



# THE CITY AND AREA OF KISH

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# THE CITY AND AREA OF KISH

by

## McGUIRE GIBSON

With Appendix by Robert McCormick Adams

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#### FOREWORD

Kish, according to the texts "the first city founded after the Flood," has been of the greatest interest since my first view of this great red mound, now known as Tell al-Uhaimir, on December 20, 1925.

Born in Wisconsin, Stephen H. Langdon, Professor of Assyriology at Oxford, was Director of the Field Museum-Oxford University Joint Expedition to Kish, 1923-33. He was concerned principally with tablets and inscriptions.

Born at Clifton near Bristol, the Field Director was Mr. Ernest J. H. Mackay, trained by Sir Flinders Petrie in Egypt and later (1928) to excavate Mohenjo-Daro in the Indus Valley under the direction of Sir Mortimer Wheeler, He handled the hundreds of local Arab workers with great skill, kept the archeological records and Expedition accounts. Despite recurrent attacks of quartan malaria, he was an excellent Field Director.

From 1926-33 a Frenchman, Mr. Louis Charles Watelin, was Field Director. He was an excellent engineer concentrating on excavation methods learned at Susa from Jacques de Morgan. On one occasion as a very young man de Morgan was away and Watelin was in charge of the dig. At this moment the great Stela of Naramsin, now a Louvre treasure, was uncovered. At Kish nothing comparable was ever found, except possibly the Chariots in Y Trench. Hence, the stone vessels, copper objects, pottery, tablets and skeletons were not sensational compared to the great Stela from Susa.

Mr. Eric Schroeder, who just died in the shadow of Harvard, kept the archeological records and Expedition accounts when I was at Kish during the full season 1927-28.

The other Staff members are listed in Appendix III.

On Fridays Schroeder and I, accompanied by camp guard Mahdi, rode east of Kish in search of surface pottery. Sherds were collected from a number of sites and a sketch map compiled.

During March, 1928, in the Expedition Cadillac (1919) I made the first crossing by automobile from the Euphrates to the Tigris in Central Iraq. We passed east of Jemdet Nasr and just north of Tell Barghuthiat to turn northeast to the encampment of *Hajji* Hunta near the Tigris. We returned across shifting sand dunes in a southwesterly direction to the Jemdet Nasr-Kish track (see Map on p. 84 in my Arabs of Central Iraq (1935)).

Our workmen were recruited from *Hajji* Miniehil, who lived a few miles west of Kish. The best pickmen were Ali David, Radhi and Ralli el-Abud, Khalef el-Jebbar, Dimna, Mitteb and *Hajji* Umran, who later became custodian for many years of the Babylon Museum.

The senior foreman was Hassan Jedur, trained by Koldewey at Babylon, who came each day from the modern village of Kuwairish near the former Hanging Gardens. His skilled handling of up to 500 workers, cool arbiter of disputes and his expert knowledge in recognizing baked mudbricks were of inestimable value. In several publications I have described in detail the use of the work gang (*jogha*), the distribution of *bakshish* and the way of life of the Arabs of the Kish area.

Special studies were made on zoological and botanical finds. For example, I removed a block of earth containing fish bones from the Flood Stratum. These were identified by Dr. Louis Hussakof, American Museum of Natural History, as *Cyprinidae*. I also brought back in formalin small fishes from the main east-west canal near Kish. Dr. William K. Gregory, AMNH, identified these as *Barbus* and *Capoeta*.

Grains of wheat and barley from Y Trench and Jemdet Nasr were identified by Sir John Percival, O. F. Phillips, USDA; and H. V. Harlan, USDA.

A tribute must be paid to the Honorary Director of Antiquities, Miss Gertrude Bell, who founded the Iraq Museum, and her successor, Mr. R. S. Cooke, formerly of Waqf in Baghdad. Their permits and wise division of objects were an encouragement to the excavators and the sponsoring Institutions in Chicago and at Oxford.

The principal financial support for excavations at Kish and Jemdet Nasr came from Field Museum of Natural History, the remainder from Mr. Herbert Weld, Sir Alfred Mond and other supporters of the Ashmolean Museum at Oxford. Mr. Henry J. Patten, Chicago, paid for the second season at Jemdet Nasr.

Attention is called to the exhibit (Hall K), study collection, records and albums of photographs from Kish and Jemdet Nasr in Field Museum. There is also a Kish volume with correspondence from Langdon, Mackay, Watelin, Schroeder and Penniman among all my Papers in the Franklin D. Roosevelt Library, Hyde Park, New York.

The Ashmolean Museum, Oxford, has an exhibit as well as tablets, records and photographs.

The finest specimens are on exhibition in the Iraq Museum (Gertrude Bell Memorial), Baghdad. There is also a large study collection, records and photographs.

During the 1933 season the excavations were conducted by the American Institute of Persian Art and Archaeology (Arthur Upham Pope, Director), New York. The Sassanian levels were cleared with superb architectural results, which were published in the five volumes of *A Survey of Persian Art*, Oxford University Press, 1938.

In 1934 when I returned to Iraq as leader of the Field Museum North Arabian Desert Expedition and the Anthropometric Survey of Kurdistan and northern Iraq, I was ordered by the Director of Field Museum to visit Kish camp, ship to Chicago any remaining antiquities and human skeletons and dispose of furniture and equipment. My photographic assistant, Richard A. Martin, and I borrowed a truck and touring car from the Oriental Institute Staff in Baghdad.

At *Hajji* Miniehil's village I was greeted with wild cheers; they thought the excavations were to be reopened. Dismay followed as I explained we had come to abandon the Kish camp. A dozen men hung to the swinging truck as we lurched across our fragile homemade bridge over the small canal in front of the camp. There were the mudhuts forming a giant U - just south of Tell al-Uhaimir. The faithful guards, Mahdi and Juad, had kept their watch since last season. A heavy sandstorm followed by wild gusts of rain had demolished the entrance to our subterranean dining room. Willing hands with native long-handled narrow shovels (sing. *misha*) from the storeroom quickly remade an entrance. There were also 100 large French shovels brought from Paris by Watelin as an engineering experiment - a total failure.

The beds, tables and chairs were moved out into the courtyard. The shovels, pickaxes, buckets, rail lengths, sectioned palm trunks, reed mats and bottles used as windows were also arranged in the courtyard.

Fortunately, the Museum was intact; the giant padlock from the Hilla *suq* hung fastened to the hasp. A pickaxe broke the lock. Inside were catalogued pots, sherds and crania. Wooden boxes and newspapers were unloaded. I packed all the objects and labeled each box, which was replaced in the truck. The French shovels were stacked in the truck, a splendid example of another failure "to hurry the East." The Arabs could not and would not use them. They were used to the rhythm of the *misha*.

I gave all the furniture together with the rest of the equipment to *Hajji* Miniehil. A small riot would have occurred if anything were given away on the spot.

My mudhut, whose construction I had supervised in 1927, was a real desolation. The roof of reed mats between sectioned palm trunks had collapsed; it was hard to believe I had enjoyed living there only a few years before.

The Field Director's hut on a far more grandiose scale  $(15 \times 10 \times 8)$  was intact, the padlock also in place when we arrived.

Arabs carrying treasures began to walk or run westward across the stony plain to their village. The cars lurched across the small bridge which heaved and groaned under their added weight. We arrived a few minutes before the fleetest Arabs came with their burdens. *Hajji* Miniehil, by now an old man, was very pleased with the presents.

Finally, all was on the ground in the main courtyard, hardly arranged for military inspection. Amid screams from the children, shouts from their elders and a sad wave from the *Hajji*, we drove westward toward Hillah and then on the paved road to Baghdad. Here in the name of Field Museum I presented the French shovels to the Oriental Institute.

The antiquities were left overnight in the truck under guard in the courtyard of the Iraq Museum. Next day the wooden cases were opened for inspection. Nothing was retained by the Department of Antiquities.

Two days later, with an Inspector of Antiquities, I accompanied the truck to the Railway Station. The wooden cases, now repacked, were sealed by the Department for the Iraqi Customs. The shipment was placed in a small freight car, the lock sealed by the Inspector. Several hours later I heard the train whistle as it left for the Basra steamer.

This was the modest finale to the Kish excavations, not resumed on a full scale until now.

Dr. McGuire Gibson of the University of Illinois used all available material for this Thesis. He is to be congratulated for his efforts and deductions. My few disagreements concern my recollections of work in Y Trench during 1927-28; these are in the footnotes.

Dr. Robert McCormick Adams, Dean of the Social Sciences, University of Chicago, has contributed valuable information from his Akkad Survey, Appendix V contains an important summary of this survey of Central Iraq. The splendid maps in the pocket of the inside back cover were financed by the Oriental Institute.

The text was read by Mrs. Edith M. Laird who made many minor corrections and editorial changes. This was the last manuscript upon which she worked prior to her death on March 24, 1972.

We are also grateful to Mrs. Beatrice Glass for typing this complicated manuscript on her IBM "Composer". We appreciate her technical skill and expertise. Her daughter, Peggy, now Mrs. Barrett Cunningham, arranged the copy on each page and inserted the Errata and Corrigenda with special skill and patience.

The numerous diacritical marks were inserted by Craig Kenyon in Coconut Grove.

Several maps and all the sketches in the text were redrawn by Robert L. Carrodus, NOAA, Computer Center, University of Miami.

In the editorial revision, proofreading and checking of the final copy, I have had the assistance of Miss Morwenna Murrell, Coconut Grove.

There are three exhibits of Kish and Jemdet Nasr materials: (a) Field Museum of Natural History (Hall K) installed by Richard A. Martin and myself; (b) Ashmolean Museum, Oxford; and (c) Iraq Museum, Baghdad, originally founded as the Gertrude Bell Memorial Museum.

We are exceptionally pleased to have this Report on Kish among the titles published by Field Reasearch Projects.

June 10 1972HENRY FIELDCoconut GroveMiami, Florida

#### PREFACE

This study is primarily a topography of the area around the ancient city of Kish, combined with analyses of the city proper based on survey and examination of records of old excavations.

In 1964-65, as a traveling fellow of the Department of Oriental Languages and Civilizations of the University of Chicago, I was able to examine the records of the Field Museum-Oxford University Joint Expedition to Mesopotamia in the Ashmolean Museum, Oxford, and in the Iraq Museum. I also visited the Louvre and Istanbul to look over the finds from the Genouillac expedition of 1912. With the generous assistance of Dr. P. R. S. Moorey, I was allowed to assess the collection of field records at the Ashmolean and came to the conclusion that the serious gaps in the material there were filled to a great extent by records in Field Museum and the Iraq Museum. Moorey indicated at that time that the poor state of his records would not allow him to continue much longer in his research on Kish.

In 1965, I spent several months in Field Museum collecting, abstracting and copying all records pertaining to Kish or the Expedition.

With the very active support of Professor I. J. Gelb and Dr. Robert McC. Adams, then director of the Oriental Institute, I received a grant from the Oriental Institute to continue collecting records and make a surface reconnaissance of the Kish area from November, 1966, to March, 1967. In that time, I was able to duplicate many records in the Ashmolean and Baghdad, work over the objects, etc. I was also able to purchase air photographs of the Kish area, to carry out a fairly intensive, small scale survey and make a short sounding at the site of Umm al-Jerab, now known as Umm al-Jir.

During the survey, carried out with the fullest cooperation of the Iraq Directorate General of Antiquities, Mr. Ghanim Wahida and I examined sites and collected sherds from more than 135 mounds within ten to fifteen miles of Kish. In Appendix I, the sites number 175 due to some additions from Dr. Adams' previous survey in the area and a dividing of certain large sites into component parts.

Our survey method was based on that carried out by Dr. Adams in his Diyala and Akkad Surveys.<sup>1</sup> We would first examine air photographs, note probable ancient mounds, canals, or less prominent sites, and compare locations with standard Iraqi maps (1: 50,000). We then went to each mound, plotted it on the map, and made a collection of one or more bags of sherds from all parts of the site, including the scatter on the surrounding plain.

The method is not as scientific as one would wish. We did not attempt to apply principles of random selection in our collections. We had a set of type sherds, indicators

<sup>&</sup>lt;sup>1</sup>For a description of the method, *see* R. McC. Adams, *Land behind Baghdad* (Chicago: The University of Chicago Press, 1965, pp.119ff).

of specific time ranges, drawn for the most part from Adams' work in the Diyala. We also added types from the Nippur sequence<sup>2</sup> and supplemented these with sherds with which I had become familiar while on the Oriental Institute team excavating the Parthian fortress at Nippur (1964-65). In the course of the survey, other sherds were noted to be particularly useful as indicators of periods. We added these to our type list and thus built up a more extensive series of diagnostic sherds than was previously available. This last development was a direct result of collecting at each site some sherds that were not within our series of types. When sherds were of a known type, we would record them thus in our field notes (e.g., Sassanian, C). When no immediate identification was possible, a drawing was made and a dating was assigned later. Photographs were made of some site collections, but not all. The sherds were left in the Iraq Museum, Baghdad.

At the site of Kish, which was examined first, each of the mounds was given a number and the larger mounds were subdivided. The collecting on each of the mounds was done twice during a three week period.

Initially, it had been my intention in doing the field work to concentrate on Kish itself. I had hoped to study the city in relation to its nearby irrigation system and to whatever small, subsidiary hamlets might be considered satellites of the main settlement. However, the great burden of silt in the immediate neighborhood, and massive Sassanian and Islamic canals, plus modern irrigation, made such a study impossible. Besides the problem of covered sites, there seemed to be a very real lack of sites near the city of Kish, especially in the low, marshy area just north of the city. This lack had already been noticed by Adams and pointed out to me. Due to the problems just cited, the survey began to range farther and farther from Kish and led to a reexamination of the larger pattern of watercourses and settlement of which Kish is a part.

The reconnaissance presented here cuts into the heart of the area previously mapped by Adams. Having made his data available for my use, Adams subsequently decided to add his material and maps as Appendix V to the present study. My results suggest some changes to be made in his reconstructions, but it is very evident that the general lines of canals, the flow patterns, etc. remain essentially the same.

The second part of this work, the outline of stratigraphy at Kish, is drawn from excavators' field notes and published reports. Moorey's work on Kish made this section much easier than it would have been. There were, however, some additions to be made because of the incomplete state of his records. Detailed accounts of the individual mounds, pits, etc. must await more intensive analysis. The mass of material involved would have made this book three or four times its present size, had I done anything more than present a skeleton with just enough documentation through objects to justify datings.

<sup>&</sup>lt;sup>2</sup>See Donald McCown and Richard C. Haines, *Nippur I: Temple of Enlil, Scribal Quarter, and Soundings* ("Oriental Institute Publications," Vol. LXXVIII; Chicago: The University of Chicago Press, 1967), esp. Pls. 80-108.

The one major source of information on Kish that I have not used extensively is the large number of unpublished cuneiform texts found at Kish by Genouillac and the Field Museum-Oxford University Joint Expedition.

I was able, however, through a grant from the American Philosophical Society, to study the tablets in the Ashmolean Museum during the summer of 1969 and the information from that research will be incorporated in the continued program of research and publication.

The subsidiary excavations carried out by the Field Museum-Oxford Expedition at Jemdet Nasr, Umm al-Jerab (Umm al-Jir), Barghuthiat, etc. are not discussed in the body of this work, but are listed in Appendixes I and III. The work of Watelin at Umm al-Jerab (Umm al-Jir) in 1932 is discussed in full in my report on the sounding we made at the site in 1967. The report was submitted to *The Journal of Near Eastern Studies* and will appear in October, 1972.

In the transliteration of Arabic names, and in the citing of Arabic titles, there is some inconsistency. In Appendix I, for instance, most of the sites are listed as they appear on the Iraqi maps, which are sometimes unreliable. In some cases, I have given the names as recorded by Adams. In instances where sites were not on maps, the names were recorded by me with the aid of Mr. Wahida. The standardization of some of the names of sites seemed of dubious value since many were very local, antique colloquial words that made no sense to Baghdad residents, who would try vainly to find etymologies for them.

Since most of the place-names on standard English maps are given with the definite article written *al*, I have retained that spelling, although Iraqi pronunciation is *el* or *il*. In the citing of Arabic references, I have retained the transliteration of the publisher.

In the collecting and writing of this work as a dissertation at Chicago, I received generous assistance and encouragement from numerous persons. Chief among these are Professors Gelb, Adams, Kantor, and Biggs. Professors A. L. Oppenheim, Erica Reiner, and the other staff members of the Assyrian Dictionary gave freely of their time and advice.

My great indebtedness to Dr. Donald Collier, Mrs. Agnes Fennell, Mr. Richard A. Martin and the rest of the staff of Field Museum continues to mount. They have allowed me to upset routine, search in unlikely places and bother them with questions forty years old without complaint.

The Keeper of the Ashmolean, Dr. R. W. Hamilton, and Dr. P. R. S. Moorey were incredibly helpful. Dr. Moorey was already at work on Kish and could easily and justifiably have refused to let me work on the same material. His freely-given assistance and constant communication reflect an intellectual zeal that is rarely encountered. I hope that my furnishing him with cards, notes, etc. that he was lacking can repay in a small way his kindness to me.

Dr. Faisal Al-Wailly, Director General of Antiquities in Iraq during the term of

research, was more than generous in his aid. Only those who have worked in Iraq can realize the enormous debt we owe him and the other officials of the directorate, especially *Sayyid* Fuad Safar and Dr. Faraj Basmachi. I must also mention the help of Dr. Behman Abu Souf, Mr. Ghanim Wahida, and especially Dr. Subhi Anwar Rashid, the co-director of the sounding at Umm al-Jir.

In Baghdad, I received many kind assists from Mr. Jeffrey Orchard, Mr. Julian Reade and Mr. Peter Dorrell, all of the British School of Archaeology.

Several members of the staff of the Field Museum-Oxford University Joint Expedition were helpful in furnishing old notes, letters, information, etc. Of greatest importance is Dr. Henry Field, who not only keeps in constant touch with me, but has turned over many of his personal records and given some financial aid. Dr. David Talbot Rice, T. K. Penniman, Gerald Reitlinger, the late Eric Schroeder, Robert Van Valzeh, and René Watelin answered many questions and gave whatever aid they could. Mrs. Stephen Langdon furnished some otherwise unavailable copies of news items, and Mrs. E. Mackay, daughter-in-law of Ernest Mackay, gave some useful information.

For technical assistance of various sorts, I would like to thank Mrs. Ursula Schneider, Misses Ethel Schenck, Faye Burrage, Marion Bailey, Nina Shaw, Marjorie Elswick, Dinah Stevenson, Judy Franke, and Constance Cronin. I owe a special debt of gratitude to Miss Rose Diamond, without whose extraordinary insights my field season would have been drab indeed.

## Special note on Abbreviations:

Normally, in footnotes, an initial reference to a work has been quoted in full, while subsequent occurrences are given with a shortened title. Due to the special difficulty in citing cuneiform sources, I have used, where necessary, the standard abbreviations of the *Chicago Assyrian Dictionary*. Please refer to the *CAD* for these abbreviations.

In addition, the following abbreviations are used here:

- AM. I.1 E.J.H. Mackay, Report on the Excavations of the "A" Cemetery at Kish, Mesopotamia. Field Museum of Natural History, Anthropology Memoirs, Vol. I, No. 1. Chicago, 1925.
- AM. I.2 . A Sumerian Palace and the "A" Cemetery at Kish, Mesopotamia. Field Museum of Natural History, Anthropology Memoirs, Vol. I, No. 2. Chicago, 1929.
- AM. I.3 \_\_\_\_\_. Report on Excavations at Jemdet Nasr, Iraq. Field Museum of Natural History, Anthropology Memoirs, Vol. I, No. 3. Chicago, 1931.
- XK, I. Stephen H. Langdon, Excavations at Kish, I. Paris, 1924.
- XK, III. L. Charles Watelin, Excavations at Kish, III. Paris, 1930.
- XK, IV. . Excavations at Kish, IV. Paris, 1934.

#### I. INTRODUCTION

## The Role of Kish in Early Mesopotamia: Sumerians and Akkadians

In the formative periods of Mesopotamian civilization, Kish held an extraordinary position. In the southern part of the alluvial plain (Sumer), there were several major centers: Uruk, Eridu, Ur, Lagash, Larsa, Shuruppak, Nippur, etc. In the north (Akkad), as far as contemporary records indicate, there was only one important early city, Kish. Sippar and the town of Akkad were mentioned as early as Early Dynastic III, but were of minor importance.<sup>1</sup> Kutha and Babylon do not appear in texts until the late Akkadian Period.

It would seem that the north lagged in development, and one cannot speak of this area as the equal of Sumer until the early second millennium B.C., when political power was taken by Babylon. The disparity between the two regions has been explained in terms of an unequal maturation of irrigation systems.<sup>2</sup> However, it has been shown by archaeological survey that Akkad was settled and had well developed irrigation as early as the Ubaid Period.<sup>3</sup> More to the point may be the difference of stream beds in the two areas. In the northern part of the plain, there were major beds of the Euphrates which would have been tapped in a very different fashion from the more diverse, slower, ramifying streams in the more spacious south. The proximity of Sumer to the Persian Gulf, and the consequent stimulus of foreign contacts, trade, etc., must also have been a factor in the predominance of that region in the early periods.

It is a usual assumption in Mesopotamian studies that the dichotomy is the result of, or results in, two ethnic groupings with two types of social structure, Sumer having primarily a settled, urban character based on extensive agriculture, and Akkad being an area of less stability, more subject to nomadic movements.<sup>4</sup> Kish, as the center of the north and the city in which the Akkadians developed the power to dominate all of Sumer and Akkad, lies at the heart of such speculations. The older reconstructions of Mesopotamian history tended to present a picture of a Sumerian plain into which the Akkadians burst rather suddenly as a conquering horde.<sup>5</sup> There is evidence, however, for persons with Akkadian names in Mesopotamia from ED II, and economic documents of ED III date indicate a very sizeable Akkadian population as far south as the Nippur area.<sup>6</sup>

Gelb has for some years been working towards a definition of a predominantly Semitic culture area in Akkad, distinct from Sumer in population and culture, dating from prehistoric times.<sup>7</sup> It is not possible to make a distinction archaeologically between prehistoric Sumer and Akkad, and the earliest written documents (Protoliterate) being almost indecipherable, can give no proof of an Akkadian substratum. In fact, the one name that has been read in a Jemdet Nasr tablet seems to be Sumerian, arguing for Sumerian domination of Akkad in this range of time.<sup>8</sup>

The presence of non-Sumerian, non-Semitic peoples in Mesopotamia, as evidenced by personal and geographical names, prior to and contemporary with the Sumerians and Akkadians, entails a viewing of the ancient population as complex and variegated,

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probably much like that of Iraq today.<sup>9</sup> The initial appearance or arrival of the Sumerians and Akkadians in the area is not as important for our purposes as the relationship of these two groups to one another. Their contact has been viewed either as a clash or an intermixing.<sup>10</sup> Probably there was something of both aspects in their meeting.

If we look at other large groups that entered Mesopotamia through history, *i.e.*, the Amorites, Aramaeans, Arabs, it is clear that in all cases there was a gradual, uneven, infiltration of the new element into the region. Even the Arabs, whom we think of as sweeping into Mesopotamia on a wave of religious enthusiasm, were in fact poised on the fringes of the settled areas as farmers, townsmen and nomads for centuries before the conquest.<sup>11</sup> There is written evidence for Arabs already in the Neo-Assyrian Period,<sup>12</sup> and in the days of the Parthians and Sassanians, strong sedentary Arab kingdoms existed at Hira, Palmyra, etc.<sup>13</sup> After a long period as allies of the Sassanians, with occasional incursions to test the strength of their overlords, the Arabs crossed the Euphrates and conquered.<sup>14</sup>

We must view the rise of the Akkadians in something of the same light; not as an invasion, but as a gradual consolidation, domination and absorption of older populations by a group that may once have been predominantly nomadic. By the time written records were being kept, there seems to have been little nomadism among the Akkadians, or rather, the nomadic element was of little importance to the greater part of the population. Lineage or tribal structure, implied by work groups that seem kin-based, or by the generic term *šu* PN for a man or a group of (related) men,<sup>15</sup> though obviously reflecting a strong dependence on kinship for some regulation of society, does not necessarily indicate nomadism. Settled villagers and townspeople would have retained tribal structures just as do modern Iraqis.<sup>16</sup> Ethnographic research, though relatively undeveloped for the Arab Near East, underlines the viability of kinship and informal social organizations as a sanctioning, organizing force even when there is a central government.<sup>17</sup> The study of modern and Ottoman records of Iraq, showing a constant struggle for control between the central government and tribal organizations (both settled and nomadic, rural and urban), and the reversion to tribal patterns whenever the government is weak, gives us the best analogies for a reconstruction of the ancient situation.<sup>18</sup> Such anthropological studies as Barth's work on Persian nomads.<sup>19</sup> stressing the interdependence of nomad and peasant and town are of far more relevance for us than the usual reliance on Roman or Greek models. Ancient Near Eastern studies are just beginning to draw on modern anthropological and economic theory and we can expect dramatic changes in our viewing of Mesopotamian society and culture.

## Historical Outline of the City

Even before the rise of the Sargonic kingdom, rule over Kish seems to have implied dominance over the entire northern part of the plain.<sup>20</sup> Historical records are still relatively scarce for the Early Dynastic Period, but the Sumerian King List, a much later composition, gives Kish as the first post-Deluge kingdom.<sup>21</sup> The earliest mentioned rulers of Kish are certainly mythical. However, actual, contemporary inscriptions give evidence of some of the kings in the list, as well as some who are not mentioned. En-me-barage-si,

Me-silim, Enna-il, and Enbi-Eshtar are attested.<sup>22</sup> Other kings, such as Mes-anne-padda of Ur, took the title "King of Kish" after conquering the city. The title is very problematical, usually being assumed to have much the same weight as the Medieval "Holy Roman Emperor," or the like. The relationship between LUGAL KIŠ and šar kiššati, "King of the Universe," is beyond my competence to explore.<sup>23</sup>

The shift of political power to the new capital, Akkad, during the Akkadian Period, brought about a decided decline in the importance of Kish.<sup>24</sup> However, a small, autonomous kingdom did arise here in the period prior to the First Dynasty of Babylon. Ashduniarim, perhaps datable to about the time of Lipit-Ishtar of Isin (1934-24 B.C.), was surely an independent king, but the length of his reign and extent of his power cannot be gauged.<sup>25</sup> About the time of Sumuabum and Sumulael of Babylon (1894-45 B.C.), Kish seems to have been part of another small kingdom, the capital of which is not yet known; a king of Kish, named Iawium, ruled under the suzerainty of Halium and Sumu-iamut-bal.<sup>26</sup> These rulers swore oaths by Nanna, and it has been suggested that their city was Kutha.<sup>27</sup> This dynasty was brought under the subjection of Babylon in the reign of Sumulael, some years after that king had taken Kish.<sup>28</sup> There is some evidence of other kings of Kish from about the same period, but their dates, the nature of their rule, etc., cannot yet be determined.<sup>29</sup>

There was considerable building activity at Kish during the First Dynasty of Babylon. Hammurabi, for instance, restored the ziggurat and temple of Zababa and Ishtar, and Samsuiluna made improvements on the ziggurat and erected a city wall "on the banks of the Euphrates." <sup>30</sup>

After the Old Babylonian Period, if we may judge by the scarcity of inscriptions, Kish became a minor settlement. Only a few texts, an inscribed scepter head of Kurigalzu, and some bricks of Adad-apla-iddina attest to any activity at the site in the later part of the second millennium.<sup>31</sup>

Texts from the Neo-Assyrian and Neo-Babylonian Periods mention Kish often, but the city was only one of many under Babylonian rule.

Tiglathpileser III (744-27 B.C.) lists Kish as one of the cities he conquered in Babylonia, and records a sacrifice in the temple at Hursagkalama.<sup>3 2</sup>

The plain of Kish, and the city itself, played an important part in the war between Sennacherib (704-681 B.C.) and Merodachbaladan.<sup>33</sup> In this context, as well as others during the Neo-Babylonian and Achaemenid Periods, it is apparent that Kish was closely linked with, and little more than an adjunct of, Babylon, which was only eight miles away.<sup>34</sup>

Since the time of the Achaemenid kings, Kish has been of so little significance that it has not merited mention in any written source. Archaeological evidence shows, however, that it was fairly prosperous until a much later date, especially in the Sassanian Period. This brief historical outline, although touching only slightly on the role of the city, will suffice to point up periods that should be important archaeologically. We would expect the Early Dynastic and Akkadian remains to be extensive. Following this, the material should decrease, with a slight revival in the Isin-Larsa and Old Babylonian Periods. We should expect another revival evidenced by buildings and pottery, etc., during the Neo-Assyrian and Neo-Babylonian Periods.

### Topography of the City and Area from Texts

Thus far, I have used only the term Kish in speaking of the city. Previous archaeological work and historical sources show that the site was actually a twin-city, two areas of settlement. In this study, we adopt the usage of Langdon, Mackay, and others in referring to several of the western mounds as Uhaimir, though strictly speaking this name refers only to the ziggurat there. Likewise, in using Ingharra, I am including the lower areas around the main mound in the eastern half of the site (i.e. Mounds A, B, C, D, E, F). The eastern mounds are surely, as the earlier excavations proved,  $^{35}$  the part of the city of Kish that was known as Hursagkalama. We have evidence of this latter name from as early as the Ur III Period. It was then clearly thought of as a part of the city of Kish and was a religious area.<sup>36</sup> Though Kish had been given the determinative KI (place) in texts from the Early Dynastic Period on,<sup>37</sup> Hursagkalama did not receive the determinative until the Old Babylonian Period.38 When Samsuiluna built a wall around Kish, as we noted above, he surely did not include Hursagkalama within it, since the distance would have been prohibitive (about a mile). It seems that by that time, although Hursagkalama was referred to as "in Kish" it was also viewed as separate from the main area of the city (Uhaimir).<sup>39</sup>

Later texts (NA, NB) show that the term Kish was still used to include both halves of the city, even though the western area (Uhaimir) was virtually deserted, as we will show by archaeological evidence, and Hursagkalama was the main area of settlement.<sup>40</sup> In late texts, listing cities, Kish and Hursagkalama were given in that order, even when the progression was from south to north, *i.e.*, Uruk, Nippur, Kish and Hursagkalama, Sippar, and so forth.<sup>41</sup> I interpret this to mean that Hursagkalama, the main area of settlement, was still thought of as included in and secondary to the more illustrious term Kish.

From texts, we have some information for individual structures, walls, etc., at Kish and Hursagkalama. It is certain that the ziggurat at Uhaimir was called U<sub>6</sub>-nir-ki-tuš-mah, and the temple at its feet was É-me-te-ur-sag. This complex was dedicated to Zababa.<sup>4 2</sup> The wall that Samsuiluna built around Kish was called Bàd me-lám-bi-kur-kur-ra.<sup>4 3</sup>

The temple at Hursagkalama, of which the well preserved Neo-Babylonian temple at Ingharra is presumably the last version, was in the early periods dedicated to Inanna/Ishtar.<sup>44</sup> Later texts give Ninlil and Ninshubur as the goddesses of Hursagkalama.<sup>45</sup>

Texts listing Zababa and Inanna as the deities of Kish must be seen as distinguishing

between the two halves of the city. There is no evidence from excavations of a shrine to Inanna at Uhaimir, nor to Zababa at Ingharra. However, there are other minor deities mentioned for the city of Kish.<sup>46</sup>

Topographical features in the immediate vicinity of Kish are weakly attested. Because many of the hundreds of texts found by the Field-Oxford Expedition have not been published, we cannot give a detailed textual study of topography. We know, however, from Ur III sources of at least two canals in the environs of the city. The canal Me-dEn-líl-lá, originating from the Euphrates at Kish, connected the city with Marad.<sup>47</sup> There is mention of a Kish Canal (íd-Kiški) as early as Pre-Sargonic times.<sup>48</sup> A canal by the same name is attested in later lexical and other sources.<sup>49</sup> In Neo-Babylonian and Achaemenid times, the Kish Canal, which carried water to Kish certainly was derived from the branch of the Euphrates that ran through Babylon.

Another canal mentioned by Halium, King of Kish, was the Ab-gala8, "The great cow," known in that form in Ur III and Old Babylonian texts.<sup>50</sup> This canal is the same as the Apkallatum, later the Pallukat, then Pallacottas Canal, which has been shown by Meissner to have run in much the same bed as the present day Hindiyah branch of the Euphrates.<sup>51</sup> Did Kish control the area west of Babylon at that time? We cannot say.

The major watercourses in the Kish area have been sketched in by Adams' Akkad Survey. Attempts to reconstruct the major lines on the basis of texts have been made by Goetze, Jacobsen, Kraus and Edzard.<sup>52</sup> Jacobsen's scheme is the most complete, and the most reliable, since he was aware of the results of the work by Adams and Crawford in Akkad.

It can be shown through texts that the Euphrates, or what was considered the main bed of the river, ran for the greater part of ancient history (pre-NA/NB) through Sippar, Kish, Nippur, Shuruppak, Uruk and Eridu.<sup>53</sup> However, we know from classical, as well as cuneiform, sources, that in the Neo-Assyrian and Neo-Babylonian Periods, the channel through Babylon was often called the Euphrates.<sup>54</sup> From as early as the Ur III Period, and as late as the Neo-Babylonian Period, the Babylon branch was most often designated the Arahtu(m).<sup>55</sup> The gradual replacement of the name Arahtu and the substitution of the name Euphrates in the later texts indicate that something had caused the Babylon channel to be considered the main course of the river. In the following Chapters, an explanation for the change will be offered.

The canal line that ran through Kutha from Sippar gives us great difficulty. Jacobsen identified this canal as the Irnina, though we have no absolute proof that Kutha lay on this canal. The identification, however, is reasonable.<sup>56</sup> In the important text published by Kraus, giving details of Ur III provinces,<sup>57</sup> it seems certain that the Irnina at that time joined the Zubi Canal, somewhere east of Kish. At the juncture of the two canals, the cities  $UR \times U$  and A.HA should be located. Jacobsen has suggested a possible site identification,<sup>58</sup> but I can see no likely candidate within the area of my survey and would rather locate it to the south, but not more than a few miles distant. In one Kassite text, a canal called the Irnina is located in the vicinity of

Nippur.<sup>59</sup> The canal must have run not far to the east of that city.

North and east of the Kutha Branch, was another major line, identified by Jacobsen as the Zubi.<sup>60</sup> I tend to identify this canal with what I have termed the "Jemdet Nasr Branch" in this study. Texts tell us that the Zubi took off from the Euphrates somewhere near Sippar, and we assume with Adams,<sup>61</sup> that it originated upstream of Sippar. Somewhere near Sippar, at a place where the Zubi and the Euphrates were very close together, was located the city of B/Push.<sup>62</sup> The lower course of the Zubi seems to have carried it very close to the Tigris. At least, at some time, the Zubi seems to have been connected, or considered part of the Tigris system.<sup>63</sup>

These are the major water courses of the Kish area. What of towns in the region? I have said previously that Kish was the only city of any importance in the early periods. We know that Sippar was in existence, and is mentioned in texts of pre-Sargonic date. There are abundant references from Akkadian and later times.<sup>64</sup>

Babylon is first mentioned in texts in a date formula of Sharkalisharri.<sup>65</sup> This city has been the subject of much study by scholars, but its relationship to Kish is not clear. A thorough study of Kish tablets would clarify the situation.

Kutha (Gú-dug-a<sup>ki</sup>) is the most neglected of all the large cities of the area. We know very little of its history, although it too is attested from the Akkadian period (Manishtusu), and there are many references to it in Ur III texts.<sup>66</sup> From a very sketchy survey of the Kish published material, I came to the conclusion that Kish had surprisingly little contact with Kutha, far less than with Sippar.

The towns of  $U\dot{R} \times U'$  and A.HA seem to be very closely linked, and were probably a twin city. An *ensi* could govern both at the same time.<sup>67</sup> We have mentioned above that the two towns lay on the Zubi Canal, near or at the juncture of the Irnina and the Zubi.

Outside the area of our survey, but of great importance for the northern part of the alluvial plain, was the city of Upi/Akshak. Attempts have been made to identify this ancient site with Opis, and locate it at Seleucia.<sup>68</sup> The city of Upi, though it does occur frequently in ancient texts was outside the area of our survey and depended on the Tigris, rather than upon the hydraulic system of the region with which we are concerned.

We come finally to the city of Akkad, which has been estimated to lie in the area of Sippar,<sup>69</sup> modern Samarra,<sup>70</sup> the area of the Lower Zab,<sup>71</sup> and east of the Tigris.<sup>72</sup> From present evidence, including hydrological considerations to be discussed in the body of this work, the area of Sippar seems best. The philological arguments for Sippar have been centered on such facts as the existence of the temple E-ul-maš in Akkad and a temple of the same name in Sippar; or the location of the Ishtar Gate in the northern

wall of Babylon; etc. There is evidence that the city of Akkad was within the neighborhood of Babylon.<sup>73</sup> In the Neo-Babylonian period, "Akkad" was being used to designate the city of Babylon in some cases.<sup>74</sup> However, there is certain proof that the ancient site of Akkad was still known at that time.<sup>75</sup> For the earlier periods, the following outline can be given for the city. First, there is mention of a town named Akkad, in pre-Sargonic texts,<sup>76</sup> meaning that Sargon did not found a totally new city. In Akkadian and later times, the name designated an area as well as the city itself.<sup>77</sup> The city continued to exist, apparently, through the Middle Babylonian Period,<sup>78</sup> and may have been a living town even as late as Achaemenid times.<sup>79</sup>

At present it is not possible to define the location of Akkad any closer. On the survey carried out around Kish, I was looking for indications of the city, but found none. As will be seen, there is no mound in the survey area that qualifies as a possible candidate for Akkad.

Having now given a sketchy history and topography of the city of Kish, we turn to the body of the study. The following Chapter is a summary of the natural factors that have created the alluvial plain, affording us a framework for the reconstruction of canal lines as well as details of the city of Kish.

- 1. Sippar occurs in pre-Sargonic *kudurrus*, according to I. J. Gelb. For Akkad as a town in ED III, see below, p. 7.
- 2. P. Buringh, "Living Conditions in the Lower Mesopotamian Plain," Sumer, XIII (1957), 38ff.
- 3. R. McC. Adams, "Survey of Ancient Water Courses and Settlement in Central Iraq," *Sumer*, XIV (1958), 101-103.
- 4. See E. Speiser, *Mesopotamian Origins: the basic population of the Near East* (Philadelphia: The University of Pennsylvania Press, 1930); A. Goetze, "Early Kings of Kish," *JCS*, XV (1961), 105-111; For a recent, concise summary of positions, see Alfred Haldar, "Woher kamen die Sumerer?" *Bibliotheca Orientalis*, XXVI (1965), 131-140.
- 5. Speiser, Mesopotamian Origins.
- 6. See D. O. Edzard, "Sumerer und Semiten in der Frühen Geschichte Mesopotamiens," *Genava*, n.s., VIII (IX<sup>e</sup> Rencontre assyriologique internationale. Genève, 20-23 juin, 1960. Aspects du Contact Suméro-Akkadien [1960]), 243, n. 10; R. D. Biggs, "Semitic Names in the Fara Period," *Orientalia* n. s., XXX (1967), 55-66; I. J. Gelb, *MAD* II (1952), 5.
- 7. Personal communication, but some published indications of his thinking can be seen in *MAD*, II, 4-6; "Sumerians and Akkadians in their Ethno-Linguistic Relationship," *Genava*, n. s., VIII (1960), 258ff.
- 8. A. Falkenstein, ADFU, II (1936), 38.
- B. Landsberger, "Die Sumerer," Ankara Universitesi Fakültesi Dergesi, I (1942-43), 97-102; "Die Anfänge der Zivilisation in Mesopotamien," *ibid.*, II (1943-44), 431-37; "Die Geistigen Leistungen der Sumerer," *ibid.*, III (1944-45), 150-58, for his analysis of place-names, etc., to isolate Proto-Tigridian and Proto-Euphratian substrata in Sumerian civilization. See also, I. J. Gelb, Genava, n. s. VIII, 261ff., and "Hurrians at Nippur in the Sargonic Period," Friedrich Festschrift, pp. 183-93, and his Hurrians and Subarians.
- 10. Cf. Speiser, *Mesopotamian Origins* and T. Jacobsen, "The Assumed Conflict between Sumerians and Semites in early Mesopotamian History," *Journal of the American Oriental Society*, XXX (1939), 485-95.
- 11. F. Altheim and R. Stiehl, *Die Araber in der alten Welt* (5 vols.; Berlin: W. de Gruyter, 1964), for a comprehensive view of the Arabs in Roman and other records.

- 12. E. Ebeling, "Araber," RLA, I (1932), 125f.
- 13. Altheim and Stiehl. Die Araber, and Sidney Smith. "Events in Arabia in the 6th Century A.D.," Bulletin of the School of Oriental and African Studies XVL (1954), 425-68.
- 14. The chronicler Baladhuri is especially useful in showing the preliminary raids before the full conquest. See P. K. Hitti, *The Origins of the Islamic State*, being a translation from the Arabic, accompanied with annotations, geographic and historic notes, of the *Kitāb futūh al-Buldan* of al-Imām abū-l'Abbas Ahmad ibn-Jābir al-Balādhuri (Beirut: Khayats, 1966).
- 15. Gelb, *MAD*, III, 249-51, gives numerous references for PN son of PN<sub>2</sub> šu PN<sub>3</sub> ši PN<sub>4</sub>, clearly a lineage, and goes on to suggest hints of clan organization.
- 16. For a study of a settled, irrigation-based village in Iraq, see R. A. Fernea, "Irrigation and Social Organization among the El Shābana, a Group of Tribal Cultivators in Southern Iraq" (unpublished Ph.D. dissertation, Department of Anthropology, University of Chicago, 1959).
- 17. Philip C. Salzman, "Political Organization among Nomadic Peoples," Proceedings of the American Philosophical Society, CXI, No. 2 (1967), 115ff. is a recent summary of modern anthropological field work on the subject. See also, Henry Rosenfeld, "The Social Composition of the Military in the Process of State Formation in the Arabian Desert," Journal of the Royal Anthropological Institute of Great Britain and Ireland, XCI (1965), 75-86, 174-93. See also, Vincent Monteil, Les Tribus du Fars et la Sédentarisation des Nomades (École pratique des Hautes Études, Sorbonne, Sixième Section: Sciences économiques et sociales. Le Monde d'Outre-Mer Passé et Présent," Deuxième Série. Documents, X; Paris: Mouton, 1966) esp. pp. 71ff., which is a very fine, comprehensive bibliography. For ancient nomads, see J. R. Kupper, Les Nomades en Mésopotamie au Temps des Rois de Mari ("Bibliothèque de la Faculté de Philosophie et Lettres de l'Université de Liège," Fascicule, CXL. Paris: Société d'Édition 'Les Belles Lettres,' 1957); "Le Rôle des Nomades dans l'Histoire de la Mésopotamie ancienne," JESHO, II (1959), 113ff.; see also, M. B. Rowton, "The Physical Environment and the Problem of the Nomads" (XV<sup>e</sup> Rencontre Assyriologique Internationale [Liège, 1966]). La Civilisation de Mari. ed. J. R. Kupper ("Bibliothèque de la Faculté de Philosophie et Lettres de l'Université de Liège," Fascicule CLXXXII; Paris: Société d'Édition 'Les Belles Lettres,' (1967), pp. 109-121. For other references, see the Bibliography attached to the present study.
- 18. In Ch. II, in discussing the behavior of the Euphrates, some mention is made of the relationship of tribe to government in Ottoman times.
- 19. See F. Barth, Nomads of South Persia: the Basseri Tribe of the Khamseh Confederacy (Oslo: Oslo University Press, 1961).
- 20. See Jacobsen, The Assumed Conflict, pp. 487ff., n. 11, comparing the development

of the title King of Kish into King of the Universe, with a supposed linguistic development of Nippur to Sumer. Cf. W. W. Hallo, *Early Mesopotamian Royal Titles: A Philologic and Historical Analysis* ("American Oriental Series," Vol. XLIII; New Haven, American Oriental Society, 1957) for further discussion of the role of Kish in early Mesopotamian history.

- 21. T. Jacobsen, *The Sumerian King List* ("Oriental Institute of the University of Chicago, Assyriological Studies," No. 11; Chicago: University of Chicago Press, 1939).
- 22. See A. Goetze, JCS, XV (1961), 105-111, for a discussion of the kings of Kish who are attested by votive and other inscriptions.
- 23. For a summary of material and full references, see Hallo, Titles.
- 24. H. Hirsch, "Die Inschriften der Könige von Agade," Archiv für Orientforschung, XX (1963), 1-82, gives the sources for the reconstruction of the history of the Akkadian Period, as well as a discussion of the sources. It is apparent that the history of the period, especially in detailing the rise of Sargon, is based to a sizable extent on tradition, omens, etc. The move from Kish to Akkad is mainly derived by inference, not by hard evidence.
- 25. See F. Thureau-Dangin, "Ašduni-Erim, Roi de Kiš," Revue d'Assyriologie, VIII (1911), 65-79; for a later summary, see D. O. Edzard, Die Zweite Zwischenzeit Babyloniens (Wiesbaden: Harrassowitz, 1957), pp. 130-31.
- See Edzard, Zweite Zwischenzeit, pp. 130-35. For the latest work on this group of rulers, see S. D. Simmons, "Early Old Babylonian Tablets from Harmal and Elsewhere," JCS, XIV (1960), 75-87. For slightly different interpretation of this period at Kish, see Kupper, Les Nomades, pp. 197-200.
- 27. By Simmons, "Early Old Babylonian Tablets," p. 79.
- 28. Ibid., pp. 81f.
- 29. One King, Sumu-ditan, is placed, *ibid.*, pp. 84f., in the time before Iawium, but is thought to be ruling from another town. For other rulers, see *ibid.*, p. 82, n. 119, and also Kupper, *Nomades*, p. 199. These seem to include Naqimum, Ahi-maras, Iarwium, Sumu-liru, and Sumu-iamum.
- 30. S. Langdon, XK, I, 14f., gives the relevant references to Old Babylonian work at Kish.
- 31. See *ibid.* for the inscriptions. A note by Langdon on a small card now in the Field Museum says there are some Kassite texts from Ingharra, though I have no other record of them.

- 32. Luckenbill, ARAB, p. 283, lists the city of Kish with other captured places and says sacrifices were made in all of them. A parallel says the sacrifice was in the temple at Hursagkalama. See XK, I, 17 for discussion.
- 33. OIP, II, 24ff.; see also J. A. Brinkman, "Merodach-Baladan II," Studies Presented to A. Leo Oppenheim (Chicago: Oriental Institute, University of Chicago, 1964).
- 34. E.g. in many texts recording fields, taxes, etc., the Kish road is given as a boundary (Strassmaier, *Dar.*, 226: 2; 304, 2; *TCL*, XII, 11:4). These tablets written in Babylon concerned the affairs of that city. The Kish Canal is also used to delimit areas in other Babylon texts (e.g., *Nbn.* 65: 6; 330:2). The incorporation of Kish as a terminus for a dike originating at Babylon in the time of Nebuchadnezzar, though it may never have operated, shows the close relationship to Babylon. See Chapter III for further details on this dike.
- 35. See XK, I, 1-29 for a summary.
- 36. See Schneider, *Götternamen*, pp. 22f. Also, Kraus, "Provinzen," p. 74, col. ii, 16-18. In searching Dr. Gelb's files, I was unable to find any occurrence of the KI with Hursagkalama in this period.
- 37. E.g., SAKI, pp. 28, 36, et passim.
- 38. See, for instance, RA XXXII, 171, v:29. There are, however, contemporary and later examples in which Hursagkalama did not have the determinative, especially when in combination with Kish. See, e.g., VAS, XVI, 144: 17; 166: 6 and 10 (*iš-tu Kiški a-na hur-sag-kalam-ma*); Craig, ABRT, I, 59, Rev. 6 (*ilāni šá Kiški ù hur-sag-kala-[ma]*).
- 39. See *PRAK*, II, C 37: lf. dInanna-hur-sag-kalam-ma<sup>ki</sup> ina Kiš<sup>ki</sup> in which both areas have the determinative, but Hursagkalama is said to be within Kish. For the deities of Kish and Hursagkalama in the Old Babylonian period, see J. Renger, "Götternamen in der Altbabylonischen Zeit," *Heidelberger Studien zum alten Orient. Adam Falkenstein* (Wiesbaden: Harrassowitz, 1967), pp. 137-71. For other examples of the separable quality of Hursagkalama, see YOS, II, 51: 12; VAS, XVI, 166 mentions the sending of goods on a boat from Kish to Hursagkalama (here the latter has no determinative).
- 40. If I am interpreting correctly such lines as *Camb.*, 349: 16-17; *Nbn.*, 328: 3, etc., in which Hursagkalama is said to be *ša ki-ir-ba Kiški* "inside (or in the district of) Kish." That the two areas were viewed as separate can be seen in a text in which Zababa and the gods of Kish and Ninlil and the gods of Hursagkalama are said to enter Babylon (*BHT*, Pl. 14, col. iii, 9.)
- 41. E.g., OIP, II, 25, i: 40. The main text has no determinative after Hursagkalama, but does have the determinative URU=ālu, "city" before it. A variant omits the URU,

but adds KI after the name.

