle *15*. For a short distance a trench was cut along the eastern face in line with the Shat-en-Nil, but it was extremely difficult to follow it, as the masonry was nearly all either displaced or overthrown. Some 3.0 m. from the corner, however, there was a small offset, showing that the monotony of this side had been relieved in the same manner as the fully excavated façade on the southeast.

14. The final period in the development of the wall belongs to the fortress period.[5] At this time the whole of the earlier work was covered with large blocks of sun-dried clay and

[1] Fig. 7 gives the details of the brick work on this short face.

[2] At this point a trench had been cut through in some earlier stage of the work.

[3] Comp. remarks on p. 53 and note 4.

[4] Owing to this difference in direction there must have been an offset in the gap, as indicated on the plan between *11* and *12*.

[5] Cf. p. 17 f.

straw, averaging 36.0 cm. square and 17.3 cm. thick.[1] From the portions of the outer face uncovered at the five points on the plan (Pl. 6), it will be seen that the new work followed roughly the contour of the baked brick casing wall in its final extended form. But the thickness of the new work was not uniform. At *21*, opposite the terraced wall, *6 7*, it was 8.50 m. thick, and just to the east of this, along the wall, *7 8*, it was only 6.75 m., at *22* but 6.15 m., while at *23* near the east corner, it was 5.75 m. At this latter point the sun-dried brick were separated from the old facing wall by a space of 15.2 cm. The bottom course was 31.5 cm. above the lowest point of the old work. (See Section E F, Pl. 6, 5.) Along the Shat-en-Nil the wall was 5.64 m. thick and separated from the remnants of the baked-brick wall by a space of 4.15 m. This portion of it was traced some 22.0 m. up the canal.

15. In the space between the two walls was a drain, *25*. (See Pl. 7[A], 2, and sketch, Pl. 6, 6.) This consisted of a pavement of baked bricks 38.7 cm. by 38.1 cm. by 7.6 cm.,[2] laid in fine mortar and the whole coated with bitumen. Immediately under this was the bell-shaped top of a vertical drain, 53.5 cm. high and 83.8 cm. in diameter at the bottom. It was of grayish pottery with horizontal bands or corrugations running around it. This too was coated with bitumen, and set in fine mortar. Near it was a fragment of a regular ring drain of yellowish pottery, 67.0 cm. in diameter. The top of the drain was 1.61 m. below the surface of the ground in the Shat-en-Nil.

16. In one of the trenches made in searching for the continuation of the wall towards the southwest a well of baked brick was found. This was more than 36.0 m. beyond the last trace of the wall at *1* (Pl. 6) and obviously had no connection with it, as it belonged to a much earlier period.[3] Its present top was 35.5 cm. below the lowest trace of the latter and was buried beneath 2.21 m. of débris and sand.[4] It certainly extended more than 2.50 m. into the earth, as the rubbish which filled it was removed to that depth before the spring rains filled up the excavation and put an end to further work in it. The sides tapered towards the top, at which point it was 1.83 m. in external and 0.94 m. in internal diameter. The bricks were laid in herring-bone fashion, in alternate vertical and diagonal courses. (See sketch, Fig. 3, Pl. 6.) The bricks themselves "were of a peculiar type, of the average size of 28.3 cm. by 19.5 cm. by 9.8 cm.,[5] and along one edge there was a slight rim or furrow, as if they had been pressed out of the mould by running the thumb or a stick along this edge."[6]

17. A small number of objects, having no connection with the wall itself, were found in the various trenches along its outer and inner faces. Near the southwest end of the face, *1 2*, and

[1] These certainly belonged to the same period of brick making as the bricks in the earlier portions of the great fortress structure in III, which were 33.0 cm. square and 12.7 cm. thick; and those in the vault in the later wall in VII, 33.5 cm. by 10.0 cm. (cf. p. 44). They were somewhat thinner than the blocks used in the main outer wall of the fortress, which were 29.4 to 31.7 cm. square and 23.0 cm. thick; and those in the enclosing wall in VII, 33.0 cm. by 21.0 cm. (cf. p. 42, and note 4 on same page). In the wall at *23*, some few bricks were found 35.9 cm. by 36.3 cm. by 14.0 cm.

[2] Only one entire specimen was found. Comp. Hilprecht, Explorations, p. 535; also note 1.

[3] It was 70.75 m. from the angle *4* of the wall, in the direction shown by the arrow. (See plan on Pl. 6.)

[4] The paving over the drain, *25*, at the east end of the wall was c. 1.07 m. above the present top of the well, but the bottom of the drain was nearly level with it.

[5] These dimensions were obtained from bricks in the top courses and also from some found lying in the débris collected around the well.

[6] Professor Hilprecht assigns these bricks to the pre-Sargonic period. (Explorations, p. 535, note 2.) A similarly built well was found by Haynes in the Temple area, below the level of Naram Sin and the bricks in this were the plano-convex variety with the thumb mark, undoubtedly pre-Sargonic. Those in the well described above were practically flat with but the one furrow along the edge. We have already seen how bricks with finger strokes were used in the great enclosing wall in XI, overlying the work of Naram Sin. (Comp. p. 33 and note 3.)

2.0 m. in front of it was a rough fire-place of thumb-marked bricks, 27.7 cm. by 17.5 cm. by 4.4 cm.[1] They were set up on their long edges to form three sides of a square 32.0 cm. over all. Their upper edges were 1.92 m. below the surface of the débris. In and around the fireplace were traces of wood ashes. Not far from this, in the corner *3 4*, was a burial in two medium-sized jars of unusually graceful shapes, one of them having two small handles.[2] From the extreme western end of the wall, *1*, came a fragment of an inscribed tablet and two clay objects, one a common whorl and the other the body of a toy animal (Fig. 30), whose head and legs had been broken off. These were 1.5 m. from the end of the brickwork, 0.75 m. outside the face and 3.0 m. below the surface. From another trench came a very small copper coin (?) almost entirely eaten away. This was 1.5 m. from the wall and 1.75 m. below the surface.[3] In the trench inside the wall, near *13*, were two copper cylinders, filled with a whitish substance, another clay whorl and three beads, blue, red and white, respectively. All were c. 1.60 m. below the surface and 1.40 m. behind the wall.[4]

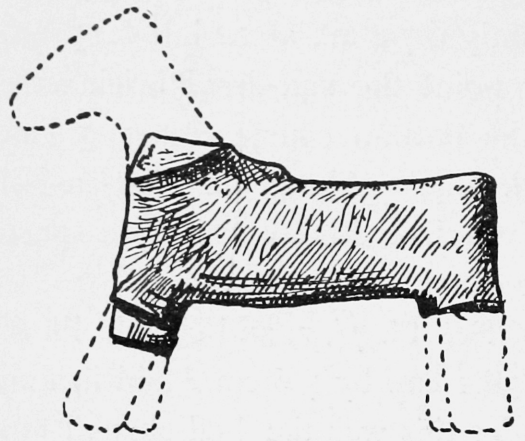


FIG. 30. Toy animal in terra-cotta (restored). Near wall in X (3.0 m.).

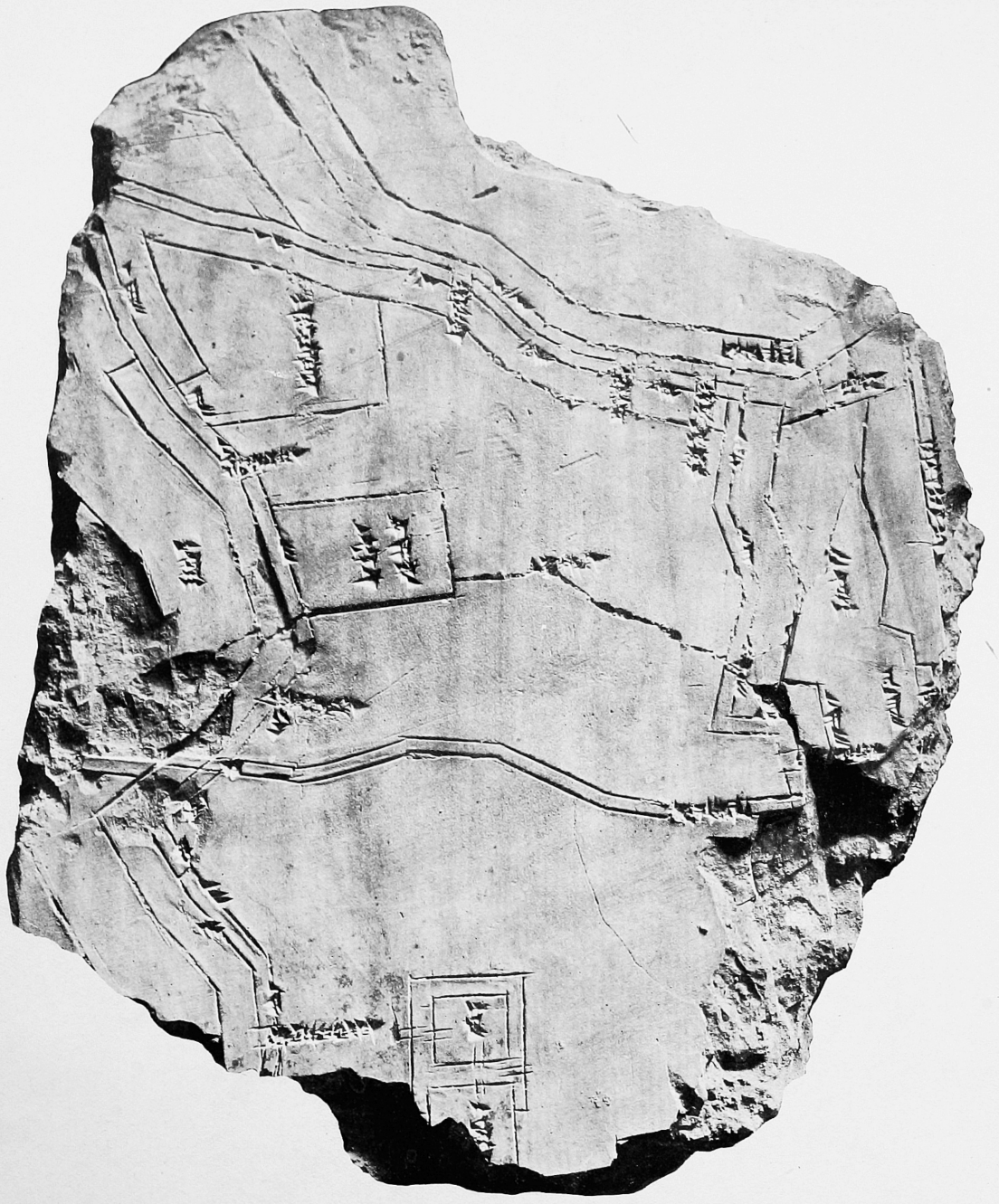
[1] These were the only examples of the purely pre-Sargonic bricks found along the wall.

[2] This burial is numbered X 1, and will be described in the part devoted to Burial Customs. (Cf. 41, note 4.)

[3] Its exact provenance was not recorded.

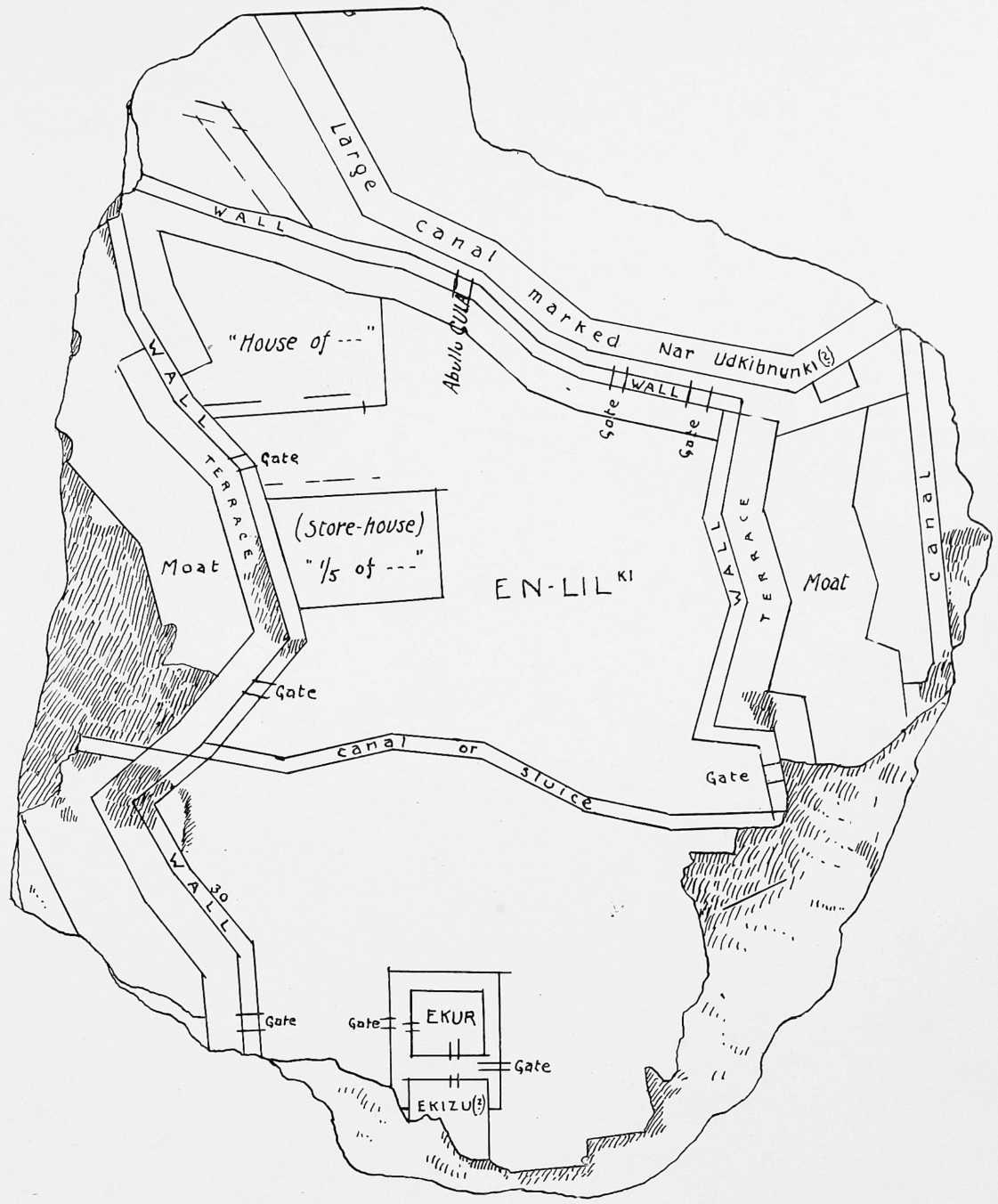
[4] In addition to these Professor Hilprecht mentions as having been found along the wall two more "fragments of pre-Sargonic cuneiform tablets, a clay impression of an early type of seal cylinder, a fragmentary cylinder in soapstone from the interior of a mud brick, . . . the fragment of a large alabaster bead, . . . two fragments of a copper arm ring, an entire pre-Sargonic terra-cotta cup, and a few pieces of stone vessels of the same early period." (Explorations, p. 535.) The ones recorded above are those mentioned in Geere's notes, and the provenance of each, with the single exception noted (the coin), is known.

1



Fragment of a Clay Tablet Containing the Plan of the Enceinte of Nippur During the Early Period.

2



Plan of Nippur Drawn from Fragment, Showing Location of Temple, Walls, Gates and Canals.

PHOTO. BAB. EX. 1900
PLAN BY FISHER

CITY WALL (N.E. Section. Staircase.)

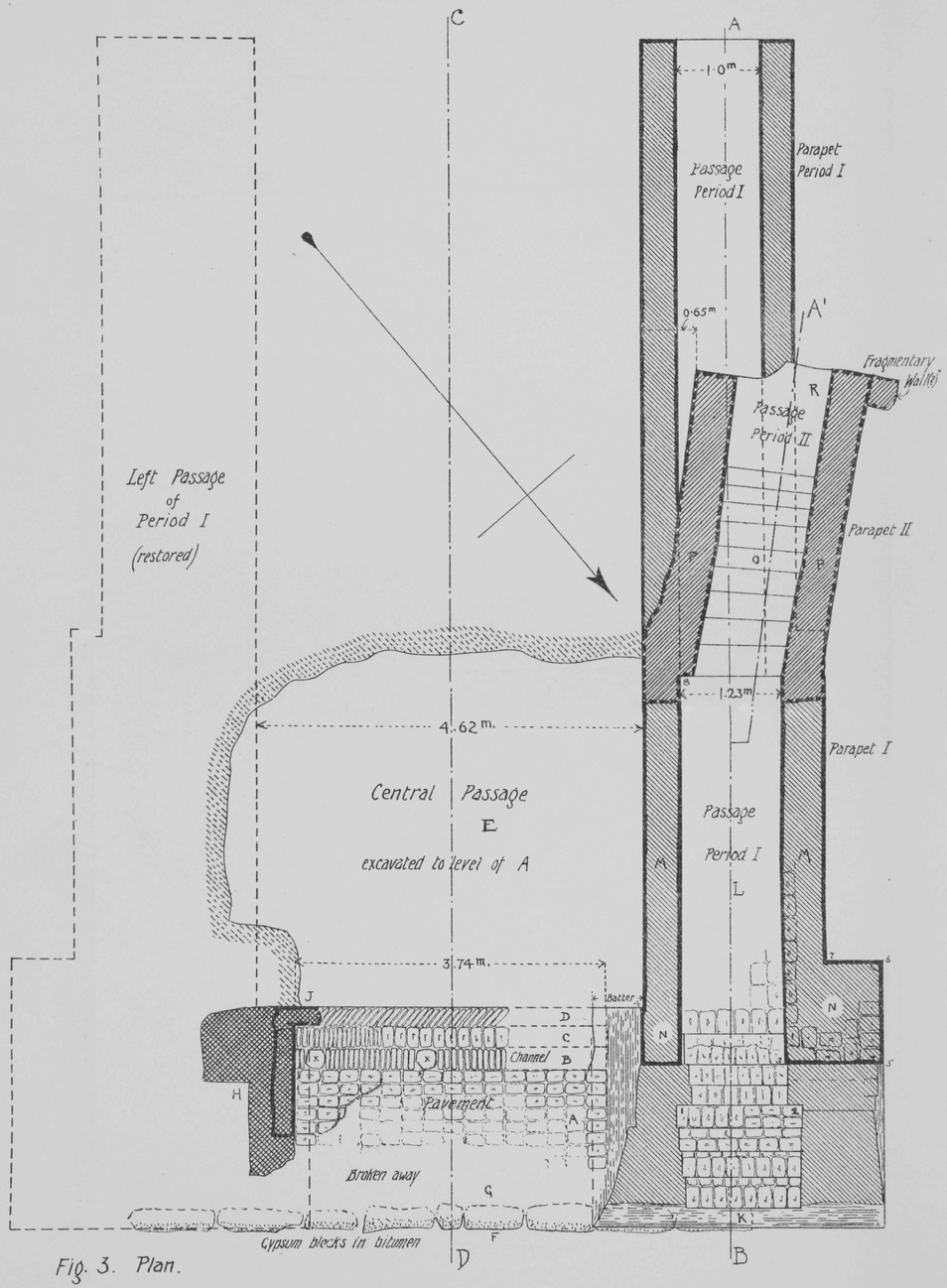


Fig. 3. Plan.