- 42. See XK, I, 14f., for texts found at Kish. Cf. Ungnad, "Datenlisten," RLA, II, 184 (u6-nir ki-tuš mah [dza-ba4-ba4 dinanna-bi-da-ke4 šu-gibil bi-in-ag]).
- 43. Ungnad, "Datenlisten," p. 184, No. 169. (lugal nam-ku-zu mu-un-gur10-ra) bád kiški (-a bád me-lám-bi-kur-kur-ra dul-la gú idburanun-na-ka) mu-un-dú-a.
- 44. See XK, I, 22ff., and Renger, "Götternamen," p. 142.
- 45. Specifically, Craig, ABRT, I, 58, Rev. 6-10. See XK, I, 25-26 for discussion.
- 46. Ibid., but the available texts are confusing.
- 47. See Kraus, "Provinzen," p. 74, for the crucial text. See also T. Jacobsen, "Waters of Ur," p. 177.
- 48. E.g., TUM, V, 24, ii: 7.
- 49. E.g., Diri, III, 192; Nbn., 330: 2, etc.
- 50. See, e.g., Genouillac, *Kich*, II, D 60 (Shulgi), mentioning the Áb-gal and the Me-dEn-lil-lá. See Kraus, "Provinzen," p. 74 for discussion. Halium mentions these two canals in a date formula: Ungnad, "Datenlisten," p. 192.
- 51. Bruno Meissner, "Pallacottas," *Mitteilungen der vorderasiatischen Gesellschaft*, I (1896), No. 4, 1-13. Meissner examines all the classical sources on the Pallacottas and corrects the impression given by Arrian that the canal originated south of Babylon. Jacobsen, "Waters of Ur," p. 177, accepts Arrian and locates the Apkallatum (Pallacottas) south of Babylon.
- 52. See A. Goetze, "Archaeological Survey of Ancient Canals," Sumer, XI (1955), 127-29; T. Jacobsen, "Waters of Ur," pp. 174ff.; Kraus, "Provinzen," pp. 45-75; D. O. Edzard, Zweite Zwischenzeit, pp. 112-17.
- 53. See F. Delitzsch, *Wo Lag das Paradies?* (Leipzig: Hinrichs, 1881); Jacobsen, "Waters of Ur."
- 54. See, for references and discussion, E. Unger, Babylon, die Heilige Stadt, nach der Beschreibung der Babylonier (Berlin: W. de Gruyter, 1931). See also Delitzsch, Paradies.
- 55. Erimhuš, VI, 48 [ÍD dMUŠ].DIN.TIR,DÙG = A-ra-ah-tum. Lipšur, 50,ÍD a-ra-ah-tu = šá a-na KÁ.DINGIR.RA ub-ba-lu TI. 2R, 51 (Hargud), ÍD GÚ.HA.AN.DÈ = A-ra-ah-[tum] For Ur III, see BE, III, 84, and other references. OB: Ungnad, "Datenlisten," p. 186, date of Abi-eshuh. For later occurrences, see Unger, Babylon.

For the Ur III-OB Periods, see Kraus, "Provinzen," and Edzard, Zweite Zwischenzeit, pp. 112ff.

- 56. See Jacobsen, "Waters of Ur," p. 176; also Kraus, "Provinzen," and Edzard, Zweite Zwischenzeit, p. 115.
- 57. "Provinzen."
- 58. "Waters of Ur," p. 176.
- 59. Boundary stone of Melishipak, Kassite ruler (1188-1174 B.C.). BBSt., Pls. XI-XII, col. iii, 42; iv, 2.
- 60. "Waters of Ur," p. 176.
- 61. See our Fig. 69, a re-working of a map from Adams.
- 62. A Sippar text, giving the boundaries of a field of a naditu, says one of its ends is on the Zubi canal, the other end is on the Euphrates, and that the field is ina BAD Pu-uški; YOS, XII, 469: 4 (Samsuiluna, 25). The field is not large, and thus the Zubi and Euphrates at this point cannot be far from one another.
- 63. For lexical references, see CAD, Z, under  $z\bar{a}'ibu$ . There is a great problem in working with the sign ZUBU, because it is close in form to IDIGNA = Tigris. Lexical texts equate idZu-bi with Di-ig-lat, e.g., "Practical Vocabulary Assur," AfO, XVIII, 337f., 739. Kraus, "Provinzen," p. 63, equates Zubi with Tigris. Hallo, JCS, XVIII (1964), 68, sees the Zubi, in the form Izubitum, as a short canal between areas occupied by present day Baghdad and Samarrah on the Tigris.
- 64. Sippar (UD.KIB.NUN.KI = Zimbir) is mentioned often in Early Dynastic *kudurrus*, according to Professor Gelb. The Manishtusu Obelisk, *MDP*, II, Pl. III, col. xiii, 22, *et passim*, indicates some importance for the town, merely by mentioning it several times.
- 65. See A. Ungnad, "Datenlisten," p. 133.
- 66. Manishtusu Obelisk, MDP, II, Pl. III, col. xiv, et passim; Ur III, see, e.g., SAKI, p. 190, f-g (Shulgi). One text, Orientalia, XLVII-XLIX, 57: 6-8, mentions one ensi of Kutha, A.HA, and UR x U, in the 44th year of Shulgi. Surely these three towns are not far apart.
- 67. See previous note, and *TCL*, V, AO. 6041, iii. Note also *UET*, III, No. 1369, about a field on the Zubi, in the area of A.HA<sup>ki</sup>. In another text concerning A. HA<sup>ki</sup>, there is a mention of a place called A-da-làl<sup>ki</sup>, *UET*, III, 1357: 1-2.
- 68. See E. Unger, "Akšak," *RLA*, I, 64f., for a summary of the evidence for Upi/Akshak = Opis. See also, G. Gullini, "Problems of an Excavation in Northern Babylonia," *Mesopotamia*, I (1966), 7ff. Adams, *Land Behind Baghdad*, p. 123,

suggests an identification with Tell Abu Jawan, at the confluence of the Diyala and Tigris.

- 69. E.g., E. Unger, "Akkad," RLA, I, 62. See also, P. Jensen, "Kiš" ZA, XV (1900), 219, Landsberger, Brief des Bischofs, p. 56.
- 70. Meissner, BuA, I, Il.
- 71. Hommel, Ethnologie und Geographie des alten Orients ("Handbuch der Altertumswissenschaft," III, 1.1; München: C. H. Beck, 1926), 243, 1042.
- 72. For references, see RLA, II, 484.
- 73. LKU, p. 14, mentions the building of a structure in the area of Babylon, near Akkad (*i-te-e A-ga-deki*).
- 74. As suggested by Landsberger, Brief des Bischofs, pp. 38-41.
- 75. Besides the famous excavations of Nabonidus on the site, we have other references to inscriptions of Naram Sin and Sharkalisharri found in Akkad and recorded by scribes; e.g., *CT*, IX, 3; Lewy, *HUCA*, XXXII, 53-56.
- 76. Barton, PBS, IX, 1, No. 5, col. ii.; Burrows, Archaic Texts, pl. XLVIII, 29.
- 77. The name occurs with the determinative KI, "place," as well as KUR, "Land," e.g., *HSS*, X, 38, iii, 7, *et passim; BIN*, VIII, 165: 4, 11, tells of the sending of commodities by boat from Umma to Agade.
- 78. Ensis ruled Akkad in the Ur III Period, e.g., unpublished text, Philadelphia, N. 579, from Gelb files; cf. *RTC*, 103. Whether the Middle Babylonian references, e.g., *UET*, VI, 32, PN ša uruAk-ka-a-di; MDP, II, Pl. 21, col. i, 4-5, Akkad, on the bank of the Nar-sharri, are to be understood as already referring to Babylon rather than Akkad itself, cannot be determined.
- 79. One text, *ABL*, 1202, rev., 25ff., seems to indicate that even in the late periods, Akkad was separate from Babylon, since both are mentioned. However, the text is much destroyed.

# II. KISH: THE NATURAL SETTING

# Geology, Geomorphology

Kish lies in the northern part of the Mesopotamian flood plain.<sup>1</sup> (Figs. 1, 5), an area that depends on flow irrigation for cultivation. Since it is part of the alluvium, one cannot divorce the area from a wider consideration of the geological, hydrological and climatological forces that affect all of Mesopotamia.

Though man has lived in the plain a very short time in terms of geology, and thus that science deals very slightly with the period,<sup>2</sup> we must make a short summary of the geological formation of Mesopotamia and its effects on the ancient and modern land surface.

The Mesopotamian basin is the result of millions of years of mountain-building activity beginning in the Oligocene Period. As the Zagros and Taurus ranges rose to the northeast, a great geosyncline, or trough, began to develop between them and the stable Arabian Shield to the southeast. Material was eroded from the uplifted land into the trough which was at that time under the sea. In the Miocene Period, about 25 million years ago, continued uplift and erosion resulted in a filling in of the trough and the pushing of the shoreline to the southeast. Much of the surface of northern Iraq, above a line running from Samarra to Hit, is of that age.<sup>3</sup> South of this line, the Miocene deposits subsided due to continued folding of the mountains and a shifting toward the Arabian Shield in the Pliocene-Pleistocene eras (11 million to about 15,000 years ago).<sup>4</sup> Continental deposition of up to 15,000 feet thickness accompanied this subsidence. The resulting shoreline is assumed to have been much farther southeast than the present shore of the Persian Gulf and may even have been inhabited by Palaeolithic man. With the melting of the glaciers, the sea would have risen some 300 feet and the head of the Gulf would have been established in more or less its present location.<sup>5</sup>

This entire formulation depends on the acceptance of the theory of concurrent subsidence of the basin and deposition of sediment as proposed by Lees and Falcon.<sup>6</sup> Prior to their revolutionary article of 1952, it was generally held that the Mesopotamian plain was a steadily advancing delta built on a stable bottom. This older view was initially proposed by Charles T. Beke in the 1830's<sup>7</sup> and given more scientific grounding by de Morgan in 1900.<sup>8</sup>

According to de Morgan, a coastline south of Basra would have been possible only in the Islamic Period. Lees and Falcon, however, argued that the static theory did not account for the failure of the sediment to completely fill in the Hor al-Hammar north of Basra. Also, ancient sites and irrigation works have been found south of the Hor.<sup>9</sup> Uplift and subsidence can be shown to be still going on in the area at the head of the Gulf, attesting to the non-static nature of the bedrock hundreds of feet below.<sup>10</sup> As a supporting argument, the comparison of various British naval charts and maps shows that the supposed growth rate of the delta, of about one mile every 100 years, cannot be demonstrated for the last 150 years.<sup>11</sup> Although one point along the coast may advance, others are being eroded away.<sup>12</sup>

The finding of marine fossils in the area around Basra and even as far north as Amara in Pleistocene deposits does not necessarily support de Morgan's view nor deny the validity of the newer theory. It has been suggested that after the formation of the plain to much the same extent it has today, local subsidence took place and for a time sea water covered part of the southern plain in the Pleistocene.<sup>13</sup> Such a solution need not be called for, however. The Shatt al-Arab, with its great tides, can be classed as an estuary and marine fossils found far from the mouth could be accounted for by a temporary extension of an arm of the Gulf up the river valley, or even by a very high tide that carried the fauna far upstream.<sup>14</sup>

While Lees' and Falcon's theory cannot yet be definitely proven, the evidence leans heavily in its favor. Modifications may be necessitated, of course. Work by sedimentologists in other delta areas has shown that alluvium is highly compactable and that there is considerable subsidence within alluvial layers.<sup>15</sup> Part, perhaps most, of the subsidence of the Mesopotamian plain may be due to compaction of the sediment rather than the subsidence of the bedrock below.

The flood plain today is fairly simple to describe. On the northeast (Fig. 1) it is bordered by the Zagros Range. On the southwest, the Euphrates runs very close to the barren gravel hills of the western desert, which lead up to sandstone cliffs in the area just south of Fellujah. The desert is cut by many wadis and depressions, the largest being the Abū Dibbis. The latter depression, which may have been linked with the Wadi Tharthar by way of Lake Habbaniyah in some very remote period, retains a certain amount of water and can in some years be partially cultivated. South of the Abū Dibbis, a belt of sand dunes runs parallel to the Euphrates until it reaches the Wadi Batin, the dry bed of a great Pliocene river that drained a vast area of Arabia and emptied into the Gulf. The role of this river in forming the lower flood plain was not considered by de Morgan or Lees and Falcon.

Along the western bank of the Euphrates, from Fellujah to Mussayib, there is a narrow belt of arable land, with slight cultivation and population. On the gravel desert, a few Sassanian fortresses and one massive Sassanian/Islamic canal system attest to former attempts to utilize some parts of the land on this side of the river, but the complex benefited primarily the area around Nejef and Kerbela.

The area west of the Euphrates and southwest of Hilla is today, in part, a swamp. We shall show below that the region was very directly affected by changes in the Euphrates, sometimes beneficially, often not.

The main flood plain, the area between the Euphrates and Tigris, has two distinct systems of drainage for the north and south. A study of bench marks, contours, etc., for the area (Fig. 2) shows that in the northern half of the plain, the predominant drainage is toward the southeast. The Euphrates bank at Fellujah, for instance, is about 40 m. above
sea level, while the plain around Baghdad is about 33 meters. At Mussayib, the plain is about 32 m. above sea level, while at Suweira on the Tigris, it is only 27. Hilla is 27 m., Bughaila is only 20.

There is, however, a main drainage line running south between the rivers from the Aqar Quf depression near Baghdad, fairly close to the Tigris, and curving southwest in the latitude of Kut. This drainage, called the Aqar Quf Main Drain, or the Tigris-Euphrates outfall, marks the boundary of drainage and deposition of sediment from the two rivers. From the latitude of Kut, the drainage pattern runs decidedly toward the southwest, and the natural flow of the water is from the Tigris.

The present face of the land is no doubt due in great part to natural tilting, subsidence and deposition in the periods before man began to inhabit the area. Much of the surface is, however, the direct result of irrigation and consequent siltation. The landscape when man began to irrigate dictated that in the north the canals must come off the Euphrates and run to the southeast. South of Kut, the pattern had to be, and still is today, partly reversed. We shall describe in more detail the effects of irrigation on the surface, and consider the composition of the soil after we have described the climate that affects the rivers and the regime of the rivers which bring the silt.

#### Climate

The climate of present day Iraq is one of great contrast. Temperature varies greatly from summer to winter (recorded Baghdad maximum  $123^{\circ}$ , minimum  $18^{\circ}$  Fahrenheit), from north to south, and from night to day (often a difference of more than  $30^{\circ}$  F.)<sup>16</sup> In the south, winter, which lasts from late October through March, is marked by strong winds, rain, some freezing temperatures, and even occasional snow flurries, though November and December may have warm periods, with no rain. After a pleasant April, the temperature begins to rise sharply as does the number of insects. May is already very hot. Summer reaches its peak in July and August and tapers off slowly in September. The low humidity makes the heat more bearable.

Dust storms occur in all parts of the year, but true sand storms are rare. Occasionally, great sandstorms do come off the Arabian Desert and cover Iraq for a day or several days, leaving behind a layer of sand that is sometimes red. The more usual "sandstorm," however, is actually silt lifted from the desert. In winter the dust rises in front of an oncoming depression. In summer, the duststorms are more severe, beginning at about ten o'clock and lasting until late afternoon. Five to eight days a month have duststorms, and few days between May 1 and September 30 are without haze.<sup>17</sup>

Precipitation in Iraq is a result of global atmospheric movements which bring high pressure systems to the area in winter and low pressures in summer.<sup>18</sup> Lying between two great pressure zones, the Mediterranean and the Persian Gulf, Mesopotamia is a corridor acted upon by both. Thus in winter, under the influence of high pressures from Central Asia, cold dry northwest winds are pushed down the valley toward the Gulf. Alternating with this dominant northwest wind are cold, rainy southeasterlies which are

drawn toward the Mediterranean low pressures. In summer, northwest wind moves toward the depression over the Gulf.<sup>19</sup> The effect of the dry summer wind *(shemal)* is to "... mitigate the intensity of the heat for the human population while greatly increasing moisture losses through evaporation and transpiration."<sup>20</sup> The loss of moisture from the rivers and the soil has been estimated as 20-40 times greater than the annual rainfall.<sup>21</sup>

Charts showing average isohyets for a given number of years (Fig. 3) clearly indicate the arid nature of southern Mesopotamia. Virtually the entire area lies outside the 200 mm.-per-year belt. Such charts do not show the great variability of temperature, rainfall, humidity, etc., from year to year. Buringh<sup>22</sup> claims that there occur cycles of years in which increased rainfall and subsequent flood alternate with dry years. There is no striking pattern of this kind, though there is a wide variation from one year to the next and from one place in the plain to another (Table 1). These variations, in periods prior to modern engineering, reservoirs, dams, etc., must have caused great hardship in terms of drought, flood, the breaking of levees, and miscalculation of levees needed for the future.<sup>23</sup>

1888	214		1912	95	125
1889	77		1913	134	274
1890	501		1914	289	?
1891	275		1915	?	?
1892	56		1916	?	214
1893	149		1917	?	86
1894	419		1918	252	352
1895	161		1919	?	?
1896	244		1920	?	?
1897	167		1921	?	?
1898	161		1922	109	?
1899	93		1923	104	132
1900	147	128	1924	129	154
1901	37	143	1925	95	83
1902	183	181	1926	334	308
1903	78	125	1927	55	95
1904	138	154	1928	106	136
1905	82	67	1929	67	135
1906	118	206	1930	162	89
1907	260	158	1931	121	108
1908	89	149	1932	52	116
1909	71	91	1933	98	136
1910	143	294	1934	151	208
1911	221	283			
			Mean	157	163

N.B. Since 1923 observations have been taken by several authorities in the neighborhood of Baghdad. The figures given are the average of them all in each year, in millimeters.

This table is taken from Ionides, Régime.

The climate of Iraq has not altered drastically since the end of the Pleistocene. There was one slightly warmer, wetter period, a subpluvial, from the sixth to the end of the third millennium B.C., which allowed a greater variety of fauna and flora than is possible in the area today.<sup>24</sup> On the whole, however, "... since the close of the third millennium the climate of the Near East... has fluctuated about a mean closely resembling that of the present... The climatic variation... has not been of sufficient duration or magnitude to leave much geomorphological evidence..., "<sup>25</sup> Classed as one of these "fluctuations about the mean" is a desiccation occurring shortly before 2000 B.C., probably involving a rise of no more than one or two degrees mean annual temperature, which resulted in mass movements of people from the Arabian margin lands into Mesopotamia proper. Among these migrants would be the Akkadians, Amorites, etc.<sup>26</sup> Comparable situations, brought on by a slight drop or rise in mean annual temperature have been noted for other arid areas, a good example being the Little Colorado River basin of Arizona. A decrease of one or two degrees in temperature about A.D. 1000, caused the shortening of the growing season just enough to prevent the maturation of maize. The ultimate result was the abandonment of large stretches of upland cultivation and resettlement along the banks of the river.<sup>27</sup>

Relatively *dramatic* changes due to slight temperature variation might not come about in the Mesopotamian flood plain because agriculture is dependent on irrigation, not rainfall. However, the possibility of change does exist. Butzer has noted a fractional rise in the mean annual temperature of the Near East over the last hundred years.<sup>28</sup> This rise cannot yet be evaluated. However, a comparable drop in temperature if it occurred would certainly have far-reaching effects. Zohary<sup>29</sup> has called attention to the fact that for almost all of Iraq the mean January temperature falls below 50° Fahrenheit. This is the temperature that he considers critical as a minimum for the survival of plant life. Due to the low winter temperature, winter flora is delayed in most of Iraq until Spring. A drop or rise of one or two degrees per year with concurrent change in rainfall could gradually affect the growing pattern not only of shrubs, but also of crops. In the south, "... when the winter rains arrive the temperature generally becomes too cold for plants to make full use of them; little growth can be made until the spring season--just as the rains are beginning to cease."<sup>30</sup> The necessity for sufficient irrigation water at this critical time is obvious. Any decrease in winter rain, or a change in the thawing of mountain snow would mean a change in the rivers and consequent possible ruin.

## The Rivers

The melting of snow, runoff from rain, and underground springs combine to form hundreds of streams that create the Tigris and Euphrates. "The climatic conditions governing the two rivers are alike, but their effects in Iraq are rather different, because the mountain basin of the Euphrates is far more distant than that of the Tigris."<sup>31</sup> Both rivers have their sources in the mountains to the northeast, but the Tigris "...flows down the southwestern edge of a long, feather-like catchment basin, whose waters flow down to join the river throughout its course, both above and below ground."<sup>32</sup> The shorter distance the Greater and Lesser Zabs, the Diyala, etc., must travel makes the Tigris subject to more marked fluctuations of level than the Euphrates, since the water from storms reaches the Tigris in greater quantities much more quickly. The Euphrates, fed primarily by melting snow in the Taurus, rather than by rain, travels several hundred kilometers before reaching the Syrian Desert. It then flows through the desert for a thousand kilometers before reaching the flood plain, and loses much of its water through evaporation. The river is, thus, more predictable and less dangerous than the Tigris.

The Euphrates in Iraq feels the effect of spring thaw later than the Tigris, coming to full flood in April or May while the Tigris reaches its greatest volume in March or April. The Euphrates is lowest in September, while the Tigris is lowest in October. The velocity and volume of water and silt carried by the two rivers is markedly different. In flood, the Tigris is as much as 5.4 m. higher than it is at minimum flow. The mean annual discharge at Baghdad is 1,240 cu. m. per second; the silt load has been estimated at an average of 787 dry grams per cubic meter. The Euphrates at Hit, on the other hand, has a normal difference of 3.3 m. between high and low water, an average discharge of 710 cu. m. per second and a silt load of 553 dry grams per cubic meter.<sup>3 3</sup> These figures date from a period prior to changes that may have been brought about by recent hydraulic engineering, but are still useful for comparison.

The gradients of the two rivers are very different (Table 2). The Tigris drops rather sharply until it reaches the gentle slope of the plain. It cuts deeply into the alluvium and its bed is lower than the Euphrates. In the plain north of Kut, the river tends to be very unstable, to meander markedly, and undergo changes of bed. The gentle gradient and the fineness of the silt combine to produce the perfect situation for the creation of meanders, the most efficient form for a river to take in order to bear the load of silt it must carry with the least expenditure of energy.<sup>34</sup> Because of the drainage pattern discussed above, and the depth at which the river lies below plain level in this stretch, little irrigation has been possible throughout history. Even with lifting devices, which are a relatively late development,<sup>35</sup> the area to the west of the river above Kut could not be watered extensively from the Tigris. The Sassanian and Islamic canals which are visible on air photos ran more or less parallel to the river and emptied back into it downstream.

At Kut, the Tigris divides, sending most of its water down the Shatt al-Gharraf, which is the main source for irrigation water and swamp in southern Iraq. Of the water that reaches Kut, less than 20 per cent passes on down the Amara branch.<sup>36</sup> Today, much of the water can be used for irrigation due to the Kut Barrage. Previously, most was wasted in the swamps. The present evaporation rate is probably higher than in former times since the irrigation of fields spreads the water out over an even wider area than before. The Shatt al-Gharraf runs into the Hor al-Hammar, where its water and that of the Euphrates are joined. The stream from the Hor unites with the Amara branch of the Tigris at Qurna, and, as the Shatt al-Arab, flows to the Gulf.

The gradient of the Euphrates (Table 2) is much less steep than that of the Tigris, and the river must traverse a considerably greater distance, thereby suffering a great loss of volume and velocity from evaporation. Upon reaching the plain at Ramadi, rather than cutting deeply, the river tends to flow over it, and under natural conditions would braid into several channels. "[It]is only restrained from spreading out over the country by the

# TABLE 2



**GRADIENTS OF THE EUPHRATES AND TIGRIS\*** 

\*Adapted from Buringh, "Living Conditions."

use of artificial embankments....<sup>37</sup> In the past, the river has had a tendency to flood the area east of Fellujah. Present escape systems carry flood water into the Habbaniyah Lake, which can in turn pass it on to the Abū Dibbis Depression.<sup>38</sup> If one may judge from the physiographic features in the Fellujah area, it seems that at some time in the past, the main bed of the Euphrates may have run along south of the upland scarp, in the area of the Saqlawiyah Canal (see Fig. 1), perhaps joining with the Tigris in the Aqar Quf depression to form one great river. Remnants of higher, gravelly spurs in the plain, namely the one on which Fellujah is located and the one south of Sippar, seem to indicate points at which the Euphrates divided into two or more branches. For historical time ranges, however, it would seem that the main channel of the river in the more northern part of the plain was much the same as it is today, with branches originating in the area of Sippar.<sup>39</sup>

The Euphrates at the present time supplies water to several major canals between Ramadi and Mussayib. These include the Saqlawiyah, Abū Ghuraib, Yusufiyah, Latifiyah, Iskanderiyah and the Mussayib, all of which take off from the east bank and flow to the east-southeast. I shall discuss the Mussayib Project in more detail in Ch. III because part of it is included in the survey.

At the Hindiyah Barrage, the river divides into the Hilla and Hindiyah branches. The latter is considered the natural bed of the river today, though the overwhelming majority of irrigation canals and settlements is on the Hilla Channel.<sup>40</sup> The Hilla branch is a great fan of canals which gradually decreases the amount of water to such an extent that there is no main channel below Diwaniyah. Besides numerous minor canals, several major new works take water from the Hilla branch, including the Babil canal (or New Shakha), which waters the area around Kish. There are some lesser canals drawing water from the west bank of the Hilla branch, but the major part of the irrigation is from the eastern bank. At Dagharah, the Hilla branch divides into the Hurriyah, the Dagharah, and the Diwaniyah canals. The last runs in much the same channel as the former main bed of the Euphrates to Samawa.

The Hindiyah channel supplies water to the area around Nejef and Kerbela, then empties into the swamps to the south and east of these cities dividing into two or more channels. Modern development plans call for a draining and reclamation of the area wherever possible. Islamic sites show that the region was once heavily populated.

Below the swamps, the Hindiyah reunites into one channel and is joined at Samawa by the remnant of the Hilla branch. It then flows into and through the Hor al-Hammar to Qurna where it joins the Tigris to form the Shatt al-Arab.

How much the river's instability has affected and is still affecting irrigation and agriculture has been the subject of some research.<sup>41</sup> The role of irrigation in changing the nature of the river has not been investigated very much, nor is there any prospect of such complex study in the near future. Even outside Iraq, hydrology and sedimentology are relatively young sciences.<sup>42</sup> Attempts have been made to understand the history of the Mesopotamian flood plain by mapping the soils.<sup>43</sup> Such investigations entail painstaking,

time-consuming study of the earth exposed in pits, cores, etc., combined with careful analysis of air photographs. For other countries, such long-range programs are possible. For Iraq, there has been little time for this work. The beginnings made by Dutch, English and American soil experts<sup>44</sup> are highly interesting, tantalizing, but fragmentary, and uneven. Soil specialists are more interested in pragmatic considerations such as the possibilities of leaching salts from a given area, or the permeability of the soil and its relation to projected drainage systems. The work done by Harris and Adams,<sup>45</sup> tracing the history of one canal and marsh in a small cutting near Zubediyah, is the kind of combined archaeological-pedological cooperation that is needed to work out the history of the flood plain.

## History of the Euphrates in the Alluvial Plain

We are not completely without sources for a study of the behavior of the Euphrates. Some detailed observations on discharge, level, floods, etc., have been kept since 1911. The systematic recording of this information dates from after World War I, with most of the gauges being set up only after 1930.<sup>46</sup> The Chesney expedition of 1835-37 kept such records, but the observations lose relevancy in their isolation.<sup>47</sup> However, from classical authors and the accounts of various travelers to Mesopotamia throughout the Islamic Period, especially in the nineteenth century, we can begin to piece together an outline history of the Euphrates over the last two millennia or more.

From Adams' survey in the northern part of the plain,<sup>48</sup> it is clear that the river originally had several natural channels, the one through Kutha being taken by him as the major one, since the greatest number of settlements lay along it (Fig. 68). Although the area south and west of Babylon were not within the main scope of Adams' survey, it is clear that a major branch of the river must have flowed through Babylon from at least the Early Dynastic Period.<sup>49</sup> Another branch, the Apkallatum, ran west of Babylon, at perhaps as early a time, in much the same bed as the present Hindiyah channel.

It is not possible to date precisely when the Babylon branch became the dominant channel of the river, but certain indications seem to point to the time around 1000 B.C.<sup>50</sup> That the Babylon channel was considered the main branch in the Neo-Babylonian and later periods is certain, especially from classical sources.<sup>51</sup> How changes in the nature of the river affected the rise to power of various cities in Mesopotamia, or how dominant cities were able to change the pattern of river flow to control areas downstream are questions that should be investigated. The cuneiform sources are too diverse and numerous to allow it here.

Herodotus and Xenophon in telling of the conquest of Babylon by Cyrus differ in detail, but make it clear that the Persians diverted the Euphrates by digging canals from it and then marched into the city along the river bed.<sup>5 2</sup> Herodotus ascribes to Queen Semiramis the building of the elaborate system of canals in the plain. Nitocris, a successor queen, probably a confusion for Nebuchadnezzar, had made extensive changes in the river so that it meandered, could be more easily controlled, and if it flooded,

could be emptied into an artificial basin created upstream of Babylon.<sup>53</sup> Whether the Babylonians utilized one of the depressions on the west side of the river, or a swampy area somewhere north of Sippar, we cannot say. The important point is that the Babylonians were already using an escape system north of Babylon.

The mythic story of Nitocris and the building of the escape basin may be founded on a re-excavation of the Pallacottas canal, which existed in the Neo-Babylonian Period under the name Pallukat. Meissner<sup>54</sup> has shown that a canal of that name took off from the west side of the Euphrates somewhere near Sippar. In a closely reasoned presentation, he makes clear that Pallacopas is a variant for Pallacottas, and that the name survives today in Fellujah, which in earlier Arab sources was called Pallugta. Earlier scholars of ancient geography had been misled by a passage in Arrian to place the head of the canal some distance downstream from Babylon.<sup>55</sup> According to Arrian, Alexander sailed from Babylon to the point at which the canal originated to reëstablish a dam across it. His aim was to prevent the city of Babylon from being deprived of water, and to stop the flooding of the plain west of the city.56 The nature of the landscape west of the Euphrates makes it impossible for the area around Babylon to be flooded except by the diversion of water upstream; a canal downstream any distance would not affect the region. Again, danger of the river's drying up could come about only by upstream diversion. Some European travelers had previously suggested the Hindiyah Barrage area as the origin of the Pallacottas.<sup>57</sup> Meissner's arguments for a more northerly point of origin at Fellujah seem to carry great weight.<sup>58</sup>

An added factor in considering the location of the ancient Pallacottas is the Islamic Nahr Sa'id, which took off from the west bank of the Euphrates at Hit, even farther upriver. This canal is apparently a survival or re-excavation of a vast Sassanian project that was called the Khandak Sābūr, the Trench of Shapur (fourth century A.D.). The complex was to supply water to a line of fortresses in the pebbly desert, and to farms in the area of present-day Nejef, before it emptied into the Gulf near Basra.<sup>59</sup>

On present evidence, it seems that the Hindiyah channel runs in much the same location as the ancient Pallukat/Pallacottas and that Sassanian and Islamic Canals originating at Fellujah and Hit were elaborations on a principle established by it.

Regardless of its point of origin north of Babylon, the classical evidence of a western branch that could flood the area west of the city is the earliest indication of a process that is still in operation.

During the Seleucid and Parthian Periods, political and economic life shifted to the Tigris, but the presence of numerous large sites of these periods along the Euphrates attests to the viability of the region.

Sources for the Sassanian Period indicate that though many great irrigation projects were built, the rivers went violently out of control on two occasions, in the reign of Karadh I (end fifth century) and of Chosroes II Parvez (early seventh century).<sup>60</sup> Islamic tradition assigns the formation of the great southern swamps, of which the Hor al-Hammar is the remnant, to these disasters. However, there is no doubt that throughout antiquity swamps existed in southern Mesopotamia. They must have diminished and

grown according to how much irrigation was being practiced, how much central control was in force to keep the canals in operation, etc. With the extensive Sassanian system stretching along and between the Tigris and Euphrates, the swamps would have been much smaller. Any breakdown of the system would have caused exaggerated damage.

Islamic writers make it very clear that in the early centuries after Muhammad, there was a westward shift of trade, population, and probably agriculture following a change of the Euphrates into a bed that ran through Kufa, although the channel through Babylon was not entirely deserted. Part of this shift may be accounted for by the attraction of the Islamic holy cities, Nejef and Kerbela. In addition, Kufa was on the main route from Baghdad to Mecca.

However, it is logical to suppose that a great part of the change came about due to the destruction or neglect of the Sassanian canal system before and after the Arab conquest. It seems that the four more northerly transverse canals, the Nahr 'Isa, Sarsar, Malik and Kutha were established by the Muslims earlier than the Shatt an-Nil (or Sarat). They lay on the main stem of the river north of the point near Mussayib where the main flow of the river would have begun to turn west toward Kufa. The Shatt an-Nil can be shown to originate from the Hilla branch, and since in its Abbasid form it was such a large canal, it is probable that already in the eighth or ninth century the Hilla branch had once again become the main channel. The full reversion to the old bed must be dated before A.D. 1100 when the Bani Mazyad left Kufa, and founded Hilla.<sup>61</sup> The question of the origins of the transverse canals, their rejuvenation, changes, etc., is a very complex one, and will not be treated in this study except in cases where our evidence seems to give information on the development.

The Mongol conquest is generally blamed for the destruction of the canal system in Iraq. However, natural deterioration due to silt, salt, etc., must also have had a role. There is no doubt that the weakness of the later Abbasid and Seljuk rulers must have contributed to the breakdown of the system. Irrigation can be a curse as well as a blessing. In times of weak central control, bad practices and lack of supervision result in damage to the system and the land. Tribal wars which would occur at such times would also cause deterioration. The Mongols must have been merely the finishing touch.

Any responsibility the Mongols bear for the destruction of the irrigation system lies in their massacre of the people of Baghdad, especially officials, rather than in the actual demolition of the canals themselves. There is no textual evidence of damage done to dikes, etc., except the diversion of the Dujail canal north of Baghdad during the siege of that city.<sup>62</sup> On the contrary, there is proof that the great transverse canals were still in operation in the Ilkhanid Period, and that the areas watered by the 'Isā, Ṣarṣar, Malik, and Kutha produced sizable revenues.<sup>63</sup> By A.D. 1345, however, all but the Nahr 'Isā seem to have silted up.<sup>64</sup> By the sixteenth century, the 'Isā received water only in time of flood.<sup>65</sup> (Some dredging must have been done subsequently, because in 1837, one of Chesney's steamers was able to pass through this canal to the Tigris.<sup>66</sup> It was by this time called the Saqlawiyah.)

There are records of irrigation projects being carried out under Ilkhanid rule, and of

attempts made to reestablish the agricultural base by the lowering of taxes, redistribution of land, and the free disbursement of seed.<sup>67</sup>

There is considerable evidence of Ottoman canal building on the Euphrates. The basic pattern to be seen in the area north and south of Hilla (Fig. 4) is mostly of this date. There is no overall scheme to these canals, following as they do more or less natural drainage lines. They must be seen as attempts on a local level to salvage some productivity in a time after the breakdown of the massive, integrated systems, when there was weak central control.

Ottoman sources, like the earlier Mongol records, seem to emphasize the building of canals from the Euphrates to Nejef and Kerbela.<sup>6 8</sup> This stress may indicate an attempt by the governors to gain Shiah goodwill, or to assure that the holy cities would continue to prosper and return tax revenues, but it is more likely a reflection of action necessitated by changes in the river due to the abandonment of the transverse canals. The burden of water that had formerly been led off to the east and ultimately into the Tigris would now have been turned in full force upon the Hilla and Nejef branches. Water that had formerly passed down the Nahr Sa'id at Hit, would also have been forced south because this canal was abandoned sometime during the Mongol Period. To relieve the pressure on the Hilla branch, and to better regulate the water arriving in the area to the west, the Hindiyah Canal, or rather its earlier equivalent, would have had to remain open.

European travelers in the area make it clear that after the breakdown of the large-scale schemes in the plain, the Hilla channel was still the main course, with the branch to the west secondary.<sup>69</sup> There is some confusion as to the date, but a major renovation was carried out on the western branch probably in the late eighteenth century by an Indian, Nawab Shejah ad-Dowla, and thus the canal became the Hindiyah.<sup>70</sup>

The main burden of the river shifted into its present western (Hindiyah) course late in the nineteeth century, after Midhat Pasha dammed the Saqlawiyah to prevent flooding around Baghdad in 1870.<sup>71</sup> There is, however, evidence that the Hilla branch was becoming more and more filled with silt and carrying less water many years prior to 1870.

Europeans report no drastic change in the Euphrates in the early part of the nineteenth century, although it is clear that some canals that had been active as late as 1616 were no longer in use between Baghdad and Mahawil.<sup>72</sup> However, these blocked canals did receive water in flood.<sup>73</sup> There seems to have been some difficulty in controlling the river, as can be seen in the fact that the plain between Mahawil and Babylon was marshy in winter.<sup>74</sup>

In 1834, a great flood caused much damage to levees and widespread inundation throughout the south, especially around Basra.<sup>75</sup> This flood may mark the beginning of trouble with the Hindiyah Barrage. The general deterioration of levees must be seen as a major cause of local Hilla branch flooding. However, it is probable that up to about 1850 much of the flooding along that branch was caused by the fact that the Hindiyah Barrage was holding and that excess water was sent down the Hilla channel. The fact that

Chesney's steamer could negotiate the Hilla branch shows that the damage to dikes was  $\checkmark$  not greatly affecting the course of the river as late as 1837.

By 1850, however, the situation had changed. The barrage as well as levees downstream had been neglected and most of the water was pouring down the Hindiyah channel. Layard, describing a trip to Nippur in December and January, 1849-50, explained:

The banks were formerly kept in repair by the tribes inhabiting the lower part of Mesopotamia, who performed this service to the state in place of payment of taxes and tribute. Of late years, the Porte has taken them into its own charge, and they have, of course, been allowed to fall into complete decay.... The river has begun to desert its bed, and is now forming vast swamps over the low country....<sup>76</sup>

Between Hilla and Nippur, Layard noticed recently deserted villages on dry canals, in the area of Shomali. One village, Bashiyah, was still existing on a small canal.<sup>77</sup>

Loftus, making a similar journey in January, 1854, found Bashiyah deserted, and sand dunes working their way from the west and north. Now, however, rather than dry, the Shomali area was flooded. The swamps around Nippur were still extensive, barring a visit to Bismaya.<sup>78</sup> To the south of the Nippur swamp, however, a different situation was found. East of Diwaniyah, the Fawar canal which branched off the Yusufiyah, a Hilla derivative, was totally dry. The town of Suq al-Fawar was in ruins. Loftus linked this with the breaking of the Hindiyah Barrage.

Nowhere is this effect better observed and understood than at Suq el-Fawar. In consequence of the breaking of that dam about twenty-five years ago, the water deserted the channels and streams on the east of the Euphrates. Suk el-Fawar, among other places, became a sufferer by the catastrophe, and was soon afterwards abandoned. [There are] decaying date trees, and ruins of well-built channels... The pasha's recent work had restored a copious stream to the bed of the Fawar, and water was flowing towards spots which had for many years been without moisture.<sup>79</sup>

However, the dam broke again very soon and the Fawar area never recovered. A newly constructed canal has brought water into the area only within the last five years.<sup>80</sup>

According to Loftus, the river's character depended on how well the Hindiyah Barrage was holding. When it was in place, the Atchan and Khuzif branches of the Hindiyah channel below the Nejef swamp were not navigable, and Samawa received its water from the Hilla branch. Whenever the dam broke, the Hilla branch was not navigable and Samawa was on the Hindiyah channel.<sup>8</sup>

There seems to have been a continual shifting of the river into its western bed, so that by 1863 the Hilla branch was supplying so little water to the Hor al-Hammar that only small boats could navigate the channel.<sup>82</sup> Midhat Pasha's damming of the

Saqlawiyah, to relieve flooding around Baghdad, turned the entire burden of water into the southern reaches, causing the decisive rupture of the barrage. Though there were attempts made to rebuild the barrage, the imbalance could not be corrected, and the river can be said to have taken its western course at that date.

That the situation was not simply one of complete change into the Hindiyah branch can be shown by the fact that flood water still reached the plain between Baghdad and Babylon. The river, blocked from entering the Saqlawiyah, found release over its banks north of the Hindiyah Barrage. Rassam, in May, 1880, was forced to detour around flooded areas north of Babylon.<sup>83</sup> The Ward expedition of 1885 was told that in the previous year one could go from Mahmudiah to Mahawil by boat. But this local flooding did not halt the general drying out of the region to the south. Although the Ward party observed extensive marshes around Nippur, they were able to reach Bismaya over a swampy stretch"...which had till five or six years before been deep water, but... the water had been carried off by the breaking of the Hindieh Dam. It was said that Bismaya had itself been three-fourths surrounded by water."<sup>84</sup>

The area to the south of Bismaya was newly abandoned. "We were told that there had been some population there, but that six or eight years before a governor had doubled the taxes, which the people would not pay [and]...he had shut off the water."<sup>85</sup> The blaming of a local governor may, in part, be true. A decision may have been made to allocate the slim water resource to a more productive area. However, we know from Layard and Loftus the general region was already drying up in the 1850's.<sup>86</sup>

Peters explicitly blames the breaking of the Hindiyah Barrage for the fact that Hilla province's revenues had dropped by almost 90 per cent in the five years previous to 1889.<sup>87</sup> That the Hilla branch was in very great distress cannot be doubted. In January of 1890, the Afak (Afej) swamps were completely dry, and Nippur could be reached directly overland from Diwaniyah, which had had no water in its canal for six months. Wells dug in the channel supplied some water.<sup>88</sup> Unusually heavy rains later that year replenished the marshes.<sup>89</sup>

Budge, in January of 1891 saw repairs being carried out on the Hindiyah Barrage under a French engineer.<sup>90</sup> Sachau reports more work on still another version of the barrage in 1897, and describes the disastrous effect the dwindling of the Hilla branch had had on the area. Though the Afak swamps were full, the region in general was suffering, and many people spoke of moving to the Hindiyah channel.<sup>91</sup>

In the winter of 1900-1901, the Hilla branch was so dry that the stage went along its bed from Hilla to Diwaniyah.<sup>92</sup> In Banks' account of his trip to Bismaya, it is clear that he crossed the area which had formerly been the Afak marsh. The effects of the disaster in social terms can be seen in the following account by Banks.

The el-Bedier... are one of the smaller Mesopotamian tribes. In former years, before the breaking of the Hindiah dam, when the canal brought an abundance of water from the Euphrates, the tribe boasted of thirty thousand men, but

drought forced the poorer of them to go to the river or to starve, and the powerful Montifik to the south had oppressed them until now they are poor enough. In their territory are several encampments of reed huts and black tents, but the chief of them is Ibra with its watch tower and mudif and a few houses of mud.<sup>93</sup>

The same author reported widespread disease, hunger, etc. He also said there was no employment in Hilla and men clamored for work.<sup>94</sup>

As we saw above, in 1885, Bismaya had been almost free of marshes, but some water still remained. By 1890, the area was dry,<sup>95</sup> and by 1900, there were extensive sand dunes around it. Nippur in the same year was still free of sand, and was even slightly marshy.<sup>96</sup>

The barrage at Mussayib, as a result of sporadic repairs, was functioning enough to allow water to reach the Hilla branch in time of flood.<sup>97</sup> But, another disastrous failure of the dam came in 1903. This particular breaking was described by Cadoux,<sup>98</sup> who detailed the grave changes brought about through the years by the failure of the barrage. Whole sections of the country were deserted, and the former occupants were forced to relocate along the Hindiyah channel. Only a few forts, dependent on wells sunk in the middle of the canal bed, still had populations. Except for a few palm trees along the banks, all vegetation had withered.<sup>99</sup>

The same breaking of the barrage was recorded by Koldewey at Babylon. <sup>100</sup> The drop in the level of the river was a happy accident, archaeologically. The groundwater dropped one to two m. below its former level, allowing deeper excavation than was formerly or subsequently possible. However, there were years between 1903 and 1911, at which time a new barrage was finished, when the Hilla branch carried much water, such as 1907.<sup>101</sup>

Sir William Willcock's scheme for controlling the flow of the river with a larger, stronger Hindiyah Barrage was fully implemented only after World War I. The work was completed under the British Mandate during the 1920's. In this period also, there was much effort made to reclaim land lost through flooding or lack of water. One of the projects initiated in 1919 was the draining of the area around Dagharah and the cutting of new canals.<sup>102</sup> Records are not abundant, but it is probable that the completion of the Dagharah regulator, which allowed an alternating flow between the Diwaniyah and Dagharah branches, marks the point at which the Afak swamps were totally drained. It is significant that a map accompanying the official report on the administration of Iraq for 1928 shows a previously unmapped road from Diwaniyah to Ibra.<sup>103</sup>

The ambitious irrigation projects initiated during the Mandate and the Kingdom have been continued with some success by the Republic. The rivers are now more predictable, since they are controlled by several dams. For the first time in some four or five centuries, great parts of southern Iraq are under cultivation. A wide strip of farmland stretches down the Euphrates from above Fellujah, and the area between the two rivers is occupied from above Baghdad to just above the latitude of Hilla.<sup>104</sup> From this point south, however, there is a desert area bordered by cultivation down to the Dagharah/Afak region. The Dagharah and Fawar canals jut out into the desert for some miles, but the desert continues east and south of the cultivation until it reaches the rice-growing area north of the Hor al-Hammar.<sup>105</sup>

Within the new projects, such as the Mussayib, irrigation practices are regulated by government officials, the land is divided equally and laid out in regular geometrical patterns. In other regions, more normal, and older, practices result in more irregular canal lines, fields, etc. Even though the revolution of 1958 brought with it land reform the new pattern of ownership has been adapted to the older layout. There is government control of water and supervision of maintenance with modern machinery, but the farmers especially in the older areas still use ancient methods and work on a family, lineage and tribal basis.<sup>106</sup>

## Physiography and Soils

Adams has given a comprehensive, concise description of the building up of river levees and flood plains along them, and has pointed out the differences in the formation of the alluvial plain along man-made levees, irrigation ditches, etc.<sup>107</sup> Because of human activity, the Euphrates has acted and still acts in a manner different from its natural tendencies. Because there are thousands of years of sedimentation in the flood plain, complicated by human efforts, it is difficult to determine the original natural landscape.<sup>108</sup>

Though the original physiography of the plain seems to have sloped to the southeast, as it does today, it was primarily human engineering that brought about the present drainage features. By this, I mean that since canals deposit more sediment at the source, near the river, than downstream, and since more irrigation could be carried out near the heads of the canals, and thus a greater load of silt was deposited on fields closer to the river, the tendency throughout history had been to build up the area in the northwest. Since progressively less water and less silt would flow to the lower reaches, one would expect less deposition the farther one went downstream. Even taking erosion into account, this pattern should hold.

As a concurrent process, one would expect there to be less buildup of sediment from the Euphrates in the more southern part of the flood plain, as long as there was irrigation in the north. The great bulk of sediment would have been deposited before the water reached the south.<sup>109</sup>

The present physiography and soil structure of the northern alluvial plain has, to some extent, been described and analyzed.<sup>110</sup> The plain around Kish, like the rest of the alluvium, is marked with long ridges, wider canal levees, and tells. The canal levees, like those of the river, impede and direct the flow of water. Ancient, disused canals restrict not only the area of fields, but also act as walls of artificial basins. In time of flood, sediment that would under natural conditions be swept along to the marshes or deposited

somewhat uniformly over the plain,<sup>111</sup> is trapped within these basins. Areas very close to one another may receive a very different amount of silt. It is, thus, difficult to work out any meaningful average deposition rate over a wide area. Sediment tends to be concentrated in the north whenever there is irrigation and the sedimentation rate must be estimated accordingly.<sup>112</sup>

It has been noted that river and canal levees sink in an alluvial basin due to their weight.<sup>113</sup> This factor may partly account for the fact that almost no ancient canals are visible on the present surface in the northern plain other than Parthian or later ones. I would suggest that subsidence also occurs markedly in the case of tells, especially those with a great burden of Parthian or other massive construction. The usual estimate of eight to ten m. of sedimentation from the fourth millennium B.C.<sup>114</sup> would, then, be subject to some reinvestigation.

At Kish, the earliest, Jemdet Nasr, settlement was found 9.0 m. below the present plain. However, not a hundred yards south of the Y Trench, the area in question, there is a small mound with only Jemdet Nasr and Early Dynastic sherds. Fifty m. to the west and a kilometer to the north are Early Dynastic palaces above plain level. At Ras al-'Amiya, a few km. northeast, was found an Ubaid tell, the bottom of which was only four m. below the surface.<sup>115</sup> Clearly even given different rates of sedimentation, something is wrong. A systematical investigation, employing boring equipment, at a major tell is needed to establish how much of the depth below plain level is due to sedimentation, or subsidence, and the effects of erosion of water or wind. Adams has noted the unusually marked occurrence of dunes in the area of ancient tells stretching from Warka to the Kish area.<sup>116</sup> One often sees signs of extensive denudation of ancient sites due to wind. There is little doubt that much of the "sand" that is found in lenses in soil profiles is actually material from tells.<sup>117</sup>

The fact that the plain has been built up by irrigation and entrapped floods, results in a very complex, stratified soil profile. Abrupt horizontal or vertical changes tend to occur, since there is no uniform pattern of deposition.<sup>118</sup> Layers have different permeability, salt content, and chemical composition.<sup>119</sup> The upper part of the profile is most often fairly permeable and initially salt free. The impermeability of lower layers, however, causes problems in drainage and salinization.

It has been determined that the salt content in Mesopotamian soil came originally with the water, brought down from marine deposits in the mountains.<sup>120</sup> With good drainage, the salt would have caused little trouble because the percentage of salt in the water is low. Impermeable layers in the soil, however, impede drainage and cause salt to collect in the earth. The dry summer heat evaporates the moisture in the ground and causes the salt to accumulate. Irrigation without artificial drainage raises the water table, brings salt up from lower layers in the soil, and accelerates the deterioration of the land.<sup>121</sup>

Leaching of the soils by the systematic application of excess water must be

accompanied in Mesopotamia by drainage through underground pipes. The possible creation of alkali soils by leaching is not a problem here because of a high carbonate content in the soil.<sup>122</sup> Dutch engineers estimated that with a few years of leaching in the Mussayib Project, the salt problem would have been effectively solved there for many years to come. Such projects are very expensive, however, and can be justified only in potentially profitable areas. Most of southern Iraq, even under ideal financial conditions, would retain its present irrigation systems with gradual deterioration of one area and the abandonment of it for another.

The Kish area is at present undergoing an irrigation and agricultural renaissance based on the Mussayib Project and the opening of feeders from the New Shakha canal (Fig. 4). There is much more productivity and settlement in the area than was the case at the time of the Field Museum - Oxford University Expedition, or even ten years ago.

Though there may be differences in minor details, Adams' description of the fauna and flora in the Diyala holds true for the Kish region.<sup>123</sup> In fact, his general description of conditions in the Diyala reflects more or less the ecology of the entire plain. The major factor that makes the Kish area different is the dominating influence of the Euphrates.

I have tried to show how this river behaves today, and outlined the patterns, perhaps better called oscillations, that can be traced for it through history. The stress has been on the effect of natural changes on the human population. The reverse, deliberate changes made in the river or natural changes allowed to occur or go uncorrected for political or economic reasons, has only been hinted at. In the following chapters, we shall make some inferences on both aspects of the problem.

- 1. Some authorities term it the Euphrates River Plain as differentiated from the Delta Plain farther south. See P. Buringh, "Living Conditions in the Lower Mesopotamian Plain in AncientTimes," *Sumer*, XIII (1957), 30-46, esp. Fig. 1.
- 2. E.g., R. C. van Bellen, ed., *Lexique Stratigraphique International*, Vol. III, Fasc. 10a, Iraq (Paris: Centre National de la Recherche Scientifique, 1959) limits discussion of recent deposits to two pages under "Hammar Formation."
- 3. Ibid., pp. 25ff.
- 4. For detailed discussion of the geology, see G. Knetsch, "Lebendige Tektonik im Irak," Geologische Rundschau, XLIII (1955), 227ff.; É. de Vaumas, "Études Irakiennes, Première Série," Bulletin de la Société de Géographie d'Égypte,XXVIII (1955), 125-92; G. M. Lees and N. L. Falcon, "The Geographical History of the Mesopotamian Plains," Geographical Journal, CXVIII (1952), 24-39; N. L. Falcon, "The Geology of the North-East Margin of the Arabian Basement Shield," British Association for the Advancement of Science, XXIV, No. 3 (1967), 31-42. A very short, compact summary with charts is W. A. Macfadyen, "The Geology of Iraq," in E. Guest, Flora of Iraq, I (Baghdad: Iraq Ministry of Agriculture, 1966), 5-8. G. B. Cressey, "The Shatt al-Arab Basin," The Middle East Journal, XII (1958), 448-60 gives a very comprehensive view of the southern plain, including geomorphology, climate and the regimes of all rivers feeding the Shatt al-Arab.
- Lees and Falcon, "Geographical History," p. 28. Evidence for Palaeolithic occupation in the south of Iraq has been found in the western desert, see, e.g., C. Voute, "A Prehistoric Find near Razzaza (Karbala Liwa)," Sumer, XIII (1957), 135ff.; R. Solecki, "Tal Ksaife: A Possible Prehistoric Station near Ukhaidir, Iraq," Sumer, X (1954), 62-64. Only some lucky accident could expose early sites in the Gulf or under the sediment at its head.
- 6. "Geographical History," pp. 24-39.
- 7. In a series of articles in *The London and Edinburgh Philosophical Magazine and Journal of Science*, IV (1834), 107-12; V (1834), 244-52; VI (1835), 401-408; VII (1835), 40-46; VIII (1836), 506-515. Beke's arguments were based on classical sources and on calculations of ancient measurements. On the same grounds, W. G. Carter contested Beke and called for recognition that the head of the Gulf has not changed substantially since classical times. See his articles in the same journal, esp. V (1834), 244ff.
- J. de Morgan, "Étude géographique sur la Susiane," Mémoires de la Délegation en Perse, I (1900), 4-32. See also his earlier work in Mission Scientifique en Perse, Vol. II (1896).

- 9. Lees and Falcon, "Geographical History," pp. 32, 34. Note also George Roux, "Recently Discovered Ancient Sites in the Hammar Lake District," *Sumer*, XVI (1960), 20ff.
- 10. Lees and Falcon, "Geographical History," pp. 30ff.
- Sir A. Wilson, "The Delta of the Shatt al-Arab and Proposals for Dredging the Bar," Geographical Journal, LXV (1925), 229, gives 1.5 miles in 100 years. L. Leopold, G. Wolman and J. Miller, Fluvial Processes in Geomorphology (San Francisco: W. H. Freeman, 1964) estimate one mile in seventy years.
- 12. Wilson, p. 236, gives a detail of the Gulf at Abadan Island from maps of 1827, 1890, and 1922. It is very clear that though the west bank of the Shatt al-Arab below Fao has grown, the shore of Abadan Island on the east bank has receded.
- 13. See R. G. S. Hudson, F. E. Eames, and G. L. Wilkins, "The Fauna of Some Recent Marine Deposits near Basrah, Iraq," *Geological Magazine*, XCIV, No. 5 (1957), 393-401.
- 14. The tides from the Gulf are felt more than one hundred miles upstream at the present time. Great Britain, Naval Intelligence Division, Iraq and the Persian Gulf ("Geographical Handbook Series," B. R. 524; Oxford: H. M. Stationery Office at the University Press, 1944), p. 440. For a description of the use of the tides to drive fresh water into canals for irrigation in the area of the Shatt al-Arab see M. B. Gholizadeh, "Tidal Irrigation in the Delta of the Karun and the Shatt-al-Arab Rivers with Complications from Increased Salinity of Water," in Proceedings of the Regional Symposium of Flood Control, Reclamation, Utilization and Development of Deltaic Areas ("UNECAFE, Water Resources Series," XXV: New York: United Nations, 1963), pp. 187ff. Also, G. B. Cressey, "The Shatt al-Arab Basin," Middle East Journal, XII (1958), 448-60. H. Caspers, "Biology of Estuaries," in UNESCO, Scientific Problems of the Humid Tropical Zone Deltas and Their Implications (New York: United Nations, 1966), p. 257, states that "... the most important characteristic of an estuarine population is its ability to tolerate changes in salinity," and goes on to discuss specific marine fauna which can adapt to freshwater.
- 15. J. P. Morgan, "Ephemeral Estuaries of the Deltaic Environment," in G. H. Lauff (ed.), *Estuaries* ("American Association for the Advancement of Science," Publication No. 83; Washington: 1967), pp. 115-20, points out that the term estuary includes delta areas as well as open inlets such as Chesapeake Bay. Using material from the Mississippi delta, Morgan shows that there is subsidence of the sediment itself, that levees sink faster than the swamp alongside. As an area of sediment subsides, water from the sea can once more penetrate upstream, especially along the line of the levees.
- 16. Figures from Evan Guest, The Flora of Iraq, pp. 17-18.

- 17. See Great Britain, Naval Intelligence Division, *Iraq and the Persian Gulf*, pp. 177ff. for further details.
- W. K. Butzer, "Climatic Change in Arid Regions since the Pliocene," in D. Stamp (ed.), A History of Land Use in Arid Zones ("Arid Zone Research," Vol. XVII; New York: United Nations, 1961), pp. 31ff.
- 19. É. de Vaumas, "Études Irakiennes, Première Série," pp. 129ff.
- 20. R. McC. Adams, Land behind Baghdad (Chicago: University of Chicago Press, 1965), p. 4.
- 21. E. Guest, p. 18.
- 22. P. Buringh, "Living Conditions, p. 34.
- 23. G. Geary, *Through Asiatic Turkey* (London: S. Low, Marston, Searle and Rivington, 1878), pp. 101-103, tells of the repairing of a breach in the Euphrates levee by Nassir, Pasha of Basra in the 1870's. Nassir, the chief of the Montefiq, had bought the office from the Turks and was able to call upon members of his own tribe as well as townspeople of Basra, including Europeans, to work on a new embankment. He built the levee too high, and narrowed the bed of the river, causing the next season's flood to rise at the point of repair and overflow farther downstream, with much resulting damage.
- 24. Butzer, "Climatic Change," p. 39.
- 25. Ibid., p. 41.
- 26. Ibid., pp. 41-43.
- 27. W. A. Longacre, "Changing Patterns of Social Integration: A Prehistoric Example from the American Southwest," American Anthropologist, LXVIII (1966), 94ff.
- 28. Butzer, "Climatic Change," p. 50.
- 29. M. Zohary, The Flora of Iraq and Its Phytogeographical Subdivisions ("Department of Agriculture of Iraq," Bulletin, Vol. XXXI; Department of Agriculture, 1950).
- 30. E. Guest, The Flora of Iraq, p. 20.
- 31. Great Britain, Naval Intelligence Division, Iraq and the Persian Gulf, p. 24.
- 32. M. G. Ionides, *The Régime of the Rivers Euphrates and Tigris* (London: E. and F. N. Spon, 1937), p. 112.
- 33. Great Britain, Naval Intelligence Division, pp. 24f.

- 34. L. B. Leopold and W. B. Langbein, "River Meanders," Scientific American, CCXIV, No. 6 (1966), 60-70, gives a very concise, simple outline of the formation of meanders. The basic research for this article is to be found in L. B. Leopold and M. G. Wolman, River Channel Patterns-- Braided, Meandering, and Straight ("U.S. Geological Survey Professional Paper," 282-B; Washington: U.S. Government Printing Office, 1957), and L. B. Leopold and M. G. Wolman, "River Meanders," Bulletin of the Geological Society of America, LXXI (1960), 769-94. For a comprehensive summary of work on deltas, river patterns and sedimentation, see J. R. L. Allen, "A Review of the Origin and Characteristics of Recent Alluvial Sediments," Sedimentology, V, No. 2 (1965), 91-191.
- 35. J. Laessøe, "Reflections on Modern and Ancient Oriental Water Works," Journal of Cuneiform Studies, VII (1953), 5-26, gives the main ancient sources for irrigation equipment. He shows that shadufs existed in Neo-Assyrian and Neo-Babylonian times. However, great irrigation projects cannot be carried out with this device alone. Water wheels seem to have been known, but are weakly attested. Large scale lifting devices seem to be classical and post-classical innovations.
- 36. Figures: 1179 m<sup>3</sup>/sec. at Kut; 218 m<sup>3</sup>/sec. at Amara. É. de Vaumas, "Études Irakiennes (Deuxième Série): Le Controle et l'Ultilisation des Eaux du Tigre et de l'Euphrate," *Révue de Géographie Alpine*, XLVI (1958), 307.
- 37. Ionides, Régime, p. 60.
- 38. For details of the modern escape works, see J. H. G. Lebon, "The New Irrigation Era in Iraq," *Economic Geography*, XXXI (1955), 52-62; É. de Vaumas, "Études Irakiennes (Deuxième)," pp. 278ff.
- See R. McC. Adams, "Survey of Ancient Water Courses and Settlements in Central Iraq," Sumer, XIV (1958), 101-103; "Settlements in Ancient Akkad," Archaeology, X, No. 4 (1957), 270-73.
- 40. É. de Vaumas, "Études Irakiennes (Deuxième)," pp. 325ff.
- 41. Initially by Ionides, *Régime*, pp. 213-31, but his concern is mainly with "... the natural tendency of many rivers to change their beds irrespective of the presence of any artificial means of control." Direct attention to the relationship between human activity and natural change has been considered by P. Buringh, *Soils and Soil Conditions*, and his "Living Conditions," pp. 30-46. Though very interesting and provocative, he often does not seem to give enough solid evidence to support his conclusions. An article by J. Schilstra, "Irrigation as a Soil and Relief-forming Factor in the Lower Mesopotamian Plain," *Netherlands Journal of Agricultural Science*, X, No. 3 (1962), 179-93, deals with the effects of irrigation on the land, but not with the possible effect of irrigation on the river.
- 42. For a very good summary of sedimentary and other studies related to the formation

of deltas, plus the mechanics of rivers, see J. R. L. Allen, "Review." The fact that almost none of his references are from before World War II is not the result of his choosing only the latest material, but reflects the youth of the discipline.

- 43. Mainly by Buringh, Soils and Soil Conditions in Iraq. E. Wirth, Agrargeographie des Iraq ("Hamburger Geographische Studien," Vol. XIII: Universitat Hamburg, 1962), has made some very helpful classifications but his work is concerned with the production and utilization of the land, not with its composition or origin.
- 44. For a summary of soil work done in Iraq, see J.H.G. Lebon, "Recent Research on the Land Potential of Iraq," *Geographical Review*, LIV (1964), 104-109.
- 45. S. A. Harris and R. McC. Adams, "A Note on Canal and Marsh Stratigraphy near Zubediyah," Sumer, XIII (1957), 157-62.
- 46. Ionides, Régime, pp. 11ff., for history of observation.
- 47. F. R. Chesney, *The Expedition for the Survey of the Rivers Euphrates and Tigris* (2 vols. and Atlas; London: Longman and Co., 1850).
- 48. See supra, n. 39.
- 49. I have seen Early Dynastic III sherds on Amran, and in the lower areas at Babylon (see Fig. 8).
- 50. In Ch. III, we will show that about this time Kish received its water by way of a canal brought from Babylon, not from the Euphrates bed that had run through it previously.
- 51. Classical sources, though sometimes confusing and vague, make it clear that the channel through Babylon was considered the main bed of the Euphrates. See, *e.g.*, Arrian *Exped. Al.* vii. 17, 19, where the river at Babylon is said to be deep enough and wide enough to allow ships to come down from Syria and up from the Persian Gulf.
- 52. Herodotus Histories i. 191; Xenophon Cyropaedia vii. v. 15.
- 53. Herodotus Histories i. 184-85.
- 54. Meissner, "Pallacottas." All classical and Arabic sources are given therein.
- 55. Arrian Anabasis vii. 21, says he went ΚαΤα Τόν ΕἰφράΤην. This has usually been translated "down the Euphrates," but Meissner holds that it merely means "on the Euphrates."
- 56. *Ibid*.

- 57. E.g., F. R. Chesney, *Expedition*, II, 367ff.; J. B. Fraser, *Mesopotamia and Assyria*... (Edinburgh: Oliver and Boyd, 1842), p. 34.
- Already suggested by C. Niebuhr, *Reisebeschreibung nach Arabien*, II (Copenhagen: S. J. Baalde, 1774), 223f.; see also A. Delattre, *Les Travaux Hydrauliques en Babylone* (Bruxelles: Imprimerie Polleunir, 1888), pp. 24ff.
- 59. G. Le Strange, *The Lands of the Eastern Caliphate* (Cambridge: University Press, 1905), p. 65.
- 60. Ibid., p. 27.
- 61. A fairly prosperous town already existed on the site of Hilla, under the name al-Jāmi'ān. See G. Le Strange, "Description of Mesopotamia and Baghdad Written about the Year 900 A.D. by Ibn Serapion," *JRAS*, 1895, p. 259; Mas'ūdī, *Les Prairies d'Or;* trans. B. de Meynard and P. de Courteille (Paris: Société Asiatique, 1962), p. 88, writing in the tenth century A.D. gives a description of the Euphrates as running into the areas Sūrā, Qaşr ibn Hubaira, Kūfa, Al-Jāmi'ān, Ahmadābād, an-Nars and at-Tufūf, and then to the swamps. He mentions the old bed of the river at Hira as being visible, but disused.
- 62. The information given here on the Mongol Period is derived from an unpublished Ph.D. dissertation by Muhammad Rashid al-Feel, "The Historical Geography of Iraq between the Mongolian and Ottoman Conquests, 1258-1534 A.D." (Reading, England, 1959).
- 63. Information from al-Mustawfi, Ibn Sa'id, and Abulfeda, in *ibid.*, pp. 96ff.
- 64. *Ibid.*, citing Abd al-Hak who gives the information that the Nahr Kutha was dry in 1345. Abd al-Hak also says that the Nahr Kutha was the first canal ever dug in Iraq.
- 65. Ibid., p. 97, citing Ibn al-Wardi, Kharidat al-'Ajaib.
- 66. Ionides, Régime, p. 67.
- 67. Especially under 'Alai al-Din (1263 A.D.), Ilkhanid governor of Baghdad. See al-Feel, pp. 19ff. Under Mahmud Ghazan Khan (1296 A.D.), many measures were undertaken to increase production and bring farmers back to the land. The lowering of taxes would seem to indicate not only an inducement to return to farming, but also the poor state of the country. Al-Feel, despite his main thesis that the Mongols were not overly destructive, makes it very plain that the Mongol Period was not one of great prosperity, but of civil war, with tribes causing trouble, attacking merchant shipping in the marsh areas, etc., p. 21.
- 68. In the Ilkhanid Period, the governor 'Alai al-Din, 1263 A.D., spent 100,000 gold

pieces on a canal to Nejef. This seems to have silted up and been reopened by Shah Isma'il in 1508 under the name Nahr al-Shah. Suleiman the Magnificent visited the city in 1534 and ordered renovations made. Kerbela, which is closer to the Euphrates seems to, have had a more steady supply of water. The Ilkhanid ruler, Ghāzān, is credited with bringing water to the city in 1303 A.D. Suleiman the Magnificent repaired the branch to Kerbela in 1535. See *The Encyclopedia of Islam* (Leiden: Brill, 1936), *sub* "al-Nadjaf" and "Kerbela." Corroborated by al-Feel, pp. 17 ff., 31 f. For Kerbela, see also A. Noldeke, *Das Heiligtum al-Husains zu Kerbelā* (Berlin: W. de Gruyter, 1909), p. 40.

- 69. E.g., The Travels of Pedro Teixeira ("Hakluyt Society, Second Series," No. IX [London: Hakluyt, 1902], pp. 34ff., tells of a trip from Basra to Nejef and Kerbela in September, 1604. The bed of the western channel south of the Bahr an-Nejef was dry, and the swamp itself was low enough to ford. The canal from the Euphrates to Kerbela was totally dry. The Hilla branch of the river, however, was 200 paces wide even though the water was low. Pietro della Valle, Viaggi, II (Venetia: G. B. Tramontin, 496ff., reports much the same situation. In J.-B. d'Anville, "Mémoire sur la Position de Babylone," Mémoires de Littérature de l'Académie des Inscriptions et Belles-Lettres, XXVIII (1761), 246ff., the bed to Kerbela is treated as only a canal. C. Niebuhr, Reisebeschreibung, II, 253ff., does not mention any canals at Nejef or Kerbela, nor show any canals leading to them in his maps. He mentions the fact that the Bahr an-Nejef was totally dry and covered with salt (p. 256). He was there in December, 1765, and saw the area when it was at low water.
- 70. Ionides, Régime, p. 74, says the event took place at the end of the seventeenth century. Great Britain, Naval Intelligence Division, p. 35, repeats this. W. K. Loftus, Travels and Researches in Chaldea and Susiana (London: J. Nisbet, 1857), p. 43, however, says the Hindiyah took its name from Nuwab Shujah ed-Dowla who dug the canal 100 years before (i.e., about 1750). E. A. W. Budge, By Nile and Tigris, II (London: J. Murray, 1920), 270, gives the same information and the name as Nuwab Shujah ad-Dawlah. G. Geary, p. 172, writing in 1867, says that there was a popular belief that the work was paid for by Afzul Khan and other men of Lucknow about half a century before, but that Afzul Khan's accomplishment was merely an attempt to cut a channel through limestone to bring water from the Hindiyah branch, and that it failed. R. Ker Porter, Travels in Georgia, Persia, Armenia, Ancient Babylonia... during the Years 1817, 1818, 1819, and 1820, II (London: Longman, Hurst, Rees, Orme and Brown, 1822), 282, describes Kerbela as a flourishing town, among gardens and groves "... which border one of the finest canals now existing in the country. This noble work, supposed to have been begun on the foundation of one of the very old flood-gates of the ancient empire, had various restorers, but Hassan Pasha was the first to plan its present grand scale, leaving it to be finally effected by Mirza Ashreff, during the reign of Shah Thamas .... " Porter saw the canal in November, 1818. Niebuhr, Reisebeschreibung, II, 253ff., in 1765 recorded no such grand canal. William Beawes, "Narrative of a Journey from Aleppo to Basra in 1745," in D. Carruthers (ed.), The Desert Route to India ("Hakluyt Society, Series 2," No. 63; London: Hakluyt, 1929), p. 20, speaks of the vegetation around Nejef in August. Obviously, the Hindiyah and its

effluents were excavated in the late eighteenth century, not a century before. There must have been at least a trickle of water into the area, previously, however, to support the towns. *The Encyclopedia of Islam*, pp. 81f., *sub* "Nadjaf," states that a new canal was built to the city in 1793, but does not give a name. This must be the Hindiyah construction in question.

- 71. See Great Britain, Naval Intelligence Division, Iraq and the Persian Gulf, pp. 35f.; Ionides, Régime, pp. 67ff.
- 72. Pietro della Valle, Viaggi, I, 496ff., describing a trip made in 1616 along the Baghdad-Hills road speaks of Ruzuania (=Radhwaniyah) and Mahmudiyah, both of which must have been near canals. Mahmudiyah was a new town founded by Mahmud Pasha Jughalzadah. Niebuhr, travelling through the area in 1766 saw only wasteland from Babylon to Baghdad, with a few small villages near the caravanserais (Reisebeschreibung, pp. 291ff.), and his map shows only the Mahawil and Mahmudiyah canals, J. S. Buckingham, Travels in Mesopotamia, II (London: H. Colburn, 1827), 243, notes a ruined bridge over a dry canal and says that he was told that the canal had flowed only a short while before (1816). This canal, between Khan Azad and the ancient bed of the Nahr Malik is mentioned in J. C. Rich, Narrative of a Journey to the Site of Babylon in 1811 (London: Duncan and Malcolm, 1839), p. 37; he also says that the dry canals in the area were full of water when the Euphrates was in flood, ibid., p. 5. In his Memoir on the Ruins of Babylon (London: Longman, Hurst, 1818), pp. 5-6, Rich adds, "Till very lately this canal was filled from the Euphrates and the desert in the vicinity was in consequence cultivated; but the proprietors, finding the exactions of the government to be more than their industry could answer, were obliged to abandon the spot." This ruined bridge may mark della Valle's Ruzuania. H. Kiepert, "Karte der Ruinenfelder von Babylon," ZGEB, XVIII (1883), 1-27, shows the Radhwaniyah canal of the late 1800's as considerably shorter than it would have been to have reached the Baghdad-Hilla road. I assume that most of the canal had silted up and the old village had died out. When this happened cannot be ascertained, but it must have been sometime before 1781, since J. de Beauchamp, "Voyage de Bagdad à Bassora le long de l'Euphrate," Journal des Sçavans, May, 1785, pp. 285-303, makes no mention of the canal or the town, but does describe the land between Mahawil and Baghdad as barren.
- 73. Rich, *Narrative* . . . , p.5.
- 74. Ibid., pp. 5, 37.
- 75. According to F. Sicard, "Cours Inférieur de l'Euphrate en Basse Mesopotamie," *Revue Maritime et Coloniale*, 1870, pp. 1-16.
- 76. A. H. Layard, *Discoveries in the Ruins of Nineveh and Babylon* (London: J. Murray, 1853), p. 475.

- 77. *Ibid.*, p. 478. Loftus *Travels*, pp. 5ff., also reports this. Layard, *Discoveries*, p. 548 also noted that there were *imams* (tombs) in the deserted areas marking places occupied thirty years before.
- 78. Loftus, Travels, pp. 80ff., esp. p. 104.
- 79. Ibid., p. 112.
- 80. Personal observation.
- 81. Loftus, Travels, pp. 45-46. Changes in the lower course of the Euphrates seem to have been more pronounced, but to have had less far-reaching effects than changes upstream. See H. Kiepert, "Karte," pp. 1-26, with map comparing Chesney's observations and his own. Some of the differences were mistakes in calculation by Chesney, some were real. See also, Great Britain, Naval Intelligence Division, -Iraq and the Persian Gulf, pp. 38ff., for changes in the channel through the Hor al-Hammar, and compare F. Sicard, "Cours Inférieur de l'Euphrate," pp. 1-16. Also see J. H. Petermann, Reisen im Orient, II (Leipzig: Viet, 1865), 66ff., in which careful itinerary notes allow comparison on changes of site, abandonment, etc., of villages between Chesney, Expedition, Atlas, and the situation thirty years later. There is an indication of long term stability, even in the Hor al-Hammar, for certain large villages. See, e.g., the introduction of C. J. Rich, Narrative, pp. xxxi-xxxv, in which there is given a translation of an account of a boat trip from Basra to Hilla about 1657 by a Carmelite monk named F. Vincenzo Maria di S. Caterina di Siena. Several towns along the channel are identifiable with towns given by Chesney. It is interesting to note that Samawa, given as Samadava, was at that time on the Hilla branch. This would date from before the reestablishment of the Hindiya barrage by the Indian, Nawab Shejah-ad-Dowla, and the Hilla branch would have been dominant. Niebuhr's map in *Reisebechreibung*, opp. p. 248, of the Euphrates from the Gulf to Samawa may also be compared with Chesney.
- 82. J. B. Bewsher, "On Part of Mesopotamia Contained between Sheriat-el-Beytha, on the Tigris, and Tel Ibrahim," *Journal of the Royal Geographical Society*, XXXVII (1867), 180, compares the situation at that time with that of Chesney's expedition, when the same place in the stream had 12 to 18 feet of water.
- 83. H. Rassam, Asshur and the Land of Nimrod (Cincinnati: Curts and Jennings, 1897),p. 343. It should also be noted that in 1881 the Tigris rose so high that his workmen at Tell Ibrahim (Kutha) were able to obtain water from the overflow, which came within a few miles.
- 84. See report of Ward Expedition in J. P. Peters, *Nippur*, I (New York: G. P. Putnam's Sons, 1897), 320, 329.
- 85. Ibid., p. 329.
- 86. See supra, p. 27.
- 87. Peters, Nippur, I, 213.

- 88. The lack of water in the Hilla branch, Diwaniyah canal, etc., was accompanied by an outbreak of cholera, as the people began to drink unsanitary water, *ibid.*, pp. 53-61.
- 89. Ibid., p. 73.
- 90. E. A. W. Budge, By Nile and Tigris, II, 207f.
- 91. E. Sachau, Am Euphrat und Tigris (Leipzig; 1900), p. 38.
- 92. E. J. Banks, Bismya, or the Lost City of Adab (New York: G. P. Putnam's Sons, 1912), p. 86.
- 93. Ibid., p. 97.
- 94. Ibid., p. 86; Peters, Nippur, I, 60f., reports similar conditions.
- 95. Ibid., pp. 270ff.
- 96. Banks, Bismaya, pp. 98ff.; 357f.
- 97. Ibid., p. 396.
- 98. H. W. Cadoux, "Recent Changes in the Course of the Lower Euphrates," Geographical Journal, XXVIII (1906), 266-76.
- 99. Ibid.
- 100. R. Koldewey, Mitteilungen der Deutschen Orientgesellschaft, No. 17 (August, 1903),
  p. 3, reports in a letter of June 26, 1903, on the breaking of the barrage. See also his Das Wiedererstehende Babylon (Leipzig, 1913), for a full discussion of the problem and its results at Babylon.
- 101. Ibid., p. 17.
- 102. Apparently referred to in Iraq, Commissioner, *Review of the Civil Administration of Mesopotamia* (London: Great Britain, Colonial Office, 1920), p. 116: "An important piece of work is now in progress between two of the Euphrates channels which it is hoped will bring back into cultivation large tracts which have long lain barren, including the Fawwar region south of the Babylonian city of Niffer. The project has been received with enthusiasm by the tribes, who are supplying the necessary labour."
- 103. Great Britain, Colonial Office, Report by His Majesty's Government in the United Kingdom of Great Britain and Northern Ireland to the Council of the League of Nations on the Administration of Iraq for the Year 1928 ("Colonial," No. 44; London, 1929), p. 150, and map at end of volume. See also, D. Mackay, The

Ancient Cities of Iraq (Baghdad: K. Mackenzie, 1926) p. 31, mentioning the fact that one could reach Afak by car, but must then go to Nippur by boat or horse.

- 104. For present irrigation and cultivation features in Iraq, see D. H. Davies, "Observations on Land Use in Iraq," *Economic Geography*, XXXIII (1957), 122ff.; J. H. G. Lebon, "Population Distribution and the Agricultural Regions of Iraq," *Geographical Review*, XLIII (1953), 223ff.; É. de Vaumas, "Études Irakiennes (Deuxième)," pp. 235ff.; E. Wirth, Agrargeographie des Iraq.
- 105. Vaumas "Etudes Irakiennes (Deuxième)," is especially useful for the layout of canals and projected plans as of 1958.
- 106. R. Fernea, "Irrigation and Social Organization among the El Shabana, A Group of Tribal Cultivators in Southern Iraq." Unpublished Ph.D. dissertation, University of Chicago (Chicago, 1959), has shown with pre-Revolution governmental control and some modern machinery and methods, a group of farmers in the Dagharah area carried out irrigation and agriculture on a kin basis. Their efforts were quite successful. The government's opening of a new canal, the Hurriyah, which should have been advantageous, was in fact disastrous. The improvement of the head at Dagharah and the new canal caused waterlogging and salinization, because there was no drainage (pp. 191ff.). The revolution of 1958 brought great social changes. Before then, as shown in A. P. G. Poyck, Farm Studies in Iraq ("Mededelingen van de Landbouwhogeschool te Wageningen, Nederland," Vol. LXII, 1962), for which research was carried out in the area south of Hilla in the 1950's, large landholdings were most common. P. E. Naylor, "Farming Organization in Central Iraq," Empire Journal of Experimental Agriculture, XXIX (1961), 28ff., presents a study of a small area in the Diyala area before the revolution. An interesting, but less informative, article on a village near Kut is M. Quint's "The Idea of Progress in an Iraqi Village," Middle East Journal, XII (1958), 369ff., again before the revolution. A comparable study has not been made since then. The Mussayib Project would be a very interesting study area, since the farmers are all new to the area, having come there from Hilla, Suwaira, etc. and must make territorial, tribal and personal adjustments to one another as well as to the government overseers of the project.
- 107. Adams, Land Behind Baghdad, pp. 7ff.
- 108. P. Buringh and C. H. Edelman, "Some Remarks about the Soils of the Alluvial Plain of Iraq, South of Baghdad." *Netherlands Journal of Agricultural Science*, III, No. 1 (1955), 47f.; Buringh, *Soils and Soil Conditions*, pp. 163ff., and "Living Conditions," p. 31.
- 109. J. Schilstra, "Irrigation as a Soil and Relief-forming Factor," pp. 179ff., has attempted to show how human activity and natural processes have created the present plain. He stresses technical differences in irrigation brought about by physiography, p. 183, but his results are merely a reiteration of Buringh, *Soils and Soil Conditions*.

- 110. In connection with the planning for the Mussayib Project. In addition to Buringh and Edelman, see P. Delver, "Properties of Saline Soils in Iraq," *Netherlands Journal* of Agricultural Science, Vol. X, No. 3 (1962). See also, P. de Gruyter, "Drainage in Irak," *De Ingenieur*, Vol. LXII, No. 2 (1953).
- 111. M. G. Wolman and L. B. Leopold, *River Flood Plains: Some Observations on Their Formation* ("Geological Survey Professional Paper," 282-C; Washington: U.S. Government Printing Office, 1957), pp. 97ff., prove that a surprisingly small amount of sedimentation is caused by flooding, even in the time of a great flood, under natural conditions. They go on to point out that the mere presence of human settlement made one small stream in Maryland overflow its banks ten times a year, although it had flooded only once a year prior to the establishment of a housing development.
- 112. E.g., Lees and Falcon, "Geographical History," p.29, give 0.22 inch per year in the southern marsh area; this figure was corrected by Ionides, *Geographical Journal*, CXX (1954), 394, who showed that the figures adapted from his work should be used to estimate sedimentation over a much larger area covering the entire plain; R. C. Mitchell, "Instability of the Mesopotamian Plains," *Bulletin de la Société de Géographie d'Égypte*, XXXI (1958), 129, gives 20 cm. a century, a figure that Adams, *Land behind Baghdad*, p. 10, sees as agreeing with the 10 m. depth below present plain level for the earliest level of Tell Asmar; cf. Kish, Y Trench, 9 m. in Ch. IV.
- 113. *Ibid.*, p. 9, with note. See also, J. P. Morgan, "Ephemeral Estuaries of the Deltaic Environment," *in* G. H. Lauff (ed.), *Estuaries*, pp. 116ff.
- 114. See Adams, Land behind Baghdad, p. 9.
- 115. For details on Kish, see Chapter IV. For Ras al-'Amiya, see D. Stronach, "Excavations at Ras al-'Amiya," *Iraq*, XXIII (1961), 95ff.
- 116. Personal communication.
- 117. Buringh and Edelman, "Remarks," p. 45, note that the "sand" is silty clay loam, a pseudosand, and came from the surface of the plain itself. If, as Adams suggests, there is a correlation between dunes and tells, and much wind-borne material is from tells, the aeolian lenses must be in part ancient occupation debris. The action of winds on tells, standing up from the plain, must be much like, but more pronounced than, the effect of wind on rock outcrops in deserts. See, e.g., E. S. Hills, C. D. Ollier and C. R. Twidale, "Geomorphology," *in* E. S. Hills (ed.), *Arid Lands, A Geographical Appraisal* (London: 1966), pp. 53ff., esp. p. 63, "The winds of the desert are no stronger than elsewhere, but their effect is facilitated by their uninterrupted passage across the sparsely- or non-vegetated plains...."
- 118. P. Delver, "Properties of Saline Soils," p. 195.

- 119. See Buringh, Soils and Soil Conditions; Buringh and Edelman, "Remarks," pp. 41-47.
- 120. S. A. Harris, "Saline Soils in the Kirkuk Plain, Northern Iraq," *Journal of Soil Science*, XI (1960), 128, "... the only source for the salts is the rocks through which the water passes."
- 121. Salinization as a factor in the decline of agriculture and culture has been studied from several perspectives. Harris, *ibid.*, p. 129, gives a succinct outline of salt action. He and other British and Dutch soil specialists have treated the problem. T. Jacobsen, *Salinity and Irrigation Agriculture in Antiquity* (Diyala Basin Archaeological Project, Report on Essential Results, [Baghdad, 1958]), worked from both a scientific and a textual viewpoint. His most important conclusions, summed up in P. J. Dieleman, *Reclamation of Salt Affected Soils in Iraq* ("International Institute for Land Reclamation and Improvement," Publication XI [Wageningen, 1963]), p. 18, are: there was no major occurrence of salinity in ancient times and crop yield was high; there was no artificial drainage; the first evidence of salinity is from Lagash, 2400 B.C., perhaps due to intensive irrigation and a rising water table; the area did not recover from the salt and Sumer declined; a major salinization occurred in the northern plain about 100 B.C., but the area recovered; salt comes from the water, not a fossil marine salt deposit in the south.
- 122. See, e.g., Dieleman, Reclamation, pp. 28f.
- 123. Land behind Baghdad, pp. 4-6. A very useful study of agriculture, productivity, land tenure, etc., in the area along the Hilla branch just south of Kish in the 1950's, is A. P.G. Poyck, Farm Studies in Iraq.

#### **III. SURFACE SURVEY**

An examination of any map of the Kish area (Fig. 5) reveals several dominant physiographic features, partly man-made, partly natural. One's attention is immediately drawn to the striking east-west orientation of the Shatt an-Nil/New Shakha. This line obviously cuts across the natural northwest-southeast drainage lines revealed in the pattern of the modern canal system (Fig. 4). To the northeast, the massive ganglion of canals and settlements known as the Habl Ibrahim, the ancient Nahr Kutha, follows the natural drainage. Work in the area, especially survey, must reflect the influence of these two dominant canal systems, if only in determining the direction one must move in the countryside.

The Mussayib Project has changed the entire nature of the northern part of our area in the last ten years. Our map (Fig. 4) gives only the line of the outer drainage ditch. The interior of the project is laid out in very regular, rectangular plots divided by smaller canals and drains. The older canals shown as in the project have been abandoned. Survey in that area is somewhat facilitated by good roads, but hampered by the disruption of the ancient patterns of settlement that would show up on air photos.

In southern Iraq, there is a very clear pattern of cultivation to the west, along the Hilla branch, while there is desert to the east. From the southern edges of the Mussayib Project, the desert extends to Nippur and beyond. The area watered by the modern Mahawil and Khatuniyah canals is probably one of the most continuously cultivated tracts in southern Iraq.<sup>1</sup> There is, however, a tendency for this area to become waterlogged since the banks of the Euphrates north of Hilla are very low, and flood water comes to rest in the area, trapped by ancient levees.<sup>2</sup> Just northeast of Kish, there is an extensive basin that has in the past been swamp and even today supports no cultivation. The swamp has some historical significance, as will be shown below.

South of Hilla, the Hilla branch turns sharply east, and canals from it did in Islamic times and do at present water the southern edge of our survey area. This southern fringe is now becoming settled and cultivated after almost a century of abandonment.

The only city in the region today is Hilla, the administrative center of the province. Mahawil, although benefiting from its position on the Baghdad-Hilla road, is still a town. In the Mussayib Project, the village at Imam Ibrahim, is the only completed example of several planned new towns.

In ancient times, three cities dominated the region, Babylon, Kutha and Kish. The study of any one of these must entail a consideration of the interrelations of the three cities. The results of the survey help to delineate the patterns.

#### Survey Methods, Limitations, and Order of Presentation

Before discussing the maps of sites in the survey, it would be wise to stress the fact that the suggested canal patterns, indicated by dashed lines, are entirely provisional. One tries to follow contour lines, seeking the higher ground that is the result of ancient levee building. Certain lines seem more convincing than others. It is obvious that in great part I rely on Adams' work, as well as project into the more distant past the canal patterns observable from Sassanian and Islamic times (Fig. 5). When an ancient canal is visible on the surface, and datable by settlements along it, a solid line has been used.

It should also be emphasized that the nature of survey allows only an indication of the material below the surface. It would not be surprising to find that many early mounds are completely buried, as was Ras al-'Amiya (No. 40). It would also not be surprising to find that there is at any given site, material of which we have no indication. It is reassuring to note that many of the sites collected by me were earlier collected by Adams, and in 85 to 90 per cent of the mounds, there is close agreement on our findings. Adams' survey notes were deliberately ignored by me until after my notes were complete. In a few cases, we complement each other in information. In some, our disagreements on dating are the result of changes in diagnostic sherds or reinterpretation of the significance of certain sherds. In Appendix I, these differences are discussed. In the list of sites, the diagnostic sherds from each location are given by type so that in future, if new information forces re-dating of sherds, the maps can be changed accordingly.

The survey maps are presented in two sections, the first being general area reconstructions (Figs. 6 - 22). After a discussion of the larger patterns, the site of Kish-Hursagkalama is examined in detail (Figs. 24 - 33). In the maps of individual periods, an attempt has been made to indicate the size of settlements. The estimate is based on the spread of sherds on individual sites. Only with the Kish complex, however, is this done with any reliable degree of probability. Usually, the sherds on a mound were fairly well distributed and gave little indication of shifts in occupation. In these cases, the size and shape of the mound are as given on the standard 1:50,000 maps. In the case of Babylon and Kutha, an attempt has been made to indicate relative size, but since neither mound was as systematically collected as was Kish, there is much room for error.

In the maps, the supposed main lines of canals are given. In a few cases, interconnections between branches have been suggested. The Sassanian canals visible today (Fig. 16) give us a reliable picture of pre-Islamic canal systems, employing diverging and converging branches, loops that are fed from two sources, etc. The Islamic system, the Shatt an-Nil, is a clear departure from older practice (Fig. 17), employing a branching, much more regular pattern. But even with this construction, the large branches in the east, the Khait Zbar and the Khait Qartiyah (Fig. 5), clearly were being employed in a loop-system with the Shatt an-Nil.

## The Area of Kish

Since Adams mapped the general lines of ancient watercourse (Fig. 68), the

reconstruction of canals in my small area was much simplified. In the early periods, there were in the area three major branches, the Kish (Euphrates), Kutha (Irnina?) and Jemdet Nasr (Zubi?) channels. These three courses are evident in the map of the Ubaid and Protoliterate Periods (Fig. 6). Of the sites given, only three are definitely Ubaid (Nos. 28, 40, 90). The three Ubaid sites appear on the Kish and Jemdet Nasr branches (Table 3). Protoliterate Periods (Fig. 6). Of the sites given, only three (Nos. 28, 40, 90) besides Kish had Ubaid sherds. These sites appear on the Kish and Jemdet Nasr branches (Table 3). Protoliterate material confirms the dominance of these two courses over the Kutha channel; however, this channel has the greatest concentration of silt in the area and early sites may be buried.

The Early Dynastic I map (Fig. 7) shows a dramatic shift to the channel through Kish, as that settlement became a city. The shift must be connected with a change in the river that caused the abandonment by water and people of a major branch toward the east (Fig. 23). Adams, in a recent, unpublished, survey around Nippur, has established that the latest settlements along this eastern line were Uruk in date. Buringh had noticed the meander pattern, but thought it was Pleistocene. He also mapped what he called river levee soils along the line we reconstruct as the Kish channel.<sup>4</sup> If these are, in fact, river levee soils, then the line through Kish should more accurately be reconstructed as a meandering stream and sites along what we give as a branch canal might lie on its banks.

In the early Dynastic III period (Fig. 8), Kish continued to grow, reaching its greatest dimensions. There was a general increase in the size of sites in the area, especially at Kutha. Babylon made its first verifiable appearance. In the reconstruction, I have joined the Kish and Kutha branches downstream from Kish, partly on the basis of the southeastward trend of the sites, to allow a connection with Nippur and the other major cities in the south.

There is no doubt that Kish was the domanant city in the region. It covered a much larger area than any other. The configuration of two areas of settlement, a double city, is also very clear.

The Akkadian Period (Fig. 9) was one of decrease both in number and size of sites. Only 46 per cent of the Early Dynastic settlements survived into the following era (Table 3). The predominance of the Kish channel seems to have continued, however. The establishment of a large settlement (No. 37) north of Kish was a major development, and may have caused the diminution of the latter city. The size of this site, though possibly exaggerated, cannot have been much smaller. Akkadian sherds were found on all parts of it. It would be an extremely interesting mound to excavate, being so close to Kish.

The decrease in Akkadian settlements in the survey area is puzzling. This area should have prospered with the ascension of the Sargonic dynasty. Perhaps, with the conquest of large territories, much of the local population was needed to garrison, develop and govern other areas. However, it is my conviction that this map reflects only the late Akkadian Period, since the pottery we call Akkadian is typical of only

# TABLE 3. SITES BY PERIOD

	No. of Sites	Sites Founded		Abandoned in a Given Period		Surviving into Following Period	
Period			Per Cent		Per Cent		Per Cent
Ubaid	4	4	100	2	50	2	50
Proto.	15	13	86	5	33	10	66
ED I	21	11	52	1	6	20	94
ED III	30	11	36	17	56	14	46
Akk.	17	4	23	2	12	15	88
Ur III/IL.	20	5	25	5	25	16	80
OB	20	3	15	7	35	13	65
Kass.	23	10	43	10	43	13	57
NB	29	16	55	9	31	20	70
Ach./Sel.	50	30	60	18	36	32	64
Parth.	53	30	38	23	43	30	57
Sassan.	68	38	53	44	68	22	32
E. Isl.	66	44	67	38	58	28	42
Samarr.	37	9	24	12	32	25	70
L. Abb.	58	31	54	37	65	20	35
Ilkhan.	20	0	0	2	10	18	90
Post-Ilkhan.	30	12	40	30	100		

\*Percentages rounded off to nearest whole number.

the latter part of the period. The pottery and other material objects of the time of Sargon, Rimush and Manishtusu are a continuation of Early Dynastic types and part of what we have classed as Early Dynastic III is actually Akkadian in time.

The fact that the Gutian invasion may have been overemphasized heretofore, is suggested by the survival of 88 per cent of the Akkadian settlements into Ur III/Isin-Larsa times (Table 3).<sup>4</sup> The Kish canal was still the main course of the river (Fig. 10), and the city of Kish revived and grew.