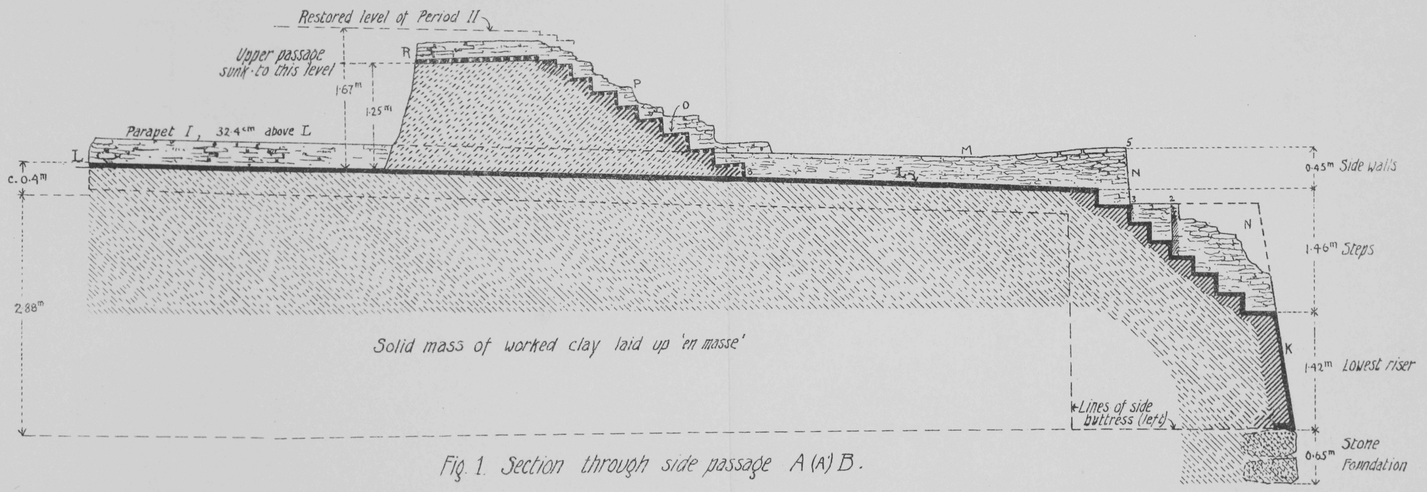


Fig. 1. Section through side passage A (A') B.

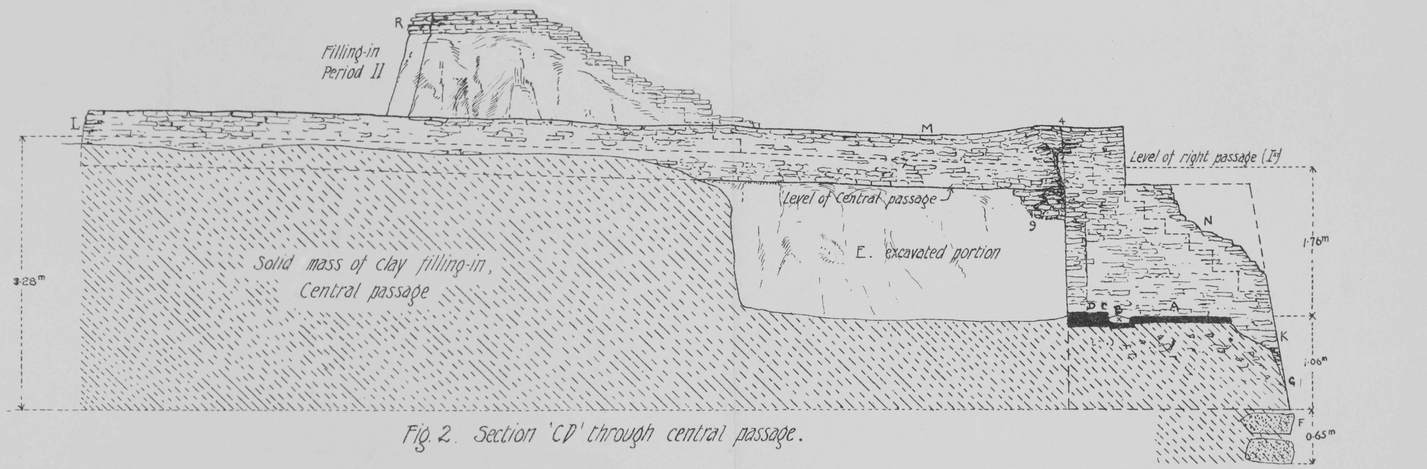


Fig. 2. Section 'CD' through central passage.

Brick, period I
Brick, period II
Foundations "
Filling-in "
Filling-in "
Stone

Scales:

1 : 50

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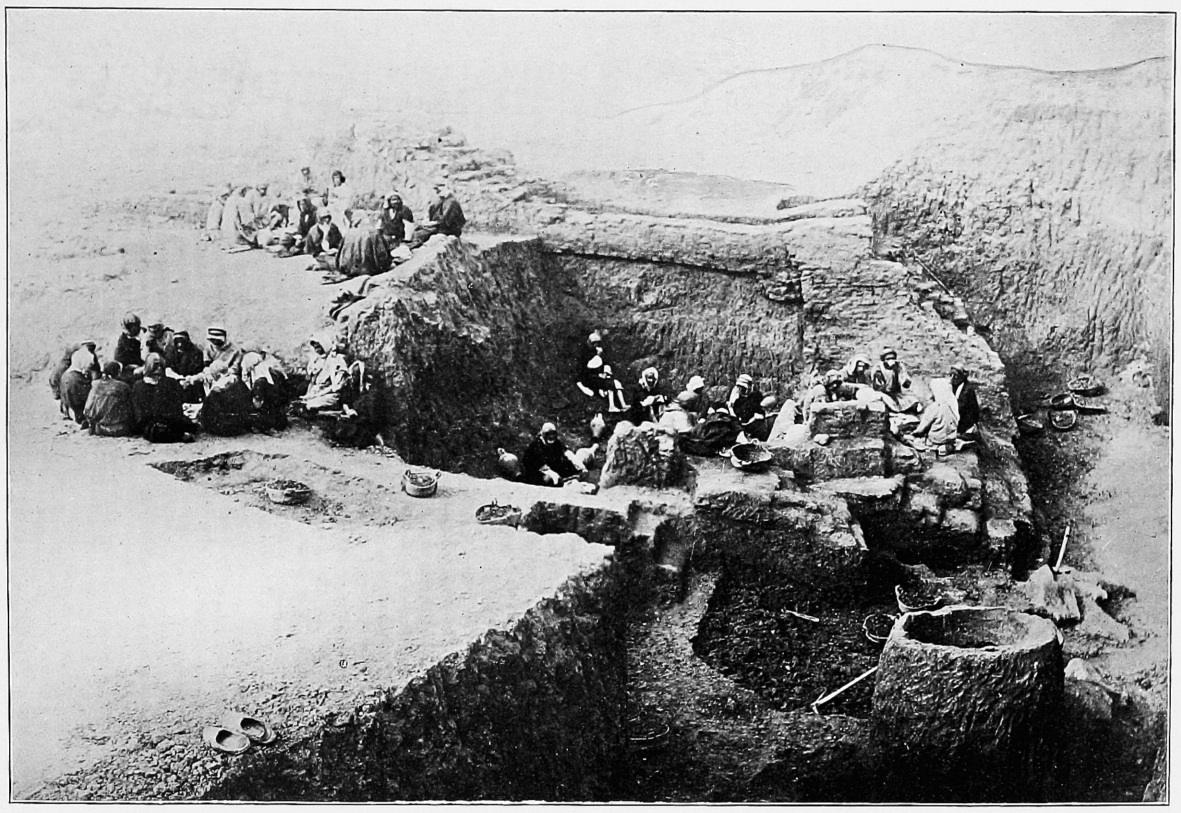
FISHER

1



Side View of Pre-Sargonic Staircase.

2

PHOTO. BAB. EX. 1899

Front of Staircase, Showing Distortion of Steps of Period II.

1

CONDUIT IN ANGLE OF NARAM SIN WALL.

2

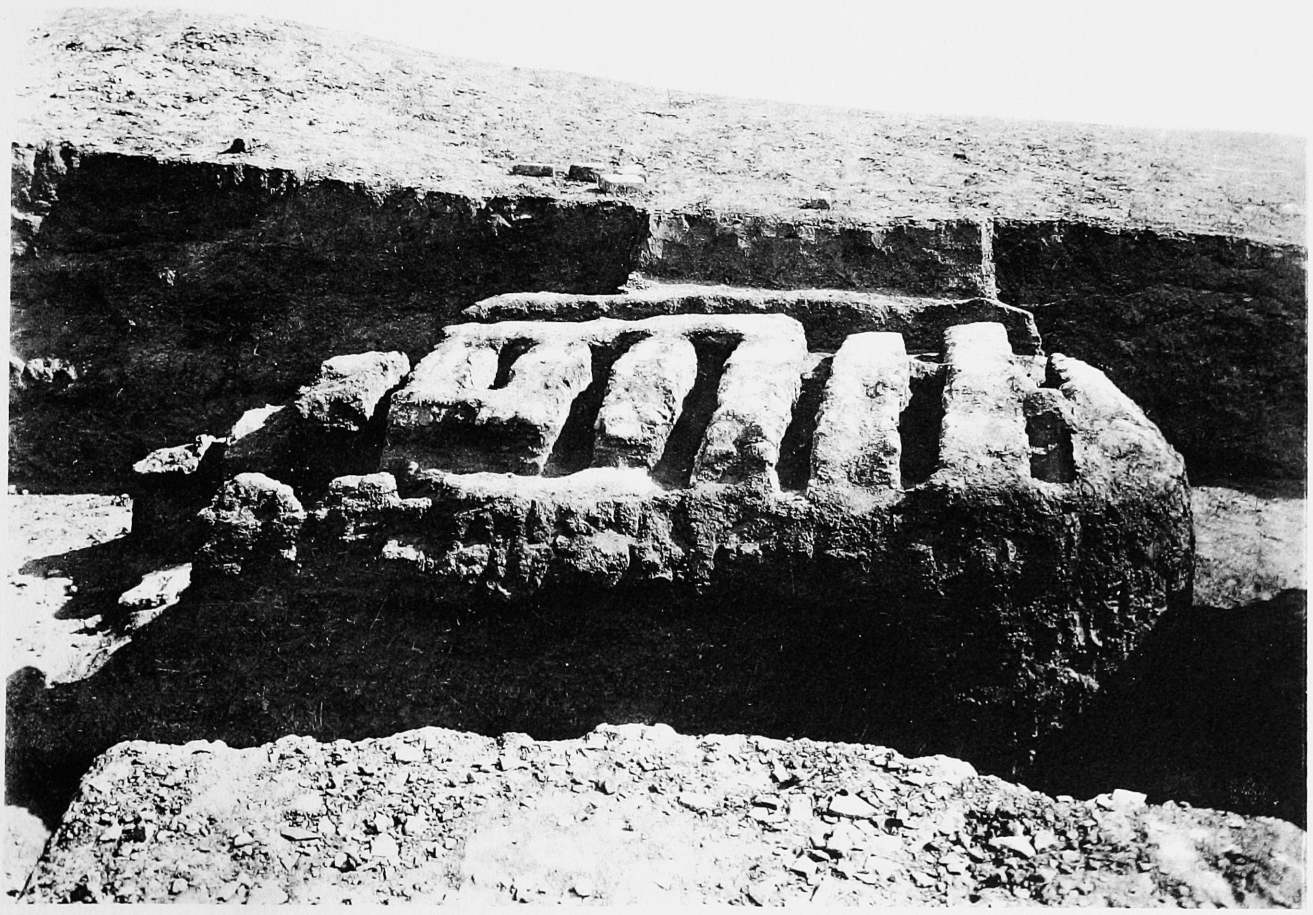


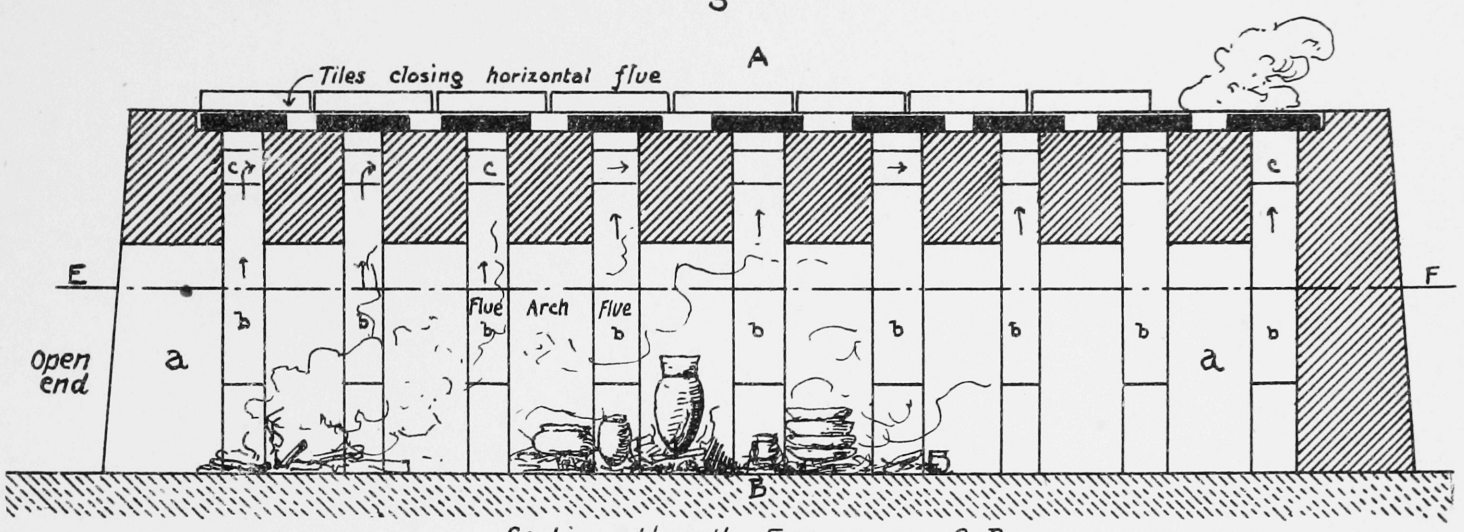
Photo. Bab. Ex. 1900.

POTTERY KILN ON INSIDE FACE OF WALL.

POTTERY KILN INSIDE N.E. CITY WALL.

PL. 3A

Fig. 1



Section through Furnace on C-D.