In the old Babylonian Period, though Babylon became the dominant city, the Kish canal still seems to have been the major line (Fig. 11). It is safe to assume, however, that the Kutha branch was becoming important.

In the Kassite era (Fig. 12), the entire area seems to have prospered, with a sizable number of new sites, especially along the Kutha branch. The Kish canal remained much the same, and the trend of sites along it points to a definite linkage with the Kutha canal, by this time clearly the dominant channel. The marked termination of sites with the Kassite/Middle Babylonian Period, is parallel to developments in the Diyala.<sup>5</sup> However, an added factor, the shift in the main burden of the Euphrates from its Kish channel to the Babylon line, must be taken into account as a possible reason for abandonment.

As can be seen, great changes seem to have come about between the Kassite and Neo-Babylonian Periods (Fig. 13). The Kish line was discontinued above the city sometime before NB, as is indicated by the abandonment of Nos. 27 and 37. The upper reaches of the line seem to have emptied into the Kutha canal. There was much settlement along the Kutha line, with the establishment of several new towns.

The vacuum north of Kish can be linked with a text of Nebuchadnezzar<sup>6</sup> in which it is stated that a dam was heaped up and faced with baked brick. It led from the procession street alongside the Euphrates to the city of Kish and an artificial lake was thus created to protect the city of Babylon from enemies. Between the two cities, there is a long, fairly wide artificial rise that may in fact be only a canal, but may be the remains of this dike.<sup>7</sup> I have indicated it on the map (Fig. 13).

It is important to consider the technical details involved in Nebuchadnezzar's project in order to understand the routing of the Kish canal in this period. The flooding of low areas was a defensive and offensive tactic throughout history in Mesopotamia.<sup>8</sup> As far as one can tell, such flooding was not considered desirable at all times, and was resorted to only when needed. It is unlikely that any artificial lake could be made to hold water all year due to evaporation and the low water in summer. What seems most reasonable is that a dike was built both to control perennial flood in the low area east of the Babylon branch, and to act as a potential defensive work.

In my reconstruction, the new Kish canal originated in this period north of Babylon

and ran through the area of the artificial lake. In this location, north of the rampart, it would have acted as a supplier of water for the creation of the lake. The canal need only be blocked to cause some overflow. However, it would also have been used as a drain when the lake was no longer needed. There is little doubt that the Kish canal was reoriented in this period, since the alignment of sites at Kish itself clearly points in an east-west direction. The canal did not originate inside Babylon. There is no mention of it inside the city in any text. However, it did run fairly close to Babylon, since it was cited as a boundary for fields worked by men of that city.<sup>9</sup> That the Kish canal did not originate south of Babylon is proven by the fact that to have done so, it would have had to cut across the Banitu canal which began inside the city, flowed through the walls at the Zababa Gate (i.e., the Kish Gate),<sup>10</sup> and then turned south towards Banitu, a town somewhere in the area of Marad and Nippur.<sup>11</sup> The relationship between Babylon and Kish must be worked out in detail using air photographs, excavation, and textual material, a very large project in itself. The Islamic canals running alongside and through Babylon have been separated by date to some extent, as shown in the appropriate maps, by using an air photograph published in one of the Babylon reports.<sup>12</sup> Low level photographs such as those we have for Kish,<sup>13</sup> would allow more intensive investigation of the entire complex.

The Achaemenid conquest of Babylon does not seem to have caused much of a disruption in the area (Fig. 14). Seventy per cent of the Neo-Babylonian sites continued to be populated in this period. However the eastern region seems to have witnessed a great development, while the Babylon branch underwent a period of decline. The emphasis on the eastern branches, especially in the Seleucid Period, is a logical extension of the shift of the capital to Seleucia. The general level of settlement, increasing from the Kassite Period, rose appreciably in the Achaemenid/Seleucid eras with 60 per cent new settlements (Table 3).

There seems to have been a shift back to the Babylon branch in the Parthian Period (Fig. 15). The fall of the Seleucid kings does not seem to have affected the prosperity of the area as a whole. A line of large Parthian sites north of Babylon, not collected by me, shows the importance of this line. The nature of the settlement may have been somewhat different from the preceding situation. At Babylon, on the ruins of the Neo-Babylonian summer palace (No. 127), a great fortress, much like the one at Nippur,<sup>14</sup> was erected. At Kish, though there is evidence of a sizable town, the most imposing structure was a fortress (No. 8). It may well be that the Parthians, rather than integrating themselves into the population to any extent, held the area by maintaining strongpoints in strategic locations. Yet, the size and richness of the cities, as indicated by the number of Parthian coins and other objects found on many sites, point to stability rather than the chaos that is usually ascribed to the Parthian Period. There were at least four major cities in the region at this time (Nos. 48, 60, 94, 96). The increase in density of population must be estimated accordingly.

The transition from Parthian to Sassanian rule was rather smooth, if the high number of continuing sites and basic canal pattern can be trusted. In Fig. 16 there is one major change. The Babylon branch of the Euphrates shifted west. The line of Parthian sites north of Babylon was abandoned, and the first version of the Mahawil canal came into existence. At this point, also, we have a very firm indication of the Kish canal line originating from above Babylon. The latter site was at this time a pleasure palace rather than a population center.<sup>15</sup> The bulk of settlement was located on the Kutha Canal. The very large towns strung out along both sides of this canal and its branches mark it as once again the dominant branch of the river. The interconnections between the Kutha channel and the Khait Qartiyah, a canal which originated from the Tigris but ran in much the same location as the older Jemdet Nasr line in our survey area, show the complexity of canal systems that our dashed lines can only begin to suggest.

The geography of the survey area in Sassanian times has been only slightly investigated.<sup>16</sup> The incredible conglomeration of large settlements of the Kutha canal was certainly of great importance, and some records should exist for them. Arab sources, even early chroniclers of the Muslim conquest, are not very helpful.<sup>17</sup> Mesopotamia was divided into provinces and districts, many of which, such as Ardashir Babakan, of which our area is a part, were still so named in the Abbasid Period.<sup>18</sup>

The Early Islamic Period brought about an unprecedented change in the entire orientation of the canals of the area (Fig. 17). The old Nahr Kutha ceased to exist below Kutha, and the transverse Shatt an-Nil became the main source for water in the region. One could suggest that it was the Arab conquest that caused the abandonment of 68 per cent of the towns that had existed in Sassanian times (Table 3), but, as we have seen, no similar disruption was caused by any previous invasion of the area. Insecurity in Mesopotamia, due to the long-term attempts of the Arabs to spread across the Euphrates, may be seen as a partial cause of any disintegration in the canal system.<sup>19</sup> But, the Muslims as conquerors dealt rather gently with the local people.<sup>20</sup> The great change might be accounted for by an administrative decision in Early Islamic times to abandon what had been a very profitable canal (the Nahr Kutha) and excavate a totally new one. But, it must be remembered that the Shatt an-Nil was not built until the reign of Abd al-Malik (A.D. 685-705), while the Moslem conquest took place a half century before. If the change were due merely to an administrative decision on the part of the Arabs, surely on most of the larger sites there should be signs of Early Islamic pottery along with Sassanian sherds.

A close analysis of the sites that show both Sassanian and Early Islamic sherds is very enlightening. Figure 16 shows these sites underlined, and it is obvious that only the settlements along the Nahr Kutha were abandoned before the Early Islamic Period to any unusual extent. Those along the Khait Qartiyah and those dependent on the Babylon branch were relatively unaffected. In making a similar analysis of all other transitions from period to period, no such selective territorial abandonment can be demonstrated. Though in the Akkadian and Kassite/Middle Babylonian Periods many sites were abandoned, the abandonment was area-wide. The Abbasid to Mongol transition will be shown to be likewise area-wide.

The explanation for the striking abandonment pattern is, I think, to be sought in the massive flooding of both the Tigris and Euphrates during the late Sassanian period, in
the time of Chosroes II.<sup>21</sup> It is probably this flood that is referred to by Ibn Khordādhbeh (ninth century A.D.) in his discussion of the digging of the Nahr Sib (=Sabus?) by al-Hajjaj, the governor who also built the Shatt an-Nil.<sup>22</sup>

The Sassanian canal pattern lends itself to this explanation of the disappearance of settlement along the Nahr Kutha, since it may have received water from the Tigris as well as the Euphrates. According to the Arabic sources, a great mass of flood water from *both* rivers swept down the Kutha branch, and destroyed the entire area. It is of interest to note that the only two sites in the direct path of the supposed flood that seem to show some transition to the Islamic Period, Nos. 60 and 164, were high mounds. But even at one of these, No. 60, the Early Islamic settlement was established in a totally new location, north of the older city.

The floods in question were said to have caused the great swamp (Hor al-Hammar) and also seem to have made the main flow of the Tigris shift into its Hai (Gharraf) branch and the Euphrates into the most western, Kufa, channel.<sup>23</sup> It is clear from the sampling of sherds on the mounds dependent on the Babylon branch, i.e., those including Kish, that this area was impoverished in the Early Islamic Period, no doubt reflecting the change of bed. The sites along the Khait Qartiyah, fed from the Tigris, were not so affected since the quantity and quality of sherds are much better.

The remnant of the Sassanian canal from the Babylon channel through Kish was incorporated as part of the Shatt an-Nil in the Early Islamic Period (Fig. 17). Likewise, the Sassanian canals to the east, such as the Khait Qartiyah were incorporated into the system. Kutha, considerably smaller at this time, may have been little more than a town at the end of the much diminished Kutha canal. The major centers of population were along the Shatt an-Nil. Nil (No. 162, Niliyah), a sizable, oval city on both sides of the Shatt an-Nil was joined by a bridge of baked bricks, the Qantarah al-Masi. Another major city was founded at the juncture of the Nil, the Khait Zbar and the Khait Qartiyah (No. 161, Abū Hatab). Ibn Serapion,<sup>24</sup> writing in the tenth century, tells of a great loop canal, the Ṣarāt Jāmāsp, that took off from the Nil at a place called An-Nawa'ir, "The Waterwheels," and rejoined it three leagues below the city of Nil. Abū Hatab, No. 161, seems to fit the description of An-Nawa'ir and the Khait Zbar seems the most likely candidate for the Ṣarāt Jāmāsp. The Khait Zbar joins the Habl as-Sakhr (to the east of the survey area), as well as several other canals that run into the Shatt an-Nil downstream of Niliyah.

In the Samarran Period (ninth century), the Shatt an-Nil was re-aligned, the more western part brought south of the old canal (Fig. 18). There seems to have been a sizable abandonment of the Early Islamic sites along the Khait Qartiyah, and an almost total abandonment of the Kish mounds. It is probable that this abandonment was brought about due to a movement onto the newer, more productive canal line, rather than as a result of any disaster. The city just southeast of ancient Kish, Abū Sudaira (No. 47), was founded in this era. Niliyah and the city we have suggested as being An-Nawa'ir (No. 161) continued to grow.

To the north, Kutha seems to have revived with the cutting of the Nahr Kutha to

the Tigris,<sup>25</sup> probably by connecting it with one of the larger canals from that river.

The small settlements dependent on the Mahawil canal north of Babylon, were of very minor importance in this period. Probably most of the population had moved to the Shatt an-Nil.

With the Late Abbasid Period (Fig.19), we may begin to correlate survey findings with reports of Arab geographers. We have already suggested the identification of Abū Hațab (No. 161) with an-Nawā'ir, and the Khait Zbar with the Sarāt Jāmāsp. The various sources from the Late Abbasid Period, chiefly Ibn Serapion, vary in detail and give somewhat confusing accounts of the area, but a relatively reliable reconstruction of their descriptions can be made for some parts of the watercourses. The Euphrates, having watered the Nahr Isa, Nahr Sarsar, and the Nahr Malik, reached the Nahr Kutha (Nahr Kūtā) three parasangs (leagues) below the Nahr Malik. This canal, with many branches, including one that flowed to Qasr Ibn Hubaira,<sup>26</sup> watered the district of Kutha, within the province of Ardashir Babakan, and part of the district of Nahr Jaubar (which I assume to be near the Tigris), then emptied into the Tigris ten parasangs below Madain (Ctesiphon). Ibn Haugal,<sup>27</sup> writing at about the same time, speaks of two Kuthas, Kutha Rabba, a city bigger than Babylon, and Kutha-at-Tariq, "Kutha of the Road." The former is undoubtedly old Kutha, since he speaks of great mounds of ashes made by the fire into which Nimrod threw Abraham. Kutha of the Road, apparently another town at the site of a bridge of boots,<sup>28</sup> on the Baghdad-Kufa highway, would seem to be somewhere in the region of modern Iskanderiyah, since the road ran, I think, through roughly that location.<sup>29</sup>

Six parasangs below the point of origin of the Nahr Kutha, the Euphrates was said to divide into two parts, the true Euphrates (Al-Qamy) going past Kufa and into the swamps. The other branch, actually a canal, but broader than the Euphrates, was called the Sūrā. The Upper Sūrā canal watered many towns and areas, and from it were many canals that led to the districts of Sūrā, Barbīsamā, and Bārūsmā. It passed within a mile of the town Qaşr Ibn Hubaira, and at this point there was a bridge, the Jisr Sūrā. A canal called the Abū Raḥā took off from the Sūrā one parasang above Qaşr Ibn Hubaira and rejoined it one parasang below the town.

The Upper Sūrā ran six parasangs below Qaṣr Ibn Hubaira, and at a bridge, the Qanṭara al-Qāmighān, it divided again, into the Lower Sūrā and the Great Ṣarāt. The Lower Sūrā flowed through the ruins of the city of Babylon, through Al-Jāmi'ān (the later Hilla), Ḥamdābād and Khuṭarnīya, Qussīn (modern Qasim?), to the district of Junbulā where it joined the Badāt canal and emptied into the marshes.

The Great Ṣarāt, which concerns us directly, flowed near Al-'Aqr, "The Palace," and by many villages and estates. After passing Ṣābarnīthā, canals branched off to water the area west (i.e., southwest) of the canal. It passed by the city of Nīl and from that point took the name Shaṭṭ an-Nīl.<sup>30</sup> The canal next flowed to a place called Al-Hūl, near Nu'māniyya on the Tigris, but the bulk of the stream was turned south into the Nahr Sābus.<sup>31</sup> Given the fact that we can show the origin of the Abbasid Shatt an-Nīl (Ṣarāt) just above Babylon (Fig. 19), in the area of modern Khatuniya, the following reconstruction may be suggested. The bridge, Qāmighān, more exactly a barrage or weir since the water is said to go through it in a great rush,<sup>32</sup> must be placed at this point, at Khatuniya. The city of Sūrā seems to have been very near, along the river.<sup>33</sup> Working upstream, and taking a parasang as roughly the equivalent of three miles or five km.,<sup>34</sup> Qaṣr Ibn Hubarra would be somewhere in the area of modern Mussayib/Hindiyah Barrage.<sup>35</sup> The point of origin of the Nahr Kutha would be in the area of Sippar, perhaps the Nahr Abū Dibbis marked on Kiepert's map.<sup>36</sup>

The course of the Great Ṣarāt (Shaṭṭ an-Nīl), running from the area of Khatuniya (Fig. 19), passes the ruins of Nebuchadnezzar's summer palace (No. 127). This ruin was still in very good condition in the early nineteenth century, and is most probably the "Palace" (Al-'Aqr) referred to as on this line. The city of Ṣābarnīthā may be identical with Abū Sudaira (No. 47). It is the first sizable city on the Nil, and is mentioned by Ibn Serapion as above the city An-Nawā'īr, which we suggest was Abū Haṭab (No. 162).

From the surface survey, it is obvious that the Late Abbasid Period was a time of great revival for the Kish area. The number and size of settlements approached the Sassanian high (Table 2). The large number of sites that show sherds terminating with the Late Abbasid Period may reflect the Mongol invasion. However, as stated previously, much of this decline must have preceded the coming of the Mongols (A.D. 1258). Only 35 per cent of the sites survived into the Ilkhanid Period (Table 3), but it is clear that the major sites, Niliyah, Kutha, Abū Haṭab and Abū Sudaira not only survived the Mongol conquest, but even flourished for a time thereafter (Fig. 20). Even on small sites, the quality and quantity of sherds of this period show that the area was prosperous.

Though the transverse canals to the north seem to have silted up by about A.D. 1345, such a process was markedly slower in the Kish area. Niliyah seems not to have survived long after this point, but the small settlements along the Khait Zbar show much Post Ilkhanid material. Abū Haṭab (No. 162) and Abū Sudaira also seem to have been abandoned shortly after A.D.  $1350^{37}$  but the towns farther upstream, such as Nos. 139-44, lasted much longer.

The Ottoman pashas attempted to revive the area, as is evidenced by the work of Daoud Pasha (1817) in creating a new canal from Khatuniyah.<sup>38</sup> A canal under the name of Effendiyah, was in existence in this location in 1859 (Fig. 21). At the same time, cultivation was being carried out along the Mahawil canal, along the ancient Nil though the supply of water was unpredictable, and along the course of the ancient Kish canal.<sup>39</sup>

Sarre and Herzfeld in 1909 (Fig. 22) mapped a new line from the Hilla Branch to Kish, that had a course different from the nineteenth century canals. It ran from near the village of Khatuniyah into the area of our Nos. 139, 140, etc. This canal, called the Shakha, was replaced by the New Shakha after 1917.<sup>40</sup>

Viewing the area as a whole through time, one can see clearly a steady development



Table 4. Kish Area Major Courses (Figures on left are percentages of sites.)

in the number and size of settlements, with a slight decrease in the Akkadian and Kassite/Middle Babylonian Periods, building to a very great increase in the Achaemenid/Seleucid Periods (Table 3). The relatively unspectacular development in the number of Neo-Babylonian sites must be balanced by the great increase in the size of the major cities, outside our area as well as in it. The great peak of urbanization in the Parthian, Sassanian and Early Islamic Periods (Table 3) was to be expected, since we have evidence of just such a development in the Diyala region.<sup>41</sup> The slow decline of settlement witnessed in the post-Sassanian periods in the Diyala is not closely paralleled in the Kish area, however. Though there seems to have been a temporary decline in the Samarran Period, probably due to the inadequacy of the first version of the Shatt an-Nil and the relocation of the canal to the south (or perhaps the result of incorrect sherd-typing), the Shatt an-Nil sustained a high level of cultivation and settlement through the Late Abbasid Period.

The shifting of settlement and cultivation among the various branches of the Euphrates in the Kish area is fairly clear. In the accompanying table (Table 4), four branches have been distinguished, the Kish, Kutha, Jemdet Nasr/Qartiyah, and Babylon/Nil. Due to the reorientation of the Kish canal in the Neo-Babylonian Period, the sites from Kish downstream (Nos. 46, 148, 150, 155, 156, 160) have been included for the late periods in the Babylon branch, i.e., they were from that period dependent upon it. The sites upstream that had been on the Kish branch, Nos. 23 - 32, 38, 39, have been included with the Kutha canal from the Neo-Babylonian Period on.

That the Kish channel, in pre-first-millennium texts called the Euphrates, was the dominant branch of the river in early times is obvious, especially in the Early Dynastic Period. Even before the reorientation around 1000 B.C., however, that channel had begun to decline. The Babylon and Kutha branches were becoming more important. Our graph shows these two channels as about equally settled in the Neo-Babylonain Period, but perhaps the Babylon branch, then called the Euphrates, would show more sites if the mounds north of Babylon had not been denuded of sherds by modern souvenir hunters.

The Kutha channel reached a peak in the Achaemenid/Seleucid Period in the number of sites, but its true zenith was in the Sassanian era, with an incredible density of population implied by miles of virtually continuous settlement along the canal banks. The shift of emphasis back to the Babylon (Hilla) branch for most of the Islamic Period is a dramatic one. The entire Kish area was dependent on the Babylon (Hilla) line, with the exception of the northern fringe that was fed by the Kutha canal, and the eastern areas, apparently still receiving some water from the Tigris via the Khait Qartiyah and Khait Zbar, etc.

The Shatt an-Nil, cutting across all former canals, brought a definite end to the pattern by which the major cities of ancient Mesopotamia, Nippur, Uruk, etc., were supplied with water from a channel that originated at Sippar. From this time, the areas to the south seem to have received their water from canals that were derived from the Hilla branch at different locations. The Nahr Qudis, apparently the Nahr an-Nars,<sup>4 2</sup> originated in the area south of Hilla, curved across into the southern fringe of our survey

area (Figs. 5,23), and turned south towards Nippur, etc. This canal may be older, of course, and may have been designed to connect with the Nahr Kutha in Neo-Babylonian times, as I have assumed the Kish canal did.

# The City of Kish

Having set out the main lines of canals and settlement in the Kish area in general, we now turn to the city of Kish itself.

The twenty = odd mounds that make up the site we know as Kish were defined as units and in the case of the larger mounds, subdivided. Where dumps from old excavations could be identified with a given mound, they were also collected. The sherds for Mound A (No. 2), for example, were in great part from its dumps.

The contour maps we have for the site, from Genouillac and Mackay (Figs. 38, 45) were used initially in the survey. Air photos of the area that included the city were on such a scale that though they could supply information on the shapes and sizes of the mounds, canals cutting through them, etc., they were very difficult to use. I had at my disposal, however, a mosaic made by the RAF in 1929 (Fig. 24) at a much lower level. By rephotographing this picture and enlarging the various parts of it, I was able to discriminate between most of the Islamic canals shown cutting north and south through the site. I was also better able to determine the main outlines of individual mounds. A map was made from the air photo (Fig. 25) and used as the basis for the survey of the city.

The earliest sherds found by  $survey^{43}$  at Kish/Hursagkalama were late Protoliterate (Feg. 26a). It is important to note that there were two distinct areas of settlement, no more than small villages or hamlets, two kilometers apart. The canal line, as in all the maps to follow, is reconstructed from the general trend of the mounds as they fit into the area as a whole.

The spread of Early Dynastic I material (Fig. 26b) shows that Kish and Hursagkalama were already established as large towns, reconstructed as upon both banks of the stream. The city continued to grow (Fig. 27a) to its greatest extent in the ED III period. Whether either or both of the two parts of the combined city were walled, cannot be determined. There is no reason to suppose that the eastern mounds were not a continuous settlement, i.e., there was solid occupation between the principal mounds. The canal, or more exactly, the river, is reconstructed as having flowed roughly from northwest to southeast, but a branch (later Me-dEn-lil-la) may have cut south through the two complexes. Such reconstructions of canals are conjectural and can be proven only with excavation or investigations with an auger. The general impression of the city of Kish at this crucial period is one in which the eastern part may have covered a larger area, while the western half was more compact.

With the Akkadian Period (Fig. 27b), Kish went into a great decline, expecially in the eastern half, as evidenced by the relative paucity of Akkadian sherds.

The city seems to have revived in the Ur III/Isin-Larsa Period (Fig. 28a), doubtless as a reflection of and perhaps a contributor to the rise of the autonomous kingdom of Kish in the last years of the era.

The Old Babylonian Period (Fig. 28b) witnessed a slight diminution in size, but the sherds of this period were especially numerous, composing with the Ur III/Isin-Larsa material the majority of sherds found. As we shall see in Chapter IV, this development in Old Babylonian times was strongly evidenced in the excavations at Kish.

Like the rest of the Kish area, the city had another decline in the Kassite Period (Fig. 29a), with the main mound of Ingharra almost abandoned, although Mound W (No. 13) was fairly extensively occupied.

The Neo-Babylonian revival of the city is evident in the map (Fig. 29b). Ingharra (No. 1) was re-occupied, Mound W (No. 13) expanded, and a "city wall" and fortress (No. 21) were built at Uhaimir. The reorientation of the canal from its previous north-south direction to originate from near Babylon is perhaps substantiated by a new settlement at No. 25, Ishān al-Khazna. I personally doubt Reitlinger's Neo-Babylonian dating of the building found under Islamic levels in this mound.<sup>44</sup> I have found no sherds of Neo-Babylonian date here. The Muslims tended to settle on totally new places whenever possible. There are very few sites with both pre-Islamic and Islamic sherds on them. One cannot say exactly why the Muslims tended to avoid older sites, but the destruction of much of the Kish region at the end of the Sassanian Period through floods and the totally new direction taken by the Islamic canals must have been a factor. There does, however, seem to be an exception to this general tendency in the small sites north and west of Kish (e.g., Nos. 32, 38, etc.). This area seems to have been a swamp for hundreds of years. The Islamic settlers would have sought the higher ground and thus would have occupied mounds.

With the Achaemenid/Seleucid Periods (Fig. 30a), the city underwent a marked change, showing much smaller areas of occupation along the canal. At Ingharra, the settlement was little more than a village. At Uhaimir, the pattern of settlement leads me to conclude that most of the city was abandoned, with a small remnant on the northern edge fed by a branch canal.

The Parthian settlement (Fig. 30b) was surprisingly large, but must be viewed along with the great development of sites along the Babylon branch of the Euphrates. Again, the settlement pattern seems to be diffuse, with small clusters of houses along the canal. The sherds at Uhaimir were scattered over a large area, but were not very numerous. The size given for Nos. 22 and 23 are, I think, exaggerated and do not indicate real settlement but more probably graves. No. 21, the Neo-Babylonian fortress, was probably not reoccupied, but only used as the foundation for houses. No. 20 was a small cluster of buildings atop, and not integrated into, the ridge Langdon called a Neo-Babylonian "city wall." At Ingharra, there was a sizable town dominated by a mud brick fortress (No. 8). The curious U-shaped (No. 3) construction to the south of the old mounds seems to have been more than a private house.

The Sassanian material at Kish/Hursagkalama shows the total abandonment of the old areas (Fig. 31a). The pattern is one we have seen in the Kutha Canal area in Sassanian times, i.e., related settlements strung out along both sides of the canal. The heaviest concentration of occupation was to the east, Nos. 4-6, the Sassanian Palace area.

The canal line marking the Early Islamic Shatt an-Nil/Ṣarāt is clearly visible (Fig. 31b). The main Sassanian settlement areas were avoided in this period. Ishan al-Khazna (No. 25) was founded and the site of the Neo-Babylonian fort (No. 21) occupied lightly.

The recutting of the Shatt an-Nil in the Samarran Period (Fig. 32a) seems to have caused the relocation of the settlements at Kish. Only a small, but relatively rich, town remained in the old location (No. 14) along a branch canal. Another small canal supplied Ishān al-Khazna (No. 25). These two villages show much fine glazed ware. Three to five meters of accumulation indicate they were occupied for a long time.

The Late Abbasid settlement in the immediate area of the old city was limited to two small mounds (Fig. 32b). The numerous re-cuttings of canals throughout the area attest to long-term occupation north of the city, as well as possible trouble, necessitating the reexcavation of the canal beds due to silting, etc.

The Ilkhanid and Post-Ilkhanid settlement (Fig. 33) in the immediate area is limited to a small, late (probably nineteenth century, Ottoman) village (No. 17). The makeshift, irregular canal lines from the Shatt an-Nil show a lack of direction and planning, probably the work of local people adapting old canal beds wherever possible to keep water flowing.

In the following chapter, we shall see how excavations substantiate and add to the information gained from surface indications.

# **CHAPTER III - Footnotes**

- See Figs. 16 22, which show the existence of a canal in this area as early as the Sassanian Period. European travelers mention a Mahawil Canal from at least 1766. C. Niebuhr, *Reisebeschreibung*, II, 292, gives it as M'havie, while his map has Mohauie. Beauchamp, "Voyage," p. 287, who saw the canal in 1785, gives it as "Moliavil" and says this is the name of a Caliph.
- 2. C. J. Rich, *Narrative* ..., p. 5, and H. Rassam, *Asshur*, p. 343, mention the flood water lying in the area north of Hilla.
- 3. P. Buringh and C. H. Edelman, "Some Remarks about the Soils of the Alluvial Plain of Iraq, South of Baghdad," *Netherlands Journal of Agricultural Science*, III, No. 1, 41ff., esp. Figs. 1 and 2. In Fig. 1, the indicated position of "5, Euphrates Levee and Basin Soils" is exactly along the line from our No. 28 and No. 37.
- 4. Adams, *Land behind Baghdad*, pp. 45ff., notes a similar drop in the number of Akkadian settlements in the Diyala, but also observes that some new sites were founded. He also sees a sizable rate of abandonment or diminution of larger towns at the end of the period, due to the Gutian invasion. The Diyala would have been much more affected by the Gutians since it bordered on the mountain area.
- 5. *Ibid.*, pp. 53ff. Again the abandonment was on a more pronounced scale than is evidenced in the Kish area.
- 6. The text in question, VAB, IV, 166: 60ff., relates: "In the outskirts of Babylon, I caused to be heaped up a construction (*šipik aštappakma*) from the procession street (mašdahu) of the Euphrates bank to Kish, 4 2/3 double hours being the distance, and made a great water surround the city." VAB, IV, 133: 39ff., gives the purpose of the lake as a defense against enemies and tells of facing the dike with baked bricks. On this problem, see E. Meyer, "Untersuchungen über die älteste Geschichte Babyloniens und über Nebukadnezars Befestigungsanlagen," Sitzungsberichte der königlichen Preussischen Akademie der Wissenschaften, 1912, pp. 1062ff., esp. pp. 1101ff. See also E. Unger, "Zur Topographie von Babylon nach der keilinschriftlichen Überlieferung," WVDOG, XLVIII (Leipzig, 1930), 84-109; and O. E. Ravn, Herodotus' Description of Babylon (Copenhagen: A. Busch, 1942), pp. 38ff.
- This ridge may be the "Sassanian" wall that Watelin noticed running from Kish to Babylon. See S. Langdon and D. B. Harden, "Field Museum-Oxford University Joint Expedition to Mesopotamia: Excavations at Kish and Barghuthiat, 1933," *Iraq*, 1 (1934), 122.
- 8. We have several references in classical sources to the offensive or defensive tactic of breaking dikes and flooding the land, either to deprive a city of water or to protect

against attack, e.g., Herodotus *Histories* i. 191; Xenophon, *Cyropaedia* vii. 5. 15; Ammianus Marcellinus *Julianus* xxiv. 3. 10. There are Islamic references of the same type, and travel accounts of the nineteenth century often mention the cutting of canals to create marshes whenever the Turks tried to collect taxes, e.g., W. K. Loftus, *Travels*, p. 10. During the insurrection of 1919-20, the Arabs seized Hindiyah Barrage and the British could not reassert control until they had retaken it; see Great Britain, Naval Intelligence Division, *Iraq and the Persian Gulf*, p.291.

- 9. TCL, XIII, 11: 6-7.
- 10. See Unger, "Zur Topographie von Babylon," for a discussion of the archaeological and philological evidence, including *Nbn.*, 116:8.
- 11. There are very few references to Banitu(m). The canal originated in Babylon (Nbn., 116:8). Banitu(m) seems to lie somewhere in the area of Marad and Nippur. Sennacherib mentions' it as one of many towns including Guzummanu and Marad that he conquered OIP, II, 25. This is an account of the attempt by Merodachbaladan to overthrow Assyrian rule with the help of the Elamites. Sennacherib came down the Tigris, and from a base at Kutha, captured that city and went on to defeat the Babylonians in the plain of Kish. The Babylonian king fled into the swamps, apparently in the south. The location of Banitu near Nippur is shown in a letter from an official in Nippur to Esarhaddon saying: "The king your father gave us water from Banitu, saying 'dig an outlet (*šilihtu*) (from) Banitu to Nippur'... now let the king write to Ubar, the Governor of Babylon, and let him give us an outlet of the Banitu canal," ABL, 327.
- 12. An air photograph mosaic of Babylon, published in *WVDOG*, XLVIII, Tf. 81, allowed me to begin the untangling of canals of the Islamic period that ran along the eastern side of the city.
- 13. In December, 1925, Mackay had a large aerial mosaic of Kish; this was made at his request by the Royal Air Force, Hinaidi. In 1950, I requested the Air Vice Marshall to guide us from the air to several large archaeological sites east and northeast of Kish (Tell Barghuthiat the "Mound of the Flea"). (H.F.).
- 14. Compare the plan of the fortress, WVDOG, LXII, Tf. 13, with the inner Parthian fortress at Nippur in H. Hilprecht, *Explorations in Bible Lands* (Philadelphia: A. J. Holman, 1903), p. 559. The rounded corner towers, small round or square towers on the walls, and the presence of Parthian tombs built into the walls are shared by both structures.
- 15. Hieronymus ad Jesaiam xii. 5. 20-22, as cited in WVDOG, LXII, 74.
- 16. There is some information from the Talmud, Byzantine sources and Syrian accounts

of bishoprics, etc. Much of the information also covers the Parthian Period; e.g., A. Berliner, *Beiträge zur Geographie und Ethnographie Babyloniens im Talmud und Midrasch* ("Jahres-Bericht des Rabbiner-Seminars zu Berlin," 1882-1883; Berlin; M. Dreisner, 1883); J. Obermeyer, *Die Landschaft Babylonien* ("Schriften der Gesellschaft zur Förderung der Wissenschaft des Judentums," Vol. XXX; Frankfurt: I. Kauffmann, 1929), esp. pp. 273-311, including Sūrā, Kutha, Babylon.

- 17. Some information can be gleaned from accounts of the Arab conquest, e.g., Tabari, but the mentions of cities such as Kutha and Sābāt are made only incidentally. A list of the Arabic sources is to be found in M. Streck, *Die alte Landschaft Babylonien* (Leiden: Brill, 1900), pp. xi-xiii, along with other pertinent material. Le Strange, *The Lands of the Eastern Caliphate*, pp. 11ff., discusses the sources. See also, M. J. de Goeje, "Zur historischen Geographie Babyloniens," *ZDMG*, XXXIX (1885), 1-16, comparing Arabic, Talmudic and Syriac sources.
- 18. See Streck, Die alte Landschaft Babylonien, pp. 14ff.
- 19. The relationship between the Sassanians and the Lakhmid rulers of the area west of the Euphrates must also be taken into account. S. Smith, "Events in Arabia in the 6th Century A.D.," *BSOAS*, XVI, No. 3 (1954), 425-67, covers this subject to some extent.
- 20. Hitti, *Origins*, pp. 419, 421ff., gives details on the capture of various towns including Sābāt. In most cases, tribute was paid and the lives of the inhabitants spared.
- 21. Al-Baladhuri (ninth century A.D.), reports that in the time of Kavadh I (A.D. 499-531), the waters rose in the Kaskar channel and flooded the south, causing swamps. Later, under Chosroes II Parvez (A.D. 590-628), specifically the 6th-7th year A. H. (A.D. 628-29), the Euphrates and Tigris rose as never before, made very large breaches in the dikes, and "... overflowed the buildings and plants, drowning many cantons that were there." Chosroes rode out to block the breaches, but to no avail. See P. K. Hitti, Origins, pp. 453-54. Ibn Khordādhbeh gives the same version of the creation of the swamps, see M. J. de Goeje, ed. Bibliotheca Geographorum Arabicorum, VI, 181ff.
- 22. The translation is not clear. The original text may in fact ascribe a flood to the time of al-Hajjaj. The passage, *ibid.*, pp. 182-83, discusses the origin of the two canals as-Sib, apparently meaning the Shatt an-Nil. Al-Baladhuri, however, distinguished between the Shatt an-Nil and the Nahr az-Zābi (Hitti, *The Origins of the Islamic State*, p. 450), "... he (al-Hajjaj) dug out an-Nil and az-Zābi canals. The latter was so called because it branches off from the old Zābi. He thus reclaimed the land around these two canals and erected the city called an-Nil and populated it." Ibn Serapion, writing at the same time, described the Nahr Sābus as a canal originating from the an-Nil and flowing past the town of Nahr Sābus to the Tigris, see Le Strange "Ibn Serapion," pp. 257, 261. In his day, there was a town called Sīb

somewhere close to Madain (Ctesiphon), and another town called Nahr Sabus, mentioned by Yaqut as the most important city of the region on the lower Zāb canal (ibid., p. 43, n. 9). The mound known as Iskhuriyah seems to be the town of Nahr Sābus. F. Sarre and P. T. Herzfeld, Archäologische Reise im Euphrat- und Tigris-Gebiet, II (Berlin: D. Riemer, 1911), 237, identified the canal branching off the Shatt an-Nil (and running through Iskhuriyah) as the Nahr Sābus. Obviously there is a great deal of confusion in the Arab sources and information based on earlier geographers rather than direct observation. I am not qualified to discuss the Arab sources. I would, however, suggest that the existence of a Sassanian city called Sābāt, lying on a water course (it has a bridge) somewhere close to Ctesiphon (Hitti, Origins, pp. 417, 419; T. Nöldeke, Geschichte der Perser und Araber zur Zeit der Sasaniden [Leiden: Brill, 1879], pp. 134, 267, 331), must be connected with all these problems. I would further suggest from air photo examination that there was a Sassanian canal from the Tigris, running east of the Khait Qartiyah, and emptying into the Tigris somewhere in the area of the town Nahr Sabus and called the Nahr Sābus, or Zābi. The fact that the eastern Sassanian canals seem to have survived the Sassanian Period and to have been incorporated into the Islamic transverse canal system, would explain the confusion of the names Nil and Zābi. The mention of an older Zābi canal by Baladhuri, from which the Islamic Zābi branched off, lends weight to this suggestion. The most likely candidate for the Sassanian  $Z\bar{a}bi$  canal would be the Habl ad-Dirib, shown as connecting with the canal through Tell Iskhuriyah (= the town of Nahr Sābus) on Kiepert's map (H. Kiepert, "Karte"). The British 1/4" map (1917) gives this line as the Khait al-Jabāb. The Zābi/Sābus must also be examined as a late version of the Babylonian Zubi canal (see Ch. I).

- 23. As reported by Arab geographers. See Le Strange, *Lands*, pp. 68ff. See also Adams, *Land behind Baghdad*, p. 82, for the effect of the floods, the change in the Tigris, and possibly connected tectonic movements in the Diyala.
- 24. Le Strange, "Ibn Serapion," p. 256.
- 25. As is recorded by Ibn Serapion, ibid., p. 70.
- 26. Mentioned by Iştakhri, *Masālik el-mamālik;* as cited by de Goeje, *ZDMG*, XXXIX, p. 6, n. 4.
- 27. As quoted in Le Strange, "Ibn Serapion," p. 75, n. 6.
- 28. This bridge is mentioned as being on the Baghdad-Kufa road by Ibn Rusta, *Kitāb* al-a'lāq an-nafīsa, cited in Le Strange, *ibid.*, p. 75, n. 6; see also the description of Ibn Serapion, *ibid.*
- 29. We assume that the older route was not much different from that used in the Ottoman Period, from Baghdad through Khiaya Khan, Khan Azad, Khan Bir-nus, Khan Iskanderiyah, etc. The route turned toward the Euphrates (Mussayib), crossed the river, and followed it to Kufa. With the development of Hilla into a major

provincial town, about A.D. 1100, and the deterioration of Kufa, an alternate route seems to have been established through Hilla. I reconstruct the routes mainly on the basis of European travelers' accounts.

- 30. See Le Strange, "Ibn Serapion," pp. 260-61, nn. 6-7, for the variations in the name of the canal (Nil, Sib, Zab, etc.).
- 31. Sarre and Herzfeld, Reise, II, 236ff., giving much detail on the eastern end of the Shatt an-Nil.
- 32. Le Strange, "Ibn Serapion," p. 256.
- 33. *Ibid.*, pp. 283-84, placed the city of Sūrā in the vicinity of Khatuniyah (though he did not use the name of the village), near the Euphrates. The rise he identifies as the site of the city does not seem to me to be a likely candidate, but the city was certainly north of the Ṣarāt (Nīl) and near the Euphrates (Upper Sūrā). The location of a major weir, and the division of the river into Upper and Lower Sūrā at this point argue for the identification.
- 34. Streck, *Alte Landschaft*, pp. 7ff., gives a list of various postal routes, itineraries, etc., in use during the Islamic period. Taking the distances between such known points as Baghdad and Anbar or Madāin (Seleucia/Ctesiphon), the equivalence of three miles to one parasang seems to work out rather well. Cf. Obermeyer, *Landschaft*, p. 284, where seven Arab miles are taken to equal twelve km., i.e., about the same as for seven English statute miles.
- 35. Cf. *ibid.*, p. 284, where Qaşr Ibn-Hubaira is identified with Tell al-Kreni (No. 122), just north of Khatuniyah. The absence of Islamic sherds on this mound indicates this identification cannot hold. Besides, as given by Ibn Serapion, this place was six parasangs upstream from the point at which the Ṣarāt originated.
- 36. Streck, Alte Landschaft, pp. 7-8.
- 37. For the abandonment of Abū Sudaira, see R. Burn, "Coins of the Ilkhanis of Persia," JRAS, 1933, pp. 830ff., in which the latest coin is shown to be from about A.D. 1350.
- 38. See K. Porter, *Travels*, map opposite p. 379, "Pasha's new canal." This map is based on a visit in 1818. R. Mignan, *Travels in Chaldaea*, map opposite p. 234, dating from 1829, shows "Daoud Pasha's canal unfinished."
- 39. As indicated on Selby's map, "Memoir on the Ruins of Babylon," Selections from the Records of the Bombay Government, Vol. LI, new series (1859), adapted for our Figure 21.
- 40. The British army 1/4" map, 1917, shows the same system as Sarre and Herzfeld.

- 41. See Adams, Land behind Baghdad, pp. 69ff.
- 42. Yaqūt ascribes the digging of the Nahr an-Nars to Narses, an early Sassanian king (292 A.D.), and says it left the Euphrates at a point equidistant between Qasr ibn Hubaira (north of Babylon) and Kufa, i.e., somewhere near Hilla. See Le Strange, "Ibn Serapion," p. 260, n. 5, for discussion. The Nar an-Nars also was said to flow by Nippur, though Yaqūt wrote in the thirteenth century, sometime after Nippur was deserted.
- 43. Ubaid sherds were found in excavations by the Kish Expedition at Uhaimir and Ingharra. See XK, I, pp. 67f., for the Uhaimir examples. Ingharra sherds are mentioned only in letters from Watelin to Langdon, e.g. January 2, 1929.
- 44. Gerald Reitlinger, "Islamic Pottery from Kish," Ars Islamica, II (1935), 200.

# IV. THE CITY OF KISH: ARCHAEOLOGICAL EVIDENCE

#### Early Exploration

The history of exploration at Kish/Hursagkalama is entangled with that of the city of Babylon. In the early 1800's, Rich, Rennel and others<sup>1</sup> proposed that Uhaimir and its accompanying mounds were a fortress marking the eastern corner of Babylon, as reconstructed from the exaggerated estimates of Herodotus. There is some doubt whether Rich ever visited the mounds of Kish/Hursagkalama, or only observed the ziggurat, Uhaimir, from a distance.<sup>2</sup>

According to J. S. Buckingham, who made the first recorded visit to Uhaimir with Mr. Bellino, Rich's secretary, in July, 1816, Dr. Hines and Captain Lockett of the British Residency were the first Europeans to examine the site.<sup>3</sup> Buckingham described the Islamic canals between Babylon and Kish as streets of the former city. Uhaimir was "... a high mound of loose rubbish . . . (a) pyramidal cone, the outline of which nearly formed an equilateral triangle, and its summit seemed to be crowned by a long and low piece of thick wall, rather like the battlements of a small fortress."<sup>4</sup> The structure on top was about thirty feet in length by twelve or fifteen in thickness. The bricks were reddish yellow and had "cement" of the same color. Buckingham noticed the white layers of decayed reeds between every fifteen or twenty courses and identified them correctly as vegetable matter. The mounds to the east, i.e., Ingharra, etc., were noticed, but not visited.<sup>5</sup>

In November, 1818, Robert Ker Porter and Mr. Bellino visited and made extensive notes on the city. Porter mentioned baked bricks measuring fourteen by twelve and three-fourths by two and one-half inches found at the base of the ziggurat, and stamped bricks (of Adad-apla-iddina and Nebuchadnezzar). Ingharra and Tell Bandar were also visited and described, but their names were not given.<sup>6</sup> Porter saw that Uhaimir was not part of Babylon.<sup>7</sup>

Robert Mignan visited Uhaimir in December of 1827, gave a detailed account of the construction of the ziggurat, noticed the eastern mounds, but did not examine them.<sup>8</sup>

Shortly thereafter, in 1830, a Lieutenant Ormsby, while surveying the Euphrates River for the British, made a short excursion to "El Hamra." He described it as seventy feet high, 300 yards long and part of the outer wall of Babylon.<sup>9</sup>

In December, 1834, James Baillie Fraser visited Uhaimir, described its construction, and decided it was not part of the Babylon wall.<sup>10</sup> He then traveled eastward, along the Shatt an-Nil, seeing four large mounds and many canals.<sup>11</sup>

The site was briefly investigated by Layard in December, 1850, and described thus:

The ruin has assumed a pyramidal form, but it is evidently the remains of a solid square structure, consisting, like the Birs Nimroud, of a series of terraces or platforms.... The basement of the substructure appears to have been of

sundried brick; the upper part, and probably the casing of the lower, of bricks burnt in the kiln. Many of the latter are inscribed with the name and titles of Nebuchadnezzar.... The same tenacious mud that was used for making the bricks has been daubed... between each layer. The ruin is traversed like the Birs by square holes to admit air.<sup>12</sup>

The French expedition of Fresnel, Thomas and Oppert to Babylon in the early 1850's made the first excavations at Kish/Hursagkalama.<sup>13</sup> In October, 1852, Fresnel and Oppert made trenches in Ishān al-Khazna, where fragments of inscribed black stone were noticed.<sup>14</sup> Finding little at this mound, they sounded Uhaimir, found only bricks, including some of Nebuchadnezzar, and moved on to Tell Bandar, "The Harbor." At this last site (our No. 8), much material was discovered, including a fragment of stone with an "archaic" inscription. It is not clear from Opper's report whether his excavations at Bandar included the mound we know as Ingharra.<sup>15</sup> No name was given for Ingharra, nor for any of the mounds between Uhaimir and Bandar, though the high mound we know as Mound I (No. 14) was mentioned.<sup>16</sup> The city as a whole was identified by Oppert as Kutha, despite the previous publication by Ker Porter of an Adad-apla-iddina brick indentifying Uhaimir as Kish.<sup>17</sup>

Between 1852 and the Genouillac expedition of 1912, Uhaimir was visited several times and even partially excavated.<sup>18</sup> John Ussher in the early 1860's made a special point of examining "... the remarkable ruin called al-Hymer (where) some recent excavations seem to have been made, one as we were informed, by a Frenchman, whose name was not mentioned."<sup>19</sup>

George Smith found a fragment of inscribed alabaster at "Hymer" in March, 1872, then went on to Kutha (Tell Ibrahim).<sup>20</sup>

During the years 1879-80, Daoud Thoma, a Christian from Baghdad, dug for some months at Uhaimir and Ingharra for Hormuzd Rassam.<sup>21</sup> Apparently little of value was found in these operations, since Rassam made no mention of them in his publication.<sup>22</sup>

The William Hayes Ward Expedition of 1885 visited the city and mentioned several of the mounds by name. Tel-el-Huzrieh or Shan-el-Husrieh, "Glory of the Treasure," Ohemir, Tel Hudhr, Tel Bender, and En 'Urrah were visited.<sup>23</sup> Tel Hudhr is identifiable as Mound I (No. 14). En 'Urrah is the mound we know as Ingharra, and this is the earliest recorded mention of the name.<sup>24</sup> Ward noted the trenches made by Daoud Thoma at Tel-el-Huzrieh and Bandar (perhaps actually the cuts of Oppert), and said that Thoma worked for a year "... with twenty men" at Ingharra.

There seems to have been a general decline of interest in Uhaimir in the latter part of the nineteenth century, probably because it was accepted by then that it was not part of Babylon. The Germans at Babylon visited the site, but confined their work to Babylon proper.

Sarre and Herzfeld passed by the city, but did not examine the ruins, in 1908.<sup>25</sup>

#### Genouillac, 1912

Henri de Genouillac, with an architect, Raoul Drouin, arrived at Kish/Hursagkalama to begin excavation on January 23, 1912.<sup>26</sup> Actual digging began on the twenty-eighth with eighty men, soon increased to 180. Work continued until the end of April. The greatest part of the excavation was carried out in the tell called El Qaşr, i.e., Ingharra, by Genouillac. Investigations were made also of the Uhaimir ziggurat, in the temple at its foot, and in the town area west of the ziggurat (Fig. 38). Some pits were sunk into Mound I (No. 14), where the camp was located. Tell Bandar was also sounded. The findings of the expedition were, briefly, as follows.

At the ziggurat, Uhaimir, which Genouillac orients incorrectly (Figs. 39-40), baked red bricks were found to be faced by unbaked bricks. All four sides were decorated with recesses and buttresses (Fig. 41). Curiously, Genouillac at no point gives any horizontal measurements for the ziggurat, nor any scale on his plans. The structure, surviving to 19.5 m. in height (apparently measured above plain level), had reed layers between each five courses. A trench in the "southeast" (actually east) corner, designed to discover foundation deposits, yielded none. A small chamber was found at the east corner and several Neo-Assyrian bullae were mixed in the debris.<sup>28</sup>

On the "south" (southeast) face of the ziggurat, a supporting wall of unbaked brick was uncovered. Several meters out from the "north" (northwest) face was found an unbaked brick retaining wall.<sup>29</sup>

Several rooms were explored in the enclosure wall at the foot of the ziggurat without success. In the middle of the courtyard of the temple on the "east" (northeast), a pit eight m. deep was made but no detailed information was given about it.<sup>30</sup>

To the west of the Uhaimir ziggurat, a sizable area of private houses of the Old Babylonian Period was exposed (see Fig. 39, shaded). Native diggers had recently explored here. Genouillac was of the opinion that the previously purchased Kish tablets must have come from these burrowings. The excavations in this area yielded over 1,400 tablets and fragments, now in Istanbul and the Louvre. Among these were "numerous" tablets from one set of rooms, apparently a scribal school, near the ziggurat.<sup>31</sup> From the pottery and other objects said to be from the town, it is clear that Genouillac found not only an Old Babylonian occupation, but also Neo-Babylonian and Achaemenid remains.<sup>32</sup>

Though several pits were sunk into the "Tell du Campement" (Tell Hudhr, Mound I, No. 14), little seems to have come from there. Among other articles were two glass bottles, probably Parthian in date, and a Hammurabi brick.<sup>3 3</sup>

At Ingharra, Genouillac exposed the walls of the smaller temple (Figs. 42-43). Several of the rooms were completely emptied. The unmortared bricks lining the walls were taken to be a strange sort of decoration. Outside the eastern corner, Genouillac found a chamber paved with plano-convex bricks ("bombées et faites à la main comme celles d'Eannatoum").<sup>34</sup> Besides the temple ("Palace") itself, Genouillac investigated other areas of Ingharra, including the U-shaped building south of the temple (my No. 3),

and the northern and eastern slopes of the mound (Fig. 42). The remains of an unbaked brick platform were found (probably on the eastern slopes), as well as several rooms paved with plano-convex bricks, and a small smithy.<sup>35</sup> The exact location of this forge is not indicated.

At Ingharra, graves were found inside houses no more than one meter below the surface, i.e., above the level of the Neo-Babylonian temple. The coffins were of baked clay and were ovoid in shape. Inside, the corpse was placed with jewelry, tools, etc. Outside the coffin were pots, including glazed lamps. The coffins were sealed with unbaked brick and overturned, so that the openings faced the ground.<sup>36</sup> Coffins of like shape, but buried upright, and covered with either palmwood or unbaked bricks, date from Assyrian to post-Achaemenid times at other sites.<sup>37</sup>

At Tell Bandar, Genouillac exposed parts of a fortress, the upper stage of which had vertical slots for decoration.<sup>38</sup> The lower stage and the platform were ornamented with pilasters and recesses. All walls were covered with a mortar coating. The corner towers were rounded. Genouillac thought the building consisted of two stages, the lower one being an inclined ramp (Fig. 44). The dating was given as Parthian.

Genouillac noticed a "city" northeast of Tell Bandar, probably referring to the plano-convex palace area (our No. 11).

Although Genouillac's account is regrettably imprecise, and almost no loci are given for any objects, in many conclusions that he drew, especially about pottery, he was very accurate.<sup>39</sup> His recognition of the great age of the temple area at Ingharra, as evidenced by the plano-convex bricks, and his findings at Uhaimir were confirmed by the work of the Field Museum-Oxford University Joint Expedition.

# The Field Museum–Oxford University Joint Expedition to Kish, Mesopotamia 1923-33

The Field Museum–Oxford University Expedition to Kish had its inception in a letter of December 20, 1921, from Stephen Langdon to Dr. Berthold Laufer, the then Curator of Anthropology at Field Museum, in which it was suggested that the museum join with Oxford in an expedition, perhaps to Warka.<sup>40</sup> Laufer replied affirmatively shortly after.<sup>41</sup> During the winter of 1921-22, Mr. H. Weld-Blundell, who was to bear the major portion of Oxford's financing of the expedition, went to Iraq and reported on several sites, including Babylon, Borsippa, Uhaimir, Kutha, Nippur, Warka, Larsa, and Aqar Quf, finding Kish the most advantageous.<sup>42</sup> Both Ernest Mackay and Louis Charles Watelin were considered to head the Expedition, and Mackay was chosen for his greater competence.<sup>43</sup> Official permission was granted by the Iraqi Department of Antiquities in October, 1922.<sup>44</sup>

As originally set up, the Expedition was to be equally financed and staffed, with archaeological specialists furnished by Oxford and anthropologists by Field Museum. After the division between the Iraq Museum and the Expedition, Oxford was to receive all inscribed objects. Field Museum was to receive all archaeological, skeletal, and related scientific objects. Each of the two museums was to be given a representative sample of the material not allotted to it for display purposes.<sup>45</sup>

The design of the Expedition was somewhat extraordinary. Langdon was the director, though he was only twice in the field. He was to direct the overall operation by letter and was to receive weekly reports and photographs from the field director, Mackay from 1923 to 1926, and Watelin from 1926 through 1933. This arrangement did not function at all well, and thus almost every statement made by Langdon in any of his many newspaper articles and books must be very carefully checked.

The expedition carried out eleven seasons of work,<sup>46</sup> all of which are listed with staff members and areas of excavation in Appendix III. In the Appendix, and in this chapter, where information given by me is at variance with that given in any published source, the correction has come from letters and reports in Field Museum or Oxford archives.<sup>47</sup>

Before going into the specific findings of the Expedition, it would seem advisable to discuss the extent to which those findings were published, and the reasons for the limitation. I have indicated the unfortunate administrative setup, with Langdon, the man ultimately responsible for publication, detached from the actual excavations. Langdon intended the Expedition to publish two series of archaeological reports on Kish. One, a more popular, preliminary account, was to be done by him at Oxford. The resulting books, *Excavations at Kish*, Volumes I, III, and IV,<sup>48</sup> give us indications of the extent of the work at the site, but are of limited value. The first volume is by far the best, reflecting Langdon's actual presence at Kish in the second season as well as the precision of Mackay. The last two volumes, written mainly by Watelin, give little verifiable architectural or startigraphic information, but are useful. Watelin brought to Kish the method of excavation employed at Susa<sup>49</sup> and thus his records tend to be rather impressionistic. However, though he knew little of Mesopotamian archaeology prior to his becoming field director in December, 1926, his letters and reports show that he developed a highly reliable feel for the pottery.

The second, scientific series of three volumes issued by Field Museum shows the competence of Mackay.<sup>50</sup> He made very detailed plans of everything he uncovered, produced thousands of pottery and object drawings and photographs, and very detailed typed object cards as well as architectural notes. To a great extent, these records were lost or inaccessible prior to the work of P. R. S. Moorey at the Ashmolean and my collecting of material at Field Museum. Appendix IV gives an account of the records extant from the Kish Expedition in Baghdad, the Ashmolean and Field Museum. Most of Mackay's plans for Uhaimir are still missing, but may be found eventually.

Mackay was replaced as field director in 1926 because Langdon had decided to discontinue the work for a year<sup>51</sup> due to his own ill health.<sup>52</sup> Mackay then accepted a position as excavator at Mohenjo-daro in the Indus Valley. Having thereafter decided to continue uninterrupted at Kish, Langdon hired Watelin.<sup>53</sup> Throughout Watelin's term of service, there was a threat of discontinuing the work and moving to Larsa,<sup>54</sup> as well as

mounting financial problems. A concerted plan of excavation could not be worked out under these circumstances. The result was an incomplete excavation of the Neo-Babylonian temple at Ingharra, a tantalizing, unfinished royal cemetery in the Y trench, and excursions to Umm al-Jir and Barghuthiat in an attempt to discover Akkad.

When lack of finances finally halted the Expedition in 1933, the records became scattered, part going to Langdon at Oxford, part to Field Museum. Watelin died off the coast of Chile, on his way to dig at Easter Island, in 1934. At Langdon's death in 1937, the records were even further scattered and, since everyone else formerly connected with the Expedition was otherwise employed, the Kish material found after 1925 was never properly published. No more than a fifth of the objects from Kish have been treated in any publication; treatment has been somewhat more adequate for the more than 2,000 tablets, most of which came from Mound W. However, it is virtually impossible to determine exactly where anything originated in Mound W when Langdon was in charge there, since he seems to have paid little attention to stratigraphy, and either kept no catalog of tablets, or such a catalog has not survived.<sup>55</sup>

In the following section on stratigraphy, I examine Uhaimir first, giving details of Mackey's trenches, and the strata implied by reports or objects. I then take each mound from west to east and end with a discussion of Ingharra (Fig. 45).

# Uhaimir (Mounds Z, T, X; Nos. 18-23)

The greatest part of Mackay's work at Uhaimir was centered upon the ziggurat proper (preserved to 16.40 m. above datum), its surrounding temenos and chambers, and the temple to the northeast. On the lower slopes of the mound east of the ziggurat, a large pit was sunk to virgin soil. On the western ridge of the lower mound, some private houses were uncovered. These were variously referred to as "town ruins". or "house ruins." The detached mound, X (my No. 21), was excavated and found to be a small fortress.

A comparison of the plans of the ziggurat, Unirkitushmah, given by Genouillac and Mackay (Figs. 40, 46) shows immediate differences. However, a comparison of Genouillac's detail of the niching and recessing (Fig. 41) with Mackay's plan gives the same order. Also, though Genouillac's ziggurat plan as published<sup>56</sup> was upside down, the southeast side of the ziggurat being up, there is an obvious similarity in the arrangements of doors leading into the chambers of the temenos. As noted above, Genouillac's general plan of Uhaimir (Fig. 39) has the ziggurat oriented incorrectly. Mackay's plan (Fig. 56) shows the correct orientation of the corners to the cardinal points of the compass.

According to an unpublished manuscript in Field Museum,<sup>57</sup> the ziggurat was divided into four phases: A (Nebuchadnezzar), B (Adad-apla-iddina), C (Samsuiluna), and an inner core of mud brick, given the designation D in my section (Fig. 47).

The earliest version of the ziggurat (D) was found only in a deep trench on the southeast side. Its foundation course lay at 4.05 m. below datum.<sup>58</sup> The mudbricks were

so friable that individual specimens could not be examined or measured. Although Mackay made no attempt to date this phase, it seems logical to suppose it was the construction of Hammurabi.

The Samsuiluna phase (C) was composed of red baked brick. As found, this construction was rectangular in shape, measuring 43 m. along the southeast side and 53 m. on the southwest. The face of this core was not preserved at any point. The core rises some five to ten m. above the later mudbrick facing, giving the ziggurat its peculiar red color and name.<sup>59</sup>

The size of the bricks in the core measured 33-34 x 35 x 13-14 centimeters. Mackay dated the core primarily by the discovery of a tablet of Samsuiluna date found between two vertical bricks on the summit of the ziggurat.<sup>60</sup> Mackay also correlated the baked brick core with unbaked bricks measuring 34.5 x 34.5 x 11 cm. found just above the foundations of the temenos chambers VIII and XVII.<sup>61</sup> He pointed out the similarity in size between the burnt bricks of the core and inscribed Samsuiluna bricks found in the debris southeast of the ziggurat (35 x 35 x 8.5 cm.).<sup>62</sup>

Built against the northeast side of the baked brick core was a mud-brick construction running down to a baked brick pavement of Adad-apla-iddina, a king of the Second Isin Dynasty (1067-1046 B.C.)<sup>6 3</sup>

Above the Adad-apla-iddina pavement was a baked-brick pavement with stamps of Nebuchadnezzar.<sup>64</sup> This pavement was laid in conjunction with, but 30 cm. above, the bottom of the mud-brick, buttressed facing of the last phase of construction (Mackay's Period A). The outer face, with mud-brick 33-34 x 35 x 13-14 cm. and preserved in only a few places to more than two or three courses,<sup>65</sup> measured 56 m. northeast to southwest and 66.20 m. northwest to southeast. The outer skin of the structure today is crumbling mud-brick in two pronounced steps, apparently the vestiges of stages.<sup>66</sup>

Into the mud-brick lower stage on the southeast side, a recess had been cut and a baked brick construction inserted at a slight angle. Mackay supposed that this had some relation to steps which he could not find. The structure would seem to me to be analogous to the vertical drains cemented, as is this construction, with bitumen in the ziggurat at Nippur.<sup>67</sup>

On the southeast side, also, but set against the mud-brick facing, were two mud-brick buttresses more than nine m. apart, one of which Genouillac had uncovered. Mackay could ascertain little as to their function due to the poor state of preservation, but assumed they were the bases for steps; however, neither he nor Genouillac found any good evidence of stairs. The mud-bricks of the buttresses measure  $32 \times 32 \times 13$ -14 cm., and rest upon the Nebuchadnezzar pavement. They are thus post-Nebuchadnezzar.<sup>68</sup>

The corridor between the ziggurat and the temenos wall measured about 3.50 meters. The plan given here (Fig. 46), from Mackay as altered by Langdon, does not show niches and buttresses on the interior wall of the temenos, but published photographs show them clearly.<sup>69</sup> The recesses were 35 cm. deep, 3.40 m. wide and occurred at regular intervals.

The outer doorway as shown on the plan in Chamber VIII must be a feature added by Langdon.<sup>70</sup> Mackay, in his notes, indicated that the massive, thickened middle section was the gateway.

The chambers in the temenos wall were described as having "cellars" filled with dirt and paved over. I take this to mean that either the foundations were filled in to a desired height and paved over, or, as seems more likely, the Neo-Babylonian chambers were built on the stubs of earlier walls.<sup>71</sup> Genouillac, as mentioned above, had found Neo-Assyrian bullae in a chamber at the "southeastern" (i.e., eastern) corner of the ziggurat. Mackay found several fragments of tablets of various periods in the chambers and under the floors.<sup>72</sup>

On the northeastern side of the ziggurat, walls of the temenos were found to be composed of plano-convex baked bricks measuring 24-25 x 16-18 x 7-8 cm. incorporated with Samsuiluna bricks and overlaid by Neo-Babylonian mud bricks.<sup>73</sup>

Although Langdon wrote that the temenos wall could be traced around all sides of the ziggurat, and it was found to measure 142 ft. northeast to southwest and 123 ft. northwest to southeast,<sup>74</sup> no details can be given since Mackay's work in the second season (1923-24) was not reported in letters. This was one of the seasons Langdon himself was at Kish. The chambers around the ziggurat, in the temenos wall and in the temple to the northeast, were numbered as high as Chamber 50. In the area to the northeast, a large paved court was found. In it were an altar and a well lined with triangular baked bricks.<sup>75</sup> In a pit, "... about a meter down... two pieces of black incised ware filled in with white designs"<sup>76</sup> indicate Isin-Larsa occupation at the temple site. Unbaked clay pellets, of a type known from Early Dynastic levels at other sites, were also found in this area.<sup>77</sup>

In the temenos southwest of the ziggurat, Samsuiluna and Nebuchadnezzar bricks were found *in situ.*<sup>78</sup> A tablet mentioning Iawium, King of Kish in the late Larsa period, fragments of a stele of Hammurabi, and an inscribed scepter head of Kurigalzu, were also found in this location.<sup>79</sup>

Although a small pit seems to have been sunk in the center of the great court to a depth of twenty-five ft., and another larger one 40 x 40 ft. was taken down to Early Dynastic levels, then a small shaft sunk to virgin soil in the lower mount about 100 m. east of the ziggurat, we have little or no report of these soundings.<sup>80</sup> Sherds of Jemdet Nasr and Ubaid pottery were found in these pits.<sup>81</sup>

To the west of the ziggurat, along the ridge marked T on Mackay's map (Fig. 45), several private houses were exposed, the topmost being of the Old Babylonian Period with unbaked bricks 27 x 18 x 9.5 cm.<sup>82</sup> Below these houses, at depths of two to three meters, walls of plano-convex mud bricks were found.<sup>83</sup> During the first season of work,

(1923), a number of rooms were exposed. In the next season (1923-24) at least thirty-five rooms were excavated. In all the work in the house area, almost no Neo-Babylonian material came to light.

The fort, Mound X (No. 21), was excavated by Mackay and Colonel Lane in 1923-24.84 Plans were made, but have not been found. It can be said that the structure was approximately square, oriented more or less with the corners to the cardinal points, and was constructed in two distinct phases. The lower phase, oriented slightly more to the east than the later one, was built of mud bricks 32 x 32 x 12-13 cm. The upper phase was constructed of mud bricks 33 x 33 x 12-13 cm. and had a pavement of baked bricks measuring 33-34 x 33-34 x 6-7. If we may judge from mud brick sizes, which is a very unsure criterion, the older phase should be contemporary with Nebuchadnezzar, while the upper phase must be more recent. The fort is said to be buttressed<sup>85</sup> and seems to have consisted of a central chamber (the paved area) surrounded by smaller chambers.<sup>86</sup> We have very little information with which to date this structure, other than the brick sizes. One photo of a burial found outside the east corner shows an urn of a type usual at Nippur from Old Babylonian to Achaemenid times.<sup>87</sup> A well-made jar can be seen in the urn, and its object card describes it as being red-painted with black painted bands. The decoration and shape lead me to place it in the range of Late Kassite through Neo-Babylonian.<sup>88</sup> Another jar from the fort is described as being "spotted, formerly glazed" and would fall within the same category and dating.<sup>89</sup> Without more exact information, the fort cannot be dated more closely than early first millennium to Neo-Babylonian.

The two parallel ridges that run from the fort, Mound X, toward the east have usually been interpreted as town walls. Mackay made several soundings here and decided these ridges were merely earth thrown up from a canal, since he could find no sign of brickwork, nor any connection between it and the fort.<sup>90</sup> There was no wall connected to the fort on any side. On the basis of the air-photograph, I would tend to agree with Mackay, seeing these ridges as canal banks. However, they need more investigation since a very straight line marked by surface moisture runs along the edge of the more northerly ridge and from this line, at regular intervals of about eight meters, arms run off to the southwest. The location of a Parthian mound upon these ridges (my No. 20) gives us a terminal date for the use of the feature. I would suggest that these ridges are the remnants of the Neo-Babylonian canal.<sup>91</sup> The structure shown by the straight line with branches within the northerly ridge might be remains of a quay.

#### Mound Y (No. 15)

This mound, or rather two low mounds, went untouched by the Expedition. Mackay noted that they were Parthian or later.<sup>9 2</sup> My No. 16 was too insignificant to be noticed, as apparently was the small mound north of Uhaimir, No. 24.

#### Mounds I-J (No. 14)

Mound J seems never to have been touched, but Mound I, formerly known as Tell Hudhr and "Tell du Campement" (No. 14), was investigated twice. In March, 1927,

Watelin opened a trench "on the summit of Mound I... to a depth of 3 meters, and I found ... constructions which yielded two fragments of bricks... of Hammurabi."<sup>93</sup> Again in the season 1929-30, "a trench on Mound I beginning at 5 m. depth has given no interesting result, the Arab level descending almost 2.50 m."<sup>94</sup> It is apparent that the constructions with Hammurabi bricks were Arab, and that the earlier bricks were being reused. The trench of Watelin is clearly visible on the air photo (Fig. 24) as a long, north-south cut on top of the mound.

# Plano-Convex Building (Mound P = PCB, No. 11)

This mound is perhaps one of the most important areas at Kish/Hursagkalama. Moorey has gleaned all the information possible from his sources at Oxford, consisting almost entirely of object cards and decaying negatives. His reconstruction is undoubtedly sound, and I cannot add anything to his conclusions.<sup>95</sup> His copies of annotated photographs and negatives are not duplicated at Field Museum, and as is the case with all the areas excavated in 1923-24, there were almost no reports from the field since Langdon was at Kish. To summarize Moorey's findings briefly, the plan shows (Fig. 48) a well fortified unit construction, with massive walls, a central gateway, a more public, open area to the east featuring storage rooms (?), and an inner quarter reached by tortuous passages. The upper building rested on a layer of packed earth above earlier walls. The walls of the upper building were coated with mud and lime plaster. The entire construction was of plano-convex bricks, with pavements of baked bricks ot the same type. Moorey dates the end of the building to sometime within the Early Dynastic III Period, and suggests that it may have been destroyed by Eannatum of Lagash.<sup>96</sup>

## Mound W (No. 13)

The large mound west of Ingharra is perhaps the most historically valuable of all the mounds at Kish/Hursagkalama since it yielded many tablets.<sup>97</sup> The lack of systematic excavation and recording makes the texts from this area much less useful. More than half of the tablets from the Kish Expedition came from Mound W, especially the Neo-Babylonian and later texts. The sorting out of tablets and cataloging by mound has not yet been finished. From Mackay's field catalog, perhaps 300 tablets can be assigned to the mound of origin, and even to locus. Only in some cases is the same true of the tablets found by Watelin or Langdon.

Needless to say, it is almost impossible to reconstruct stratigraphy in Mound W. The tablets and pottery clearly show that there is a thick stratum of Neo-Babylonian date.<sup>98</sup> The survey sherds (Ch. III) probably give us the best indication of the size and dates of settlement. Mackay worked at Mound W without Langdon in 1923-24 and 1924-25, and was able to report that the mound was primarily Neo-Babylonian, yielding tablets of that period as well as of Isin (Second Isin). He also noticed remains as late as the early Arab period. There were large houses situated in the southern part of the mound, where it is highest. Mackay's remark that cultivation around Mound W was at a level 1.50 m. above his datum at Uhaimir lends much support to the notion that the ancient Euphrates with

its silt load flowed close to the site.<sup>99</sup> Langdon assumed the bed was east of Uhaimir and west of Mound W.

# Mound C (No. 9)

The small, high mound just west of Tell Bandar attracted the attention of Langdon in 1923-24, and he ran trenches into its northeastern side, tracing a wall for several meters. An outer gate of a structure was found. Its walls were of mud brick and buttressed.<sup>100</sup> No other details are given, other than that the bricks resembled some at Uhaimir and were presumably of Old Babylonian date.<sup>101</sup> The finding in my survey of Early Dynastic and Isin-Larsa sherds on this mound (No. 9) supplement this conclusion.

#### Tell Bandar (Mound V, No. 8)

The Expedition did not examine Tell Bandar until 1933. Exposing the entire northwestern end, Watelin found many features described by Genouillac, including the vertical "loop-holes" along the wall between the rounded towers (Fig. 49a). Watelin, according to Langdon,<sup>102</sup> found that the upper, Parthian fortress was built of unbaked bricks 40 x 26 x 17 cm., while those of the lower, foundation level measured 31.5 x 31.5 x 10.5 cm., the size given for the bricks of the entire structure by Genouillac. Watelin saw the lower level of buildings as Neo-Babylonian, and was convinced that the Parthians were merely using them as foundations, a typical Parthian practice.<sup>103</sup> Watelin also believed that Bandar had material as old as any found at Hursagkalama,<sup>104</sup> a notion supported by our finding much early pottery on the site.

# The Sassanian Settlement (Mounds G-H, Nos. 4-6)

The sprawling mounds to the east of Ingharra, Mounds G and H (Fig. 49b), were investigated as early as 1923-24. Mackay reported finding "... walling of sun-dried bricks... of very early date," and thought the area was a poor, residential district. He also noted the remains of plaster molding "of the Greek period" and suggested they were the decorations of a large house. On this mound, he found goddess-handled jar fragments, spouts of "early" ware, etc., as well as Nebuchadnezzar bricks and "Parthian glaze."<sup>105</sup>

The Sassanian levels were the main concern of the expedition in 1930-31, 1931-32, and in part of 1933.<sup>106</sup> Plans of the "palaces" were published in various articles.<sup>107</sup> The stucco ornament, mainly from SP-1 and SP-2, was published in line-drawings in Pope's *A Survey of Persian Art*.<sup>108</sup> SP-1, 2 and 3 (Figs. 50-51a) were obviously more than private houses but may have been no more than villas of wealthy persons. SP-2 may be a Christian church. The small buildings, SP-4 and 5, were without stucco. We have no plan of them, nor of SP-6 and SP-8 which were apparently "uninteresting" since we have little record thereof. At SP-7, a totally different complex, called a villa, was found (Fig. 51b). One is immediately struck by the two large, square platforms in open courts. These may be early versions of the raised sleeping and storage platforms found in Arab caravanserais,

but Langdon points to similar platforms in villas at other sites.<sup>109</sup> Many coins, glass and much pottery were found in this ruin, datable to about the sixth century by the coins.<sup>110</sup> The building below the main Sassanian level is called early Sassanian by Langdon, but may be earlier. The baked bricks used in the Sassanian buildings were large, square and well made.<sup>111</sup>

The stucco decoration, especially from SP-1 and SP-2, is some of the best preserved Sassanian ornament from the Near East. The full range of designs and the supposed placement on walls is discussed in Pope's *Survey*.<sup>112</sup>

# Mound B (No. 3)

This curious U-shaped mound is relatively high, about 4-5 meters above the plain. Three pits are visible on the southern slope of the southern arm of the mound and one on its northern slope. Another, on the summit of the northern arm, was made by Genouillac and reveals a building of baked bricks set in white lime mortar. The bricks were of various sizes and appear to be salvaged from earlier buildings. The sherds from this pit were Parthian. The other pits, yielding Old Babylonian material, seem to have been put in by Mackay in 1923-24.<sup>113</sup>

# Mound A ("A" Palace and Cemetery, No. 2)

This mound is the site of the plano-convex palace excavated and reported by Mackay.<sup>114</sup> It is the only part of the Ingharra complex that has been relatively well published. In fact, it was the only area well enough excavated and published by the Expedition to allow any valid analyses. The report is, unfortunately, badly flawed due to editorial errors and confusion of the ground plan.<sup>115</sup> The plan of the building was supposed to be presented as a fold-out, not split as it is. A mistakenly omitted second plan was to have been included showing the main level in dashed lines superimposed on a plan of later walls, additions, etc., all marked by identifying letters. On this second plan, also, were to appear an indication of sections and location of graves found sunk into the building area from levels above.

The palace (Fig. 52) is a composite of three phases. The western wing, with its rectangular, double-walled plan (Rooms 1-31) was the earliest part. A monumental entrance and a few rooms mark the remains of the second phase (Rooms 32-38). This must have been the more sumptuous residential and official wing of the structure. At a later date, the Annex with pillared portico (Rooms 39-60) was added. The building, in all phases, was of plano-convex unbaked bricks with some baked brick pavements, etc. In the earlier two phases, the baked bricks measured 23-27 x 14-16 x 4.5-7 centimeters. The bricks of the Annex measured 20-21 x 13-15.5 x 5-7 centimeters. Some of the later, smaller bricks were found in the walls of the older wings, used for repair work.

The entire area on which the palace rested had been prepared and a layer of ashes

and sherds put down as a basis for an unbaked brick paving on which the foundations were set.

This building has been recently dated to Early Dynastic II by Dr. Edith Porada on the basis of inlays found there.<sup>116</sup> The formerly proposed dating to Early Dynastic III, however, seems incontestible due to the fact that under a pavement in Room 31 a "Fara type" tablet was found. Dr. R. D. Biggs has informed me that this tablet appears to him to be somewhat later than the tablets from Fara, which are usually dated to ED IIIa.<sup>117</sup> The palace, at least the second and third phases, must be dated at least as late as ED IIIa. The west wing may have originated in ED II, but there is actually so little difference in levels between it and the east wing that I rather tend to doubt this. The presence of material datable to ED II, especially such luxury items as inlays, is easily accounted for by assuming that they were either heirlooms or were brought up out of context by ancient or modern diggers. The entire surface of Mound A was pierced by graves. Mackay recorded 154 burials and noted that there were many that were not recorded. The mound had a later occupation level of "Hammurabi date," as well as a slight occupation of "Abbasid" times.<sup>118</sup>

The date of the abandonment of this palace must be early ED IIIb, though I see little evidence of destruction by enemies or fire as did Mackay. There is no sign of burning on the walls still standing. The paucity of objects from the building seems to me to indicate an orderly clearing, rather than a sacking. That the building was not occupied in the later part of the ED III period is clear from the many graves of ED IIIb that were cut into it. A list of the levels at which these graves lay was supposed to be included in Mackay's report on the palace and cemetery, but was omitted by the publisher.<sup>119</sup> Mackay kept a separate file of burials with location, etc., but this file has not been found.<sup>120</sup> The object cards give no help in this instance, since the locus is given only as "See Burial ----." Attempts can be made to reconstruct the sequence of graves on the basis of the published material, but with little satisfactory result.<sup>121</sup> Moorey is currently working on this problem and may be able to give some more detailed account of the material. Without either the plan of graves or the levels, however, the results must rest upon cross-dating of objects.

There is little question that the graves in the A cemetery are late ED III in date. Moorey has pointed out that the goddess-handled jars found in them are of a type that is characteristic of late ED III to Protoimperial.<sup>122</sup> The duration of use of ED III types of pottery and other objects, however, is not very clearly defined. It is my suspicion that some of the graves in the A Cemetery are actually Early Akkadian in date. I mean specifically Graves 52, 102, 104 and  $107.^{123}$  In these graves was found a type of straight pin with a hole bored in the shaft for a ring or other attachment. This type of pin has been shown by Nissen to be specifically Akkadian in the Ur Cemetery.<sup>124</sup> The graves also contain a squat, high-necked, high-footed jar of a type peculiarly Akkadian.<sup>125</sup> In one of these graves, there occurred a goddess-handled vessel with a high foot and high neck.<sup>126</sup>

Though the greatest number of the graves seem to be late ED IIIb in date, some

contain objects that could be as early as ED IIIa.<sup>127</sup> Thus, part of the cemetery may post-date the abandonment of the palace by only a short time.

The history of Mound A seems, then, to be as follows. In the early part of ED IIIa, or *possibly late* in ED II, the palace was begun. It was expanded and renovated twice, then abandoned early in ED IIIb. The site became a cemetery during ED IIIb and the early Akkadian Period. Some houses were built on the mound at a later time, probably Old Babylonian, and some walls and graves attest to slight Neo-Babylonian and Islamic occupations.

#### Ingharra (Mounds D, E; No. 1)

The main mounds of eastern Kish/Hursagkalama consist of two ziggurats and a well-preserved temple surrounded by lower stretches, especially to the north and west. The name of the mounds, Ingharra, means nothing in either classical Arabic or the local dialect.<sup>128</sup> It is possible that this is a corruption of some older pre-Arabic name, but there seems to be another reasonable explanation, related to the non-Arab's difficulties in distinguishing gutteral sounds. The name was first recorded in 1884 as En 'Urrah.<sup>129</sup> Mackay initially referred to the site as Umm Gharrah and abbreviated it as UG. The change to Ingharra (IG) occurred when Langdon was at the site, could find no etymology for Umm Gharrah, and believed he heard Ingharra.

Of relevance to the problem of the name is the instability of place names in Iraq. Nippur/Nuffar, Uruk/Warka and Babil are exceptions to a general pattern of change of name. In a continuously occupied area, one may expect the name of an important city to be preserved, but this is seldom the case. Oddly enough, there seems to be less change in desert regions where nomads continually wander and use tells as landmarks. In such areas, one can obtain names that were used for features at least as much as one hundred or two hundred years ago.<sup>130</sup>

The work of archaeologists and surveyors causes change in names. Thus, Jemdet Nasr and Mound W at Kish are both referred to as Tell Antika ("Mound of Antiquities") today, and Uhaimir is identified most often as Kish. Ingharra is thought to be an ancient, non-Arabic name by the local people. When asked how they know this, even very old men say the archaeologists told them so.

Of particular importance in the determination of the meaning of the name Ingharra is another process whereby the older name for a mound will be assigned to another tell in the vicinity. Thus, for example, a small, high mound near Jemdet Nasr is now known as Jemdet Nasr. The use of the name Umm Gharrah (or Umm al-Mughra?) explained to me by local people as meaning "Mother of Red-ness,"<sup>131</sup> for a very small gray-colored mound north of Kish (No. 42) is, I think, the retaining of the older name of the tell we now call Ingharra. The ziggurats of red plano-convex brick, and the general reddish-pink color of the mound would have been suitably rendered as "Mother of Red-ness," just as Uhaimir, "Little Red One," is appropriate for Kish.

The lower stretch of the mound to the north of the ziggurats, Mound D, (Fig. 45), was only slightly investigated by the Expedition. A trench was put in during 1928-29 and a brick of Merodachbaladan recording work at E-Hursagkalama was found at a depth of three m. from the surface of the mound.<sup>132</sup> In November, 1930, a trench five m. wide was carried to a depth of four m. below the surface and eighteen objects were dated to the Isin-Larsa and Old Babylonian Periods.<sup>133</sup> The precise location of these two trenches cannot be specified as yet.

The main part of Ingharra, the area of the two ziggurats and the Neo-Babylonian temple, was the primary focus of activity for the Expedition. P. R. S. Moorey has given the outline of the findings in this area, but it is possible to add much more detail on the basis of records at Field Museum.<sup>134</sup>

The designations of areas, mounds, trenches, etc., are particularly confusing at Ingharra. The ziggurats were most often given as  $Z^1$  and  $Z^2$  though in Mackay's scheme they were E and F, respectively (for the larger and smaller ziggurats). At the same time, Watelin designated the area to the northwest of the larger ziggurat as Z, intending to cut this area in long, five-meter-wide trenches Z-1, Z-2, Z-3, Z-4, etc. Having come upon a large building in this block of earth, he named it Monument Z. Likewise, besides there being a Mound A (No. 2, the A Palace), a Mound Y (at Uhaimir, No. 16), and a Mound C, (No. 9) there is also a "Hillock A" in the temple area, which was cut down by six trenches called A-1 to A-5; an area or Trench Y, part of which was originally separated as Ya; and numerous trenches in the area northwest of the temple designated C, C-1 to C-15. That Langdon's reports were often inaccurate due to his inadequate contact with the field situation is thus understandable.<sup>135</sup>

## **OPERATIONS BY SEASON**

In order to make the loci at Ingharra distinct, one must review the development of the excavations (Fig. 53). Mackay made a small trench in the larger ziggurat at Ingharra late in the 1923 season.<sup>136</sup> In 1925-26, he ran a trench into the northwest side of the smaller ziggurat, made another cut in the western side of the larger ziggurat, exposed the western corner of the Neo-Babylonian temple, cleared Rooms 10 and 17, and reached the doorway on the northwestern side.<sup>137</sup> In exposing the western corner, Mackay not only established the temple's floor level (at about five m. above the plain), but also found the face of an earlier, lower wall which he dated to the Old Babylonian Period.<sup>138</sup> The temple was designated by Mackay as IGQ.

Also in 1925-26, Mackay made at least ten small, parallel trenches in the depression between the ziggurat and the A Palace.<sup>139</sup> Extending some of these trenches toward the larger ziggurat, Mackay uncovered its southwest face and a sizable retaining wall he called the "Sargon Wall." The western corner and a small part of the northwestern side of the retaining wall were also exposed and another wall, called the Shulgi wall (=Monument Z), was found.<sup>140</sup> In Mackay's notes and cards, the area at the south and west of the larger ziggurat is designated IGS (Ingharra South) and ISW (Ingharra Southwest), the latter being specifically the immediate vicinity of the ziggurat and retaining wall. ISW must not be confused with IGW (Ingharra West = Mound W). In Fig. 53, Mackay's work at

Ingharra is indicated by hatching.

Watelin's excavation at Ingharra cannot be as easily summed up. Beginning in 1926-27 (Fig. 54), he first reexcavated the western corner of the great temple, followed the southwestern wall to the south corner, then cleared part of the southeast outer wall. He also cleared several rooms in the southwestern part of the temple, and found four Neo-Babylonian foundation boxes in Chamber 1 under [sic] a plano-convex baked brick paving. At the same time, a trench (Trench B) was cut to the level of the Neo-Babylonian temple floor (i.e., five m. above plain level) toward the western corner of the temple. Another trench, C\*, was cut to the same level some forty m. to the northeast, directly perpendicular to the northwest gateway. The railway in Trench B was used to clear "Hillock A," the rise just northwest of the larger ziggurat, down to the level of the Neo-Babylonian temple floor, i.e., five m. from the surface and five m. above the plain (Fig. 61). Hillock A was cut down by Trenches A-1 to A-5. After thus clearing the top of the mound, Watelin deepened Trench B to plain level, and exposed the entire northeast wall of Monument Z, the building under Hillock A. Also, in Trench B, a shaft (1 x 3m.) was sunk to three m. below the plain level, exposing part of a plano-convex brick wall.141

In 1927-28 (Fig. 55), Watelin completely exposed the outer face of the Neo-Babylonian temple, re-excavating much of the area opened by Genouillac. The main part of the work, however, was concentrated upon the area to the west. The general strategy was to cut down the mound by five-meter-wide trenches to plain level, one series running northeast-southwest called Z-1 to Z-6, the other running northwest to southeast, called B-1, B-2, etc. The plan was altered, however. B-1, B-2, and B-3 were taken down from the surface only to five m., and the trenches in Z became confused due to the difficulty of removing Monument Z. The Z area was approached from the both sides, the northwest and southeast, simultaneously, and the resulting trenches, of differing widths, were designated "two meter tread," (cut only to three m. above the plain), Z-1, Z-2, Z-3 and Za (Fig. 55).

Having cut the Z area to plain level, the designation was changed. Za was divided and a five-meter-wide trench sunk in its southeastern half. This trench was called Y, and was cut to water level, i.e., 16 m. from the original surface of the mound and 6 m. below plain level. Some pits went down another half meter. Later in the season, the other half under Za was cut to the 16 m. level and was also designated Y. The rest of the Z area (Z-1, Z-2, Z-3) was carried down only three m. below the plain in this season and designated Ya (Fig. 56).<sup>142</sup>

In 1928-29, the Y trenches were extended towards the southwest (Fig. 57). The designation Ya was generally discarded or used only sporadically. As had been the case in the previous season, many graves were found, especially near the ziggurat, including chariot burials. Well preserved houses with a street were found in the northwestern part of the area, at low levels.

At the same time, the mound fronting the Neo-Babylonian temple was cut down by a series of trenches, designated C, C-1, C-2, C-3 and C-4, measuring five m. in width and running parallel to the northwest face of the temple. These trenches were cut from the surface of the mound, in places eight m. above the plain, to plain level. One must be very careful to discriminate between these trenches and the earlier trench  $C^*$  which was cut perpendicular to the face of the temple in 1926-27.

The operations in the 1929-30 season consisted of cutting a trench in Y three m. below water level, i.e. to nineteen m. below the original surface of the mound (nine m. below the plain). The levels under the plain in the area of the C trenches were investigated by Trenches Yw and Ywn (Fig. 58).

The C trenches were continued from C-5 to C-7, while Trenches B-1, B-2 and B-3 were cut from their previous depth (-5m.) to plain level and Trenches B-4 to B-6 were cut to plain level, reaching the temple gateway.<sup>143</sup>

The season's work at the cemetery and temple in 1930-31 (Fig. 59)<sup>144</sup> was curtailed to concentrate on the Sassanian material in Mound H. However, the Y trench was expanded under a part of the "Sargon wall" which had been demolished. The plano-convex brick face of the ziggurat was exposed and its construction in at least two distinct phases divided by an ash layer was ascertained. A new trench, ZY, was made in the southwest side of the ziggurat and carried to water level. Houses and graves were found under the ziggurat in this trench. Another trench followed a plano-convex brick platform, connected with the ziggurat, under the Neo-Babylonian temple.

Trenches B-7 and B-8 as well as C-8 were completed east of the temple.

In 1931-32 (Fig. 60), Watelin's work in this area consisted in cutting Trenches C-9 to C-15 and finding the extension of the "Sargon wall" as well as other structures north of the Neo-Babylonian temple. A five-meter-wide trench, D, was driven along the northeastern face of the temple in order to expose the limits of the plano-convex platform upon which the temple had been set.<sup>145</sup>

This is the extent of operations at Ingharra. The results from these trenches, pits, etc., are the most tantalizingly incomplete of the entire Kish operations. From the various reports, photographs, and letters, however, a sketchy sequence of levels can be traced. Moorey has outlined the sequence and given relevant arguments for dating. With some exceptions, my conclusions are in agreement.

## Y Trench, graves, chariot burials, the flood stratum

In Y, virgin soil was reached 9.0 m. below plain level (Fig. 61). The lowest stratum has been dated to the Jemdet Nasr Period, but a letter of January 2, 1929, from Watelin to Langdon, mentions finding in the Y Trench "painted ware such as that at Ur and Ubaid," and "fine black ware," which I take to indicate Ubaid and Uruk pottery. A plano-convex brick pavement, said to be visible over much of the Y area at water level, i.e., six m. below the plain, marks the beginning of Early Dynastic I material, the Early Houses Stratum.<sup>146</sup> This stratum (Fig. 62) above water level seems to have been divisible

into at least three, possibly four, periods of rebuilding two m. in depth.<sup>147</sup> Above this level of houses there were other houses, also of plano-convex bricks. Over the houses, from about 2.70 to 3.0 m. below the plain, there is a stratum of thinly laminated beds of sandy composition, the Flood Level. This level runs through the entire site of Ingharra, wherever pits were sunk below the plain. The excavators and Moorey see this level as marking a break between the houses and a later sacred area.<sup>148</sup> To affirm that the flood ended habitation on the site is to ignore the evidence of walls revealed in photographs of Ya and a pavement of plano-convex brick found in Y over the Flood Level.<sup>149</sup> It is clear that the Flood Level did not mark as definite a hiatus as is claimed. Watelin noted the existence of about a meter of debris containing sherds between the Flood Level and the Red Stratum above.<sup>150</sup> This is an important point to bear in mind in the discussion of dating and method of construction of graves in Y trench.

It is clear that the houses at the lower levels of Y are ED I in date. The houses of the upper levels of Y below the Flood are probably ED II. The great majority of the tombs built into the houses are definitely datable to ED II. The finding of ED III material in the houses strata is to be explained by the simplest solution, namely, that the later material came from intrusive graves, the bones of which were no longer intact, or were disregarded.<sup>151</sup>

Watelin assumed that the graves of the Y cemetery, including the chariot burials, were sunk from below <sup>152</sup> the Flood Level. Moorey has observed that such a point of origin for the chariot burials would allow very little space above the tops of the tombs, which were vaulted structures of plano-convex mud brick.<sup>153</sup> It is my assumption that the chariot burials and many of the private graves found in the house levels were sunk from above the Flood Level, in the meter of debris between the Flood Level and The Red Stratum. Thus, there would be from three to six m. depth for the construction of the shafts. Moorey has suggested much the same reconstruction of the chariot burial shafts, though he tends to accept Watelin's assertion that most of the other burials were associated with houses under the Flood Level.<sup>154</sup> Watelin was near water level and probably could not distinguish between floors of houses and floors of tombs, nor, I think, could he have seen the difference<sup>155</sup> between walls of houses and walls of tombs. In the Diyala, house walls were often used in ED II and III as part of the walls of vaulted tombs, but one assumes the houses were already abandoned.<sup>156</sup> I cannot see any possibility that royal tombs would have been placed in an area occupied by contemporary houses. The chariot burials and associated skeletal remains must be dated from the period after the complete abandonment of houses in this area. The remains of structures in the stratum above the Flood Level may have been religious in nature, and associated with the royal tombs.

It would be extremely important to separate the graves of the Y cemetery by period, or at least by mode of interment, origin of the shaft, etc. The published material gives us no possibility of doing this. There is, however, an unpublished report by Field on two hundred graves from Y, in which the depth of the skeleton is given along with some information on gravegoods.<sup>157</sup> With the object cards, some of the more important graves can be dated. This investigation is a study in itself, and will be fully explored at a later

date. At present, a few important details can be given. Just under the Red Stratum there are twelve graves scattered more or less evenly in the Y trench, forming a definite horizon at twelve m. below the original surface of the mound, i.e., two m. below the plain, and almost a meter above the Flood Level. Another horizon of graves occurs at fourteen m. (i.e., four m. below the plain). This includes one of the chariot burials (Grave No. 322-24, 326, Chariot No. 1), datable to the Early Dynastic II Period.<sup>158</sup> Two wheels were found, but it is possible that this chariot had four wheels.<sup>159</sup> Three skeletons and a group of about twenty pots were found with the chariot.

At 15.5 to 16.0 m., another concentration of graves occurs. This includes four rich tombs, Y360, 363, 393 and 401. Burial 363 is associated with the skeletons of four animals, identified as asses.<sup>160</sup> These animals, lying at 15.5 m. were assumed to be the team that pulled the four-wheeled chariot (Chariot No. 2) which was found at sixteen m. (i.e., six m. below plain level) and the conglomerate is discussed in various publications as one burial.<sup>161</sup> It is clear from photographs *as published*,<sup>162</sup> and even more from unpublished pictures and notes by Field and Watelin, that the asses shown above the level of the chariot, and in fact lying partly over it, cannot have been the team for the chariot. Watelin "supposed"<sup>163</sup> the animals were lying upon a ramp, but the ramp would have also rested in part on the chariot in this case.<sup>164</sup> Field's grave notes, and a rough sketch by Watelin, show that there was a fifth animal found. This animal, lying alongside a rein-ring<sup>165</sup> in front of the chariot at sixteen m., (Fig. 63) has been identified by Dr. Charles Reed as bovid. Dr. Reed also confirmed the Expedition's identification of the other four animals as equid, and the animal found with Chariot Burial 1 as bovid.

It seems apparent that the excavators, working under very difficult conditions, close to water level, were combining two or perhaps three teams from at least two burials in the case of the group around Chariot Burial 2. The evidence we can glean indicates that both Chariot Burials 1 and 2 had bovids, presumably oxen, as draft animals.

It is of interest to note that Robert H. Dyson, in a reexamination of the skeletons from one of the royal tombs at Ur, concluded that the draft animals there were also bovid, rather than equid.<sup>166</sup>

One might propose that the equids found at 15.5 m. were buried in the tomb along with Chariot 2 and its team of bovids, but the stratigraphic position argues for their being from another burial entirely.

Another very rich chariot burial (Chariot No. 3) was found in the southern extension of the Y trench with human skeleton Y  $529.^{167}$  This burial, from fourteen m. (four m. below the plain), was said to be associated with as many as three chariots, although probably what was found were only six wheels from two four-wheeled chariots. Another set of wheels, denoting a fourth chariot burial, was discovered, but not recorded in detail, in the southeast baulk of Y, at about 14 m., under the edge of the larger ziggurat.<sup>168</sup>

The dating of the chariot burials is difficult. Moorey has presented good arguments for an ED II date. In addition to his arguments, one can add the following. Associated

with Chariot Burial 2 were several pottery vessels, one of which seems from the photograph to be an ED II type. Grave 373, found under Chariot Burial 1, and thus providing a *terminus post quem*, may have a jar of the same type.<sup>169</sup> In Chariot Burial 3, which also yielded a copper dagger and several other copper artifacts, there were remains of two red-painted jars. These jars are now in Field Museum and are of a type known from ED II levels in the Diyala.<sup>170</sup> The cemetery would seem, then, to be composed of three distinct periods of use. The earliest, dating to ED I, has burials incorporated into ruined houses at a level of six to five m. below the plain. A second horizon dating from early ED II is also associated with houses at about four m. below the plain and would seem to be the last period of interment before the Flood Stratum. The third period, late ED II and probably contemporary with the early dynasty of Kish, is marked by chariot burials sunk from above the Flood Level.<sup>171</sup> The group of simple interments noted by Field in the area west of the Chariot Burials, and from the stratum between the Flood and the Red Stratum, would be contemporary with the Chariot Burials.