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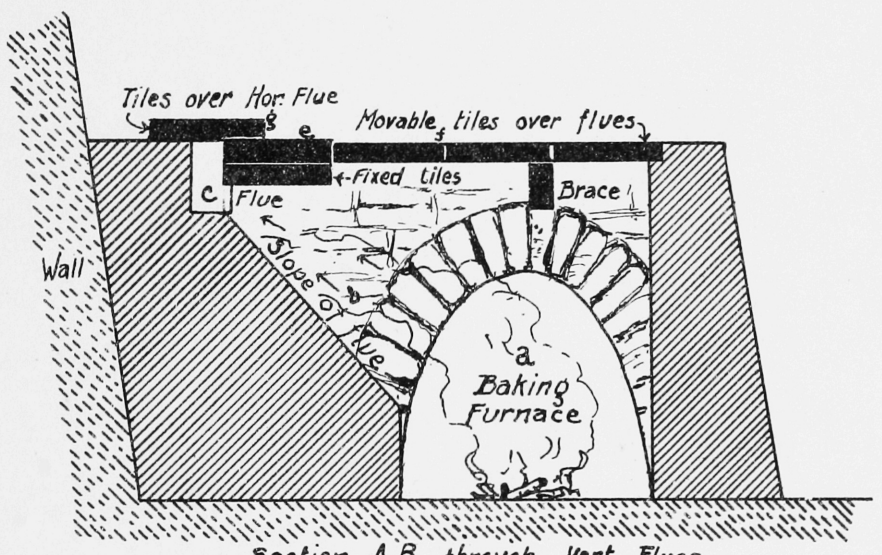
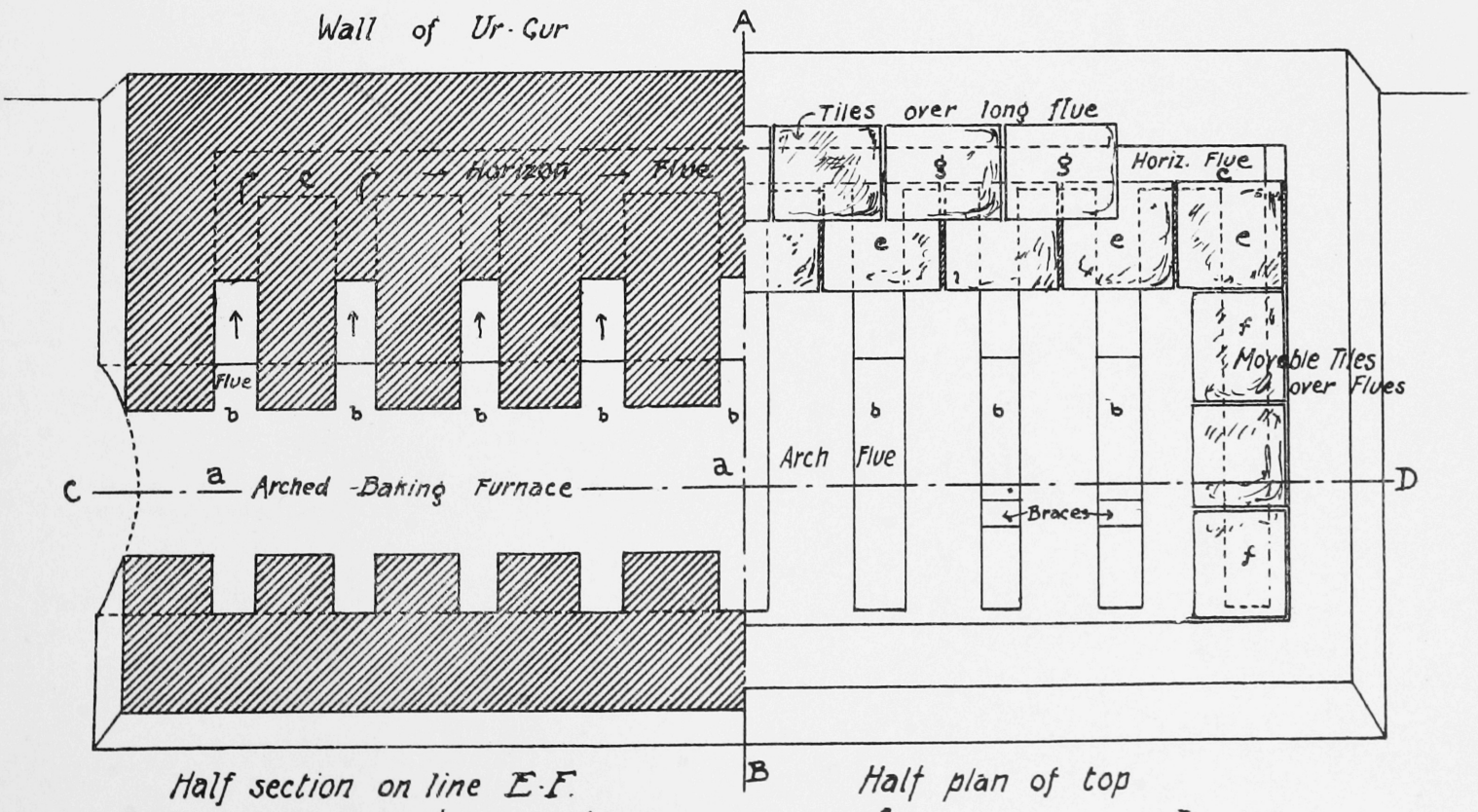
Fig. 2



Section A-B through Vert. Flues

Fig. 3



FISHER

CITY WALL (N.E. Section. Mound. XI

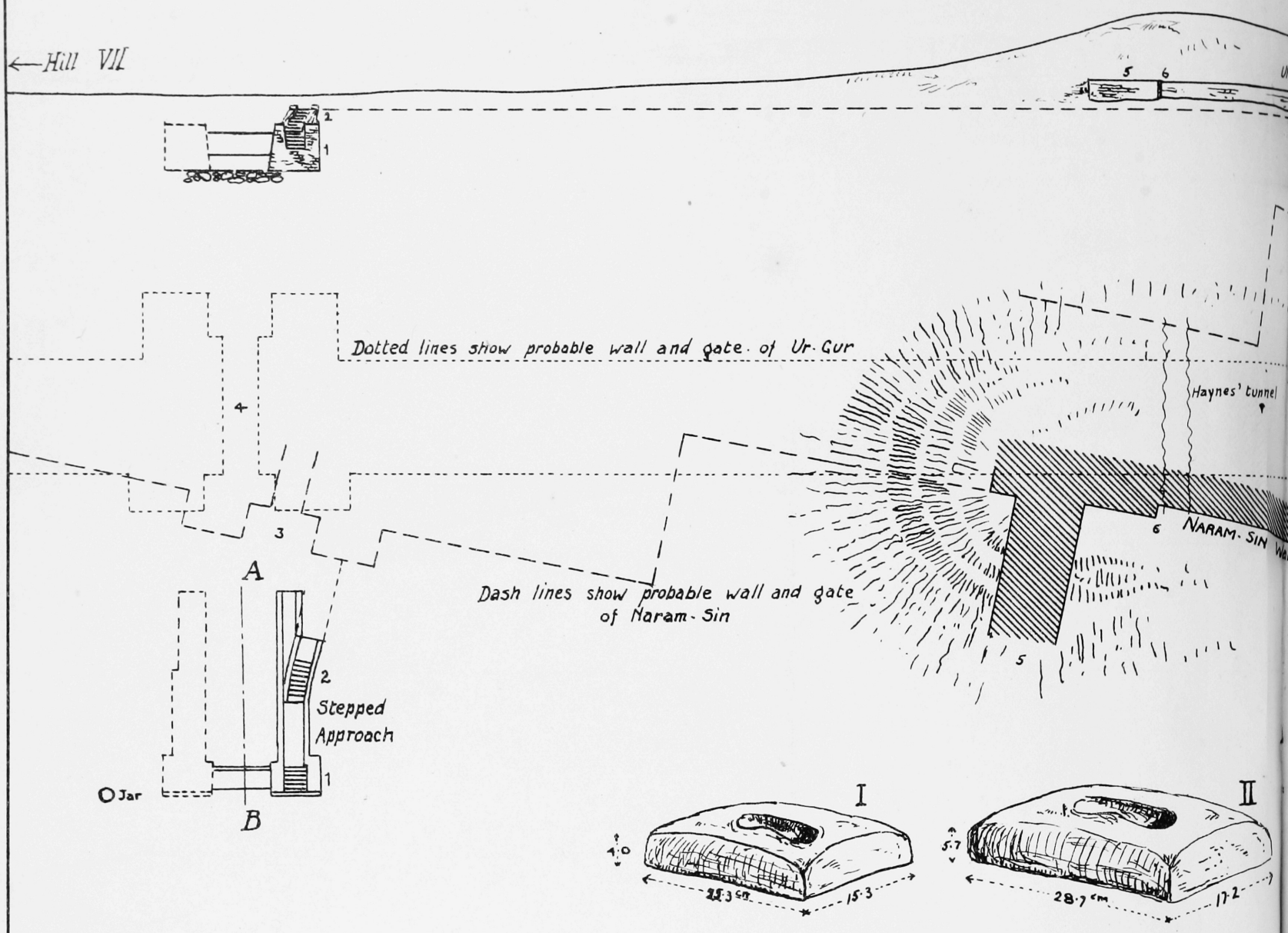


Fig. 7 Types of Pre-Sargonic bricks in Staircase

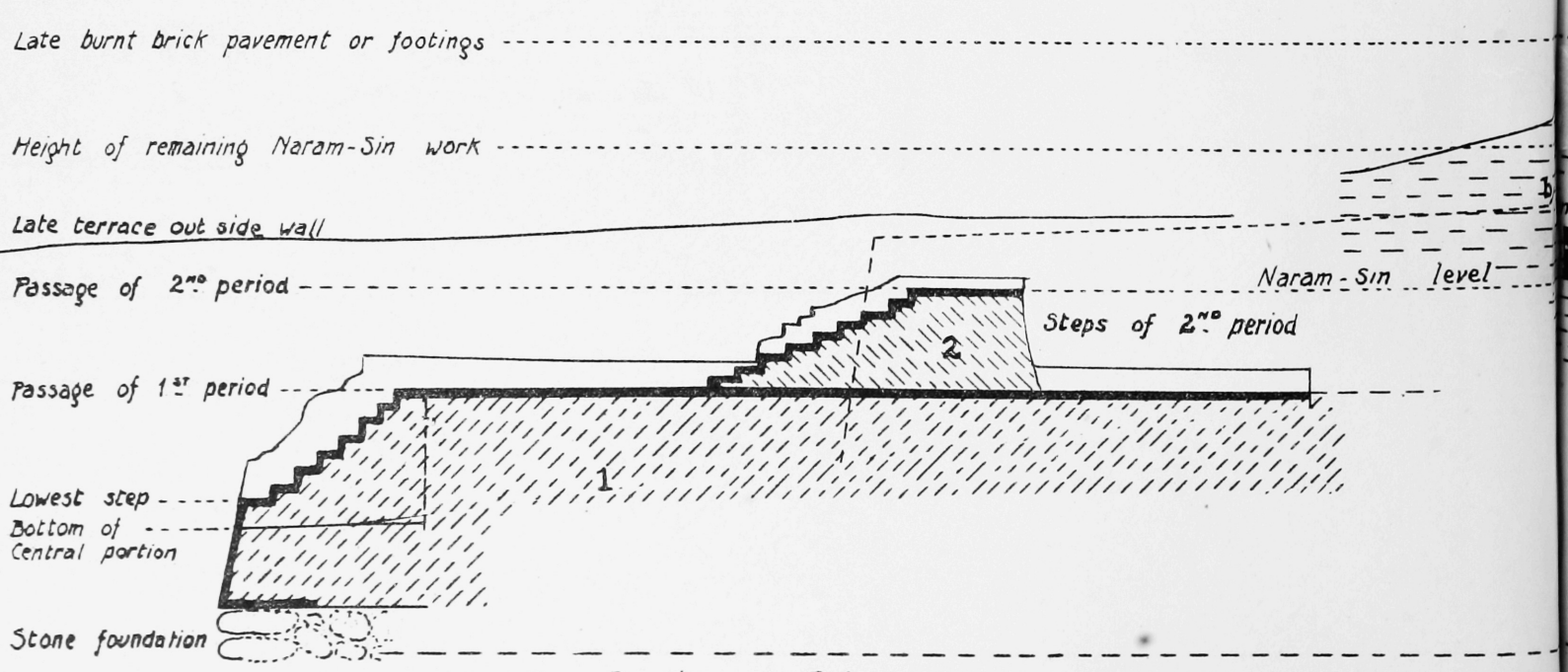


Fig 3 Section at B-A.

(Combined sections B-A and D-C show relation

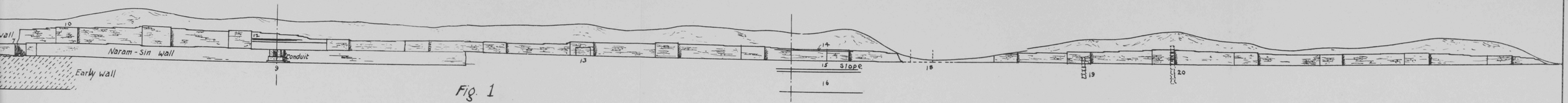


Fig. 1

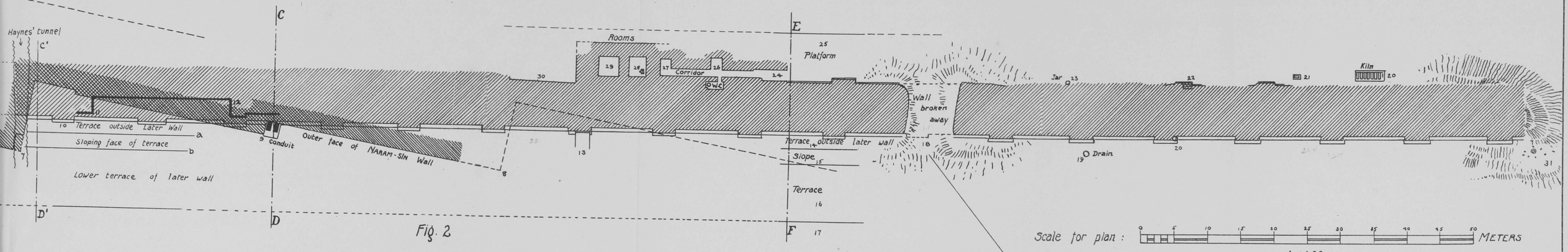
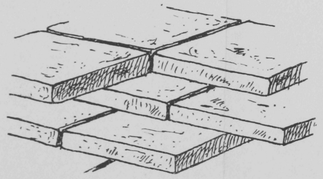


Fig. 2

Scale for plan : 0 5 10 15 20 25 30 35 40 45 50 METERS

1:400



Bonding used in Naram-Sin Wall

Fig. 6

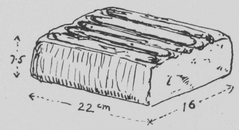


Fig. 8 Five-finger stroked bricks in UR GUR wall.

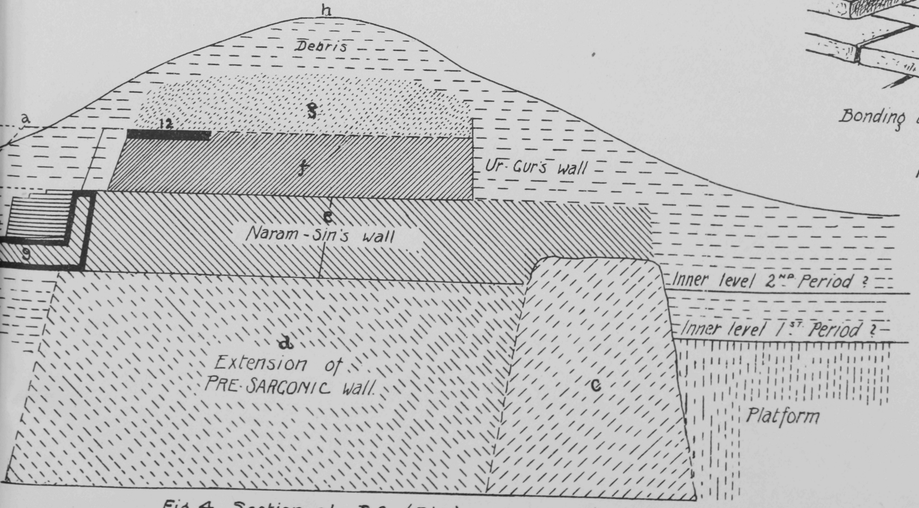


Fig. 4 Section at D-C. (D'C')

ped Approach and Wall)

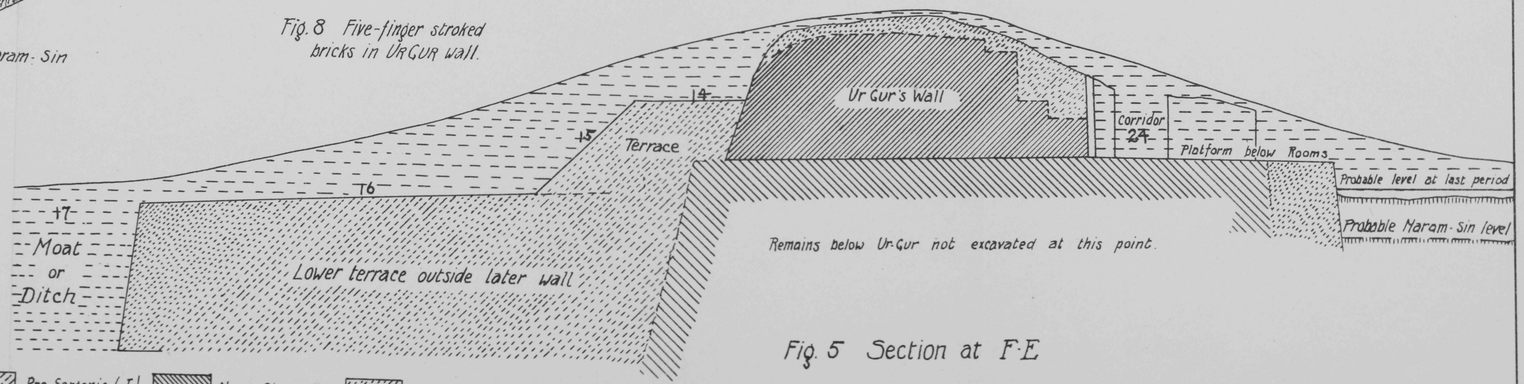


Fig. 5 Section at F-E

Pre Sargonic (I) — Naram Sin period — Later work

Do. (II) — Ur Gur period — Debris

Clay & Filling in — Burnt brick of any period shown by heavy outline

Scale for sections: 0 1 2 3 4 5 10 15 METERS

1 : 100

FISHER

1

Excavation Inside Pre-Sargonic Wall XI, Showing Wall of Small Bricks.

2

PHOTO. BAB. EX. 1895 1900

Brick Steps (?) in Upper Stratum, XI. Marked 22 on Plan. (Pl. 4, 2)

CITY WALL (S. Section. Mound X.)