#### The Red Stratum

The Red Stratum marks a definite break in the history of the area. Watelin proposed that this level was the remnant of a platform associated with the ziggurats.<sup>172</sup> If it is not a platform, it is at least a level of buildings and debris associated with the ziggurats. Below the stratum, there is evidence of ED IIIa material. Above it, and sunk into it, there are graves of ED IIIb. The stratum must, then, be late ED IIIa or early ED IIIb. From Watelin's reports, it is clear that the Red Stratum ran very close to but slightly above the bottom of the ziggurat, which was built over the Houses Stratum and the Chariot Burials.<sup>173</sup>

The Red Stratum has caused some difficulty in reconstructing the stratigraphy of the Y trench. Watelin in the major report shows it in section as two m. thick, with its top just at plain level. In the text of the same report, however, he describes the layer as irregular and beginning forty cm. below the plain and rising to a variable height of about one m., i.e., about half a meter above the plain.<sup>174</sup>

In other reports, which seem more reliable since they were written in the field, the stratum is described as varying from less than a meter to almost two m. thickness. <sup>175</sup> In other places, the stratum is described as two m. thick, its top being found at an average depth of eight m. from the original surface of the mound, i.e., two m. above the plain.<sup>176</sup> The basic problem here is the term "plain level." It is certain from actual investigation of the site and from photographs that "Plain Level" in Y was almost a half m. below Plain Level in Trench B, which was in turn half a m. below Plain Level in the C trenches.

A note by Mackay in the Ashmolean Museum gives the top of the wall of the Neo-Babylonian temple as 11.38 m. above datum. As previously noted, the plain around Mound W was about 1.50 m. above datum. Taking Watelin's measurement of about ten m. from the top of the Neo-Babylonian wall to Plain Level in the Y trench, we see that

the top of the Y trench is more or less the actual plain level and that B and C are a half m. and a full m. higher. Watelin's figure of about a half m. above the plain for the top of the Red Stratum would, then, be the standard to follow. Actual inspection of the site shows that the Red Stratum is in most places about 1.30-1.50 m. thick and its top is at approximately the Y Trench Plain Level, but may rise a half m. above it. The Flood Level is about 1.5 m. below the bottom of the Red Stratum.

From Watelin's letters and reports,<sup>177</sup> it is certain that there is a layer between the Red Stratum and the bottom of Monument Z. The foundation of the structure is at a level eight m. from the original surface of the mound, i.e., two m. above the plain, and about 1.5 m. above the Red Stratum.

That the Red Stratum was a building layer is proven not only by the fact that it is composed of plano-convex bricks, but that on the surface of it, there was found a foundation box of the same material.<sup>178</sup>

Graves with a range like that of the A Cemetery, ED IIIb to Early Akkadian, were found cut into the Red Stratum. Included in this group of graves was one with an Akkadian cylinder seal and a goddess-handled jar, showing once more the late use of that type of vessel.<sup>179</sup>

These graves seem to have been cut down from the half m. of debris just below Monument Z. This half m. consists of a disorderly mass of plano-convex bricks.<sup>180</sup> It is to be concluded that at the abandonment of the ziggurat and the buildings on the platform, the area once more became a cemetery.

## Monument Z, the Z Trenches

Monument Z, a massive building (Fig. 64), presents us with one of the most difficult problems at Kish. The entire structure was removed, and thus cannot be reexamined to establish a dating. Originally exposed by Mackay's trenches (1925-26), the building was dated to the time of Shulgi on the basis of an Ur III contract tablet found in the debris between it and the large, recessed retaining wall of the ziggurat.<sup>181</sup> Langdon later declared the "Monument" to be Akkadian to Old Babylonian on the basis of tablets supposedly found there.<sup>182</sup> Moorey, upon a reconsideration of the evidence, inclines toward an Ur III dating.<sup>183</sup>

Taking into consideration the fact that many Akkadian graves and objects were found in the levels between the floor of Monument Z and the Red Stratum,<sup>184</sup> we must conclude that the building must be at least as recent as the latter part of the Akkadian Period. Arguing for the construction within the Akkadian Period, rather than Ur III, are several Old Akkadian tablets found in the building, one on the floor itself.<sup>185</sup> The pottery from within Monument Z ranges from Early Dynastic types through Old Babylonian. However, the Ur III through Old Babylonian types seem to have come from only the top m. of debris within the walls (i.e., from five to six m. down from the original surface of the tell).<sup>186</sup> From the cylinder seals found in the building, one must draw much the same conclusion, though the number of seals is very small. Of Ur III to OB Babylonian seals that can be assigned definitely to the structure, the loci tend to be within the upper 1.5 meters.<sup>187</sup> However, just outside the wall of Monument Z, in Trench B, 5 (7), which would place them about a half m. above the bottom of the building,<sup>188</sup> were found two Old Babylonian cylinder seals.<sup>189</sup> These items may have been intrusive, in a grave perhaps, but must be taken into account.

Inside Monument Z were found numerous unpublished clay figurines and plaques of a nude female, a type datable from the Akkadian into at least the Old Babylonian Period.<sup>190</sup>

It should be noted that the large clay plaque of a king triumphing over enemies, taken by Moorey as most important for the dating of the structure,<sup>191</sup> was found outside the northwest wall in Trench Z-1, at six m., i.e. from a m. below the top of the structure.<sup>192</sup> This Old Babylonian object would, then, fit the general picture we have so far of the upper m. or so being of that date.

Further precision in the dating of Monument Z may be given by a photograph of the excavations (Fig. 65). On the baulk at the end of the Y Trench, the northeastern face showing the section after the removal of the building, one can see slight indications of occupation layers sloping from the retaining wall on the right to a level where the base of Monument Z had been. This should indicate that the latter structure was built after the retaining wall, but existed for some time contemporaneously with it. Both structures share architectural features, such as very similar, small, rectangular mud bricks, <sup>193</sup> and niching. Seton Lloyd has stated that aside from the niches, nothing in these structures could not be Akkadian practice.<sup>194</sup> However, the smallness of the bricks tends to suggest Ur III to me rather than Akkadian.<sup>195</sup> There is a difference of a m. between the foundation levels of two structures, the retaining wall (called by Mackay the "Sargon Wall") on the basis of a tablet found near it,<sup>196</sup> being grounded on the Red Stratum. The difference in the level can be accounted for by the more massive retaining wall's having been sunk well below its ground level for a firm foundation.

We cannot, at present, date the retaining wall. If we could, we could fairly safely apply that date to Monument Z.

At present, Moorey's dating to Ur III seems safest, although we should admit the possibility that the construction of the retaining wall and Monument Z may have been work of the late Akkadian Period, with renovations in Ur III and the Old Babylonian Period. Much of the retaining wall remains in place and a small amount of excavation would yield a date for it. North of the Neo-Babylonian temple, where the retaining wall was found by Watelin to continue (Fig. 60) and where some parts of the mound were not excavated, would be the best location for an exploratory trench.

## The B and C Trenches

As published by Moorey, and as indicated by Watelin in the plan used by
Moorey,<sup>197</sup> the B and C Trenches are slightly erroneously located and designated. A later version of Watelin's plan and further reports which Moorey did not have at hand make clear that there were sixteen C trenches, marked C, C-1, etc., to C-15.<sup>198</sup> Each of these trenches was cut at "plain level" from the northern edge of the mound toward Trench B, B-1, etc. (Figs. 57-60). Again it should be noted that, in the C trenches, "plain level" was actually about one m. above the plain. The system of recording finds in these trenches was unfortunate. Rather than giving height up from the plain, as Moorey assumes,<sup>199</sup> the excavators recorded all objects in m. *from the surface of the mound*. Since the mound from plain level in the section where an object was found. Thus, objects are catalogued as from C-5, 3 (5), meaning Trench C-5 at three m. below the surface of the mound at a spot where the surface is five m. from the plain. A locus C-5, 5 (5) means Trench C-5, five m. from the surface at a place where the surface is five m. from the plain.<sup>200</sup>

On photographs of the C trenches, it is apparent that the excavators cut through occupation layers, one clearly marking the ground level corresponding to the floor of the Neo-Babylonian temple, i.e., about five courses above the bottom of the wall (Fig. 66). Other photographs show definite floor levels and much ashy debris at a height above the middle of the preserved temple walls. There are also solid blocks of mud-brick and baked brick masonry at this level.<sup>201</sup> It is clear that the area had become a residential quarter sometime after the building of the temple, and apparently while the walls of the temple were still visible. There were many graves from these trenches, apparently Neo-Babylonian and later.<sup>202</sup>

Although the C trenches were very irregular, being more or less saddle-shaped in section with the height varying from zero to eight m. above the plain,<sup>203</sup> and although even with the double-numbering system of loci one cannot determine a given object's findspot in any trench, a rough stratigraphic scheme does manifest itself when we consider the cylinder seals from the B and C trenches. Buchanan's catalog of the Ashmolean seals, based in great part on the finds from Kish, is a very great aid in this work.<sup>204</sup>

At plain level, which is actually about one m. above the plain in the C trenches, and thus well above the Red Stratum, there is a concentration of Early Dynastic and Akkadian seals.<sup>205</sup> This cluster would correspond to the level of debris between the Red Stratum and the bottom of Monument Z. Considering only the parts of the trenches that would correspond to the highest part of the hillock in front of the southwest doorway of the temple, and taking only those seals from loci where the original surface was six to eight m. above the plain, a continuation of Akkadian material predominates through the next two lowest m. of debris. There are, however, one Ur III and one Old Babylonian seal within this range, as well as one Achaemenid specimen.<sup>206</sup> At six m. from the surface in Trench B-4, the Achaemenid seal is clearly intrusive, or has been recorded incorrectly. The Ur III and Old Babylonian seals, however, I would tend to accept at this depth, and relate them to the supposed reconstructions of Monument Z.

An interesting feature of the B and C Trenches is the very slight evidence of Ur III

(7 examples), Old Babylonian (6 examples) and Neo-Babylonian seals. A check of Neo-Babylonian stamp seals from Kish shows that only one seems to have come from C, and that was near the surface of the mound. There are Neo-Babylonian tablet fragments in this area, but the overwhelming number of inscribed objects and tablets from C, perhaps in all as many as 400, were Early Dynastic and Akkadian.<sup>207</sup>

The number and quality of Akkadian cylinder seals (46 items) as well as the tablets in the C trenches indicate that Watelin missed a great opportunity to shed light on the role of Kish in the Akkadian Period.

### Trenches Yw and Ywn

In 1929-30, Watelin sunk two pits below "plain level" in the C Trench area. Yw was carried to water level, seven meters below the "plain." Here again, we see the differences in "plain level" between Y and the C Trench area. In Y, water level was found at six m. below the plain. The flood stratum was in this sounding 3.70 m. below the "plain."<sup>208</sup>

The stratum over the Flood was the base for houses. It is obvious from photographs<sup>209</sup> that there are at least two phases of houses above the Flood. One phase rests at about one m. below the "plain," in reality at plain level. This phase shows walls of houses with drains associated with and cutting into them. A drain composed of baked plano-convex bricks seems from the photographs to be of the same age as the houses, while a tile drain was of later date, belonging to a phase destroyed in taking away the C trenches. Watelin dated the houses of Yw as contemporary with Monument Z, but the upper phase seems more likely to be contemporary with the structures found above the Red Stratum, below Monument Z, and must be dated Akkadian. An Ur III seal found at three m. below the "plain" (two m. below the real plain), and an Old Babylonian seal found one m. below the "plain," must be accounted for by intrusion due to the many drains and cisterns sunk into the area from above.<sup>210</sup>

Under the Flood Level in Yw, many ashbeds and potsherds were found, along with non-pictographic "archaic" tablets.<sup>211</sup> However, only one grave was found in the pit. The ED II Y Cemetery, then, was restricted to the area later dominated by the larger ziggurat.

The pit at Ywn, sunk to only two m. below the "plain," did not penetrate to Flood Level. There was considerable admixture of post-Akkadian material since the pit was near the edge of the tell. Here, also, in the topmost meter of debris a large building was found,<sup>212</sup> as well as "burials of Cemetery A type," that is, of ED IIIb-Akkadian date.

Arguments for the dating of the Flood are based in great part on sealings published as from Yw "below the Flood."<sup>213</sup> It can be shown, however,, that not all of the impressions published by Langdon as from below the Flood in Yw are from that locus.<sup>214</sup> Thus, sealings of ED III date supposedly found below the Flood should not be taken too seriously, except as intrusions.

#### Neo-Babylonian Temple

The great temple dominating Ingharra (Fig. 67) rests on the remains of a plano-convex baked brick platform. It also sits above the northern extension of the niched and buttressed retaining wall that we have argued was probably Ur III in date, but may have continued in use into the Old Babylonian Period. The floor of the Neo-Babylonian building was established by Mackay at roughly the fifth course above the base course, which in turn rested on the earlier retaining wall, i.e., at five m. above the plain.<sup>215</sup> Watelin seems to have cut below the floor level, probably nothing more than a tamped earth layer, and found an earlier plano-convex pavement into which the later building was set.

According to Watelin's description, the foundation box he reports in the interior of the chamber was directly under the pavement, which in turn ran under the brick behind which he found a deposit of jewelry. This brick was in the base course of the Neo-Babylonian building. In each of the three doors of the chamber, similar empty foundation boxes were found. These also consisted of baked, stamped Nebuchadnezzar bricks with the stamp to the inside.

The three doorway boxes were plastered on the outside with mud. The one in the center of the room was originally coated with bitumen. Curiously, the bitumen was taken as a sign that the bricks had originally been in a wall somewhere and had been reused in the box by some king after Nebuchadnezzar.<sup>217</sup> Because Nabonidus bricks were found outside the building in the debris, it was argued that he probably built the temple and reused his father's bricks. There is no reason to suppose that any other king than Nebuchadnezzar built the temple initially. Added to the evidence for construction of the temple by Nebuchadnezzar is the barrel cylinder of this king found by Genouillac near the temple.<sup>218</sup> Barrel cylinders were never employed except in dedicating structures. No other mention of his work has survived, probably because he never finished it.

The mud bricks left against almost all the interior walls may have been piled there for storage to prevent deterioration after the project was halted. I assume that some time passed, and that Nabonidus or another king decided to finish the structure. Because of the buildup of debris and houses outside the building, the renovation had to be at a higher level. I would see the "cornice" as actually the base courses for such a later renovation. In some photographs of the "cornice" it is obvious that the projection is much sharper and more vertical than one would expect for a cornice.<sup>219</sup> In the more elaborate niches, as around the doorways, the details are not repeated in the "cornice" is actually the foundation of a later version of the building, then the stacked mud brick would seem to have been left in place as fill or foundation buttressing.

The temple seems to have ceased to exist as a religious structure in the Achaemenid Period, and perhaps even in the later Neo-Babylonian Period, because the structures found in the top meter of the B and C trenches were definitely private houses.

We have come, now, to the end of the archaelogical evidence for Kish. In the

concluding chapter, the results of surface survey at the site and the inferences to be made from excavation are discussed.

# **CHAPTER IV** – Footnotes

- Langdon, XK, I, gives many of the sources for early exploration. For a comprehensive publication of Rich's work, and some of Rennel's, see C. S. Rich, Narrative of a Journey to the Site of Babylon in 1811: Memoir on the Ruins; Remarks on the Topography of Ancient Babylon, by Major Rennell, in Reference to the Memoir; Second Memoir on the Ruins, in Reference to Major Rennell's Remarks, with Narrative of a Journey to Persepolis, ed. by his widow (London: Duncan and Malcolm, 1839). See also, James Rennell, The Geographic System of Herodotus Examined by Comparison with Those of Other Ancient Authors and with Modern Geography (London: C. J. G. and F. Rivington, 1830).
- 2. Ibid., p. 80.
- 3. James S. Buckingham, *Travels in Mesopotamia*, II (London: H. Colburn, 1827), 325. Buckingham gives the name as Al-Hheimar.
- 4. Ibid., pp. 304-305.
- 5. Ibid., p. 309.
- 6. Robert Ker Porter, Travels, II, 390ff. Porter gives Uhaimir as al-Hymer.
- 7. Ibid., p. 299.
- 8. Robert Mignan, Travels in Chaldaea, pp. 220ff. Uhaimir given as El Hamir. Mignan, ibid., pp. 168f., like Rich and other scholars of the same generation, mistakenly accepts Rauwolff's statement that he had visited Babylon. Cf. Buckingham, Travels, II, 279; Rich, Narrative, p. xxx, who adds the account of an Elizabethan merchant, Eldred, who thought he was at Babylon when he was only seeing Aqar Quf. Leonhart Rauwolff, Eigentliche Beschreibung der Raiss...inn die Morgenländer fürnemlich Syriam, Judaeam, Arabiam, Mesopotamiam, Babyloniam, Assyriam, Armeniam... (Augsburg, 1582), pp. 202-205, thought he was seeing the bridge at Babylon, when in fact he was looking at the Islamic bridge Dimimma over the Nahr<sup>4</sup>Isa at Fellujah.
- 9. See J. Raymond Wellstad, Travels to the City of the Caliphs, along the Shores of the Persian Gulf and the Mediterranean. Including a Voyage to the Coast of Arabia and a Tour on the Island of Socotra (London: Henry Colburn, 1840), I, 228.
- 10. James Baillie Fraser, Travels, II, 35-36.
- 11. Fraser made another journey across the same territory, but from Kut to Hilla. See A Winter's Journey (Tatar) from Constantinople to Tehran (London: R. Bentley, 1838), pp. 81ff. Lt. William Heude, A Voyage up the Persian Gulf and a Journey

Overland from India to England in 1817 (London: Longman, Hurst, et al., 1819), pp. 81ff., made a similar Kut-to-Hilla journey.

- 12. Austin Henry Layard, Discoveries, pp. 542-43.
- 13. Jules Oppert, Expédition scientifique en Mésopotamie exécutée par ordre du Gouvernement de 1851 à 1854 par Mm. Fulgence Fresnel, Félix Thomas et Jules Oppert (Paris: Imprimerie Impériale, 1863), I, Bk. II, 217-20.
- 14. Ibid., probably reused by Islamic occupants. See our Appendix I, No. 25.
- 15. See *ibid.*, p. 218. There is earlier material at Bandar, perhaps only fill in the Parthian fortress, but maybe an earlier occupation. See Appendix I, No. 8.
- 16. *Ibid*.
- 17. See Porter, Travels, II, Pl. 77a. Cf. S. Langdon, XK, I, 53.
- 18. Cf. S. H. Langdon, XK, I, 54, "For more than half a century Kish remained untouched and almost unmentioned by scholars...during all this period we have no record of a single effort to visit or investigate the ruins...." The work done from 1861 to 1866 by the British engineers Selby, Bewsher, Collingwood, etc., upon which all subsequent maps of southern Iraq have been based, should not be forgotten. See H. Kiepert, "Karte," for full discussion and references.
- 19. John Ussher, A Journey from London to Persepolis (London: Hurst and Blackett, 1865), p. 476.
- 20. George Smith, Assyrian Discoveries: An Account of Explorations and Discoveries on the Site of Nineveh, during 1873 and 1874 (New York: Scribner, Armstrong and Co., 1875), pp. 62ff. Smith notes that H. Rawlinson had by that time identified Tell Ibrahim with Kutha, whereas at the time of Oppert's publication, 1863, Rawlinson identified Toweibah as Kutha.
- 21. Information from Ward's diary of his 1884-85 expedition. See John P. Peters, Nippur, I, Appendix F, 321ff.
- 22. Asshur and the Land of Nimrod (Cincinnati: Curts and Jennings, 1897).
- 23. Cf. S. Langdon, XK, I, 50, "... the existence of the word Inghara is not documented at all before the post-war maps of the Geographical Section of the British Military Survey in Iraq.
- 24. See infra, Chap., IV, pp. 80f, for discussion of the name.
- 25. Archäologische Reise, II, 247.

- 26. Henri de Genouillac, Premières Recherches Archéologiques à Kich (Fouilles francaises d'El-Akhymer) (Paris: Librairie Ancienne Edouard Champion, 1924), I, 15. Hereinafter referred to as PRAK.
- 27. As previously reported by Layard, *supra*. Oppert found no unbaked bricks at the base of the baked brick core. Genouillac, *PRAK*, I, 18, points out that Oppert's trench, still visible in 1912, was not cut to the base, so it could not expose the Nebuchadnezzar mud-brick facing.
- 28. PRAK, II, Pl. XII, Nos. 6-8.
- 29. Ibid, I, 19, and see plan, our Fig. 45.
- 30. PRAK, I, 19, and see plan, our Fig. 45.
- 31. Ibid., pp. 19ff., esp. p. 23.
- 32. See, e.g., *ibid.*, p. 21, and Pl. XVIII, No. 127 (Achaemenid/Seleucid, Type F), and note also a Sassanian (?) stamped sherd, Pl. XIX, 4.
- 33. Ibid., pp. 28-29.
- 34. See ibid., pp. 24ff., "Le Palais," esp. p. 27 for plano-convex bricks.
- 35. Ibid., p. 27.
- 36. Ibid.
- 37. See McCown and Haines, Nippur I, 119, for discussion.
- 38. PRAK, I, 27ff.
- 39. His identifications, based in part on the Field-Oxford Expedition's findings, are reliable, in fact far more so than those given by Langdon, for whom all pottery was "Babylonian." See *ibid.*, II, 15, 27, 28.
- 40. Letter, Field Museum Anthropology File. Unless otherwise specified, all letters referred to here are in this file.
- 41. Letter, January 5, 1922, Field Museum Director's File.
- 42. Report to Langdon, dated April 27, 1922. Copy sent to Field Museum. Now in Anthropology File. Kish was described as bordered by cultivation, with a plentiful supply of water and labor. This was not the situation found by Mackay in 1923. See his letter to Langdon, January 31, 1923.
- 43. Letter, Langdon to Director, Field Museum, October 13, 1922, enclosing decision

of the Archaeological Committee as reported by F. Kenyon to Langdon, same date.

- 44. Letter, Langdon to Davies, Director, Field Museum, November 1, 1922.
- 45. Agreement, dated June 16, 1922.
- 46. Not twelve, as given by Langdon in *Iraq*, I (1934), 113; nor ten as given by P. R.
  S. Moorey in "A Reconsideration of the Excavations on Tell Ingharra (East Kish), 1928-33," *Iraq*, XXVIII (1966), 18.
- 47. For incomplete accounts of the seasons of work at Kish, see S. A. Pallis, *The* Antiquity of Iraq (Copenhagen: E. Munksgaard, 1956), p. 356; P. R. S. Moorey, "A Reconsideration," pp. 18f.; cf. also the summaries published in *Illustrated* London News at various times throughout that period (see bibliography for specifics), and in Archiv für Orientforschung, for those years.
- 48. (Paris: Geuthner, 1924, 1930, 1934). Volume II was to have been a continuation of the report on Mackay's work at the A Palace, but was abandoned since Mackay was very quickly producing the more scientific account published by the Field Museum.
- 49. This method, employing many men and a small gauge railroad, was designed to move the greatest amount of earth in the shortest span of time. The usual procedure was to cut a mound in strips five m. wide and from the surface of the tell to plain level. Watelin was initially an engineer and was far more concerned with logistical problems, such as the placement of dumps, most efficient method of laying track, etc., than with any minor archaeological problem. See his letters to the Director of Field Museum, dated February 22, 1927; March 3, 1927; December 28, 1929, etc.
- 50. E. J. H. Mackay, Report on the Excavation of the "A" Cemetery at Kish, Mesopotamia, Part I ("Field Museum of Natural History, Anthropology Memoirs," Vol. I, No. 1; Chicago: Field Museum Press, 1925), hereinafter AM, I.1; A Sumerian Palace and the "A" Cemetery at Kish, Mesopotamia (AM, I.2); Report on Excavations at Jemdet Nasr, Iraq (AM, I.3; Chicago: Field Museum Press, 1931). Inaccuracies in the publication were due to the editor rather than Mackay.
- 51. Letters to Director, Field Museum, September 6, 1926.
- 52. Caused by heavy rain at Jemdet Nasr. Langdon had to walk 18 miles through heavy mud and sand to Kish. He caught pneumonia and nearly died in the Royal Hospital, Baghdad. His health was permanently impaired. (H.F.)
- 53. Letters, Langdon to Director, October 13, 14, 1926. Watelin was welcomed especially since there would be more objects coming from his work, than from

Mackay's more careful excavations.

- 54. First mentioned in letter from Langdon to Director, Field Museum, September 6, 1926. The possibility was often raised by Langdon in the following years, and complained of by Watelin in letters.
- 55. Langdon kept a careful catalog of Mound W tablets, each with locality and depth. Mackay plotted these every Friday. (H.F.).
- 56. PRAK, Vol. I, Pl. 41. In my Fig. 40, I have righted the picture and added a north arrow.
- 57. Written sometime before November 6, 1924, at which time it was sent by Langdon to the Director of Field Museum. See letter of that date and the manuscript of nine pages entitled "Tel El Haimir, Ziggurat."
- 58. Mackay's datum was a point randomly selected inside the camp yard, just to the south of the Uhaimir ziggurat. Zero was taken as the ground level into which was sunk a sun-dial. This point is 2.60 m. above present plain level at Uhaimir. Cf. Henry Ware Eliot, *Excavations in Mesopotamia and Western Iran. Sites of 4000-500 B.C.* ("Special Publication of the Peabody Museum of American Archaeology and Ethnology, Harvard University"; Cambridge, Massachusetts: Peabody Museum, 1950), p. 19, assuming datum to be 8.5 m. above the plain on the basis of a statement of Langdon that the ziggurat was ninety ft. high.
- 59. The very friable condition of the baked and unbaked bricks, plus the deep red color, leads me to assume that the source for these bricks was a marshy area very close to Kish, where the clay is of a deep red color. The crumbly consistency of these bricks seems on casual inspection to be the result of salt action. Houses built of like-colored mud in the area north of Kish today are said to last only a few years due to salt in the mud. Mackay assumed that the red color was a result of burning, and since the mortar was the same color as the baked bricks, he proposed in his letters and unpublished manuscript that the entire ziggurat was built of unbaked bricks, then enclosed in a giant kiln and fired. For him, the horizontal apertures were flue holes, and the white powdered reeds between layers were thought to be ash caused in the firing.
- 60. This tablet, HMR. 1=Ash.1924.523, was in good condition, but not published.
- 61. The chambers referred to are on the plan (Fig. 46). I am able to identify the first eight chambers by reference to Mackay's unpublished reports.
- 62. As published by Genouillac, *PRAK*, Vol. I, Pl. 1, 0.3. The Uhaimir bricks found by Mackay are HMR. 14, 124.
- 63. HMR. 49, 57-59. For a duplicate inscription, see I R 5, 22. These bricks measured 36 x 33 x 5 cm.

- 64. The placement of the two pavements is clearest in a letter from Mackay to Langdon, May 1, 1923. Size of the Nebuchadnezzar bricks: 33.5 x 34 x 7 cm.
- 65. See XK, I, Pls. XLVIII, 2 and XLIX for pictures of the best preserved sections. Langdon's assumption that the buttressed and recessed face, *ibid.*, p. 65, and the pavement, *ibid.*, Pl. XLVIII, No. 1, are datable to Samsuiluna is in error. The facing must post-date Adad-apla-iddina, and the pavement is probably Nebuchadnezzar's. Mackay found no Samsuiluna paving *in situ*.
- 66. Mackay, Report, 1924, concludes that each stage would have been about 2.30 to 2.50 m. high.
- 67. Mackay, Report, 1924, describes this construction as 2.50 m. wide by 2.62 m. deep by 1.01 m. high, carefully made, and cemented and coated with bitumen. Cf. Clarence Fisher, *Excavations at Nippur* (Philadelphia: C. S. Fisher, 1906), Vol. II, Pl. 23a.
- 68. One of these structures, apparently the more easterly of the two, is shown in XK, I, Pl. XLIX, 1, labeled "retaining wall of Nebuchadnezzar."
- 69. XK, I, Pl. XLVIII, 1.
- 70. *Ibid.*, p. 65, indicates that the plan is a reconstruction from Mackay's plans.
- 71. For like "cellars" in a temenons wall, see Hilprecht, *Explorations*, p. 390 and plate facing, and also the plan, p. 470, Rooms 4-5. Mackay found mud-brick measuring 28 x 19 x 11 cm. in the northeast jamb of Chamber VIII, clearly a fragment of older wall.
- 72. Some reidentifications of Kish tablets and assigning of loci was done by me in the summer of 1969 at the Ashmolean with a grant from the American Philosophical Society. From the temenos chambers came more than thirty OB letters and administrative tablets, some Ur III administrative texts, OB school tablets, and numerous NB contracts.
- 73. Letter, Mackay to Langdon, March 31, 1923, p. 4.
- 74. See XK, I, 66.
- 75. The altar was composed of small baked bricks 27 x 17 x 7 centimeters. The altar was 1.60 m. square and was covered with bitumen. On either edge was a gutter flanked by a small wall, leading toward the front (northeast). Inside the altar were three more gutters leading toward the outside. In front of the altar was a pavement of baked bricks 36 x 35 x 9.5 cm. mixed with some measuring 48 x 48 x 7.5. This latter size seems distinctive of Akkadian architecture, and must be a re-use. The other bricks are much the same size as Samsuiluna bricks. Information from Ashmolean archives.

- 76. Letter, Mackay to Langdon, May 21, 1923. Langdon, XK, I, 66, says these came from a small pit, twenty-five ft. deep.
- 77. For instance, along the town wall, at a Pre-Sargonic level, at Nippur. See Hilprecht, *Explorations*, p. 485.
- 78. Information from card catalog for 1923-24.
- 79. See card catalog, HMR. 184=Ash. 1931.988; HMR. 120=lost and cf. Robert Ker Porter, *Travels*, Pl. LXXVII, h and *XK*, I, 15f. For the Iawium tablet, see HMR. 987, Chamber 21.
- 80. See XK, I, 67 and Pls. II, 3 and VIII, 1.
- 81. Ibid., p. 68.
- 82. Information from Mackay notes, Ashmolean Museum, and from reports to Director, Field Museum. Also, object cards for 1923 and 1923-24.
- 83. Mackay notes, Field Museum.
- 84. See AM, I, 1, p. 80, XK, I, 33. Langdon's map, *ibid.*, Pl. XXXIII, marks this Khuznah, in error.
- 85. XK I, 33.
- 86. According to notes by Mackay in Ashmolean.
- 87. See McCown and Haines, Nippur I, 119.
- 88. The photograph is published in XK, I, Pl. XVII, 2=HMR.492-494a. Cf. McCown and Haines, Nippur I, Type No. 58, for possible parallels.
- 89. XK, I, Pl. XVII, 2. This jar is HMR.515A=IM. 1752.
- 90. See Langdon, XK, I, 33; cf. AM, I.1, p. 80. The mention of a wall of mud-brick six m. wide in AfO, II (1924), 46, must be based on some report of Langdon.
- 91. The air photograph shows the ridges running south of No. 21.
- 92 AM, I.1, p. 80.
- 93. Letter, Watelin to Langdon, May 3, 1927.
- 94. Letter, Watelin to Langdon, April 20, 1930, cf. Langdon, XK, I, p. 37, who says the Trenches in Mound I were made by Oppert.

- 95. P. R. S. Moorey, "The 'Plano-Convex Building' at Kish and Early Mesopotamian Palaces," *Iraq*, XXVI (1964), 83ff.
- 96. Ibid., p. 92.
- 97. See XK, I, 37.
- 98. See AM, I.1, pp. 80-81; according to Mackay no earlier material then Second Isin had come from Mound W as of 1925.
- 99. Ibid., p. 81.
- 100. XK. 34-35.
- 101. AM, I.1, p. 82.
- 102. "Excavations at Kish and Barghuthiat," *Iraq*, I (1934), 121f. This article is the most error-filled account ever written by Langdon and must be read skeptically.
- 103. Cf. the Parthian fortress built over the É-kur at Nippur, the Parthian fortress on the ruins of the Nebuchadnezzar summer palace at Babylon, etc.
- 104. Langdon, "Excavations at Kish and Barghuthiat," p. 122.
- 105. AM, I.1, p. 83.
- 106. See Langdon, "Escavations at Kish and Barghuthiat," pp. 113ff.
- 107. The plan of SP-1 was published in ILN, No. 4791, February 14, 1931, pp. 261f. SP-2 was first published in ILN, No. 4801, April 25, 1931, pp. 697f.; and SP-3 in ILN, No. 4844, February 20, 1932, p. 273, and re-published in AfO, VIII (1932), 78. SP-7, the villa, was first published in Iraq, I (1934), 116, Fig. 3 and reproduced in Arthur Upham Pope, A Survey of Persian Art (Oxford University Press, 1938), I, 591.
- 108. *Ibid.*, pp. 601-45.
- 109. "Excavations at Kish and Barghuthiat," pp. 115-17.
- 110. Ibid., pp. 117, 123.
- 111. Measuring 36 x 36 x 9, 40 x 40 x 12, 44 x 44 x 12, 48 x 48 x 12. See *ibid.*, p. 117.
- 112. By Jurgis Baltrušaitis, "Sāsānian Stucco, A: Ornamental," pp. 601-30 and by A. U. Pope, "Sāsānian Stucco, B: Figural," pp. 631-45. A few pieces of Kish stucco

are scattered within the section by Oscar Reuther, "Sassanian Architecture, A:History," pp. 493-578.

- 113. See AM. I.1, p. 82, in which Mackay indicates that in "a trial trench," obviously not the one on top of the northern leg, he found sun-dried brickwork of the time of Hammurabi over older walling, dated to Early Dynastic by the finding of inlay, etc. Mackay makes no mention of the baked-brick building. Object cards from the second season, 1923-24 (e.g., UGB. 978, 979) indicate that the objects came from a trench cut at the foot of the mound and carried at least one meter below it. The cut in the top is indicated on Genouillac's plan (Fig. 42).
- 114. AM, I. 1-2. See also Langdon, XK, Vol. I.
- 115 Mackay, AM, I.2, passim, mentions the second plan, gives details on the later walls, etc., but there are no plans in the book. A letter from him to Langdon, February 15, 1930, lists all the errors and suggests that the correct plans, list of grave levels, etc., be placed in the third volume of the series on Jemdet Nasr (AM, I.3), which was not done. A report by L. H. Dudley Buxton and David Talbot Rice, "Report of the Human Remains Found at Kish," Journal of the Royal Anthropological Institute, LXI (1931), 57ff., gives only anthropometric information.
- 116. Edith Porada, "The Relative Chronology of Mesopotamia. Part I. Seals and Trade (6000-1600 B.C.)," *Chronologies in Old World Archaeology*, ed. Robert W. Ehrich (University of Chicago Press, 1965), p. 161.
- 117. Personal communication. Biggs also notes the presence of one Semitic personal name in the list. Moorey, "The 'Plano-Convex Building,'" p. 91, apparently considers the tablet older than ED III.
- 118. AM, I.2, pp. 76-77, and notations on "Abbasid" jars in the object cards. There is also evidence on cards of Neo-Babylonian graves.
- 119. See AM, I.2, p. 131.
- 120. However, see H. Field, Human Remains from Kish, Iraq. ADIM No. 2345, pp. 235.
- 121. See B. Hrouda and K. Karstens, "Zur Inneren Chronologie des Friedhofs 'A' in Ingharra/Chursagkalama bei Kis," ZA, LVIII (1966), 256ff., who divide the cemetery into four phases. Their dating of the Palace to ED IIa (Mesilim Zeit) on the basis of the inlays completely ignores the "Fara" tablet. Likewise, their dating of the cemetery to ED IIb ignores the fact that one can show a development of goddess-handled vessels from a short, geometrically decorated handle (ED II) to a taller geometric or sprig-decorated handle (ED III, early) to handles decorated with applied human features (late ED III). See Delougaz, *Pottery*, pp. 87ff., for

discussion. Delougaz points out the gradual lengthening of the neck and foot as time passed. He also notes that the later examples of the type had pronounced outer-ledge rims, rather than the more band-like rim of ED II examples. Almost all the Kish upright-handled jars are decorated with applied faces, and have high necks and ledge rims. At Ur, this type of vessel was found in only one grave, an Akkadian one (C. L. Woolley, UE, II, 162). Since the writing of this section, Moorey has published an analysis of the A Cemetery and his findings should be understood to supersede mine. See "Cemetery A at Kish: Grave Groups and Chronology," Iraq, XXXII (1970), 86ff.

- 122. See, "The 'Plano-Convex Building,' " p. 91, basing his conclusion on the Diyala material.
- 123. See Hrouda and Karstens, "Zur Inneren Chronologie," Pls. 17-18 for assembled groups from these graves. A pin has been omitted from Grave No. 52.
- 124. AM, 1.2, Pl. LVIII, 10, 28 etc. Cf. Nissen, Zur Datierung des Königsfriedhofes von Ur ("Beiträge zur Ur- und frügeschichtlichen Archäologie des Mittelmeer-Kulturraumes," Bd. III; Bon: R. Habelt, 1966), Tf. 16, Metallgeräte 2, Nadel 1c-1d.
- 125. AM, 1.2, Pl. LI, 12-17. Cf. McCown and Haines, Nippur I, Pl. 82, 1 (Akkadian), and Delougaz, Pottery, Types C. 515.370a, 525.370a (ED I-III). The Delougaz types are not exactly parallel, having a less angular shoulder. Cf. Nissen, Datierung, Tf. 8, Type 158.
- 126. In grave No. 52, See AM, I.2, Pl. XLVIII, 1. For goddess-handled jars found in Akkadian graves, see Delougaz et al., Private Houses and Graves in the Diyala Region (OIP, LXXXVIII; Chicago; University of Chicago Press, 1967), pp. 129ff., Khafaja Graves 159-68, esp. Grave 162, which has also an Akkadian seal.
- 127. Several of the graves, i.e., Nos. 12, 40, 111, 117, etc., contained goddess-handled vases as well as "fruit stands" and a pin with a bent head. Nissen, *Datierung*, Tf. 17, Matallgeräte, Nadel 7a-7c, demonstrates that this type of pin was more characteristic for ED IIIa, the Royal tombs, than for any later period, although the type lasted through the ED III Period. Hrouda and Karstens, "Zur Inneren Chronologie," Pls. 2ff., give a convenient over-view of several grave groups.
- 128. See XK, I, 34, for discussion of etymology.
- 129. Given in Peters, Nippur, I, 321.
- 130. On my survey, local farmers, since most were newly arrived in the area, were very unreliable for identifications. Any tell with a surveyor's cairn on the top could be called Abu Numera ("Father of the Number"). In many cases, I was told to look on my map for names. Only once did I meet a man who could give many of the names as recorded by the British surveyors of the 1800's, or even as mapped by the British army in 1917. This man was a sheep-and-goat herder who wandered by donkey from Suwaira to Kut and Diwaniyah. The Beduin raise stones or caines

of rock on certain tells to guide them. Farmers, including a man I once took along as a guide, destroy these markers whenever possible.

- 131. Umm Gharrah, for which no one has offered a reasonable etymology, seems to be a misunderstanding or corruption of Umm al-Mughra أَمْ المُصْفَسَرَةُ "Mother of Red-ness" This possibility has been suggested by Professor Muhsin Mahdi.
- 132. XK, III, 3.
- 133, Letter, Watelin to Langdon, November 18, 1930, and object cards K. 540 to 558.
- 134. See Moorey, "A Reconsideration," pp. 18ff.; also S. Lloyd, "Back to Ingharra," *Iraq*, XXXI (1969), 40-48.
- 135. In XK, III, 20, for instance, an Akkadian letter found in the debris of Monument Z is given as from Mound Z.
- 136. Letter, Mackay to Langdon, May 28, 1923. Trench visible in photograph, AM, I.2, Pl. XXIV, 2.
- 137. See AM, I,2, p. 82. See Photo, XK, III, Pl. III for trench in the smaller ziggurat.
- 138. See a very useful report by Mackay, "Excavations at Kish," *The Times*, August 25, 1926, and *XK*, I, 3.
- 139. Visible on the ground, and in unpublished photographs.
- 140. So designated and described on architecture cards, Ashmolean Museum.
- 141. This information is based on a report of Watelin dated May 3, 1927, and on other reports, such as H. Field to the Director, Field Museum, December 28, 1927, giving details of previous work. Also helpful were object cards with loci A-1, A-2, etc. Moorey had no indication of Hillock A or the A trenches in his records, thus does not mention them in his "A Reconsideration."
- 142. Information from various reports from Watelin, Field and Eric Schroeder.
- 143. Details for this season are from Watelin's reports to Langdon, with frequent sketches of the work.
- 144. Details from Watelin reports.
- 145. Details from Watelin reports.

146. Watelin to Director, Field Museum, December 21, 1929, Cf. XK, IV, 5f., where no overall pavement is claimed, but buildings and hearths are noted.

As indicated on my section (Fig. 61), there is some evidence that ED I material was also found below the water level. Watelin, in a letter to the Director of the Field Museum, dated December 16, 1928, and in another to H. Field, dated December 18, 1928, says that he did not find Jemdet Nasr sherds until he reached one m. below water level.

The section given (Fig. 61) is derived from the original field reports to Langdon and Field Museum, and varies in many details from published sections of the Y Trench. Cf., for instance, S. Langdon, "The Biblical Deluge an Ascertained Fact," *ILN*, February 8, 1930, pp. 206-207; *idem.*, "The Excavations at Kish, 1928-1929," *JRAS* 1930, pp. 601-610; L. C. Watelin, "Notes sur l'Industrie lithique de Kish (Iraq)," *L'Anthropologie*, XXXIX (1929), 65-76; *idem. XK*, Vol. IV, Pls. I-II, and Henry W. Eliot, *Excavations in Mesopotamia and Western Iran* (Cambridge, Mass.; Peabody Museum, 1950), p. 21. S. Lloyd's section, however, is very close in detail to mine. See his "Back to Ingharra," Pl. VII.

- 147. Watelin to Langdon, February 20, 1929; Watelin to Director, February 20, 1929. Though buildings were found directly under the Flood Level, as Moorey notes, "A Reconsideration," p. 33, they were clearly not originally referred to as part of the Early Houses Stratum. Moorey assumes that all the houses under the Flood were called "Early Houses," but this was not entirely true. On object cards, only those houses found between four and six m. below the plain have that designation. Watelin, XK, IV, 5ff., clearly distinguishes the earliest buildings from later constructions.
- 148. E. G., XK, IV, 40ff., Langdon, JRAS, 1920, p. 601; Moorey, "A Reconsideration," p. 31, "the flood . . . destroyed the final settlement of the 'Y' area. . . ."
- 149. E.g., Field Museum photograph 59518, and others, showing walls at a high level in Ya, just under plain level, and see XK, Pl. VI, 1, for the pavement.
- 150. See letter, Watelin to Langdon, December 14, 1928. This stratum was somehow re-interpreted as a "sterile" layer, though sherds were found there as well as walls. In a section I cleaned on the northwestern face of the Y trench, this stratum yielded a number of sherds, the latest dating to ED II-III.
- 151. The method of Watelin may be inferred from a letter to him from H. Field, December 4, 1928, "I hope you have forgotten the word 'shiele' (take it away) with regard to the ancient inhabitants of Kish. . . ." Watelin also commented on the care, thought unnecessary, of Penniman in extracting skulls. Letter, Watelin to Field, November, 1928.
- 152. That is also my clear recollection. (H.F.).
- 153. "A Reconsideration," p. 42.

- 154. Ibid., p. 38. I agree that some of the graves were associated with the houses.
- 155. We accepted in part the expert knowledge on this distinction by Hasson Jedur, foreman, trained by Koldewey at Babylon. (H.F.).
- 156. See Delougaz *et al.*, *Private Houses and Graves, passim.* At Khafajah, the tombs were often so well constructed, with a house wall or corner as a tomb wall, that one wonders if the tomb were not built while the house was standing, then the house was demolished because of death in it, and a new house built above it.
- 157. See ADIM No. 2345, pp. 225.
- 158. Dated by relation to Grave 373. See infra.
- 159. There were only two wheels (H.F.).
- 160. However, H. Field states in a note to me: "The animals lay on a low ramp in front of Chariot No. 2, not atop. I identified the animals' skeletons lying in front of Chariot No. 1 as *Bovidae*, those with Chariot No. 2 as *Equidae*. I am glad Dr. Charles A. Reed has confirmed these identifications."

There were three chariot burials in Y Trench. (For details see Field, FMNH, Anthropology Leaflet No. 28, (1929), pp. 18-20, Pls. v-vii.

Note that the copper rein-ring from the front of the four-wheeled vehicle (Chariot No. 2) is surmounted by a member of the *Cervidae* with what appears to be a halter through the nose and tied around the right foreleg. This is the earliest example of a domesticated deer.

Dr. Berthold Laufer, Chief Curator of Anthropology at Field Museum until 1934, had long suggested that the first animal after the dog to be domesticated may well have been the reindeer in the Far North. For photograph of this rein-ring see Field, *Art and Archaeology* (1931), 251. See also Wolfgang Amschler (1963), The Domestication of Animals in Southwestern Asia: I–II, based on a series of Lectures (1934-35), with the following headings: Mohenjo-Daro, Domestic Animals of Susa, Ur, the Caucasus, and at Anau, Soviet Central Asia. These are on ADIM No. 7596, pp. 1-94.

*Note:* In FMNH (Hall K) see exhibits on Kish (copper frog, rein-ring, stone vessels, pottery, impressions of two wheels (Chariot No. 2) and reconstruction of Sassanian arch; and Jemdet Nasr (perimeter murals of enlarged seals, polychrome pots, cylinder seals, tablets).

*Addendum:* ADIM = American Documentation Institute, c/o Photoduplication Service, Library of Congress, where a copy may be purchased.

161. E.g., XK, IV, 30ff., where this group of skeletons and the four-wheeled chariot are mistakenly identified as Grave Y237. Moorey, "A Reconsideration," pp. 41f.,

accepts Watelin's explanation of a ramp and repeats the erroneous grave number. Y 237 is from Z-1 at a depth of 8.5 m., i.e. above the level of the plain.

- 162. See XK, IV, Pl. XXIII, 1.
- 163. Ibid., p.31.
- 164. The ramp upon which the animals rested did not cover the chariot. (H.F.).
- 165. See XK, IV, Pls. XXIV, 1, and XXV, 3, for the rein-ring. For the mandible of the animal, see Field Museum photograph 59622.
- 166. "A Note on Queen Shub-ad's Onagers," Iraq, XXII (1960), 102-104.
- 167. See XK, IV, 20ff., and Pl. XVIII, copper objects from this grave. See also Object Cards V. 782ff.
- 168. Letter, Watelin to Director, Field Museum, January 23, 1929.
- 169. The photograph, Field Museum 58431, is small and unclear. The jar in question is similar to Delougaz, *Pottery*, Pl. 65, f.
- 170. See Delougaz, *Pottery*, Pl. 73f-g. See Moorey, "A Reconsideration," p. 43, for a discussion of "Scarlet Ware," and other painted pottery lasting into the Early Dynastic II Period.
- 171. See reports by Field in Field Museum files and among his Papers in Franklin Delano Roosevelt Library, Hyde Park, New York. (H.F.)
- 172. XK, IV, 45.
- 173. Watelin to Langdon, May 7, 1928. Cf. Schroeder to Langdon, March 7, 1928. Watelin's rejection of the idea that the Red Stratum was a platform because the retaining wall was set upon it is puzzling. See XK, IV 45. Since the Red Stratum ran up to the ziggurat, it would be impossible to set a new face for the ziggurat without its overlying the Red Stratum.
- 174. XK, IV, 45.
- 175. Watelin to Langdon, May 7, 1928.
- 176. Same as preceding note, plus Watelin to Director, Field Museum, March 23, 1928.
- 177. XK, IV, vi. Cf. Watelin to Langdon, May 7, 1928, and H. Field to Director, Field Museum, January 11, 1928, saying the red-colored band or stratum was "... continuous right under and through Monument Z." This is the only

description of this kind about the Red Stratum.