PL. 6

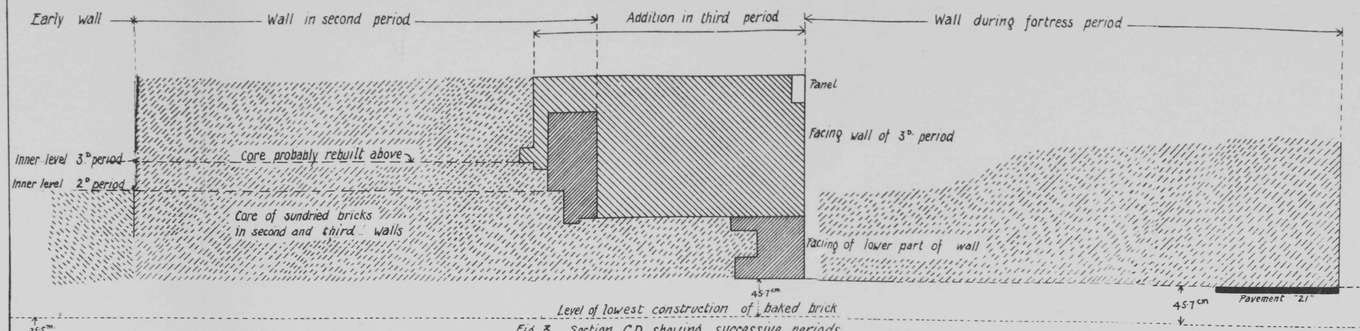


Fig 3 Section CD showing successive periods
Scale = half that of Detail sections below

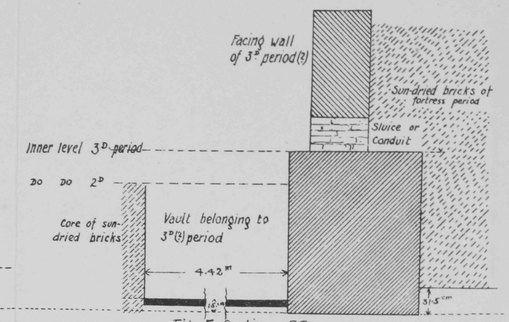
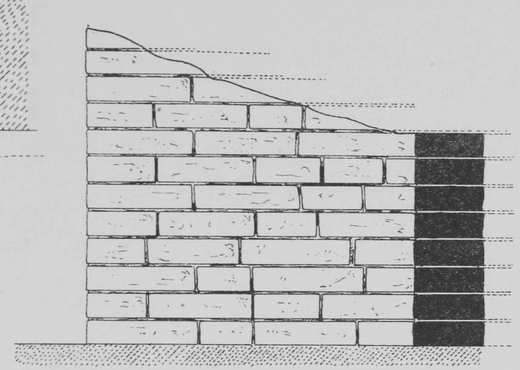
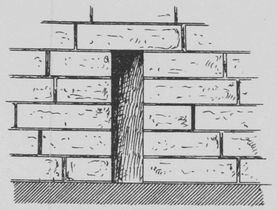


Fig 5 Section EF

6. Pre-Sargonic drain at "25"

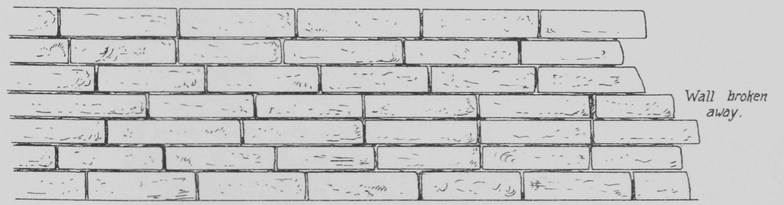


7. Detail of Brickwork at corner "9" on plan



9. Detail of conduit at "10"

Scale: ½ METER



8. Detail of Brickwork at "11" on plan

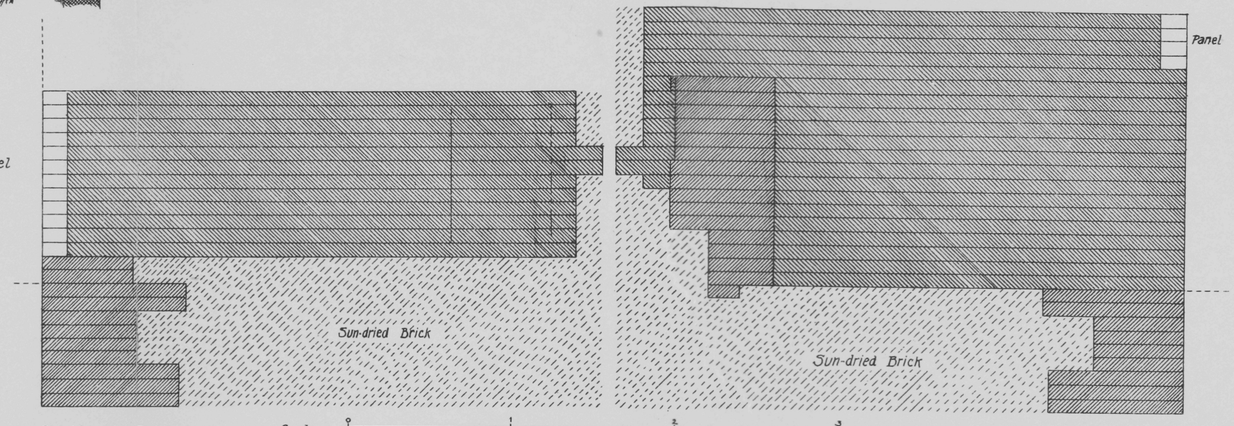


Fig 4 Detail sections B-A and C-D

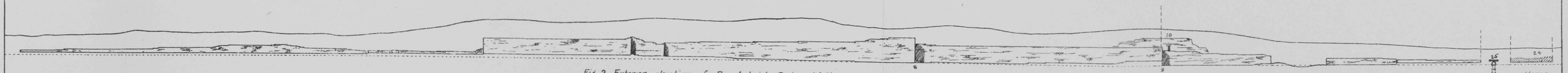


Fig 2 Exterior elevation of Burnt brick Facing Wall.

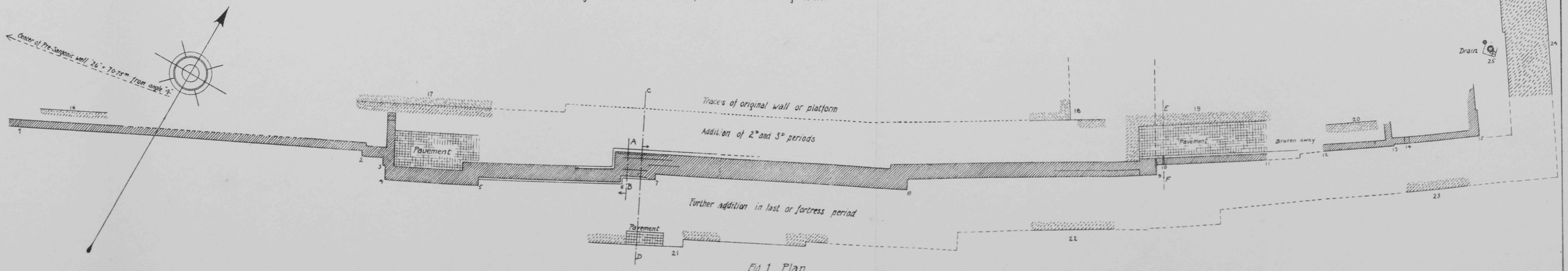


Fig 1. Plan

1

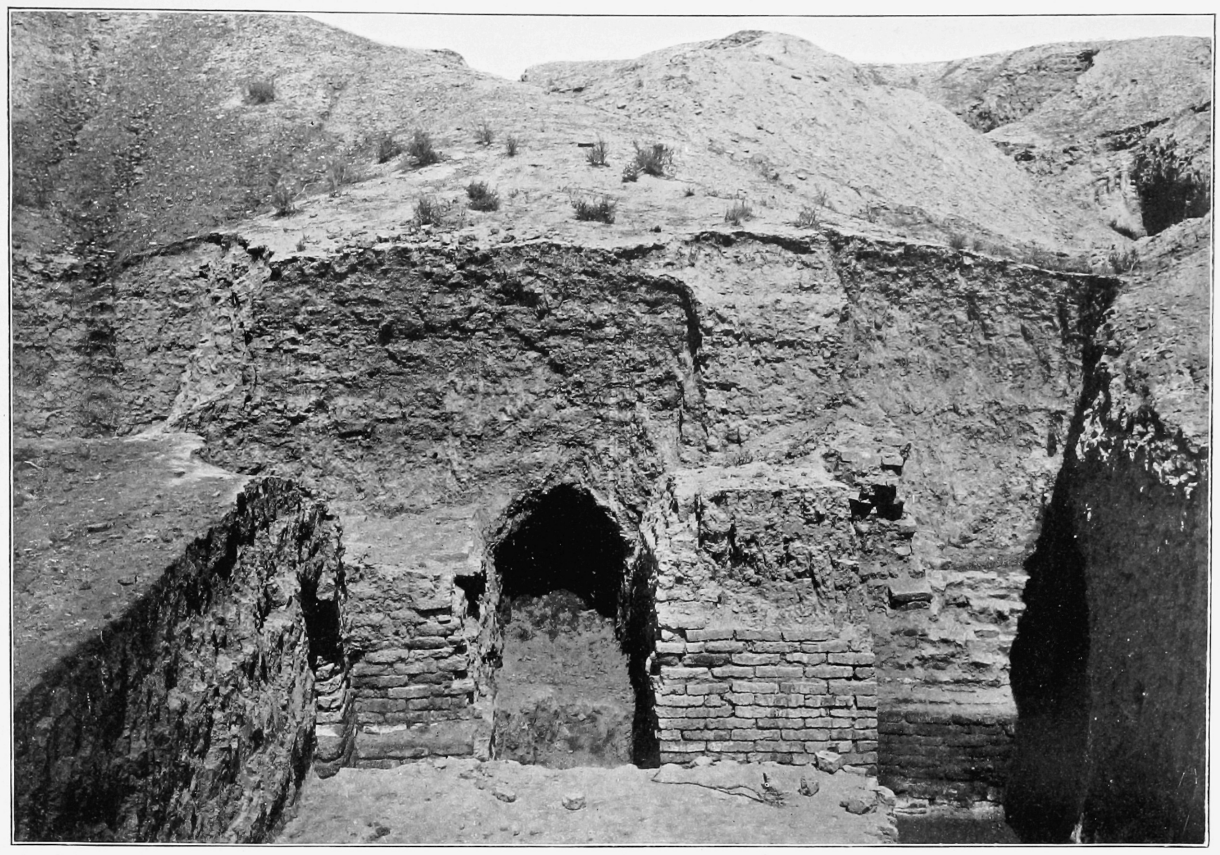
Wall in X. View at 13-14 on Plan. (Pl. 6.)

2

PHOTO. BAB. EX. 1900

Another View of Above. Showing Cross Wall at 13.

1



Wall in X. Facade at 6-7 on Plan. (Pl. 6.)

2

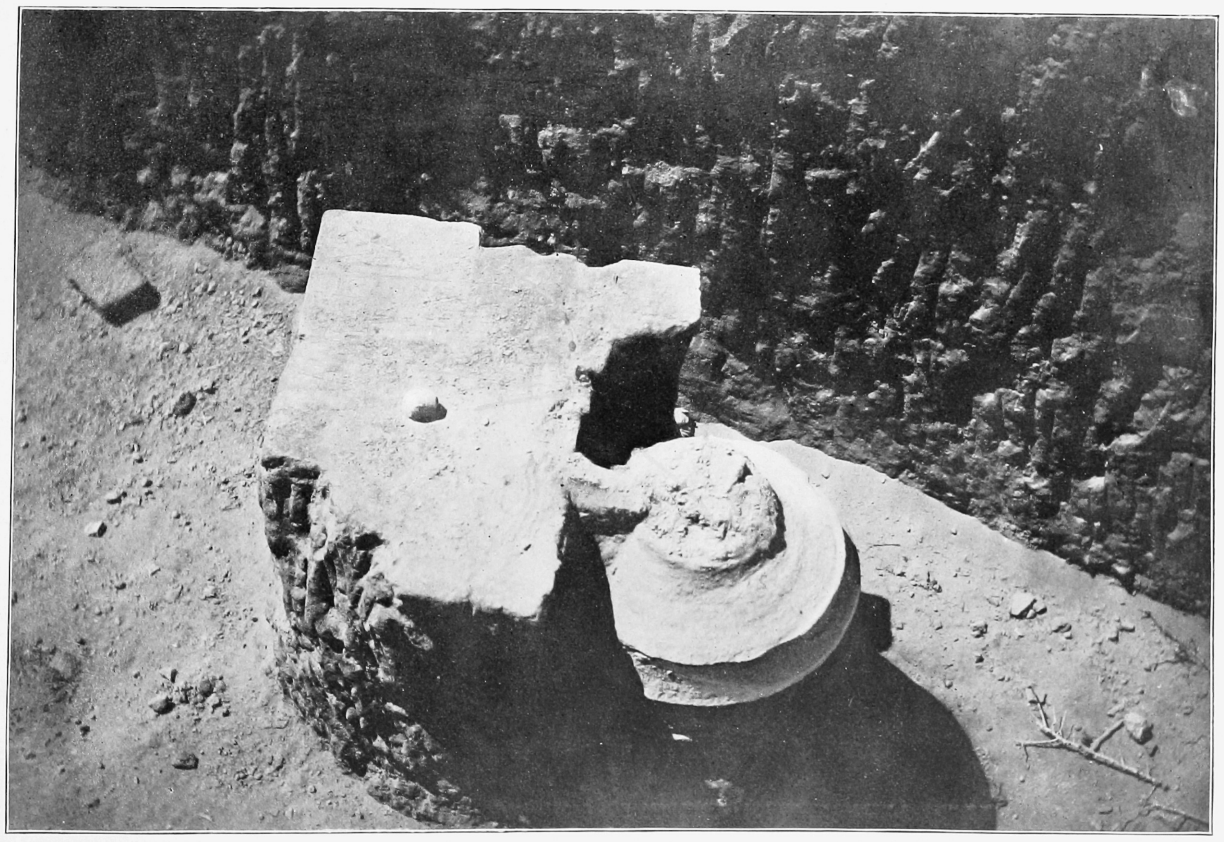


PHOTO. BAB. EX. 1900

Wall in X. Drain 25 on Plate 6.

NIPPUR: FORTRESS, Plan of S.E. Rooms.

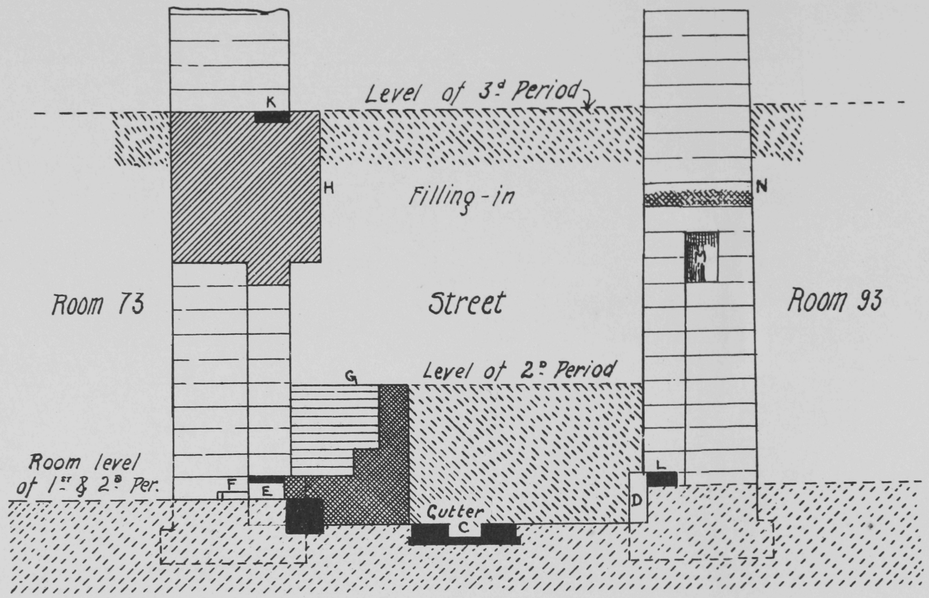


Fig. 1 Section on line A-B.