- 178. XK, IV, vi.
- 179. Grave No. 306. The objects from this grave, Y. 410 A-S. Cf. R. M. Boehmer, Die Entwicklung der Glyptik während der Akkad-Zeit ("Untersuchungen zur Assyriologie und Vorderasiatischen Archäologie," Vol. IV; Berlin: W. de Gruyter, 1965), No. 318, dated Akkadian I b-c. For other examples of goddess-handled vases in Akkadian graves, see Delougaz, Private Houses and Graves, pp. 129ff., esp. Grave 162 which contains a seal, No. 377; cf. Boehmer, Entwicklung, No. 106, Akkadian 1c (= later part of reign of Sargon.).
- 180. Watelin to Langdon, May 7, 1928.
- 181. See Object card K. 3418\* (1925-26)=Ash. 1969.562. MAD V, No. 114.
- 182. "Tablets found at Mound Z at Hursagkalama (Kish)," RA, XXIV (1927), 89ff. A complete check of object cards for 1926-27 shows that none of these tablets came from Monument Z, though four did come from the A trenches above it. Watelin, in a letter to Langdon, May 3, 1927, specifically states that no inscriptions were found in the building that season.
- 183. "A Reconsideration," p. 29.
- 184. E.g., Old Akkadian tablets, Ash. 1931.136, 418, from Trench B, Plain level, i.e., from just below the northeast wall of the building. See Moorey, "A Reconsideration," pp. 28ff. for these confused levels and graves cut down from them into the Red Stratum.
- Schroeder to Langdon, January, 1928, describing photographs sent of tablets from Monument Z. The picture shows two Old Akkadian tablets.
- 186. In letters, Watelin speaks of "corrugated ware" apparently meaning ribbed ware, typical of Akkadian through Isin-Larsa, as well as miniature jars, typical of the latter period (e.g., Object Nos. X. 466, X. 475). The locus given for such late types is usually Mon. Z, 1 m.
- 187. E.g., OB seal, X. 411, from a grave at 1.5 m. from the top of Monument Z. Presentation scene.
- 188. Since Trench B's "plain level" is actually a half m. above real plain level, two m. up from that would bring us to half a m. above the bottom of Monument Z.
- 189. Object Nos. K. 878 (=IM. 10838), K. 879 (=Ash. 1931.109). See Buchanan, Nos. 460A and 460. Locus supplied by me from object cards.

- 190. See McCown and Haines, Nippur I, pp. 85f.
- 191. "A Reconsideration," p. 29. Object No. Y. 29.
- 192. Information from object card.
- 193. Watelin, XK, IV, 47, gives the mud brick sizes of Monument Z as  $25 \times 9 \times 10$  cm., apparently an error for  $25 \times 19 \times 10$ . By actual measurement, I found the mud bricks in the retaining wall, both in the section under the Neo-Babylonian temple and along the face of the ziggurat to measure  $25 \times 15$ -18 x 9-10.
- 194. "Back to Ingharra," p. 44.
- 195. Brick sizes are notoriously unreliable as absolute time indicators, but my experience measuring various walls, etc. at Kish, combined with personal observations at Nippur in 1964-65, plus conversations with R. C. Haines lead me to this conclusion.
- 196. Kish 3418\*=Ash. 1969.562.
- 197. "A Reconsideration," p. 20.
- 198. Plan accompanying report of January, 1929, to Langdon.
- 199. "A Reconsideration," p. 21.
- 200. The basic clues to the interpretation of the double-numbering locus system are mentions in various letters from Watelin of specific objects, such as an Indus seal found in C-9 at Plain Level. This seal is K. 903, and its locus on the object card is C-9, 5 (5). See letter, Watelin to Langdon, February 4, 1931.
- 201. See photo in XK, IV, 3, showing a late baked brick wall in the area of debris that was to become Trench C-5.
- 202. See, e.g., Watelin to H. Field, November 29, 1928. Ten sarcophagus burials in the top m. of debris of Trench C.
- 203. See photo XK, IV, Pl. VI, 3, for profile of C trenches.
- 204. B. Buchanan, Catalogue of Ancient Near Eastern Seals in the Ashmolean Museum, Vol. I, Cylinder Seals (Oxford: Clarendon Press, 1966). Buchanan in most cases does not have the loci for the seals in question since large sections of the field catalog were not in Oxford prior to 1967. See my review of this book in JNES, 1970 for additions and corrections of loci.
- 205. E.g., Buchanan, Nos. 266, 268, 274.

- 206. *Ibid.*, No. 393, actually post-Akkad, not Ur III, and No. 460. The Achaemenid seal, No. 1040.
- 207. See Watelin to Director, Field Museum, February 12, 1929, reporting 200 to 300 tablets; cf. Watelin to Director, January 14, 1929, stating that C, C-1, C-2 alone furnished 991 tablets and objects. Only a fraction of these objects were catalogued, obviously. Gelb, *MAD*, V, has published over sixty Old Akkadian tablets from the Kish Expedition, most of which originated in the C trenches.
- 208. See Watelin to Director, Field Museum, April 5 and April 20, 1930.
- 209. Duplicates in Field Museum, Nos. 158, etc. See also XK, IV, Pl. XXVII. VII.
- 210. Old Akkadian tablets were found in Yw, along with several Akkadian seals. See XK, IV, 48f. Watelin notes the use of plano-convex bricks in drains while contemporary houses used rectangular bricks, a feature of Akkadian architecture at Nippur, the Diyala Region, Fara and other sites.
- 211. Report, Watelin to Director, Field Museum, April 20, 1930.
- 212. XK, IV, 48f., and Pl. XXXII.
- 213. XK, IV, 35f., Pls. XXXVIII-XL. See also Moorey, "A Reconsideration," pp. 32, 36f.
- 214. E.g., XK, Vol. IV, Pl. XXXVII, top right, V. 722 is from C-4, 6 m. The seal, bottom row, second from left, V. 706, is from Y, 4 m. below plain. The seal, middle row, second from right, cannot at present be exactly traced, but cannot come from Yw since it was excavated in 1928-29, before Yw was begun. *Ibid.*, pl. XXXIX, No. 4, is from C-5, 2 meters. A photograph in Field Museum indicates that No. 2 on the same plate is from B-5. *Ibid.*, Pl. XL, top left, V. 495, is from Y, 5.50 m. below the plain.
- 215. A realization of the heights involved is given by the photo, XK, IV, Pl. V, 2. The rise to the left, with the men upon it, is the area of the C trenches before their removal. The Neo-Babylonian temple is at the same height, to the right. Below it, the buttressed wall of the Ur III/Old Babylonian(?) era is apparent. The step-like cutting directly below the buttressed wall is "plain level" in Trench B. Real plain level is the surface at the end of Y trench, just below the B "plain level." Original surface level, ten meters above the plain, existed only above the Y trench, though the larger ziggurat rises to nineteen m. above the plain.
- 216. XK, 8 ff. See, for more detailed report, Watelin to Director Field Museum, May 3, 1927.
- 217. XK, III, 8. See Moorey, "A Reconsideration," pp. 21-23, where the initial

construction is assigned to Nabopolassar and a rebuilding to Nabonidus.

- 218. See Genouillac, PRAK, Text series B, No. 136.
- 219. See, e.g., Genouillac, *PRAK*, I, Pls. XV, 2 and XVI, 1. The "cornice" not only juts out from the wall, but it then recedes into it above.

#### **V. CONCLUSIONS AND PROSPECTS**

### Comparison of Excavation and Survey Evidence for Kish

Taking all the evidence from surface survey at the site of Kish/Hursagkalama, and comparing it to information from the excavations, the value of survey as both an independent method of research and a complement to excavation is manifest. The limitations of the technique, and especially of our specific method of sherd sampling, are also apparent.

Although in most areas the sherd collection reflected accurately the range of settlement in time, the lateral extent of individual occupations was not indicated to an equal degree. Thus, for instance, though Protoliterate material was noticed at mound Number 24, none was collected on Uhaimir itself. From the excavations we know that sherds of Ubaid and Jemdet Nasr types were found near the ziggurat. Likewise, although the surface collection allows us to conclude that Mound A (No. 2) was primarily an Early Dynastic III occupation, only an excavation could have told us that part of the sherds of this era were from a palace, while others were from a subsequent cemetery.

The sketch maps for Ur III/Isin-Larsa settlement accurately indicate a revival of the twin city, especially at Uhaimir. The sherd collection seems to overemphasize the importance of Ingharra, but it would give strong support to the dating of Monument Z as Ur III.

Especially misleading is the size I have indicated on the sketch map (Fig. 29b) for Uhaimir in the Neo-Babylonian Period. Early first millennium sherds were found on all parts of the mound, but Genouillac and Mackay both found Uhaimir to be predominately an Old Babylonian, and earlier, city overlain by a light Neo-Babylonian occupation.

On the other hand, the excavations carried out at Kish/Hursagkalama were not complete enough to show that Uhaimir was as important a settlement as Ingharra in the very early periods. Nor did the excavators realize that Mound W (No. 13) had an Early Dynastic occupation, though they would seem to have been correct in seeing this mound as predominantly Neo-Babylonian in date.

The greatest value of survey at the site, as well as in the area around it, has been the indication of shifts in settlement within the city over several millennia. The dramatic reorientation of the canal through the city sometime around 1000 B.C. could not have been shown without survey. The totally different focus of the city's economic and political life toward Babylon and the more western channel of the Euphrates should be as clearly indicated in texts.

From the survey and excavation results, an expanded history of settlement at Kish/Hursagkalama emerges. Initially, there were two small villages along a natural, or slightly altered, watercourse. A sizable town, or rather a city, grew up as early as the

Early Dynastic I Period, already displaying its nature as a twin city.

The period of the preeminence of Kish, beginning in ED II, is somewhat obscured both in the excavation results and in the survey. There is some red slip ware at the palace mount (PCB), and enough excavation at Palace A (No. 2) to indicate ED II occupation, if not palaces of that date, on these two important sites. From excavations, the only ED II material we have are the Chariot burials, and perhaps some house levels in the Y Trench.

The survey does not help to distinguish the ED II settlement at the city, due to a difficulty in separating sherd types of this precise era. In the Diyala, which must serve as our pottery guide, ED II is a transitional period. Using the pottery from that region as criteria at Kish (with most of the types beginning in ED I or lasting into ED III) has resulted in a blurred picture of this critical period. An attempt to discriminate ED II types and apply the result to Kish, yielded no substantially different pattern of settlement than that given in our ED III map (Fig. 27).

For ED III, both survey and excavation show a large, prosperous twin-city, with at least two ED IIIa palaces (Palace A, PCB; Nos. 2, 11), two ziggurats and structures (in Y, above the Flood) at Ingharra. Plano-convex walls at Uhaimir indicate the probability of similar religious construction of this era in the western part of Kish.

The palaces were apparently abandoned in ED IIIb, although the religious area at Ingharra may have continued in use. Palace A and the ziggurat area (Y, above the Red Stratum) were both used as cemeteries at this time. The presumed palaces of Ur-Zababa and Sargon may be at Uhaimir since the western half of the twin city seems to have become the principal part of settlement at about this point.

The foundation of the large town north of Uhaimir (Tell Mizyad, No. 37) may reflect a tendency to move upstream in the Akkadian Period, perhaps in association with the shift of power to the more northern city of Akkad. We have suggested the possibility that, as one factor among many, the need to control water was a determinant in the location of cities, and in fact a key to dominance over the entire flood plain. Though it would be simplistic to assume that location upstream was the only factor in a city's rise to power, and history shows the development of Ur, Isin, Larsa, and Uruk under Sin-kashid to refute such a proposition, it must be recognized as an important element. It is of some interest to note that a strictly strategic location for the city of Akkad would be somewhere near Sippar, exactly the area most often suggested from textual evidence.

The extensive settlement of Isin-Larsa and Old Babylonian times, shown both by survey and excavation, is clearly to be correlated with the semi-independent Manana-Iawium dynasty. The prosperity of the city in the latter era must also be viewed in relation to its virtual incorporation into the fabric of Babylon.

Although my sketch map shows the city as fairly extensive in the Neo-Babylonian Period, and excavation shows extraordinary building activity, Kish/Hursagkalama cannot have been more than a small town around the temple precinct at Uhaimir, and a sizable

town at Mound W. The tremendous growth of Babylon at this time must have drawn off large aggregates of population and wealth. Kish/Hursagkalama was little more than a suburb of the capital.

The incomplete state of the temple at Ingharra, argued above as the work of Nebuchadnezzar, and the subsequent occupation of the sacred area by private houses both before and after another apparently unsuccessful restoration by Nabonidus (?) shows the decline of the city even within the Neo-Babylonian Period. On the other hand, the hundreds of texts of this date, and the many contracts dated to the reigns of the Achaemenid kings, indicate that Hursagkalama, at least, was a thriving town.

The Parthian revival on the Babylon branch of the Euphrates also brought about a rejuvenation of Kish/Hursagkalama.

The general prosperity of the Kish area, in the Sassanian Period, made it possible for a rich, though not large, town to exist at Kish. The presence of stuccoed buildings, however, should not be interpreted as anything unusual for the Sassanian Period. On the survey, and in excursions in other parts of Iraq, many small sites could be seen to have stucco decoration. Stuccoed buildings indicate more than private houses, but not palaces nor necessarily the residences of local rulers.

The post-Sassanian settlement at Kish is of minor importance compared to contemporary towns along the Shaṭṭ an-Nīl, though even such seemingly large towns as Abu Sūdaira, Abū Haṭab and Niliyah are small compared to Baghdad or the larger cities in the Diyala. But, the site of Kish offers, in contrast to Diyala, an almost unbroken sequence of settlement from Ubaid times to the present, given lateral shifts within the complex.

#### The Kish Area and its Relation to the City

The area of Kish as a whole shows a pattern of change within stability, and vice versa. From records of the past 200 years, one can see a constant process of adjustment to natural and human changes, development of one region when another becomes uninhabitable, the preference of one region over another by rulers and the attempts of local people to offset changes decreed. Such processes must be assumed for ancient times, and a general picture of the area of Kish, featuring shifting settlement due to natural or political causes, can be inferred from survey. The stress we have put on reconstruction of watercourses has given our work a linear bias and has allowed little space to the relationship of the major cities within the Kish area. The fact that Kutha, Kish, and Babylon lie on separate channels leads one to neglect questions of contact, reliance, etc. these cities had to each other. Besides cuneiform records, such as the hundreds of Neo-Babylonian economic tablets from Hursagkalama, which even at a cursory glance give great detail on the relationship of Kish to Babylon,<sup>1</sup> one has other means of inferring such interconnections.

Geographers<sup>2</sup> have worked up sophisticated, statistically based methods of locational analysis that should be applied in this study. For most periods, however, my survey area has too few sites to allow for an adequate sample. With Adams' maps of the whole Akkad region, such methods could be utilized, and presumably will be. In presenting his maps along with mine in this volume, it is hoped that the data will be utilized by us and others interested in such analyses in the future.

The detailed information that cuneiform documents can give on the relationship between Kish and Babylon, or these cities and Kutha, must await the study of the texts in the Ashmolean Museum. Many of the tablets datable to the reigns of Nebuchadnezzar and the Achaemenid kings, are concerned with land around Kish. Especially crucial are those which deal with fields lying between Kish and Babylon. There is some hope of deriving a sound measure of the real extent of the "area of Kish," as against the area of Babylon, from these documents.

The most important contribution the present study may prove to make is the reassessment and redrawing of the main watercourses in the alluvial plain. Combining textual material, which decreed that Kish must lie on the Euphrates for most of Babylonian history and that the river also passed through Nippur, Shuruppak, Uruk, etc., with Adams' and my own survey data, it was clear that important revisions were needed in the reconstruction of the watercourses. In Adams' survey of Akkad as a whole, the Kutha line was taken to be the course running through Nippur and the main ancient bed of the Euphrates due to the greater density of settlement along it (Fig. 68).<sup>3</sup> Clearly, we must distinguish which channel was considered to be the main bed by the ancients, as has been done in this study, regardless of settlement density. This distinction in itself is of importance in assessing the nature of ancient settlement. It seems that on the main line of the river, the Kish branch, there were several large cities situated rather far apart, while on the Kutha line the tendency was toward a higher density of smaller settlements. We may be dealing with very different social, communication, and economic patterns here. The distinguishing of such differences should be a target for further research.

In my reworkings of Adams' basic watercourse patterns (Fig. 69), the dominant line is not the primary line of settlement, but rather the line *called* the Euphrates. For some periods, however, the line of dominant density might also be the bed called the Euphrates. The dramatic shift from the Kish line to the Babylon branch sometime around 1000 B.C. is our clearest case of survey evidence and textual sources corroborating one another.

The major change made by me is the routing of the main line of the Euphrates through Kish and then towards the southeast to reach Nippur, Shuruppak, etc. The line from Kish to Marad would be the Me-<sup>d</sup>En-líl-la canal rather than an actual branch of the river, as given by Adams.

The Babylon line, not dealt with by Adams, is affirmed by my collections on the sites north of the city. However, the continuation of that channel, curving southeast (much as the modern Hilla Branch does) to feed Marad, then Isin and Shuruppak is

entirely a logical reconstruction, based on a few indications of early sites in Adams' charts.

The Apkallatum/Pallacotas channel, located in much the same course as the present-day Hindiyah, is also a reconstruction based on textual evidence. The survey of this line is obviously high on the list of priorities for research, since the use of this channel as an escape for excess water seems to be the key to the hydrological situation in the plain.

The major line northeast of the Kutha branch, i.e. our Jemdet Nasr line, has been identified by Jacobsen as the Zubi Canal.<sup>4</sup> Adams' maps, especially for the earliest periods, show a surprising density of settlement along that line. The area including this branch and reaching to the Tigris has not been adequately surveyed and is another prime candidate for further research. The cuneiform sources indicate that the Zubi will prove a knotty problem. As was indicated in Chapter I, the Zubi and Tigris tend to be confused or interrelated in texts. We may be dealing with a situation in which this particular line was at times, or for part of its course, involved in the Tigris system. Adding the complexities of the Sassanian and Islamic sources, in which the Zabi/Sib/Sabus canals seem to be the descendants of the Zubi and have an equally intertwined history, it is clear that the only hope of reconstructing the geography of that region will be on the basis of intensive survey that lays out the differing patterns in time and makes only a limited number of solutions possible.

In presenting the material in this volume, we are obviously giving only a skeleton for future research. There is an obvious need for more numerous and more reliable dating indicators. We also need to refine our sampling techniques and to bring to bear some of the techniques developed for survey analysis in the past few years.<sup>5</sup> We are, I think, years away from the kind of detailed analyses of kinship and other social groups that are being attempted on the basis of archaeological fieldwork, but we can begin to deal on a gross level with large issues such as the relationship of nomad to settled areas, large settlement to its surrounding area in terms of economic needs, etc. Such research will require that social scientists become much more aware of the textual material and that cuneiform scholars become conversant in the theory of modern social anthropology.

Further research at Kish itself must be governed by well-considered, limited investigation of specific problems. There is an obvious need to reexamine key trenches to reestablish stratigraphy and clear up some of the mysteries left us by the old excavations. Further, it would be relatively easy and rewarding to reopen the Plano-Convex palace (PCB) and carry on excavations in the large portion of the building that was never touched. Of particular interest would be an attempt to gain some firm information on the role of Kish in the rise of Sargon and the consolidation of his kingdom. It is obvious that nothing done at Kish thus far has helped to elucidate the early Akkadian Period. Given the fact the Uhaimir seems to have been the more important part of the city in the Akkadian Period, an excavation there would seem in order. However, Tell Mizyad (No. 37), the large auxiliary town just north of Kish might tell us far more about this period with much less work.

Regardless of whether excavation is ever resumed at Kish, there is a great deal more information to be gathered from the records of the former expeditions. I would like to stress again that the outline of strata given here is merely a skeleton. There are on hand at Field Museum and in Baghdad enough unpublished objects and field notes to make up a major monograph or more. I will continue to work on this material, as will Moorey at the Ashmolean. Bits and pieces of field records are still being found in odd corners of the various museums, private houses, etc. connected with the Expedition.

There are, in short, several interesting areas of research on Kish and a variety of approaches to them. Which avenue or avenues will be taken must be dictated in great part by external circumstances, but we have enough alternatives to ensure profitable study for years to come.

# CHAPTER V - Footnotes

- 1 Examined briefly at the Ashmolean Museum, Oxford, in summer, 1969.
- 2 For a general introduction to the subject, see Peter Haggett, Locational Analysis in Human Geography (London: Edward Arnold, 1965).
- 3 Adam's reconstruction, e.g. *The Evolution of Urban Society*, Fig. 2, based on his "Survey of Ancient Water Courses and Settlements in Central Iraq," *Sumer*, XIV (1958), pp. 101ff.
- 4 "The Waters of Ur," p. 176.
- 5 See Adams, Land Behind Baghdad, pp. vii-x and his references to the work of S. P. Tolstov and others in the U.S.S.R. See also Lewis R. and Sally Binford (eds.), New Perspectives in Archaeology (Chicago: Aldine Press, 1968) for some basic formulations of theory and examples of completed analyses.

# APPENDIX I SURVEY SITES (Fig. 5)

NO.	Locality, Archaeological Evidence and Dale
1	Ingharra. Mounds D and E. Original height 10 m., but larger ziggurat, 18.0 m. Diameter about 200 m. Sherds: Protoliterate through Old Babylonian. Scarce Neo-Babylonian; Parthian burials. Dating: Protoliterate through OB; NB.
2	Ingharra, Mound A and small rises between it and main mound. 200 x 100 x 4.5. Sherds: Early Dynastic: A, B, D, F, H, I. Dating: ED I-III.
3	Ingharra, Mound B. U-shaped mound south of larger ziggurat. 100 x 100 x 7.5. Sherds: Early Dynastic: D, E, H, I. Isin-Larsa: G. Old Babylonian: A, C. Neo-Babylonian: A, F, G. Parthian: A, G, H, and several others. Dating: ED III-OB, NB, <i>Parthian</i> .
4	Ingharra, Mounds F-G. Low-lying area to east of Ingharra main mound. Several hillocks with excavation pits in them. 300 x 100 x 5-6. Sherds: Early Dynastic: F, G, I. Achaemenid/Seleucid: A, Ba, Da, J. Parthian: H, K. Sassanian: A, B, M, N, O, P. Dating: ED III, Achaemenid to Sassanian.
5	Ingharra, Mound H. Western part. Sassanian town area. NE to SW 400 x 200 x 3. Seven low rises southeast of Bandar. Road passes through them, marking ancient bed of canal. Sherds: Early Dynastic: A, D, F, H, I, and others. Parthian: A, H, K. Sassanian: A, M, N, O, S, among others. Dating: ED I-III, Parthian-Sassanian. The southern end of this area is ED. The later occupation on the northern half overlies an ED stratum.
6	Ingharra, H. Eastern part. 500 x 200 x 4. Main mound with two smaller spurs across road (old canal bed). Sherds: Parthian: very few. A, H, K. Sassanian: A, B, E, K, M, N, O, P, S, T, U. Dating: Parthian to <i>Sassanian</i> .

7	Ingharra AA (my allocation). Small, very low rise south of Ingharra. Another slight rise to the east is occupied by a farm-house and shows no sherds 100 x 50 x 0.50. Sherds: Protoliterate: A, D, I. Early Dynastic: A, B, D, F, H, K. Dating: Late Protoliterate to ED III.
8	Tell Bandar ("The Harbor"). Parthian fortress northeast of Ingharra. Orientation NW-SE. 160 x 100 x 7.5. Sherds: Early Dynastic through Isin-Larsa. Probably brought in as fill or mixed in unbaked bricks, although may imply early settlement under fortress. Parthian: A, F, G, H, K. Dating: Parthian.
9	<ul> <li>Ingharra, Mound C. Mound just east of Bandar. 150 x 150 x 4.5.</li> <li>Sherds: Early Dynastic: B, E, F, I, and others. Isin-Larsa: F (?), G, I. Parthian: E, G, H, L.</li> <li>Dating ED I-Isin-Larsa, <i>Parthian</i>.</li> </ul>
10	No name. Small rise between two Abbasid branches of the Shatt an-Nil. North of Ingharra, west of No. 9. 50 x 50 x 0.50. Sherds: Early Dynastic: A, F, and others. Ur III: Aa. Parthian: E, F, G, L. Sassanian: Q. Dating: ED I to Ur III, Parthian, Sassanian.
11	Umm al-Dhahab ("Mother of Gold"). Mackay's Plano-Convex Building (PCB). Long, low mound oriented NE-SW. 400 x 400 x 1.5. Curves at western end towards a modern palm grove. Highest point on east excavated 1923-24. Track runs through it in bed of ancient Islamic canal. Sherds: Early Dynastic: F, G, H, I, K, L, and others. Dating: ED II (?) to III.
12	Umm al-Hosat ("Mother of Chants"). Very small rise about 50 m. south of palm grove, probably an extension of No. ll. 70 x 70 x 2. Sherds: almost none. Early Dynastic: F, N. Dating: ED III.
13	Tell Antika ("Mount of Antiquities"). Mound W. Obviously the local name is a new one, applied after excavations there. Larger part of mound measures 550 x 300 x 5. Subsidiary knolls to northwest measure 250 x 250 x 4. The eastern part is primarily OB and earlier. Sherds: Early Dynastic: A, B, F, H, L, M, N, especially in southern

part. Akkadian: A, D, E, F, G. Ur III-Isin-Larsa: A, E, G. Old Babylonian: A, B, D. Kassite: A, B. Neo-Babylonian: A, D, F. Archaemenid/Seleucid: A, G, J, K. Parthian: very few, G, H, L. Early Islamic: A, D. Scattered. Dating: ED I to Parthian, Early Islamic.

Edhdhuwaihi: ( الضويحى). Mounds I and J. Known as Tell el-Hudhr in 1885 (Peters, *Nippur*, I, 223). Site of Genouillac camp in 1912. Tell I measures NE-SW 250 x 150 x 6. There is a long trench on top of it. North of Tell I are two small mounds, covering an area about 50 x 100 x 3 with orientation east to west. A hundred m. south of Mound I is Mound J, 200 x 250 x 5. Track from Ingharra to Uhaimir passes to south of J.

Sherds: Archaemenid/Seleucid: G, K. (Southern mounds)
Sassanian: F, O, P.
Early Islamic: B, H, I, in great numbers.
Samarran: A, C.
Late Abbasid: F.

Dating: Achaemenid to Early Islamic. Scarcity of glazed sherds leads to a conclusion that the dating is primarily Sassanian to Early Islamic. The stamped sherds came from the two small mounds north of Mound I, a small Abbasid settlement on a minor canal brought from the Shațț an-Nil. Genouillac, *PRAK*, I, 28-29, reports finding a Hammurabi brick and "Parthian" material here. The brick is probably a re-use in Islamic context.

Erraha ("Grindstone"). Mound Y. Two groups of low rises south of modern canal. Many fragments of black stone on surface. Divided by remains of an ancient canal that apparently began at this point and ran south from a canal that occupied a bed similar to the modern canal. Track from Ingharra to Uhaimir passes over these mounds.  $150 \times 650 \times 1.5$ .

Sherds: very few: Sassanian: A, E, K, M, N. Early Islamic: B, I. Dating: Sassanian to Early Islamic.

16

15

14

No name. Two long low mounds north of modern canal.  $50 \times 100 \times 1.5$ . "City wall" extends from west end.

Sherds: Early Dynastic: B.

Achaemenid/Seleucid: J.

Sassanian: F.

Early Islamic: H, I.

Dating: Achaemenid to Early Islamic, over a base of much earlier material.

No name. Series of low hummocks strung out along both sides of modern canal, that runs in bed of ancient canal. "City wall" of Uhaimir to north. Ruins of a brick structure, small crude baked bricks, on western end marking a Post Ilkhanid tomb.  $100 \times 300 \times 1$ .

Sherds: very scarce. Early Islamic: I. Dating: Early Islamic, Post Ilkhanid (Ottoman).

Part of Uhaimir, southwestern part of Mound T. A conical rise connected with main part of town.  $250 \times 250 \times 3$ . Soundings made by Mackay in eight places.

Sherds: Early Dynastic: F, I, M, N. Isin-Larsa: F, G. Old Babylonian: B, C. Kassite: A, B.
Dating: ED III to Kassite, especially OB.

Part of Uhaimir; ridge running along west end of Mound T plus two small rises at base to the west. 200 x 200 x 3-5.

Sherds: Early Dynastic: B, F, H, and others. Ur III/Isin-Larsa: C, G, M, and others. Old Babylonian: A, C, D. Kassite: A. Neo-Babylonian: A, F.
Dating: ED I to Neo-Babylonian, primarily Isin-Larsa/OB.

20 Part of Uhaimir; small, low mound south of T, resting on older "city wall," east of Mound X, 50 x 100 x 1.5.

Sherds: Very few. Parthian: F, K; also one bronze coin of Vologeses IV. Dating: Parthian.

21 Mound X. Excavated by Mackay, 1924, "Fortress." At the west end of "city wall." 70 x 100 x 6.

Sherds: Neo-Babylonian: C, D. Parthian: M. Early Islamic: E, I.

Dating: NB, Parthian, Early Islamic.

Uhaimir. Main part of mound, including T, 200 x 600 x 7. Trenches in many places, especially western end.

Sherds: Early Dynastic: A, B, D, F, G, H, and others.
Akkadian: A, E.
Ur III/Isin-Larsa: A, G.
Old Babylonian: A, B, C, D, and many others.

19

22

18

Kassite: A, B?. Neo-Babylonian: A, B, D, F. Achaemenid/Seleucid: A, J.

- Parthian: G, K.
- Dating: ED I to Parthian, main occupation being OB to NB. Achaemenid through Parthian mainly on large rise at northwest.
- Uhaimir, eastern end, including ziggurat and plain south of it.  $400 \times 400 \times 4.5$ . Ziggurat height 19.5.

Sherds: Early Dynastic: A, B, D, F, G, H, and others. Akkadian: A, E, especially on eastern end. Ur III/Isin-Larsa: A, E, G. Old Babylonian: A, B, D. Kassite: A. Neo-Babylonian: A, B, E, F. Achaemenid/Seleucid: A, B, G. Parthian: relatively rare, H.
Dating: Early Dynastic I to Parthian, main occupation OB to NB.

Jemdet Shoosha. Not on Genouillac or Mackay maps. Small whitish mound about 300 m. north of Uhaimir ziggurat.  $100 \times 230 \times 1$ . Much salt. In middle of cultivation.

Sherds: Protoliterate: A, D.
Early Dynastic: B, F, M.
Akkadian: A, E.
Ur III/Isin-Larsa: Aa.
Dating: Protoliterate through Ur III, mainly ED III.

Ishan al-Khazna ("Treasure Mound"). Main mound, 60 x 150 x 6, has 4 trenches cut in it. North, west and east are five lower mounds, the long low one to the north having a crude tomb, the *imam* of Duhmouk, with a wickerwork shelter. Visited by Fresnel an Oppert, 1852 (Oppert, *Expédition*, p. 217), who described it as being covered with stones, some of which were inscribed. Reitlinger, in 1930-31, sounded this site for the Field-Oxford Expedition and found what he took to be a Neo-Babylonian Palace reoccupied by Arabs in the eleventh century. *See* Chapter IV.

Sherds:	Early Islamic: C, E, I.
	Samarran: A, G.
	Late Abbasid: F.
Dating:	Early Islamic to Late Abbasid. No sign of earlier material,
	although perhaps some Neo-Babylonian was overlooked.

# Tell Nimrud. (Adams 78). Inside Mussayib Project. 200 x 200 x 5. Sherds: Early Dynastic: F?

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26

23

Akkadian: A, E. Ur III/Isin-Larsa: A, G. Old Babylonian: A, B, D. Early Islamic: E. Samarran: C. Late Abbasid: A. Dating: ED III? Akkadian to OB. Insignificant Islamic occupation.

No name (Adams 179). Inside Mussayib Project. On ancient canal line from Nos. 28-29.  $350 \times 150 \times 1$ .

Sherds: Kassite: A, B.
Early Islamic: B, D, E.
Samarran: A, C.
Late Abbasid: B, D, E.
Dating: Kassite, Early Islamic to Late Abbasid.

28

27

Tell Murhish (Adams 181). Just inside Mussayib Project outer drainage ditch. Large complex of mounds, with six outstanding hummocks. Two smaller ones north and east of main mound; here were found baked plano-convex bricks. Four mounds together in south, none more than 3 m. high. Cover an area of about 1 km. N-S, 750 m. E-W.

Sherds: Ubaid: B (only on northern-most mound).
ED: A, B, D, F, H.
Akkadian: E.
Ur III/Isin-Larsa: E, G.
Old Babylonian: A, B, D (Mainly from southern area).
Achaemenid/Seleucid: B, G (probably from graves).
Early Islamic: D, E.
Late Abbasid: A, B, D, E, F (southern-most mound).
Dating: Ubaid through Old Babylonian; Achaemenid/Seleucid, Early

Islamic to Late Abbasid.

29

Tell al-Muraydiyah. Complex of mounds within Mussayib Project, just northeast of outer drainage ditch. Two large, high mounds with a smaller spur to the southeast. Apparently all late. Mound a, long, curving, about 300 x 100 x 5. Mound b, 200 x 100 x 5. Mound c, 50 x 150 x 1. The last is being cultivated and trenched. To the southwest, a smaller, whitish rise 60 x 60 x 1 is exclusively Early Islamic. On Mound b, moisture retention shows outline of a large, rectangular building.

Sherds: Achaemenid/Seleucid: A, B, D, G, J.
Parthian: A, K, L.
Sassanian: A, H, K, M, N, O, P, Q.
Early Islamic: A, B, C, E.
Dating: Achaemenid/Seleucid, Parthian, Sassanian, Early Islamic.

30

No name (Adams 183). Inside Mussayib Project. Information from

Adams' notes. Not visited by me. Saddle-shaped mound, 4 m. high. Other mounds off to SE and NW. Plain between covered with sherds.

Sherds: Sickle fragment and stone scraper indicate early occupation (Ubaid or Protoliterate). Neo-Babylonian: A, C, F. Achaemenid/Seleucid: A, B, D.

Dating: Ubaid or Protoliterate, Neo-Babylonian to Achaemenid/Seleucid.

Abū Dhibah (Adams 182). About half km. west of a very high Islamic canal. 100 x 100 x 2. East part of tell under cultivation. Another low mound 10° north about 500 m., could not reach due to irrigation.

Sherds: Ur III/Isin-Larsa: G. I.

Old Babylonian: A, B, D.

Dating: Isin-Larsa, OB.

#### 32 No name (Adams 184). Just outside Mussavib Project. Hamlet to southwest. $250 \times 150 \times 3$ .

Sherds: Protoliterate: A, D, among others. Clav sickle fragments, stone tools also.

Early Dynastic: A, B, D, E, F, G, I.

Kassite: A.

Neo-Babylonian: A.

Achaemenid/Seleucid: B, J.

- Dating: Primarily Protoliterate to ED III; Kassite, NB, Achaemenid/ Seleucid.
- No Name (Adams 185). Outside Mussavib, within one km. of No. 33. 150 x 100 x 1.

Sherds: Late Abbasid: A, B, C, D. Dating: Late Abbasid.

34 Malmooze. South of Sabbaghiyah, along a branch canal from the Mahawil canal. Date grove planted around and on the mound. 350 x 200 x 2. South of the grove is another small mound; collected sherds. Very few indentifiable sherds on either mound.

> Sherds: Early Islamic: I, J. Dating: Early Islamic.

- 35 Shraim. Very low, salt-covered mound in middle of cultivation west of modern canal. South of No. 34. 200 x 150 x .50. Sherds: Parthian: E, G, H. Dating: Parthian.
- 36 No name. 400 m. south of No. 35. West of modern feeder canal. Covered with salt, in cultivation. 100 x 100 x .50.

31
## Sherds: Very few identifiable. Sassanian? A?

37	Ishān Mizyad (Ada 1,000 x 600 x 4. Most of with twisted, overfired brick Sherds: Akkadian: Ur III/Isin Old Babylo Kassite: A Dating: Akkadian	ms 195). 5 km. north tell is very low, one hi fragments. Smaller spr A, E, F. -Larsa: A, G, I. onian: A, C, D. to Kassite, mainly OB.	of Uhaimir. Large, gh point on south ur north of main r	low mound, end covered nound.
38	Jemdet Gumrah (A cultivated land. Village to no Sherds: Protolitera ED: A, B, D, F, I. Late Abba Dating: Primarily settlement	Adams 192). Small m orth. Sherds rare. te: sid: D, E. ED. Late Abbasid may taking advantage of hi	be nothing more igh ground.	0 x 2.5. In than a marsh
39	Tell Abū Ajrash ( 193). Inside Mussayib Proje on plain to north. Sherds: Old Babyle Kassite: A Neo-Babyle Achaemen Parthian: O Dating: Protolitera OB to Part	Ishān Abū Haṭab on ct. Farms on all sides. onian: A, D. onian: A, F. id/Seleucid: B, I. G, H, L. te (baked clay sickles, thian.	Br. 1/4" map, 19 . 300 x 200 x 4. but no sherds).	917. (Adams Some debris
40	Ras al-'Amiya (Ada Iraq, XXIII (1961), 95ff. C ditch, which bisected the sit Sherds: Ubaid. Dating: Ubaid.	ams 196). Excavated b ollected from banks of e. Entire site under sur	y David Stronach f main outer Mussa rface.	in 1960. See iyib drainage
41	Ghergouz. Three n east 70 x 50 x 0.50. One to passing from Kish to Mus south. Sherds: Early Islan Samarran: Late Abba Dating: Early Islan	nounds. Largest, in mi to west 150 x 150 x 1 sayib Project. In midd nic: A, C, E. B, C. sid: A, B, D, F. nic through Late Abbas	iddle, 150 x 150 1. Closest road 3 k dle of fields. Sma sid.	x 2. One to m. to south, ll hamlet to
42	Umm Gharrah, or	r Umm al-Mughra	أم المسخسرة	(Mother of

42

	Ochre"? ). Very small rise alongside ancient branch from Shatt an-Nil, and modern canal running NS. Kish 6 km. to southwest. 100 x 50 x .50. Sherds: Early Islamic: H, I. Late Abbasid: A, B, D, E. Dating: Early Islamic, <i>Late Abbasid</i> .
43	Raba'a (Azzah on Br. 1/4" map, 1917). High mound in middle of cultivation, east of new NS branch canal. About 500 m. east of road from Kish to Mussayib Project. 4 km. northwest of Uhaimir. Main mound, about 200 x 400 x 8. To northeast, a low spur at foot of mound. Village on northern end of this low rise. Sherds: Early Islamic: C, E, H, I. Late Abbasid: A, D, E. Post Ilkhanid: A, B, E (on low northeast rise). Dating: Early Islamic. <i>Late Abbasid</i> . Post Ilkhanid.
44	No name. Small mound alongside minor modern canal from New Shakha. 100 x 50 x 2. Sherds: Very few. Early Islamic: H, I. Dating: Early Islamic.
45	Jemdet Suedi. Two small mounds. 400 x 200 x 2. To the west, recently abandoned village. Sherds: Early Islamic: C, I. Samarran: C. Late Abbasid: B, E, F. Dating: Early Islamic to <i>Late Abbasid</i> .
46	Tell Amir. Local people call it Raba'a, same name as No. 43. One large mound, 300 x 200 x 6, and two smaller mounds to east, 300 m. away. Sherds: Early Dynastic: B, F. Kassite: A. Dating: ED-Kassite, Early Islamic.
47	Abū Sudaira ("Father of Citrus Tree") (Adams 198). Mapped and discussed by Sarre and Herzfeld, <i>Archäologische Reise</i> , II, 46; excavated by G. Reitlinger, 1930-31. <i>See</i> Chapter IV for details. North of Abbasid Shaṭṭ an-Nīl, but south of modern New Shakha. Mound is bisected by a branch from the Nīl.

300 x 600 x 8.5. Much yellow brick on surface. Well constructed religious building with forecourt at western end. *See ibid.*, and Vol. III, Pl. 36 for picture. For coins from site, *see* R. Burn, "Coins of the Ilkhanis of Persia," *JRAS*, 1933, pp. 831ff.

Sherds: Samarran: A, C. Late Abbasid: A, B, D, E, F. Ilkhanid: B, C, E. Post Ilkhanid: A, B (very little). Dating: Samarran to Post Ilkhanid, major occupation in *Ilkhanid* also evidenced by coins.

48

Tell Ibrahim (Adams 140). Ancient Kutha. Inside Mussayib Project, north of main diagonal canal and primary road. Modern town of Imam Ibrahim to southeast. Main tell, about 2 km. E-W, 1 km. N-S, 8 m. ht., in crescent shape. Ancient Nahr Kutha/Habl Ibrahim passed south of it. On south side of that ancient canal bed is a high mound,  $500 \times 500 \times 9$ , with tomb of "Abraham." This tell is covered with Islamic burials. West of main mound is a small rise, 100 x 150 x 2, with rectangular building showing on surface as darker, moisture-holding area. Excavated by Rassam or his agent, Daoud Toma, from January, 1881, to July, 1882. Cuneiform tablets, seals, graves of NB. See H. Rassam, *Asshur*, pp. 409ff. Mapped by Banks, *Bismya*, p. 393.

Sherds: Protoliterate: A, B, D, E, G.

Early Dynastic: A, B, F, I, L.

Akkadian: A, F, G.

Ur III/Isin- Larsa: Aa, B, F, I, M.

Old Babylonian: A, B, C, D.

Kassite: A. (many).

Neo-Babylonian: A, B, C, D, E, F. (very many, plus others.)

Achaemenid/Seleucid: A, B, C, G, J. among others.

Parthian: A, B, C, E, G, H, L.

Sassanian: A, B, G, K, M, N, R, (scattered).

Early Islamic: A, C, E, G, H.

Samarran: A, D, F, G.

Late Abbasid: A, B, C, D, E, F, (many).

Ilkhanid: B?, C, E.

Post Ilkhanid: A, B, D. (much poorly made, thick, badly glazed blue, blue-green, green jars, etc., especially on smaller mound with tomb. Difficult to distinguish yesterday's manufacture from earlier.)

Dating: Protoliterate through Post Ilkhanid. Apparently continuous occupation.

No name. (Adams 186). Information from Adams' notes. Not visited by me. Part of Habl Ibrahim. SE of Imam Ibrahim. Within Mussayib Project and cut by new canal. Ht. 5m. Adams reports following:

Sherds: Parthian: A, C, and others. Sassanian: Dating: Parthian, Sassanian

No name. (Adams 187). Information from Adams' notes. Close to No. 68. Not visited by me. Estimated height 5m.

Sherds: Achaemenid/Seleucid: A or B.

Parthian: C, and others.

Dating: Achaemenid/Seleucid to Parthian.

50

No name. (Adams 188). Information from Adams' notes. East of No. 50. Not visited by me. Estimated height 4 m. Part of Habl Ibrahim. Sherds: Samarran: A, and others. Late Abbasid: B, C, and others. Dating: Samarran to Late Abbasid.

No name. (Adams 189). Information from Adams' notes. Not visited by me. South of No. 50. Part of Habl Ibrahim complex. Estimated height 2 m. Sherds: Sassanian: M, blue green glaze, much glass. Dating: Sassanian.

No name. (Adams 190). Information from Adams' notes. Not visited by me. Southeast of No. 52. Part of Habl Ibrahim. Estimated height 5 m.

Sherds: Achaemenid/Seleucid: A, B, C, H; many pushed out stamps. Parthian?: Some blue-green glaze.

Dating: Adams indicates Achaemenid to Parthian.

Tell Khalfat (Adams 191). Inside Mussayib Project. This is actually a group of small tells of which the main, central tell is  $100 \times 120 \times 1$  with sherds on plain some distance toward west and north. About 300 m. to north is a low, spread out tell. Another small rise to west. Southeast there is an indication of another rise on the map, but none visible on air photo.

Sherds: Isin-Larsa: A, B, M.

Old Babylonian: A, C.

Kassite: many A.

Neo-Babylonian: E.

Achaemenid/Seleucid: A, B, scattered, few, mainly from northern mound.

Dating: Isin Larsa-Achaemenid/Seleucid. Main occupation definitely *Kassite*.

No name. Very large. 400-500 x 150 x 7.5, highest point on NW. Reddish color of mound due to many red sherds on surface. New canal cuts close to south end. Smaller modern canal to West. All parts of Mussayib Project. To southeast are Pumping Stations Nos. 1 and 2. This mound also on Habl Ibrahim.

Sherds: Kassite: A. Also some pointed- bottomed jars, probably same date. Sassanian: A, K, L, M, N, P, Q, R, S, T.

Dating: Kassite, Sassanian.

No name. Inside Mussayib Project. About 500 m. south of No. 55, 50 x 50 x 2. In fields, being cultivated at edges, especially the east. Recovered many sherds from irrigation ditches.

Sherds: Achaemenid/Seleucid: A, B, C, G. Parthian: E. (Very slight sample.)

55

51

52

53

54

Sassanian: A. (One sherd.) Dating: Achaemenid/Seleucid to Sassanian.

Abū Biyāriq (Adams 194). Inside Mussayib Project. A large complex of mounds on the Habl Ibrahim. Five tells, *a-e*, from east to west. The easternmost, a, is cut by a modern canal and lies just north of another canal, which in turn is fed by a major channel from the north. A farmstead lies within the area of Mounds b, c, and d. Mound e is somewhat farther west.

Mound a: Large, high tell,  $150 \ge 250 \ge 7$ . Canal cutting it makes sampling easier.

Sherds: Kassite: A.

Achaemenid/Seleucid: A, C, G. Parthian: E. Sassanian: K, M, N, P. Samarran: A.

Dating: Kassite, Achaemenid to Sassanian, Samarran.

Mound b:  $150 \ge 300 \ge 2.5$ , except for tall cone on SW end, about 4 m., and highest point on NE end, about 5-6 m.

Sherds: Neo-Babylonian: A.

Achaemenid/Seleucid: A, B, C, F; horse-rider figurine, flat hat. Parthian: A, E, F, G.

- Sassanian: A, M.
- Dating: NB-Parthian, with Sassanian traces. Primarily Achaemenid/ Seleucid.

Mound c: 100 x 70 x .50. Low rise in middle of fields. Much salt. Sherds: Sassanian: A, G, M. Dating: Sassanian.

Mound d: Largest tell of the group.  $250 \times 300 \times 4.5$ . Actually cut by canal to north.



Sherds: Sassanian: A, K, L, M, N, O, P, Q, T. Dating: Sassanian.

Mound e: About 150 x 350 x 4. Could not reach, over canal, no way to cross.

General Dating: Kassite through Sassanian; Samarran. Settlement reached peak in Sassanian times. The few Samarran sherds cannot mark any appreciable occupation.

58

59

60

Ishān Zuraybah (?) (cf. Adams 136), as in Br. 1/4 in. map, 1917, or Ruwabah, as in Arabic maps. Something is wrong here. Maps show a sizeable mound, or even two. In this location, just south of Biyariq, air photos show only one small rise. This mound, 70 x 70 x 2, is in the middle of fields, being cultivated partly on northern side. Air photo shows extension of a branch off the Shatt an-Nil.

> Sherds: Late Abbasid: C, E, F. Very poor sample. Almost no glazed ware. Dating: Late Abbasid.

No name. Very small, low, whitish mound in the middle of fields. 50 x 70 x .50. Irrigation on lowest parts, large, modern dry canal to the east ten meters.

> Sherds: Sassanian: K, L, O, P, Q. Glass. Dating: Sassanian.