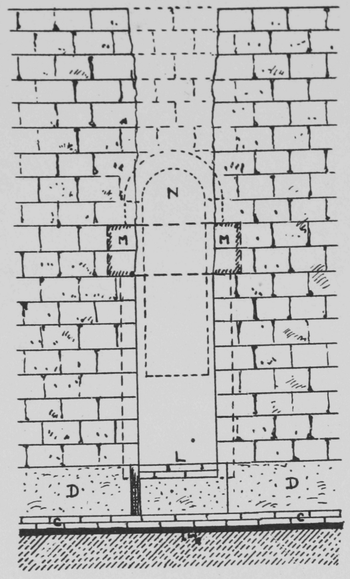


Fig. 3. Elevation of door at "B"

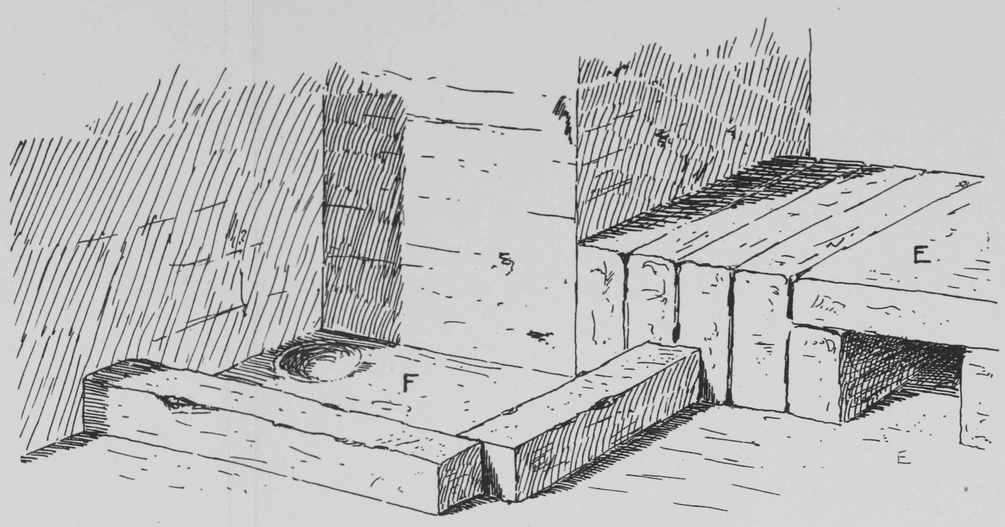


Fig. 5. Sketch of sill and socket at "A"

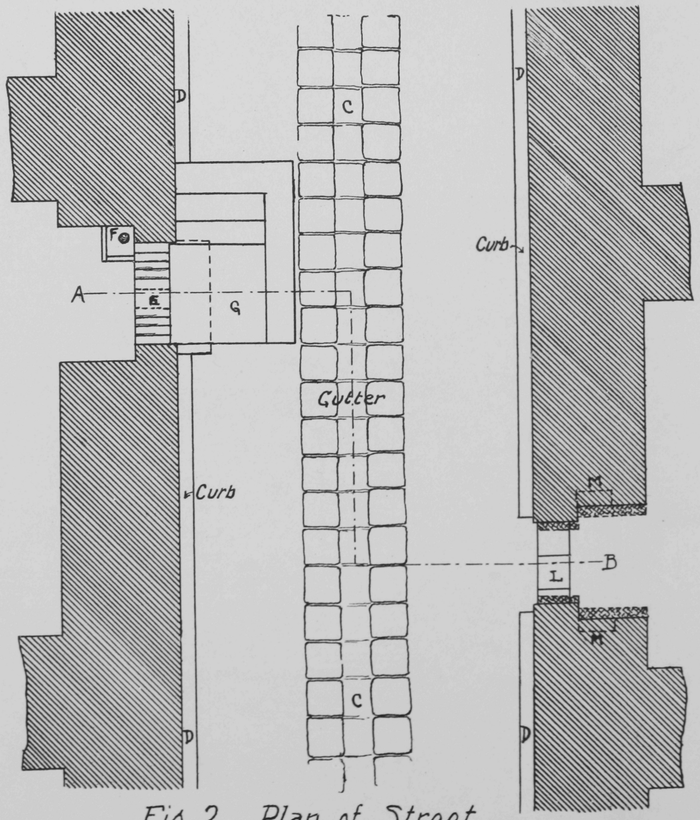


Fig. 2 Plan of Street

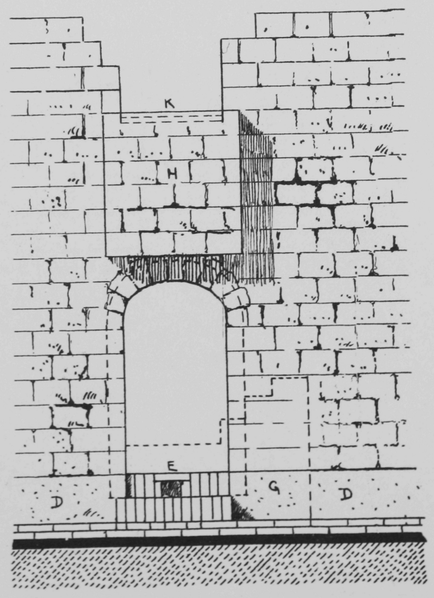
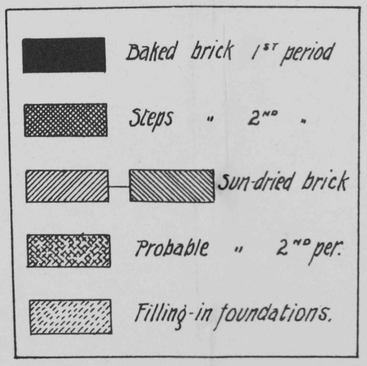


Fig. 4. Elevation of door at "A"



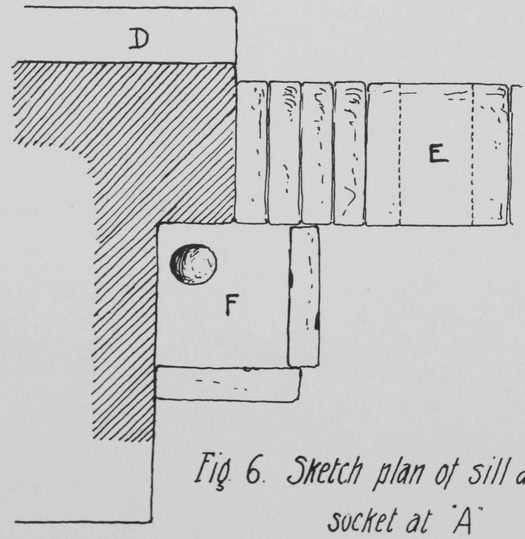
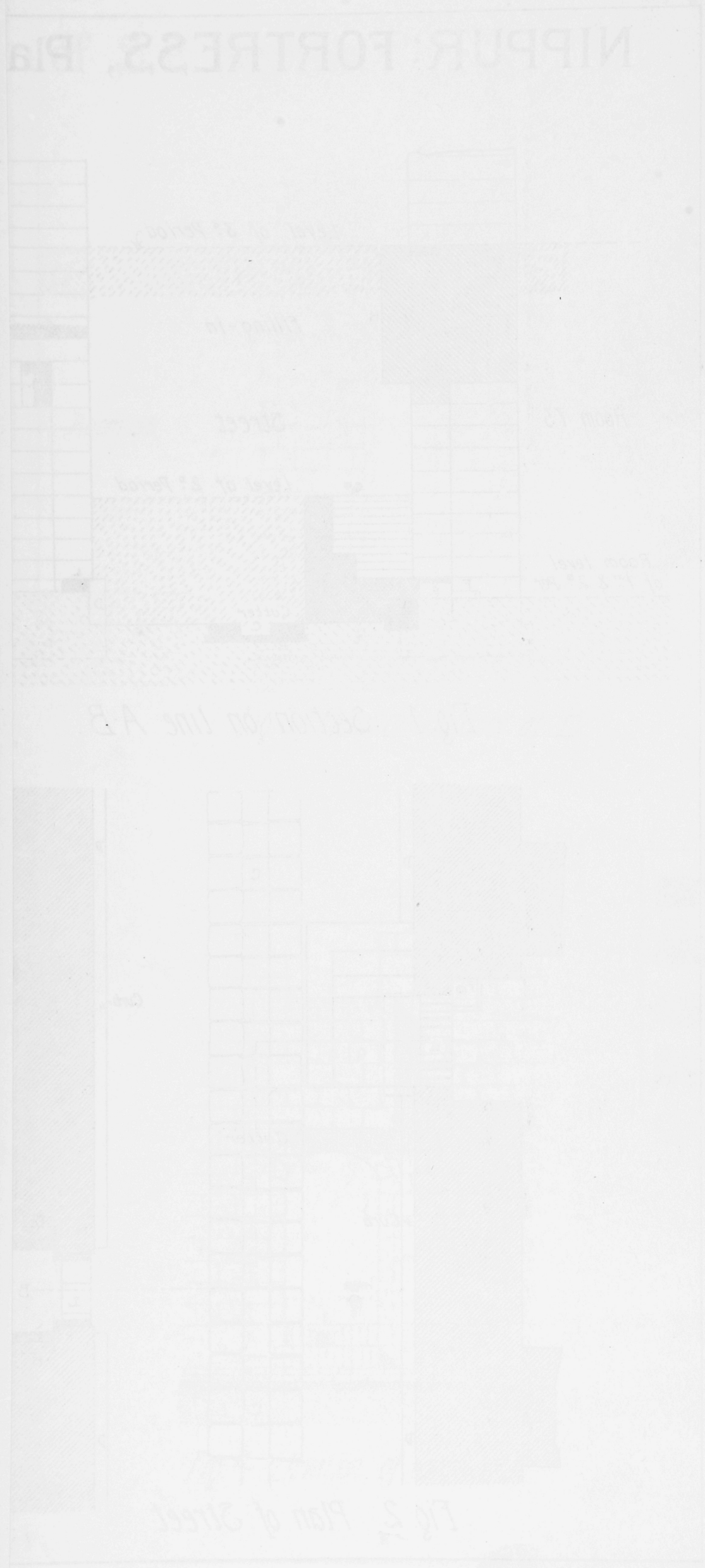


Fig. 6. Sketch plan of sill and socket at "A"

Scale: 0 1 2 3 4 5 6 7 8 Meters

1 : 50

MEYER-FISHER



1

EXCAVATIONS S. E. OF CITADEL, SHOWING CASING WALL OF S. E. PROJECTION,
THE CORE OF SUN-DRIED BRICKS HAVING BEEN REMOVED.

2

PORTION OF WALLS OF ROOMS 65—64.
FORTRESS PLATFORM REMOVED TO ASSUR-BAN-APAL LEVEL.

1

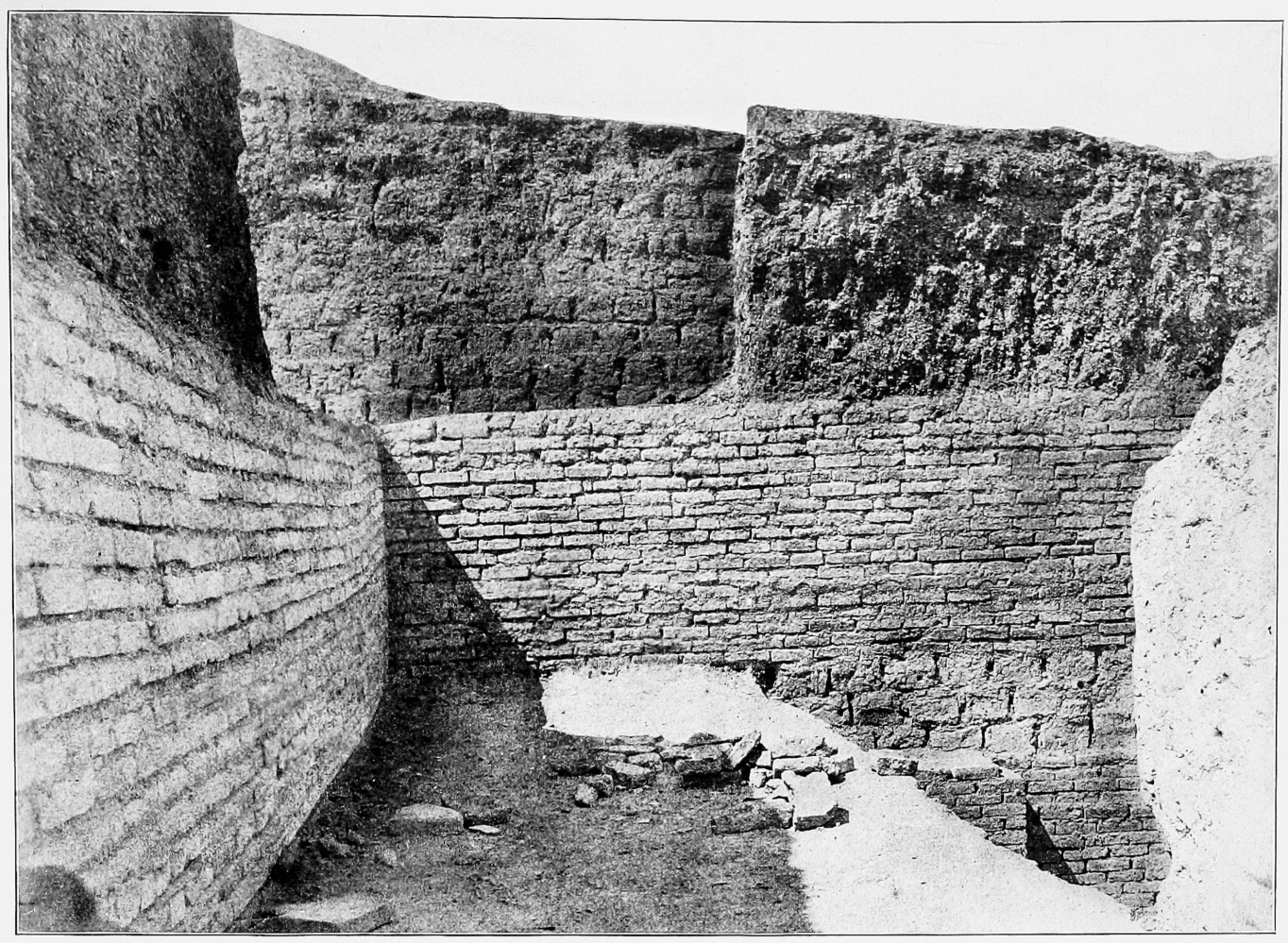


PHOTO. BAB. EX. 1889

Northeast Projection of Citadel, Showing Level of Inner Fortress. Face of Second Stage of Citadel in Background. Portion of Latest Ziggurrat Wall Exposed at Lower Right Hand.

2

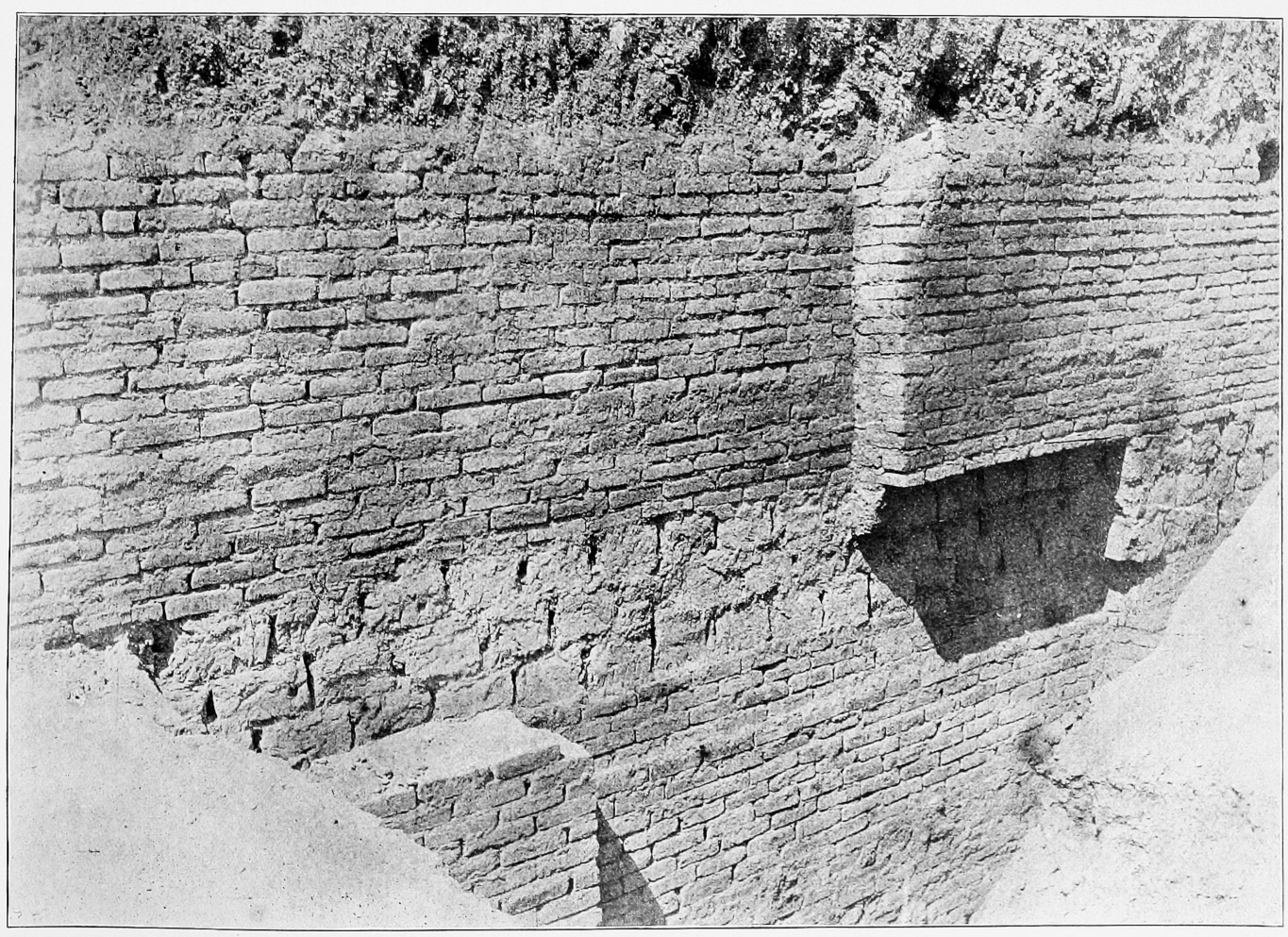


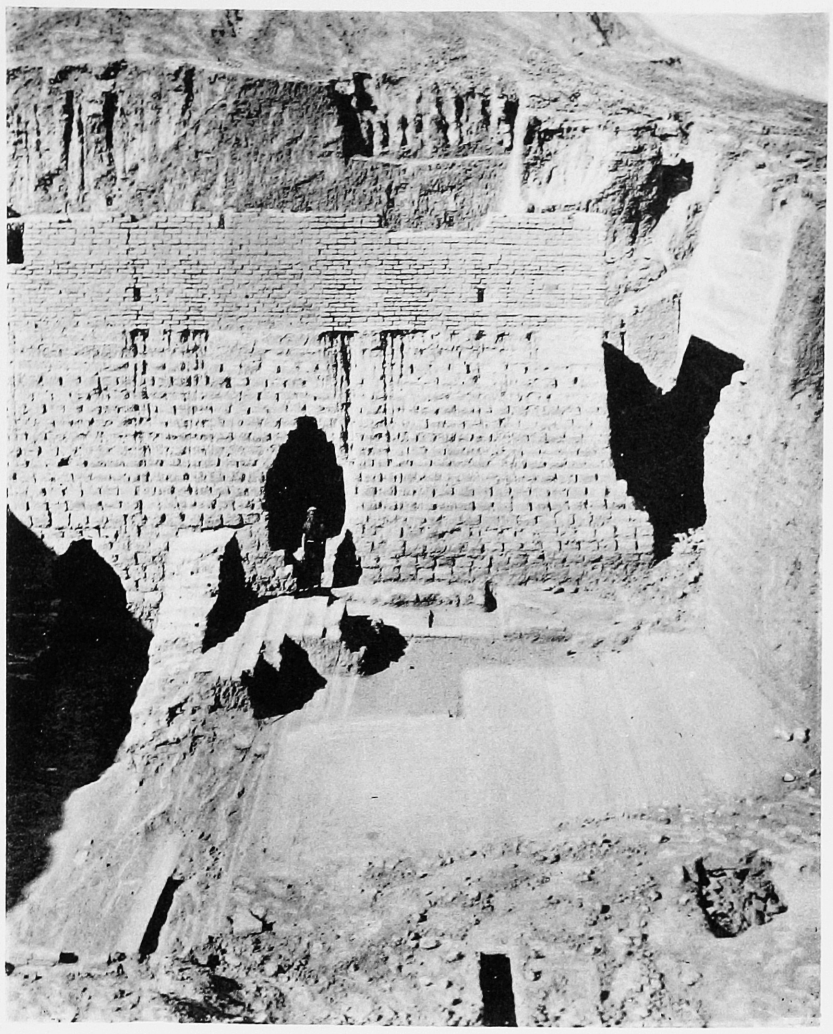
PHOTO. BAB. EX. 1889

Continuation of Above, with Portion of Panel at N. Angle. Paneled Face of Late Ziggurrat Below.

1

FACING WALL.

FOOTINGS.



TEMPLE PAVEMENT :

UR-NINIB.

S. E. PROJECTION OF CITADEL.

2

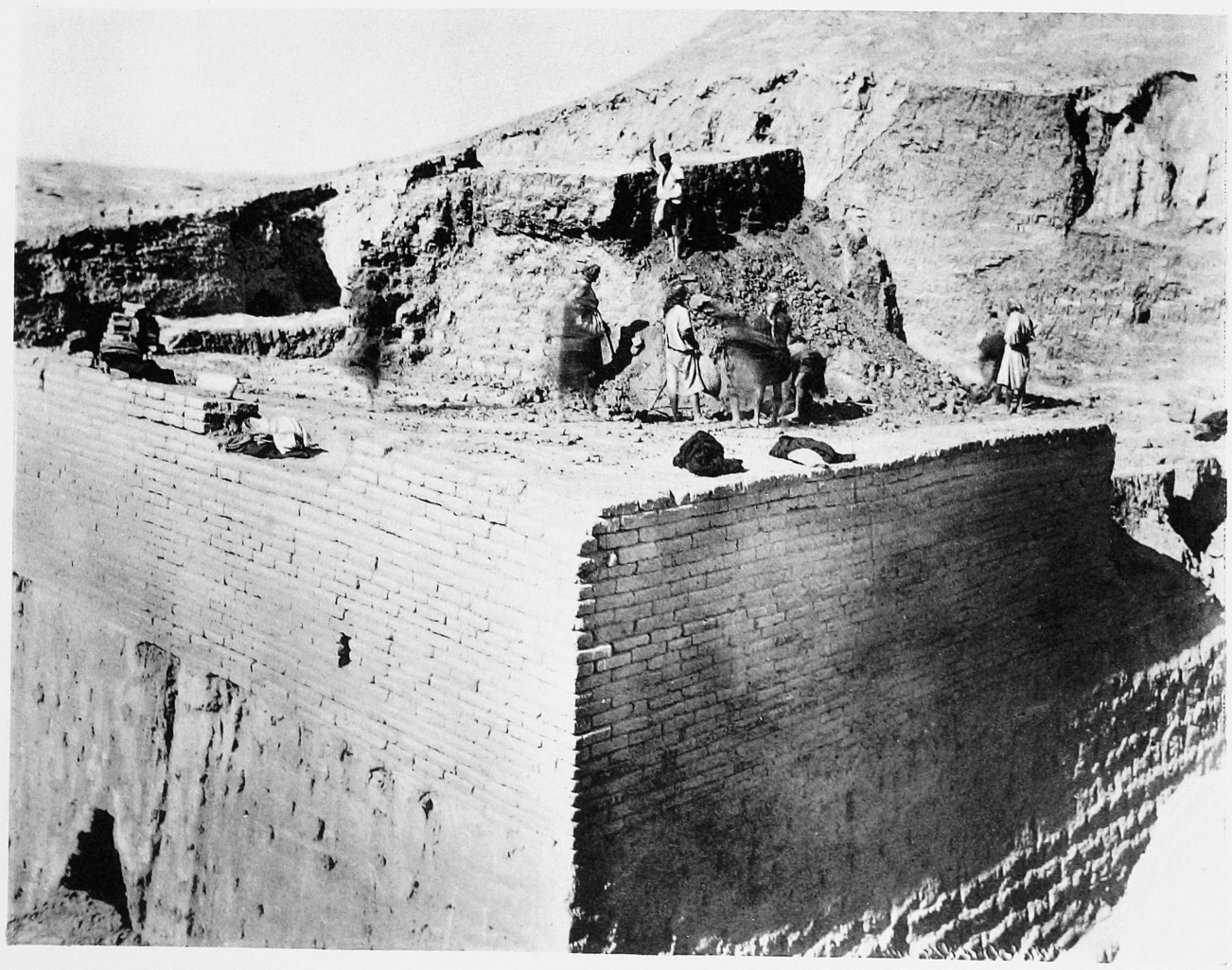


Photo. Bab. Ex. 1895.

DETAIL OF E. CORNER OF ABOVE.

WORKMEN REMOVING THE UPPER STAGE.

1

EXCAVATIONS LOOKING EAST FROM TOP OF ZIGGURRAT.

2

ANOTHER VIEW OF ABOVE, AT A LATER DATE.

1

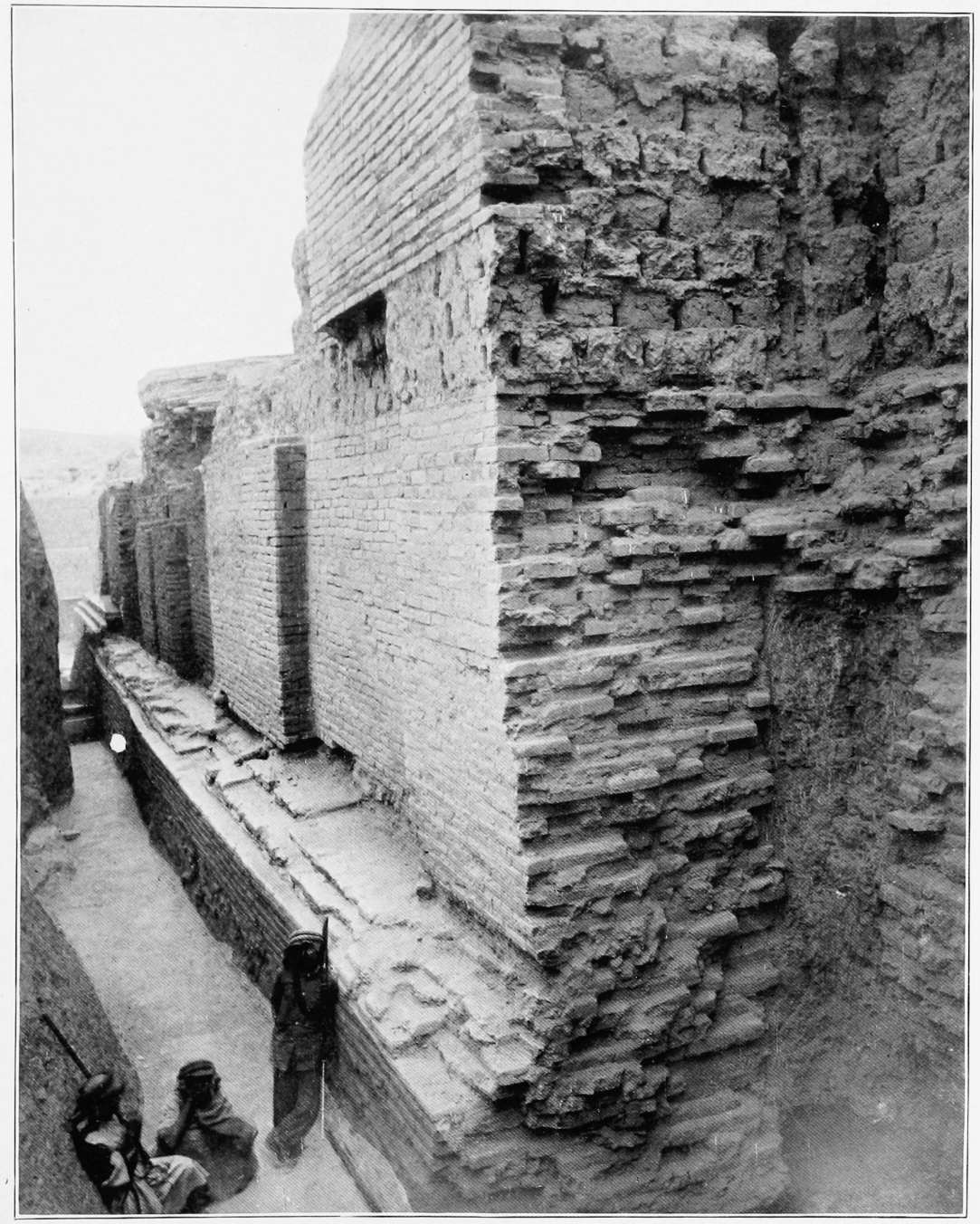
Citadel
Core of Large Sun-dried Brick

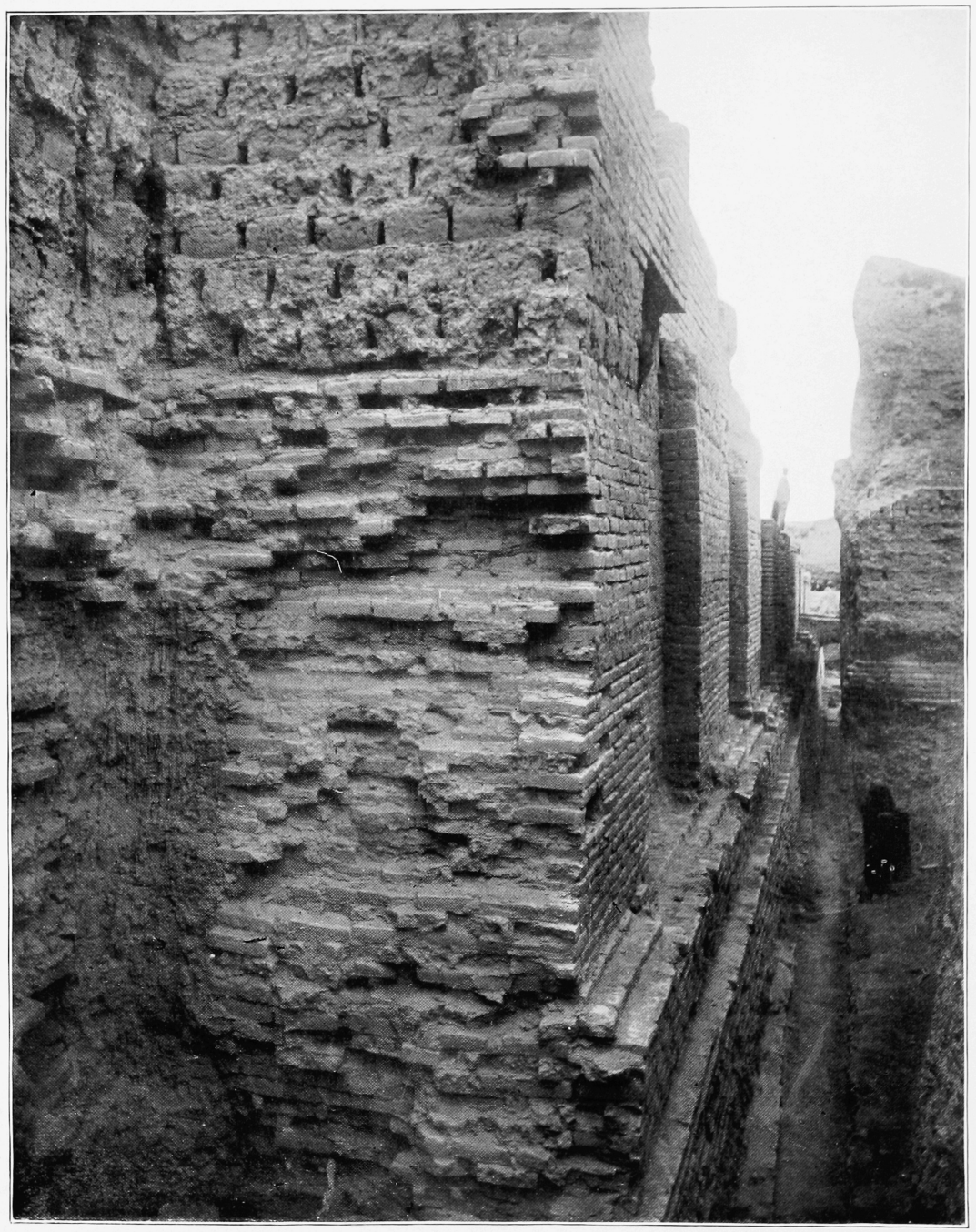
2

Citadel Facing Wall

Well

N. E. Conduit





Citadel Facing Wall

Fortress Filling-in

Footings of N. E. Projection of Citadel

Panelled Wall of Assur-ban-Apal

Gutter

Ziggurrat
Core of Small Sun-dried Brick

N. E. Face

N. W. Face

N. Angle (cut away) of the Ziggurrat

PHOTOS. BAB EX. 1894

1

View from Mound IX Looking N. E. Showing the Ruins of the Temple (Fortress) and Tablet Hill.

2

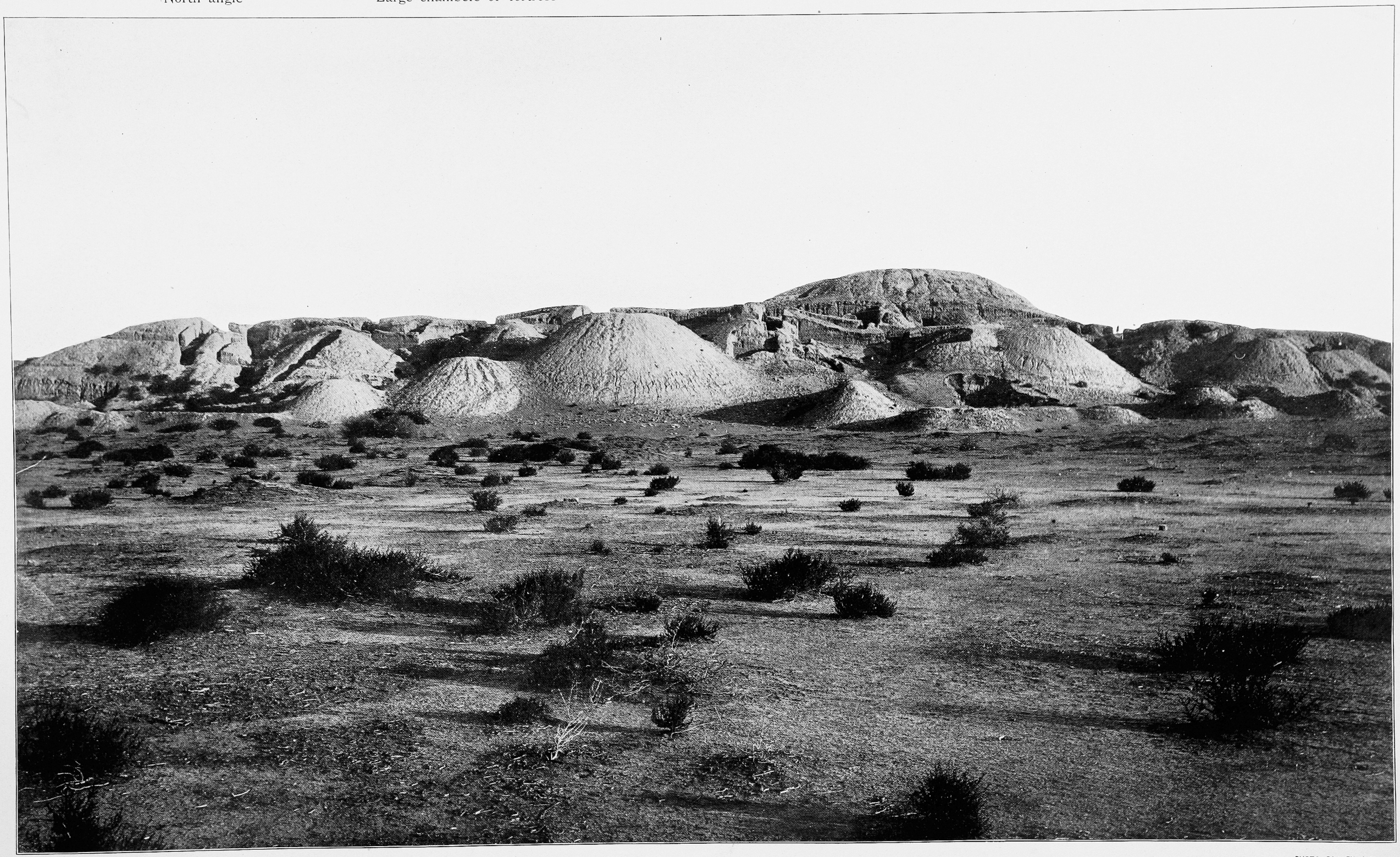
PHOTO. BAB. EX. 1890

Nearer View of Above, Showing Row of Small Rooms of Fortress (?) Period. In background can be seen Second Stage of Ziggurrat, with its Double Ramp.

North angle

Large chambers of fortress

Ziggurrat



View of Mound III from City Wall (XI) Looking South. The Ruins of the Temple of Bel and of the Fortress Overlying It.

PHOTO. BAB. EX. 1895

1

Rooms in E. Section

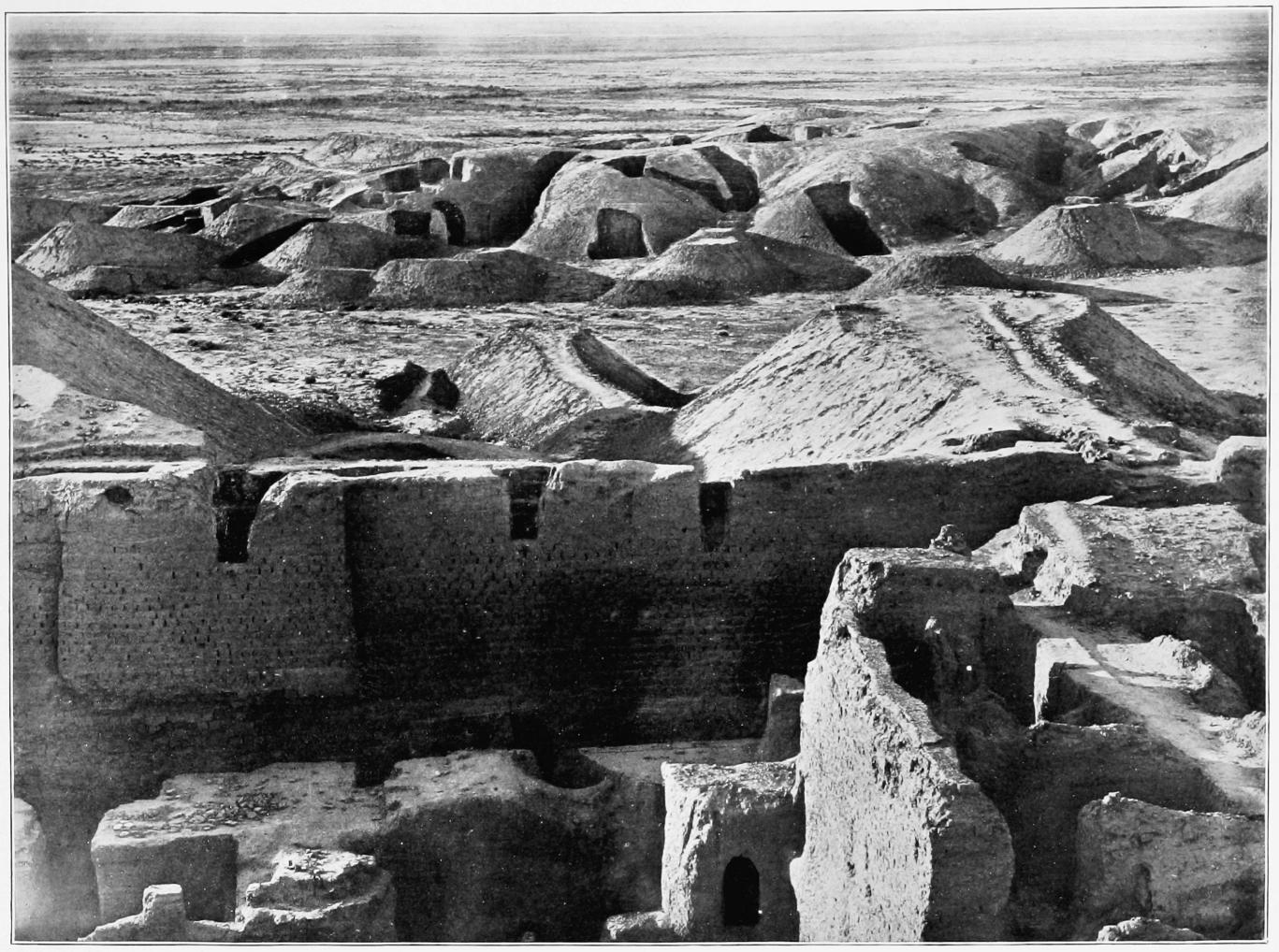


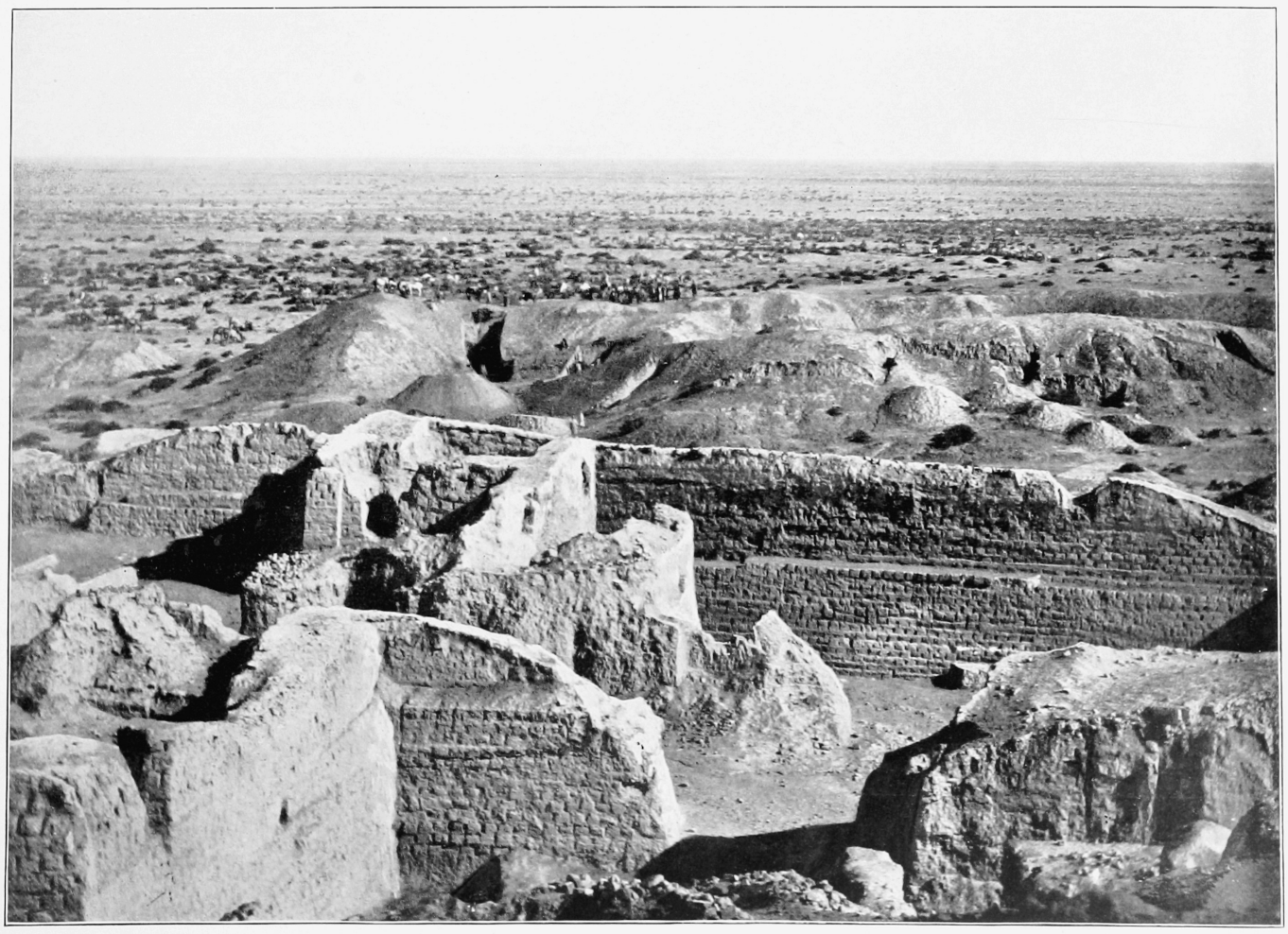
PHOTO. BAB. EX. 1899

From Top of Citadel, Looking S. E. over Outer Wall. Tablet Hill, V, in the Background.

2

Room 113

Door (?)



106

PHOTO. BAB. EX. 1899

The Structures in the N. Angle of the Fortress.

Door to fortress room on street

E. angle Ziggurrat

2d stage

1st stage
S. E. face of
Ziggurrat

Surface conduits
Naram-Sin (?)

Fortress level

Assur-ban-Apal

Naram-Sin
Sargon

Surface conduit
(Sargon)

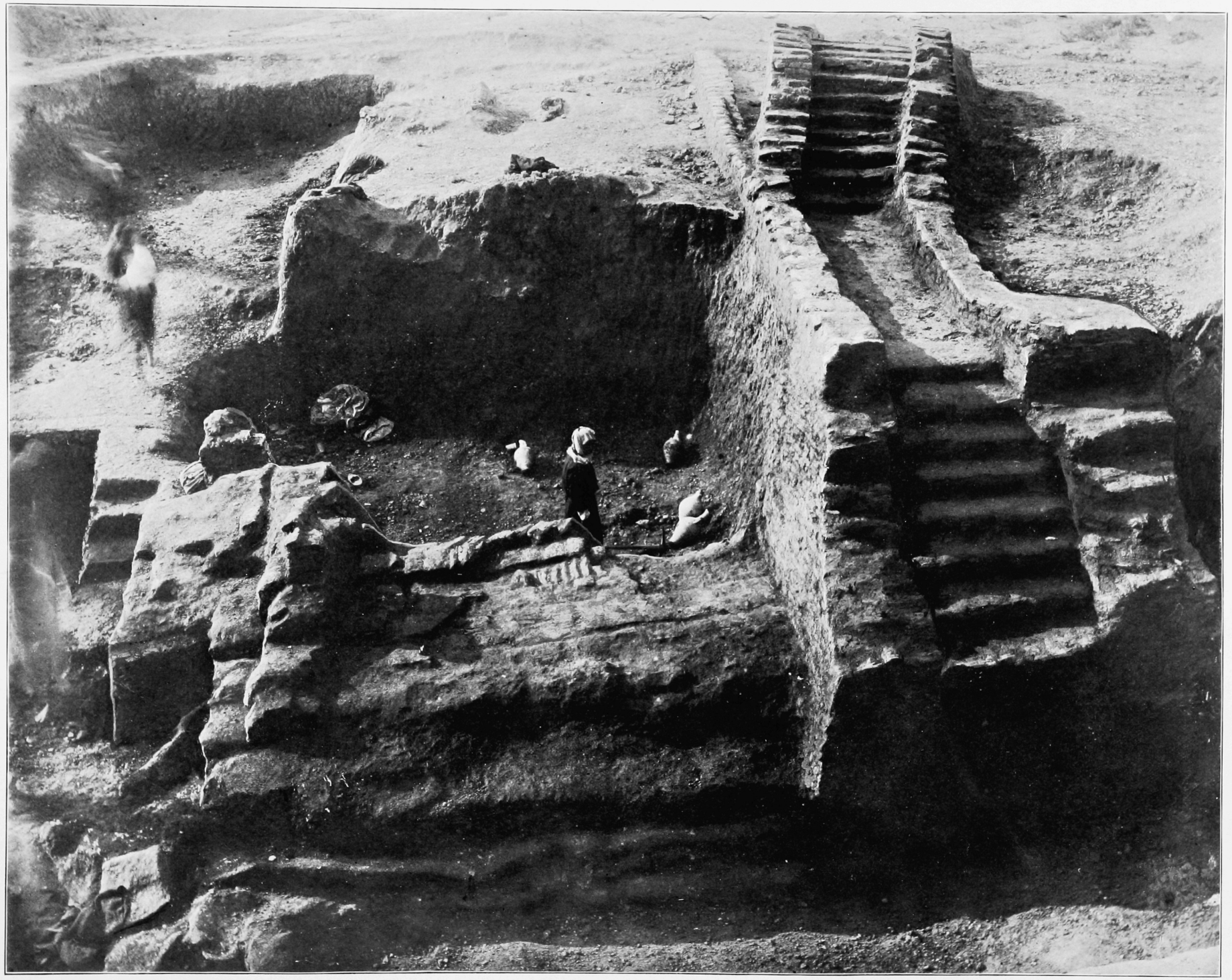
Pre-Sargonic drain

PHOTO. BAB. EX. 1895

Excavations in the Temple Court, S. E. of the Ziggurrat, Looking N. W. from Great Enclosing Wall of Later Fortress

Central passage

Foot passage



Steps added 2d period

1st passage

Fragment of missing side

Steps of 1st period

High bottom step

Stone foundations

Pavement in central passage

PHOTO. BAB. EX. 1899

Front View of Stepped Approach to Gate in N. E. City Wall. Scale Drawings on Plate 2.

City wall (Mound XI)

Stepped approach to gate

Furrow, marking supposed line of wall

PHOTO. BAB. EX. 1900

Excavations Along the Line of the N. E. City Wall from Top of Mound VII, Looking N. W.

NIPPUR: GROUND PLAN OF THE FORTRESS

PL. 14

North corner of structure entirely destroyed

NORTH-WEST TERRACE

NORTH BASTION

N. TOWER

Tower not completely investigated

Long corridor

CORRIDOR

GREAT HALL 110

SMALL HALL 109

COURT

GOLD ROOM 125

TERRACE

Excavated below inner fortress level

Fragment of inner level pavement

Slope

CITADEL built around older ZIGGURAT (shown by shading)

LOWEST TERRACE OF CITADEL

Arch

TOWER C

STREET

DESTROYED

Tomb Room

Ledges

Tower D

Small Tower

Tower E

Great inner Fosse afterwards filled in to level of wall rooms

Tower F

built around earlier tower

Tower G

Probable Tower H

Slope on outer face of wall

TOWER A

TOWER B

South Bastion

ENCLOSED AREA

East Tower

East Bastion

NORTHEAST

Bitumen laid over B.B. pavement C

Wall

Parts removed by later builders.

Actual walls of Fortress system

Foundation walls

Later Walls

Traces of earlier fortress

Curved structure in Burnt brick probably part of earlier fortress.

Indicates terraces (platforms)

Open spaces, courts, etc.

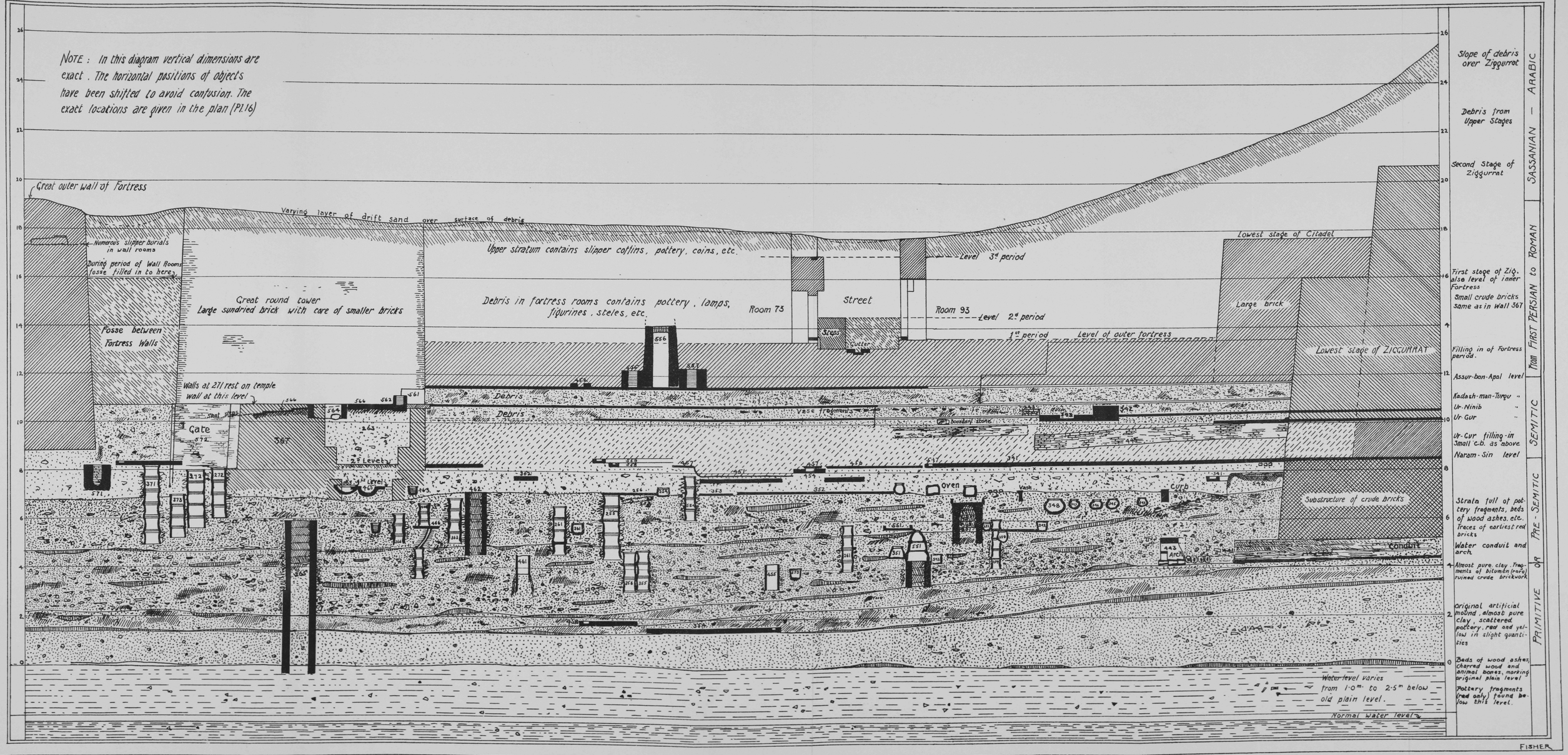
Unexcavated or missing portions.

The squares are 20m each.

Scale 1:500

C.S. FISHER.

NIPPUR TEMPLE AREA (Section Through Strata.)



FISHER

1

Naram-Sin pavement

Pre-Sargonic Vase

Curb

Curb

Arch

Detail view of Excavations from E. corner of Ziggurrat looking South, showing relative positions of Arch, Curb and Rope Pattern Vase.

2

Assur-ban-Apal

Ur-Ninib

Ur-Gur's (?) work

Naram-Sin Sargon

Curb

Drain

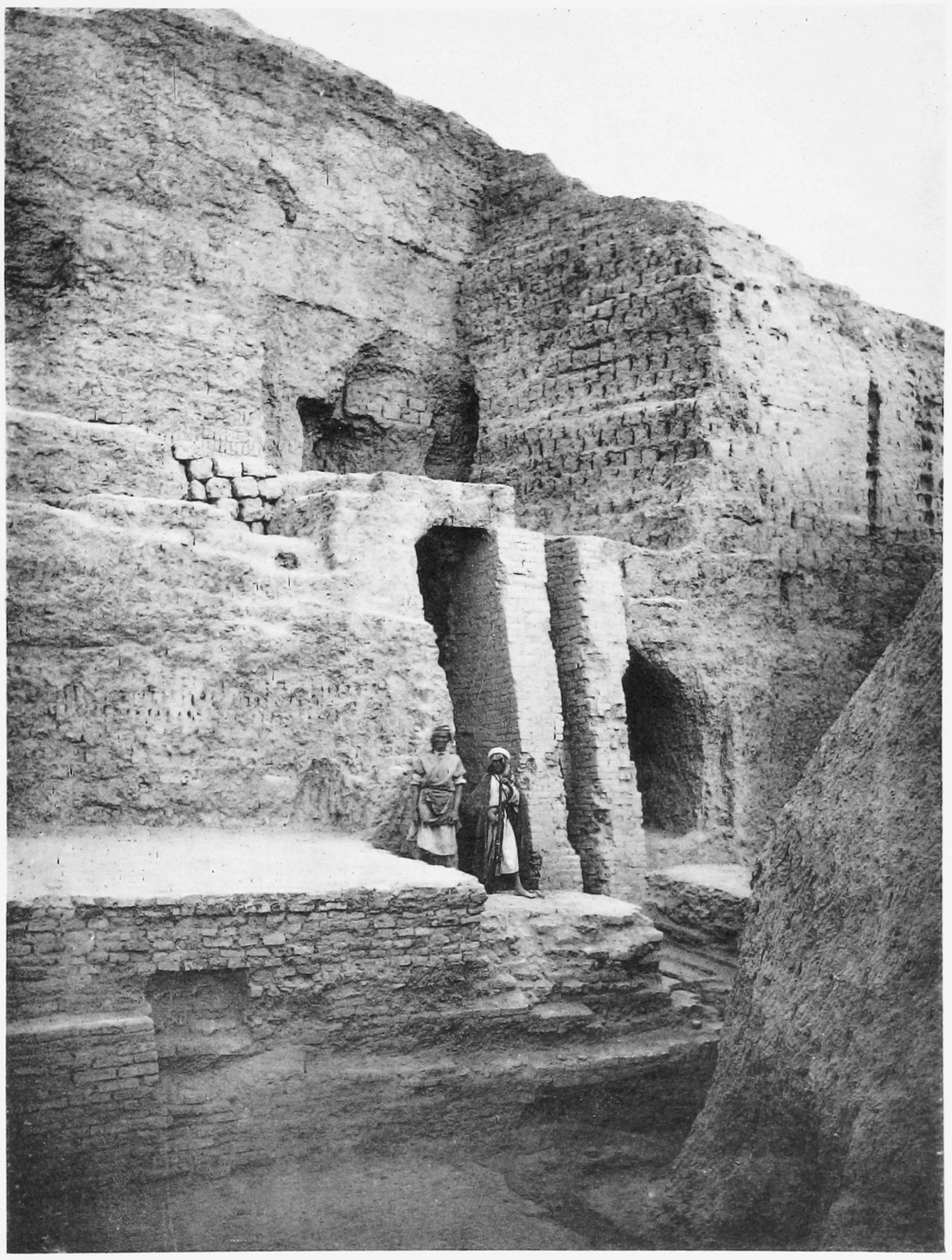
Arch

PHOTO. BAB. EX. 1895

Side view of same, to show position of Arch below Curb and older drain running under Ziggurrat.

NIPPUR : TEMPLE.

PLATE 23a.



WATER CONDUIT ON THE S. W. FACE OF THE ZIGGURRAT.

Tunnel to W. section

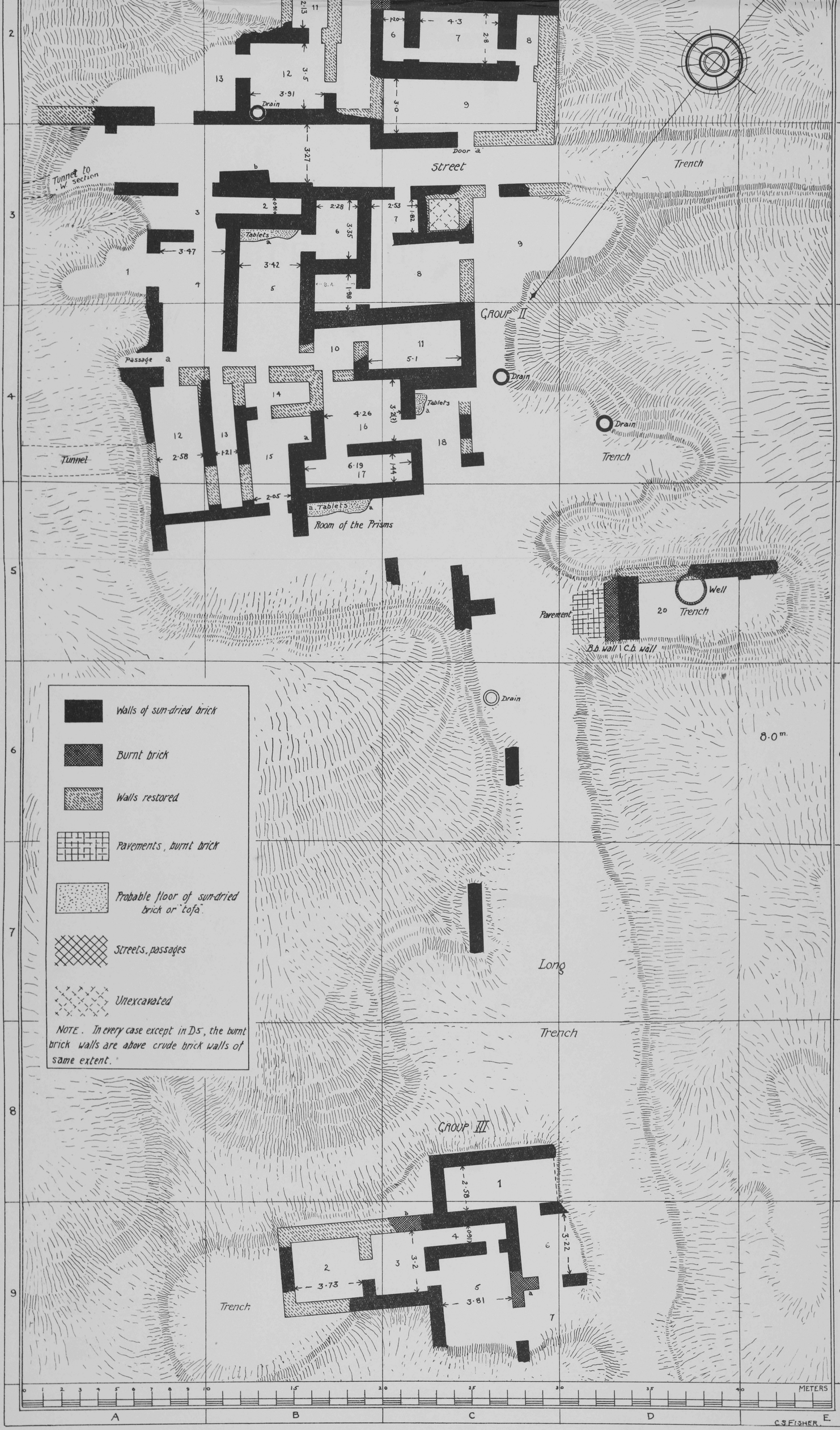
Room 12

Room 8A

Room 10

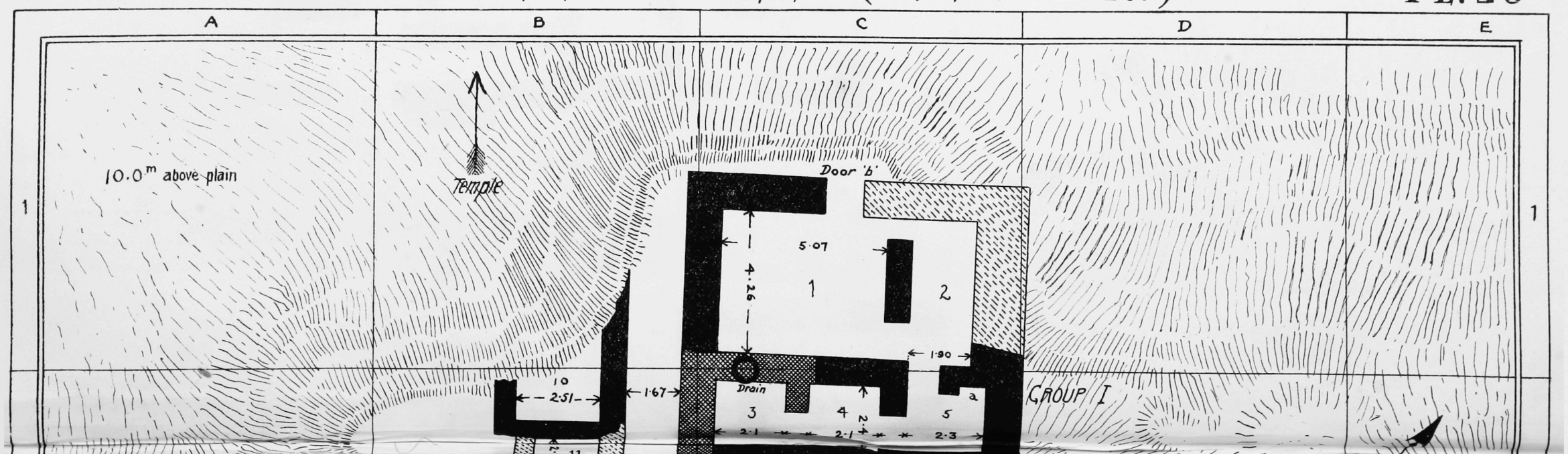
PHOTO. BAB. EX. 1900

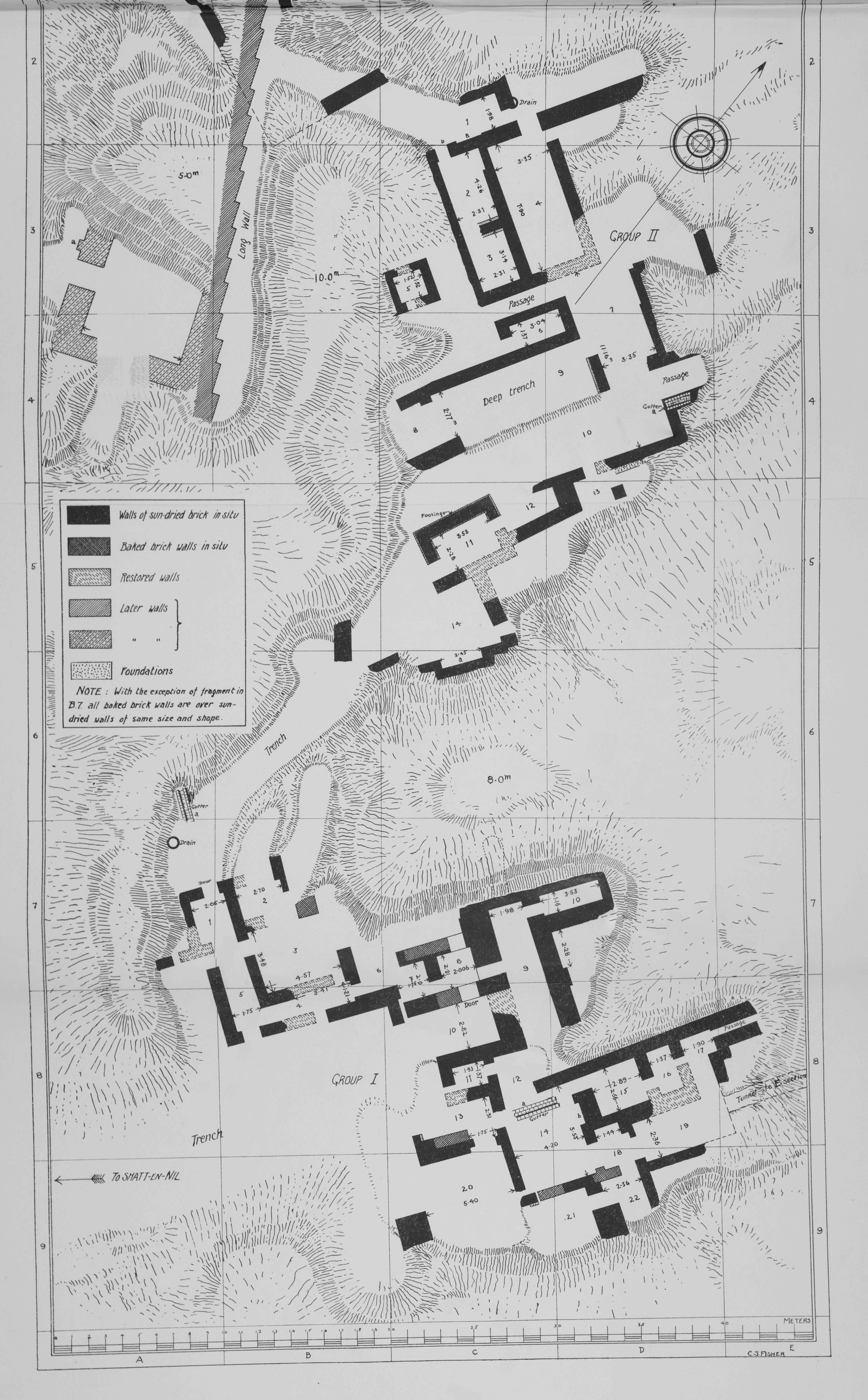
Portion of Excavations in "Library," N. E. Portion of Tablet Hill. (Cf. Plate 25.)


Street
Trench
Tunnel to N section
Tablets
Drain
Door
Passage
Tunnel
Room of the Prisms
GROUP II
Drain
Drain
Tablets
Trench
Well
Pavement
Trench
B.b. wall
C.b. wall
Drain
8.0 m.
Long
Trench
GROUP III
Trench
Walls of sun-dried brick
Burnt brick
Walls restored
Pavements, burnt brick
Probable floor of sun-dried brick or "tofa"
Streets, passages
Unexcavated
NOTE. In every case except in D5, the burnt brick walls are above crude brick walls of same extent.
METERS
A
B
C
D
E
C.S.FISHER.

TABLET HILL (E. Section.)

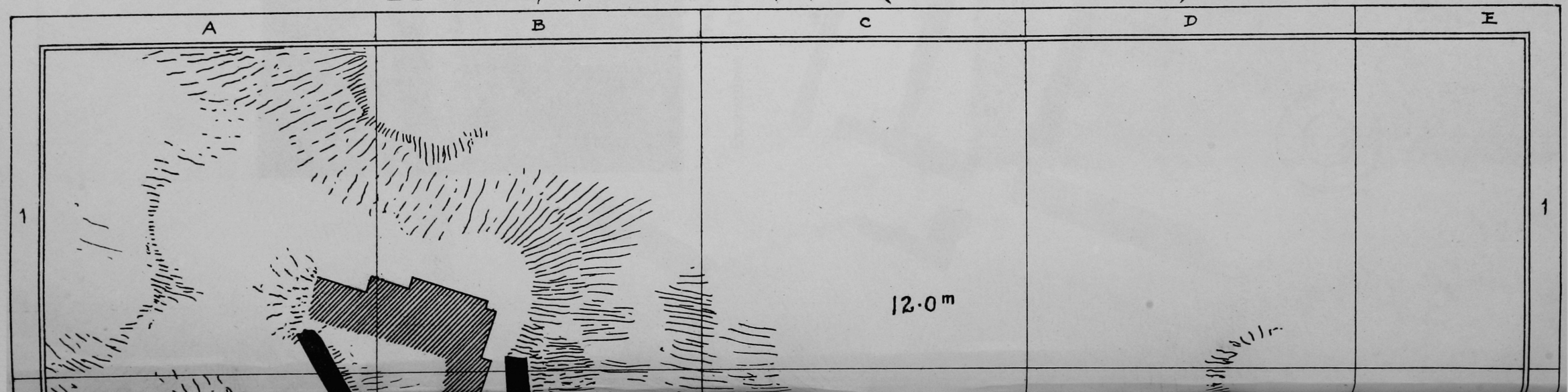
PL. 25




Long Wall
5.0m
10.0m
8.0m
Drain
Passage
GROUP II
Deep trench
Gutters
Footings
Passage
Trench
Drain
Door
Door
Passage
GROUP I
Trench
Gutters
Tunnel to E. section
To SHATT-EN-NIL
Walls of sun-dried brick in situ
Baked brick walls in situ
Restored walls
Later walls
" "
Foundations
NOTE : With the exception of fragment in B.7 all baked brick walls are over sun-dried walls of same size and shape.
METERS
A
B
C
D
E
C.S.FISHER

TABLET HILL (W. Section.)

PL. 26



1

Prothyron

N. W. row of columns

Fallen column

Excavations in Great Court as they appeared in 1893. Square Bases under Northwest Row of Columns

2

Passage to women's apartments

Fallen column

PHOTO. BAB. EX. 1895

Detail View of Southeast Row of Columns in Great Court

Room 27. Passage 17. Room 8. Room 7.

FALLEN COLUMN.

STEP TO VESTIBULE.

ALTAR.

FOUNDATIONS OF E. CORNER PIER.

COURT OF THE MEN, FROM THE NORTHEAST.

Photo. Bab. Ex. 1900.