No name. No name on any map. Large city. Eight large, high mounds at the juncture of a major canal and the bed of the Kutha Canal, which is clearly visible. Central mound, a, 400 x 250 x 5. Not enough time was available to collect each mound separately or well enough. General impression was that the older material, especially the Achaemenid/Seleucid, came from mounds a-e. Mound h had almost no sherds later than Achaemenid/Seleucid. Mound a yielded the earliest and latest material, but like rest of mounds except for *j*, the bulk of sherds was Sassanian. Mound j seems to be a purely Islamic mound. Most of Islamic sherds from here. Only a scattering of Islamic on other mounds. The top of Mound j has been scraped down by a bulldozer for no apparent reason. Baked bricks on Mound j measured 22 x 22 x 6, a usual early Islamic size. Those on the other mounds were  $30-32 \times 20-32 \times 6-8$ .

- Sherds: Jemdet Nasr or ED I: one red painted sherd, "scarlet ware"? Early Dynastic III: F. I? Achaemenid/Seleucid: G, J, K. Parthian: A, B, C, E, F, G, H. Sassanian: A, K, L, M, N, O, P, Q, R, S, T. Early Islamic: A, C, D, F (three almost complete bowls), G, H, I, K. Almost all from Mound *j*. Dating: Protoliterate to ED III. Achaemenid to Sassanian, with one
- separated town of Early Islamic.



Tell al-Daym (Adams 212). Additional information from Adams' notes. Sizeable settlement, spread over large area. Plain between mounds covered with sherds. Main tell cut by a modern north-south Mussayib Canal. Cultivation close by. Main mound 250 x 150 x 5.5. Directorate General of Antiquities made soundings here, cleared faces in the canal cutting and found Achaemenid sherds at about plain level. Included in Adams' collection was a jar sealing with impressions of several animals.

Sherds: Neo-Babylonian: A, C, F.Achaemenid/Seleucid: A, B, C, D, G, J, K, and others.Dating: NB to Achaemenid/Seleucid.

62

61

Ishān Huraizeh (Arabic maps give Asia Hazire). 3 km. northeast of No. 60. Complex of tells covering about ten hectares. Modern Mussayib lateral canal cuts through part of it on north. Small feeder running diagonally toward the southeast cuts the main mound, which is horseshoe-shaped,  $350 \times 100 \times 3$ . Farmhouse across canal to north. Small tell to northwest of house. Highest tell, *b*, is about 100 x 250 x 4.

Sherds: Sassanian: A, E, K, M, Ma, N, O, P, R, S.

Early Islamic: F, (fluted "celadon"), and one sherd of red ware with white slip, and radiating green lines pendant from band at rim of bowl. No signs of usual grooved, cut ware. From northern mound.

Dating: Sassanian to Early Islamic.



No name. Inside Mussayib Project. Southwest of No. 60. About 200 m. southwest of Pumping Station No. 2. 200 x 250 x 1.5. On southeast side, at plain level, a large, rectangular building with ten rooms is indicated by moisture of ground. This tell is actually more or less continuous with Nos. 64 a-b, and was part of an extensive town strung out more than one km. along the west bank of the ancient Nahr Kutha.

Sherds: Neo-Babylonian: E, F, and other sherds.Sassanian; A, K, L, M, N, P, Q, R, S, T.Late Abbasid: very few fragments of C.Dating: NB, Sassanian, L. Abb.

No name. Long, low mound south of No. 63, along ancient canal. Over 1 km. in length, varying heights and widths, but never more than 1.5 m. high or 100 m. wide. Cut by two modern laterals from the main canal to east. Sherds: Sassanian: A, K, L, M, N, Q, R, S, U. Dating: Sassanian.

No name. Continuation of Nos. 63-64a, after break of 100 m. Along west side of ancient canal. Five rises along a string about 1 km. long. No wider than 50 m., 1-1.50 m. high. Six brick kiln slag heaps. No. 66, slightly higher, and to the south, marks end of this town.

Sherds: Neo-Babylonian?: F. Parthian?: C. Sassanian: G, K, M, N, Q, T.

Dating: NB, Parthian?, Sassanian.

65

63

64a

64b

No name Inside Mussayib Project. Southwest of Pumping Station No. 2. Two mounds, a, 250 x 200 x 4, with much debris on the plain on all sides, and a smaller one, b, about 100 m. to the northeast, 50 x 25 x 3. Large, rectangular building of baked bricks 32 x 32 x 7, laid in lime mortar; excavated? West of the larger mound is a branch of the Shatt an-Nil.

Sherds:

Mound a: Achaemenid/Seleucid: A, B, C, E, G, and others.

- Mound b: Mixture of Early Dynastic (F, G, and others), and other early sherds. Must have been brought in as fill. The building seems to have been partially cleared, probably by Directorate General of Antiquities. Thus, most sherds have been taken away. Brick size seems Sassanian.
- Dating: Achaemenid/Seleucid, Sassanian.

66

No name. 150 x 150 x 2.5. South of Pumping Station No. 2. Major drainage canal 200 m. to east. This tell lies alongside the eastern side of the canal, about 400 m. from No. 64.

Sherds: Neo-Babylonian: C, E. Sassanian: A, K, L, M, N, R. Dating: Neo-Babylonian, *Sassanian*.

No name. Large, rounded tell with 2 small hillocks on northern side. Hillock farther west is Islamic. Main mound, 350-400 x 300 x 5. Major drainage canal 100 m. to east. Pumping Station No. 2 to north. Lying along west bank of ancient canal like Nos. 63ff.

Sherds: Kassite: A, several.
Achaemenid/Seleucid: A, B, C, G, J.
Parthian: C, G.
Sassanian: A, K, Q.
Late Abbasid: C.
Dating: Kassite, Achaemenid to Sassanian, and Late Abbasid.

No name. 500 m. southeast of No. 67. 400 x 200 x 4-5. Highest point on northern end. On southwest, slag from a brick kiln. Also some kind of small oven or kiln,  $4 \times 6$  feet.

Sherds: Sassanian: K, L, M, N, O, P, Q, R, plus other types, e.g., pointed based pitchers, Harden, *Iraq, I (1934), Fig. 1:* 11-12.

Dating: Sassanian.

69

68

No name, but must be connected with Ishān al-Kharah, No. 70. Extensive, low, mounds along west side of ancient canal as with last 6 mounds. Just outside, to the south of the Mussayib Project outer drain. Farms nearby. After a long, low rise of more than 500 m., there is a mound  $350 \times 150 \times 2-5$  m., higher at southeast end along ancient branch of Shațț an-Nīl. The lower, more northern end is primarily Achaemenid to Parthian. Illicit digging in the lower area has uncovered numerous Achaemenid graves.

Sherds: Achaemenid/Seleucid: A, B, Ba, C, D, G, I, J, K.

Parthian: A, E, G. Sassanian: A, K, L, M, N, P, S. Samarran: A, F, G, and others.

Dating: Achaemenid to Sassanian, Samarran.



Ishān al-Kharah. Large complex of 7 mounds between two branches of the Shatt an-Nil. Plain between mounds is covered with sherds. Must have originally been continuous with Nos. 69 and 71 before the Shatt an-Nil was cut through.

Mound a, northernmost. 250 x 250 x 5.5.

Sherds: Old Babylonian, Parthian to Sassanian, some Early Islamic.

Mound b, low mound. 200 x 150 x 1. Parthian, Sassanian.

Mound c, 250 x 250 x 3-4. Mostly Parthian, Sassanian.

Mound d, 50 x 70 x 1. Sassanian.

Mound e, 200 x 200 x 4. Parthian, Sassanian.

Mound f, 50 x 70 x 1. Sassanian.

Mound g, 150 x 100 x 2. Parthian, Sassanian.

Mound h, Rises toward the Abbasid canal southeast of it. About 200 x 200 x 3-5. Parthian and Late Abbasid.

Sherds: Old Babylonian: A, and others, including *Nippur* Pl. 94:5.

Parthian: A, E, G, H, L.

Sassanian: A, B, C, G, K, M, Ma, N, P, Q, R, S.

Samarran: A, F, one piece of imitation celadon.

Late Abbasid: B, C, D, E.

Dating: Old Babylonian, Parthian to Sassanian with scattered Abbasid, rather early than late, since no stamps found.

Part of No. 70, but cut off from it by branch of Shatt an-Nil. Four small, connected rises,  $150 \times 300 \times 3-4$ . Another branch of the Abbasid system runs southeast. Across plain littered with many red sherds, is another large tell, No. 72. A continuation of the same settlement. Desert, with dunes to west and south.

> Sherds: Sassanian: A, K, L, M, Ma, N, P, Q, R, T. Plus others, such as Harden, *Iraq* I (1934), Fig. 1: 12, 15; Fig. 3:5.

Dating: Sassanian.

No name. Fairly high mound,  $300 \times 150 \times 5-6$ . Debris spread around, especially toward No. 71. Slight traces of ancient canal to northeast side of tell. Southeast about 100 m. is another branch of Shatt an-Nil. Desert to south and west.

Sherds:	Achaemenid/Seleucid: A, C, G.
	Parthian: A, B, C, G (few).
	Sassanian: A, G, K, M, N, O, P, Q, R, T.
Dating:	Achaemenid/Seleucid to Sassanian.

No name. 1 km. southeast of Pumping Station No. 2 in Mussayib Project. Saddle-back mound, east to west.  $150 \times 350 \times 4.5$ . 150 m. south is another, lower mound with farmhouse on it, No. 74.

71

72

Sherds: Kassite: A, several.
Sassanian: A, K, M, N, Q, S.
Early Islamic: H, I, J. Also handle with applied knob decorated with incised radiating pattern. (=Samarran Type F).

Dating: Kassite, Sassanian to Early Islamic.

74

75

76

No name. Small tell 150 m. south of No. 73 in Mussayib Project. May have stood on opposite sides of a canal. 100 x 100 x 1.5. House on northeast end. Sherds badly broken due to occupancy. Sherds: Sassanian: K, L, M, N, and one piece of red, hard

Sherds:Sassanian: K, L, M, N, and one piece of red, hard<br/>fired cooking pot with gray interior.Dating:Sassanian.

Hilala. Complex of mounds with No. 76. This mound, at the northwest, is the highest. 350 x 250 x 5-6. New minor canal borders it on south. An ancient branch of the Shatt an-Nil runs about 300 m. to the east. Sherds: Sassanian: A, K, L, M, P, Q, R, T. Dating: Sassanian.

Also Hilala. Made up of three separate mounds. An Islamic mound, a, 250 x 150 rests atop a Sassanian mound that measures 500 x 300 x about 3 m. Total height, about 5 m. Beside this, there is a high, circular (?) hollow mound (b) 70 x 70 x 4-5, northwest of the main tell. The Abbasid canal runs north-south along the edge of Mound a Currently, Mound a is being dug for fertilizer. Site plan p. 158.

Sherds:

Mound *a*, lower extensions, north and south.

Sassanian: K, M, Ma, N, O.

Mound *a*, upper tell:

Sassanian: K, N, R, S, T.

Early Islamic: A, but unglazed as well as glazed; I, but little of it.

Samarran: A, C, F, G. Very much grafitto ware.

Late Abbasid: C, D, F.

Mound b: Very few sherds on the mound itself, which has a whitish, clean appearance, much like artificial mounds at Zibliyat and Warka. This may be another signal tower or tomb.

Sherds: Sassanian: K, M, Ma, N, O, S.

Dating: Lower Mound *a*, and Mound *b*, are Sassanian. The Islamic settlement seems to be Samarran in greatest part, having some features from earlier Islamic. The range of glazed pottery is very great, varied, and of fine quality.

77 No name. 700 m. southeast of No. 76 in Mussayib Project. NW-SE, 250 x NE-SW, 150 x 2. To southeast is another small mound, b, 50 x 50 x .5 on the east side of Abbasid branch canal. Sherds: Mound a, Achaemenid/Seleucid: A, B, C, E painted red, G, J, and others. Parthian: A, C, E, H, L. Others: Two sherds of yellow-glazed, open, bowls. One sherd of inturning bowl of red ware with black paint on inside and out. Achaemenid/Seleucid to Parthian. Dating: Mound b. Early Islamic: I. Samarran: A. Late Abbasid: D, F. Abbasid, with Early Islamic holdovers. Dating: 78 No name. A mound under a great dune, one of few left in the Mussayib Project area. Collection from low rise about 0.5 m. that goes up into the dune. To the northeast is a house just at the foot of No. 75. To southwest about 300 m. is No. 79, across a small modern canal. Sherds: Achaemenid/Seleucid: A, B, G. Parthian : A, G, L. Late Abbasid?: F. Dating: Achaemenid to Parthian, Late Abbasid. 79 No name. 60 x 60 x 1.5. Across canal, southwest of No. 78. Sherds: Sassanian: K, M, Ma, N, P. Dating: Sassanian. 80 No name. 200 x 150 x 3-4. Cut by modern Mussayib feeder canal on south end. Two excavation pits on north and west, dug by Directorate General of Antiquities in 1952. Bathtub-shaped coffin, no glass, no decoration, opened by illicit diggers. Sherds: Early Dynastic: F, several; also several jar rims that seem to fit into this period. Kassite: A, several. Neo-Babylonian: C, D, and piece of a Nebuchadnezzar brick. Achaemenid/Seleucid: C, E, J, K. Dating: Early Dynastic III, Kassite to Achaemenid/Seleucid.

81

No name. Group of 4 mounds divided by modern north-south canal. In Mussayib Project, very near eastern outer wall. Bridge over the canal. House on part of Mound *a*. Fields on all sides. Modern canal seems to run in bed of ancient one. Mound *a*, 400 x 200 x 4. Mound *b*, 300 x 300 x 5-6. Mound c, actually part of Mound *b*, but cut by canal, 150 x 150 x 5.

#### Mound d, low rise 50 x 50 x 1.5.

Sherds: Achaemenid/Seleucid: E, Large jar with cuneiform indentations and grooves, J.
Parthian: A, B, C, E, F, G, L.
Sassanian: A, K, M, O, P, Q, and one jar bottom, button base; see Harden, Iraq, I (1934), Fig. 1: 12.
Dating: Achaemenid to Sassanian.



82

No name. Outside Mussayib Project in desert. Three mounds within 100 m. of each other. Mound a, rising up along the east bank of the Khait Zbar, is 100 x 100 x 1-2. Mound b, northeast of Mound a by about 100 m. is 200 x 250 x 2.5. Mound c, about 70 meters east of a is 100 x 100 x 1.5. These mounds are not more than 1/2 km. north of No. 83 and about the same distance from No. 168 to the north.

Sherds:

- Mound a: Sassanian: N, Q.Late Abbasid: A, C, F.Post Ilkhanid: A, B, C, F, G, H, J.The quality and number of glazed sherds on this mound were surprising.
- Mound b: Neo-Babylonian: A, C. Achaemenid/Seleucid: G, J. Samarran: A. (2 or 3)
- Mound c: Neo-Babylonian: C. Achaemenid/Seleucid: A, B, G, and many others.
- Dating: Neo-Babylonian to Achaemenid/Seleucid, Sassanian to Post Ilkhanid.



No name. Long mound,  $200 \times 400 \times 2$ , in easy rises, in fork of two branches off Shatt an-Nil. In desert. No. 83 about 1/2 km. south of No. 82, about 2 km. east of Nos. 70-71.

Sherds:Sassanian: A, K, L, M, Ma, N, O, P, Q, S.Dating:Sassanian.

Abū Taraichiyah. In desert, much sand. Four mounds covering an area 700 x 400 x 3. Largest, central mound shows remains of large baked brick (300 x 30 x 7 cm.) villa with stucco decoration, including trefoil and vine motifs, as well as half columns imitating palm trunks.

Sherds:	Parthian: E, G, H, J.	
	Sassanian: K, M, Ma, O, P, Q.	
Dating:	Parthian, Sassanian.	

85

83

84

Abū Şalābīkh (name from Br. 1/4" map, 1917). Three mounds strung together northwest to southeast in middle of desert. No. 57 about 3 km. to northeast. Mound *a*, at northwest, 150 x 150 x 1.5. Mound *b*, in middle, 50 x 75 x 1. Mound *c*, southeast, 200 x 250 x 3. Plain on all sides littered with sherds. Round, unbaked-mud kiln (3m. dm) visible on plain near Mound *b*.

Sherds:	Achaemenid/Seleucid: A, B, G, K.
	Parthian: E, H, and others, including a blue glazed
	jar with vertical ribs; blue glazed handle with
	applied decoration. See Debevoise, Parthian Pottery,
	Fig. 297.
	Sassanian: A, N, R, and others.
Dating:	Achaemenid to Sassanian.

No name. Very small mound lying along north bank of ancient canal, in desert. About 700 m. southwest of No. 85. 50 x 50 x 0.50. Very few sherds.

Sherds: Sassanian: K, M, P. Dating: Sassanian.

0	7
0	1

86

No name. Three mounds 150 m. east of old canal in desert.

Main course of Shatt an-Nil about 200 m. south. Niliyah (No. 162) is 1.5 km. to east. Directly touching the northernmost mound (a) are low, almost hidden traces of an even older canal running alongside and cut by the Abbasid branch of the Shatt an-Nil; Mound a, 100 x 200 x 3-4. Mound b, 70 x 70 x 1. Mound c, 100 x 200 x 2.

> Sherds: Achaemenid/Seleucid: A, C, G, J, among many others.

Parthian: A, B, E, G, H, L.

Sassanian: Very slight. B, M, finger-made indentations on dark blue, glazed coffin, probably more likely Parthian.

Achaemenid to Parthian, perhaps slight Sassanian. Dating:



Small mound, 100 x 150 x 1 cut by Abbasid branch from Shatt an-Nil. 1 km. north of No. 87. Building of baked brick 22 x 22 x 4-5 cm. partly exposed. This is one of the usual Abbasid brick sizes, but no sign of any Islamic pottery anywhere.

> Sherds: Sassanian: A, N, P, Q, R, T (very elaborate husking tray, radiating pattern); several other types, including a variety of pointed bottom jugs with handles; also much glass, including blue. Dating:

Sassanian.

No name. Small mound, about 50 m. east of branch from Shatt an-Nil. 1 km. north of No. 88.

> Sherds: Achaemenid/Seleucid: B, E, and large bowls of well levigated buffware, with everted rim and grooves. Parthian: A, B, G, H, L. Early Islamic: traces, e.g., I, J. Dating: Achaemenid to Parthian, Early Islamic.

Tell Rishayd (Adams 201). Large, high mound in Mussayib Project, east of Tell Ibrahim.  $550 \times 200 \times 11$ . Highest point at south end. Large Mussayib drainage canal to east.

Sherds:	Ubaid: standard late Ubaid; sickles, flints.
	Protoliterate: A, E, G; Adams found one C; spouts,
	probably of this date, not ED.
	Parthian: A, B, C, E, F, G, H, L.
	Sassanian: A, Aa, M, N, Q, T.
	Late Abbasid: C, F. Very few.
Dating:	Ubaid to Protoliterate, Parthian, Sassanian, some
	Late Abbasid.

91

90

No name (Adams 202). Information from Adams' notes. Not visited by me. New Mussayib canal cuts eastern edge. Ht. 2.5 m.

Sherds: Protoliterate?: sickles, but no painted sherds.
Old Babylonian: A, C? (identification by type from photo).
Kassite: A.
Dating: Protoliterate, Old Babylonian, Kassite.

92

Jemdet Nasr (Adams 203). Local villagers call it Tell Antika, and refer to a small high Parthian or Sassanian (did not visit) tell to the east as Jemdet Nasr. Now in middle of cultivation. Reached by road along small feeder canal from one of main Mussayib canals that runs to the south. The small feeder cuts into the southeast edge of the main mound. Mound is actually 3 or 4 low rises. Palace mound extends to east, to another low rise. Entire area about 300 x 600 x 2. Never accurately mapped by Field Museum-Oxford University Expedition. See Langdon, *Der Alte Orient*, XXVI (1926), 67ff.; also see E. Mackay, *Report on Excavations at Jemdet Nasr*, *Iraq* (Field Museum of Natural History, Anthropology Memoirs, I, 3 [Chicago, 1931]. (= AM, I,3)

Sherds: Protoliterate: A, B, D, E, F, G, and many others. Early Dynastic: A, B, E, G.

Dating: Protoliterate to ED I. To be noted is the absence of Ubaid sherds, though "Ubaid" flint hoes are numerous, as well as baked clay sickles.

Jemdet Ubaid (Adams 204). Information from Adam's notes. Not visited by me. Small tell southeast of Jemdet Nasr, west of Barghuthiat. Near major Mussayib Canal.

Sherds: "Ubaid" sickles and nails, but no sherds.

ED: Possibly E, but fragments could be Akkadian. Akkadian: few sherds, D?

Larsa: C, G.

Old Babylonian: A?, B.

### Kassite: A, and others. Dating: Protoliterate (because of lack of Ubaid sherds), through Kassite.

94

Barghuthiat (Adams 205). Ancient Girumu. Mapped schematically and investigated in parts by Langdon in 1925, who found a stone slab with an inscription of Nebuchadnezzar (see *Der Alte Orient*, XXVI, 67-68). In those days, the area north of Barghuthiat was marsh, and south was desert. In February, 1932, Watelin excavated with two hundred men in several places in the complex of mounds. See Langdon, *Iraq*, I (1934), 118ff., and see the map, Fig. 4. Langdon reports the finding of Neo-Babylonian houses on Mound A, as well as Parthian remains and a Sassanian palace. The trenches in the various mounds are visible today, in all the mounds in the complex. A modern canal cuts through the plain south of the site and across a broad, dark colored band of earth that runs from Mound A toward the southeast, most likely a canal.

Sherds:	Neo-Babylonian: A, C, D, E, F. (Mainly on
	southernmost mound, and Mound A.)
	Achaemenid/Seleucid: A, B, C, E, J, K.
	Parthian: A, C, E, F, G, H, L.
	Sassanian: A, C, G, K, M, Ma, N, O, P, Q, R, T.
	Early Islamic: H, I.
	Samarran: A, C.
	Late Abbasid: C, E.
Dating:	NB to Early Islamic, Samarran to Late Abbasid.
Note.	In March, 1928 Field found a Neo-Babylonian
	statuette and collected sherds.

Karunah (Adams 209). Very sizable group of mounds strung out along ancient canal that runs N-S. 3 kms. southeast of Barghuthiat. Road along modern Mussayib Canal parallel to its northern side. Entire complex more than 1 km. E-W, about 400 m. N-S. Main mound 6 m. high. Great amount of pottery on surface, including whole bowls.

Sherds:	Sassanian: A, Aa, B, G, K, M, Ma, N, O, P, Q, R, S,
	T, and others.
	Early Islamic: A, D (imitation celadon, two whole
	or complete bowls), G, I.
	Late Abbasid: F
Dating:	Sassanian to Early Islamic, Late Abbasid.

96

95

Suraysur and Tell Karuk (Adams 210). Long complex of mounds paralleled by modern Mussayib canal. East of No. 95. The complex, apparently one city, runs 2.5 km. from northwest to southeast, and varies in width from 200 to 500 meters. Ancient canal bed, measuring at least 50-60 m. wide, ran through the city. Moisture in the ground outlines outer and inner walls of the city. Islamic graves on the principal mound.

Sherds: Achaemenid/Seleucid: A, B, C, D, E, G, J, K, and others. Parthian: A, B, C, E, F, G, H, L, and others.

 $\begin{array}{c} \text{Partman: } A, B, C, E, F, G, \Pi, L, and others. \end{array}$ 

Sassanian: A, Aa, B, G, K, L, M, N, O, P, Q, R, S, T, and others.

Other finds:

35 bronze coins: all Parthian and Seleucid except one from Persis.

One stamped brick of Nebuchadnezzar, probably a re-use.

Few pieces of Samarran graffito ware, probably associated with the graves, not with an occupation.

Dating: Achaemenid to Sassanian, probably with stress on *Parthian* because the outline of the city walls does not exhibit the usual Sassanian buttress.

Umm al-Jir (Adams 213). Formerly Umm al-Jerab, excavated by Watelin, 1932. Sounding by Directorate General of Antiquities in 1952. Sounding by M. Gibson and Subhi Anwar for Oriental Institute and DGA in January, 1967. Also known as Abū Jir, Tell al-Jir.

Long, low mound south of Suraysur. E-W 700 x 300 x 4.5. Two high points, one east and one west. In 1956, completely overrun by dunes. Today, surrounded by farms, and is being cut into by irrigation ditches on south side. One of Mussayib channels touches south side. Entire west end disturbed by illicit and Watelin digging. Sherd collections verified by 1967 sounding. See report by Gibson in *JNES*, October, 1972.

> Sherds: Protoliterate: A, D, E, G; plus stone tools and baked clay sickles. Early Dynastic: A, B, C, D, E, F, G, H, I, J, K, L, M, and others. Akkadian: A, B, C, D, E, F, G. Ur III-Isin Larsa: A, Aa, Ab, B, D, E, G, I, M. Old Babylonian: A, C, D, many black painted sherds, but lack of other usual OB types leads one to conclude the black painted is actually late Larsa. Achaemenid/Seleucid: A, C, G, and roughly made coffins. Most from west end of mound where graves have been opened by local people. Parthian: Slight but present, perhaps graves. On east end. A, B, C, G. Late Abbasid: On eastern end, in fact a separate rise at the very end of the mound, across modern irrigation ditch. A, B, F. Post Ilkhanid: B, H.

Dating: Protoliterate to Old Babylonian, then scattered

97.

# graves of Achaemenid and Parthian. Late Abbasid and Post Ilkhanid.

No name. Low mound, covering 4 or 5 acres.  $500 \ge 200 \ge 3$  (?). This tell has been bulldozed almost level with the plain and at least a third on the western edge is under cultivation. The debris has been pushed up against two small rises on the south end. Much of the sherd collection came from this debris and from irrigation ditches. To the east, there is a considerable, barren area defined by an ancient canal. The tell is bounded on the north by a modern canal.

Sherds:	Protoliterate: A, D, E, clay sickles.
	Early Dynastic: A, D, F, J, and one sherd of buff
	ware covered with a cream slip that has been
	worked into a messy web-like pattern.
	Parthian: A, E, G, H, and others. Sassanian: K, N, O.
Dating:	Protoliterate to ED III; Parthian, Sassanian.

Ishān Dhiab. Highest mound in a group of four running in a line from north to south. West of No. 98.  $150 \times 150 \times 5$ .

Sherds: Achaemenid/Seleucid: A, B, Ba, C, D, E, G, J, K, and others.Dating: Achaemenid/Seleucid.

shaped storage jar with bitumen lining.

100

99

98

No name.  $100 \times 100 \times 2$ . 200 m. south of No. 99. In middle of fields, and is being plowed even at very top. Irrigation ditches cut it on south. Sherds: Parthian: C, G, H, J, and others including bullet-

Dating: Parthian. No name. 50 x 70 x 3. Across field, 100 m. south of No. 100.

101No name. 50 x 70 x 3. Across field, 100 m. south of No. 100.Sherds:Achaemenid/Seleucid: A, B, Ca, K, and others.Dating:Achaemenid/Seleucid.

Ishān Husain. Low mound cut by modern canal. Part north of canal is 50 x 100 x 1.5, with highest point to east. Part to south of canal is a low area about 50 x 50 x .5, with a later occupation on the east end, about 30 x 25 x 1. To the north are Nos. 99-101.
Sherds: Parthian: A, E, F, G, H, and others. Sassanian: A, K. Late Abbasid: C, only on small rise at southeast.

Dating: Parthian, Sassanian, with minor occupation Late Abbasid.

103

No name. Very small, whitish rise alongside ancient canal, and

partly covered by it.  $25 \times 6 \times 1$ . No identifiable sherds found. However, surface shows many small, yellow baked bricks.

Dating: Islamic, but before the cutting of the canal which partly covers the site, therefore Early Islamic.

104 Tell Daud. Known locally as Abū Numera ("Father of the Number") from the survey mark placed on top. Rather high, conical mound: 200 x 300 x 6. Low area of mound on all sides, especially west. Lies on east bank of ancient canal. Major Mussayib north-south canal to the west. Farms on all sides.

Sherds:	Sassanian: few, A, K, Q, T.
	Early Islamic: E, H, I.
	Late Abbasid: B, C, E, F.
	Post Ilkhanid: D, much.
Dating:	Sassanian, Early Islamic, Late Abbasid, Post Ilk- hanid.

105 No name. 500 m. southeast of No. 103. 300 m. west of major Mussayib Canal. 100 x 100 x 2.

Sherds:	Achaemenid/Seleucid: C, I, and others
	Sassanian: A, K, R, S.
Dating:	Achaemenid/Seleucid, Sassanian.

106

No name.  $200 \times 300 \times 4$ . 200 m. south of No. 105, probably originally joined with No. 107, but was cut by Abbasid canal that runs north-south. To north, a farmhouse. To east, modern canal.

Sherds: Sassanian: A, K, M, P, Q, T, and one whole pitcher, with plain rim, cylindrical body, applied handle.Dating: Sassanian.

107 No name. 50 m. south of No. 106. Low mound, with modern automobile track passing over it. 300 x 200 x 2. Sherds: Sassanian:A, L, M, N, P, Q, R, S?, T.

Early Islamic: G, H, I.

Dating: Sassanian, Early Islamic.

108

No name. Low mound in middle of fields, about 20 m. west of a farmhouse, 50 m. west of major modern canal running north-south, and 100 m. southeast of No. 107. Illicit digging has been carried out here. The surface of the mound reveals many outlines of houses (moisture), including one circular.

Sherds:	Akkadian: A, B, C, D, E, G, and others.
	Other material: One etched carnelian bead, white
	paste filling (Akkadian), and two banded agate.
Dating:	Akkadian, though one sherd with combed wave
	decoration may imply Isin-Larsa. However, this type
	of decoration seems to begin in Akkadian levels at

### Umm al-Jir.

Chebab an-Nahr, known locally now as Umm al-Baidh ("Mother of White"). (Adams 216.) 1 km. southeast of No. 108. Cut by modern Mussayib lateral feeder canal.  $150 \times 70 \times 3-4$ . Sounding made by Directorate General of Antiquities in 1955.

Sherds:	Proliterate: A, D, G (very slight), also baked clay
	sickles.
	Neo-Babylonian: A, C, D.
	Achaemenid/Seleucid: A, B, Ba, C, and others.
Dating:	Protoliterate: NB-Achaemenid/Seleucid.

110

109

Bismah (also in past referred to by Europeans as Mismah). Large, high mound with subsidiary mounds on west, south, and north. Ancient canal divides main mound from a smaller one on east. Abbasid branch of Sha<u>ț</u>t an-N<u>i</u>l to west. A modern Mussayib canal and road pass to north of complex. Largest mound  $300 \times 200 \times 6$ .

Sherds:	Sassanian: A, G, K, L, O, P, Q, R.			
	Early Islamic: G, H, I.			
	Late Abbasid: C, D, E, F; many.			
	Ilkhanid: D.			
	Post Ilkhanid: E.			
Dating:	Sassanian-Early Islamic, Late Abbasid to Post			
	Ilkhanid.			



111

Umm al-Baidh. Group of 4 mounds in desert on northwest bank of Khait Zbar branch of Shatt an-Nil. 3 km. southeast of No. 110. Outer Mussayib canal 1 km. to northwest. Three mounds together,  $350 \times 200 \times$ 2.5. One low, small rise about 100 m. west,  $50 \times 50 \times .50$ . The larger group of mounds is bordered on east by ancient, low canal. On surface of smaller, western mound is the outline of a small kiln surrounded by slag. Black stone strewn on surface of this tell.

### Sherds:

Main group of mounds: Sassanian: G, M, N, O, P, Q, R, S, T,

	and tail of light-blue glazed fish.
Small w	est mound: Sassanian: K, M, N, P.
	Samarran: A, F, and one sherd of yellow ware,
	with yellow glaze over thin, black radiating lines.
Dating:	Sassanian: slight occupation on western mound,
	Samarran

No name. Two groups of mounds separated by the Khait Zbar. Located 1.5 km. northeast of No. 111. Originally one complex. Northwestern part, 150 x 150 x 4. Southeastern, including one mound and two smaller to south,  $400 \times 200 \times 4$ .

112

113

115

116

Sherds:	Kassite: A, several.
	Achaemenid/Seleucid: A, E, G, J, and others.
	Parthian: A, F, G.
	Early Islamic: very little, J.
Dating:	Kassite, Achaemenid/Seleucid, Early Islamic.

No name. Small, low whitish mound in middle of fields, partially under cultivation. 60 m. inside southeast outer drainage canal of Mussayib Project.  $50 \times 50 \times .50$ .

Sherds:very few: Sassanian: Aa, K, M, N, O, P.Dating:Sassanian.

114 Tell as-Said Mansur (Adams 169). Information from his notes. Not visited by me. North of road from Mahawil to Albu Mustafa, a village on the Euphrates. One mile west of Baghdad-Hilla road. Massive system of ancient canals called Sadr Mahawil runs roughly E-W, just south of the tell. At least 6 parallel abandoned canals. Symmetrical mound, slight erosion, 4 m. high, flat top about 50 m. in diameter.

Sherds: Achaemenid/Seleucid to Parthian, Early Islamic.

Abū Rothan (Adams 170). Mound cut by modern Baghdad-Hilla road. 100 x 200 x 5. About 300 m. south of Mahawil. Baghdad Railroad cuts west end. Modern brick factory to northwest. Ancient canals south, and north, running toward east. Debris from cut piled on top tell. Visible in the faces of the cut are baked brick constructions, vaulted tomb, graves.

Sherds:	Neo-Babylonian: A, C, E, F.
	Achaemenid/Seleucid: A, B, C, D, G, J.
	Parthian: A, C, G.
	Early Islamic: F, G, H, I.
Dating:	NB-Parthian, slight Islamic occupation.

No name. (Adams 171). Small, high mound,  $150 \times 100 \times 5$ , alongside track east of Baghdad-Hilla road. No. 115 almost directly north about 500 m. Ancient canal runs north of site.

Sherds: Early Islamic: A, D, G, H, I, K.

	Dating:	Samarran: A, C, F. Early Islamic to Samarran.
117	Tell Muhan Not visited by me. Ale village (=Khatuniyah) to 80 x 4, with other mou Sherds:	nmed (Adams 172). Information from Adams' notes. ongside track from Euphrates just north of Hantush o main road. Southwest of No. 116. Circular tell 80 x nds to SE. Very few sherds. Early Islamic.
118	No name. S also west of brick factor	Small mound west of Baghdad-Hilla road and railroad; ry. South of Mahawil. 70 x 70 x 3.
	Sherds:	Sassanian? : A. Early Islamic: E, G, I, and one plate with solid brown glaze. Samarran: A. Islamic: One sherd of red ware with fugitive green on white glaze; not enough design left to give details.
	Dating:	Early Islamic to Samarran.
119	Abul Hani southeast of Mahawil. 1 Sherds: Dating:	<ul> <li>Small, high mound east of Baghdad-Hilla road,</li> <li>00 x 80 x 3-4. In middle of fields.</li> <li>Parthian: C, E, G, H, L.</li> <li>Sassanian: A, K, O, P.</li> <li>Parthian, Sassanian.</li> </ul>
120	Abu Hejjil road, west of high tens moisture on top of mo identifiable sherds. Sherds: Dating:	<ul> <li>Rather high mound 500 m. east of Baghdad-Hilla sion wires. 200 x 100 x 5-6. Large building shown by und. Mound has been almost completely denuded of Akkadian: D, and others. Isin-Larsa: I, M. Parthian: (no sherds found, but Adams indicates this date on his map). Also, Selby's map has a note that this mound was covered with copper coins. Sassanian: A, K, L, O. definitely early material, probably more than sherds</li> </ul>
		indicate. Akkadian to Isin-Larsa, Parthian to Sassanian.
121	No name. visited by me. Series of sherd cover indicates sc	(Adams 173). Information from Adams' notes. Not of low hummocks, 230 x 165 x 2 m. Unevenness of attered settlement only. 500 m. west of Baghdad-Hilla

road, southwest of Mahawil. Sherds: Sassanian? to Samarran. Dating: Sassanian?, Early Islamic, Samarran. Tell al-Egrainy (given as El-Kreni and El Geraineh on maps in nineteenth century). Adams 174. High mound with much eroded surface. 150 x 150 x 9-10. Mud brick walls exposed in eroded places. Ancient canal cuts southwest No. 121 and passes this mound on the west, then runs towards the southeast. Almost no sherds on this tell, due to souvenir hunters. H. Rassam, *Asshur*, p. 347, reports making some excavations in May, 1880, in "... Al-Garainee, about four miles to the north of Babel and about two miles to the south of Khan al-Mahaweel," where he found some tablets and a great number of baked bricks.

Sherds: Neo-Babylonian:

Sassanian: A, K, L, Q. Dating: NB, Sassanian.

No name. (Adams 175). Information from Adams' notes. Not visited by me. Small mound with low place in middle. 65 m. dm., 2 m. ht. About 500 m. southwest of No. 122. Canal from that mound.

Sherds: notes seem to indicate possible Achaemenid: C, Parthian?: C, L.; and glass vessel with thickened base.
Sassanian?: K. Early Islamic?: G?
Dating: Achaemenid/Seleucid? to early Islamic.

Jemdet Khisbak (Adams 176). Supplementary information from Adams' notes. Visited but not properly collected by me. Southwest of No. 122. 100 x 150 x 4. Canal from No. 123 touches mound on west and seems to go on to No. 125.

Sherds:Sassanian: K, L, R.<br/>Early Islamic: D, G, I, K.Dating:Sassanian to Early Islamic.

125

124

Hutlaifa and Telfah (Adams 177). Supplementary information from Adams' notes. Village to northeast across new track and canal. Nos. 122-24 to the northeast. Two mounds, separated by a low area (stream?), with three small mounds to east, and one to northwest. Hutlaifa, the northernmost, measures 100 x 200 x 7-8. Telfah, to the south, measures about 200 x 100 x 7-8. Signs of canal bed from Nos. 123-24. Plan, p. 158.

> Sherds: Sassanian: G, O, P.
> Early Islamic: E, G, H, I, K.
> Samarran: A, F.
> Dating: Sassanian to Samarran, with emphasis on *Early Islamic*.

Subkhayet al-Bezel (earlier known as Abū Dihin, Adams 178).

Within area of palm groves. Farms to west, Baghdad-Hilla, road to east about 300 m. Four mounds situated northeast to southwest, with largest southwest. Apparently were along a canal running in this direction. Mound a, the largest, is about 50 x 300 x 6-7; Mound b, north of it, is a crescent-shaped mound 50 x 100 x 2.5; Mound c, northeast of the tip of Mound a, is 25 x 50 x 1; Mound d, farthest northeast is 20 x 50 x 2-3. Site plan, p. 158.

Sherds: Sassanian: A, K, O, Q, T.
Early Islamic: A, G, I.
Samarran: G.
Post Ilkhanid: D, G, I.
Dating: Sassanian, *Early Islamic*, Samarran?, Post Ilkhanid.

127

126

Tell Babil, Nebuchadnezzar's summer palace. Excavated. See Koldewey, WVDOG, LV, 46f., and F. Wetzel, WVDOG, Vol. LXII, for details. Basically Neo-Babylonian structure with Parthian fortress built over it.

Sherds:	ED to OB, presumably part of Parthian fill, but
	may indicate early occupation.
	Neo-Babylonian: A, C, D, E, F.
	Achaemenid/Seleucid: A, C, D, G.
	Parthian: A, C, E, G, H.
	Sassanian: K, P.
Dating:	NB to Parthian. Sassanian sherds are so rare that the
	dating of the fortress to Sassanian, as in WVDOG,
	Vol. LXII, seems incorrect. Koldewey's dating to
	Parthian (WVDOG, Vol. LV) seems more reasonable.

128 Babylon. Not collected systematically. Sherds as early as Early Dynastic III noted on surface of Amran and in the area west of Homera. Dating: ED III to Late Abbasid.

129 No name. Small, low mound running east to west along modern canal. Tell Babil 2 km. to west. Cultivation on all sides. 100 x 300 x 1. Few sherds.

Sherds:	Sassanian:	A,	Aa,	К,	P.
Dating:	Sassanian.				

130 No name. Small round tell, 100 x 100 x 3, southwest of hamlet Qalat Aloose. Very much salt. Surface granulated gray-brown. Almost no pottery.

Sherds:Early Islamic: H, I.Dating:Early Islamic.

131 Ishān Mehdi. (Tell Suffir on Selby map, 1859). Low, round mound in reddish-brown marshy area. Hillocks to west mark ancient canal.

100 x 100 x 0.50. Mentioned by Oppert, *Expédition*, p. 220, as Telul Soufar.

Sherds:	Sassanian: Aa.
	Early Islamic: G, H, I.
	Samarran: G.
Dating:	Sassanian, Early Islamic, Samarran.

Ishān al-Hor. (Another Tell Suffir on Selby map, 1859.). Small mound 100 x 100 x 3, highest point on northern end. Surface granulated, gray-brown. Near modern irrigation ditch and farm. South of No. 131. See Oppert, *Expédition*, p. 220.

Sherds:Early Islamic: A, H, I.Dating:Early Islamic.

132

133

136

No name. Formerly Abū Turfeh (Selby, 1859). 100 x 300 x 4. North of modern canal. Southeast of No. 132. Crescent shaped, with two horns toward south. Gray-brown granulated surface. Very salty.

Sherds:Sassanian: Q.Early Islamic: A, G, H, I.Dating:Sassanian to Early Islamic.

134 No name. Formerly Abū Shellil (Selby, 1859). Two small, high mounds north of modern canal. Mounds within palm groves. House to east. East of No. 133, 150 x 250 x 3.

Sherds:Early Islamic: H, I.Dating:Early Islamic.

135 Abū Bezooneh ("Father of the Cat"). See Selby map, 1859, same name. 150 x 150 x 4. High mound in palm grove. Farmhouses to northwest and southwest. Cf. Oppert, *Expédition*, p. 220, mentioning this mound.

Sherds:Early Islamic: A, G, I.Dating:Early Islamic.

Ishān Rubaij (formerly Abū Chilab, "Father of the Dog," see Selby map, 1859). Slightly larger, higher mound in palms. North of modern canal. 500 m. east of No. 135. 130 x 200 x 4.5.

Sherds:Early Islamic: G, I.Dating:Early Islamic.

137 Group of three mounds, 200 m. east of No. 136. Westernmost, Mound  $a, 50 \ge 75 \ge 1$  was given the name Abū Hosh on Selby map, 1859. Middle mound,  $b, 50 \ge 50 \ge 0.50$ , on eastern side of track running north from the modern canal. Mound c, 100  $\ge 150 \ge 3$ , now known as Ishān Guwam or Imam Sayyid, is north of the modern canal. On the eastern end is a ruined tomb, thus the name. Selby's map, 1859, shows a "tomb of

	Suliman" on this mound on the southern bank of the canal. Either Selby is in error or the new canal takes a more southerly route or another tomb on the small mound south of the modern canal has been completely demolished. Sherds: Early Islamic: A, G, H, I. Dating: Early Islamic.
138	No name. Fairly extensive, low mound to east of village of Guwam. 200 x 400 x 1. In palms, being cut for irrigation ditches. North of modern canal.
	Sherds:Early Islamic: G, I.Dating:Early Islamic.
139	Tell as-Sahneh (Adams 241). More or less round mound, 200 x 200 x 6. Trace of Abbasid branch canal running to northwest. On several maps of nineteenth century, e.g., Kiepert. <i>See</i> Oppert, <i>Expédition</i> , p. 236. Sherds: Early Islamic: A, D, E, H, I. Samarran: A, D, F. Late Abbasid: A, B, C, E, F. Post Ilkhanid: D, G.
	Dating: Early Islamic, Late Abbasid, Post Ilkhanid.
140	No name (Adams 199). 75 x 80 x 3. Along ancient Abbasid branch from Shațț an-Nīl. Sherds: Late Abbasid: A, B, C, E, F. Ilkhanid: B, E.
	Dating: Late Abbasid to Ilkhanid.
141	Ishān Ibn Hassan (Adams 242). Two small mounds, neither more than 100 m. in diameter, about 2.5 to 3 m. high. Sherds: Late Abbasid: A, B, C, F. Ilkhanid: A, B. Post Ilkhanid: B.
	Dating: Late Abbasid to Post Ilkhanid.
142	Ishān Imru'ah (Adams 243). Information from Adams' notes. Not visited by me. 150 x 100 x 4. Dating: Late Abbasid to Post Ilkhanid. Adams indicates much sixteenth century Ottoman ware.
143	Tell Adhem (Adams 244). Information from Adams' notes. Not visited by me. Circular mound. 70 m. dm., 4 m. high. Dating: Early Islamic to Late Abbasid.
144	Tell Jidr (Adams 245). 300 x 200 x 4. Mound in middle of cultivation, at end of Khait Helwan, branch of the Shaṭṭ an-Nīl. Track from Hilla passes to west and north of the site. Modern canals north and east.

Sherds:	Early Islamic: G, I.
	Samarran: A, F, G.
	Late Abbasid: A, B, C, E.
	Ilkhanid: B, C, E.
	Post Ilkhanid: A, B, D, H.
Dating:	Early Islamic, Abbasid, Ilkhanid to Post Ilkhanid.

145

146

147

148

Tell as-Su'aydan (Adams 246). Site made up of two rather extensive mounds along western side of branch of Abbasid Shatt an-Nil. Northern mound about 500 x 300 x 4. Southern, 300 x 150 x 2. Other mounds to south across irrigated fields could not be reached. Excavated 1930-31 by Reitlinger, *Ars Islamica*, II (1935), 200ff., where site is dated eleventh century and after. A Neo-Babylonian building is also claimed, but no evidence is given.

Sherds:	Late Abbasid: A, B, C, E, F.
	Ilkhanid: C, D, E.
	Post Ilkhanid: B, D, G, H, I.
Dating:	Late Abbasid to Post Ilkhanid.

No name. Two small mounds southeast of Ingharra, across modern New Shakha canal. Westernmost,  $100 \times 200 \times 1$ . Eastern mound,  $50 \times 75 \times 0.5$ . Farms and irrigation pump house to north.

Sherds:	Samarran: A, G.
Dating:	Samarran.

No name. Small, low mound cut by track to No. 148. Along route of Shatt an-Nil.  $300 \times 300 \times 0.50$ .

Sherds:	Early Islamic: D, G, H, I.
	Late Abbasid: E, G.
	Post Ilkhanid: B, G, H.
Dating:	Early Islamic; Post Ilkhanid

Umm al-Aulad ("Mother of the Boys"). Large mound, 400 x 150 x 5. Remains of mosque with open court on western end. Bricks in building are rectangular, 15 x 25 x 6 cm. Described and mapped by Sarre and Herzfeld, *Archäologishe Reise*, II, 245ff., who date its construction as contemporary with that at Niliyah, *i.e.*, tenth to twelfth century A.D.

almost no glazed ware.
Early Dynastic: F.
Akkadian: D, F.
Neo-Babylonian: A, C, D, E, F, and others.
Achaemenid/Seleucid: E, G, I.
Late Abbasid: B, C, D, E.
Ilkhanid: E.
Early Dynastic III to Akkadian; Neo-Babylonian;
Achaemenid/Seleucid; Late Abbasid, Ilkhanid.

149	No name. 150 x 170 x 3. Mound to southeast of No. 148.
	Surrounded by cultivation.
	Sherds: Achaemenid/Seleucid: A, Ba, Ca, D, H, and others. Parthian: G, H.
	Sassanian: K, P, R.
	Dating: Achaemenid to Sassanian.
150	No name. Long, curving north-south mound, 250 x 80 x 3. South of 149.
	Sherds: Early Dynastics ?: F. Kassite: A.
	Achaemenid/Seleucid: A, Ca, D, G, H, J, and others.
	Dating: ED III?, Achaemenid/Seleucid.
151	No name. Two small, low mounds alongside minor modern canal that flows in bed of Abbasid Shatt an-Nil, some 500 m. south of modern New Shakha canal. Northeast of No. 148. Larger mound: 150 x 200 x 1.5. Sherds: Early Islamic: I, J. Late Abbasid: C, E, F. Post Ilkhanid: C, H, J.
	Dating: Early Islamic to Post Ilkhanid.
152	No name. Across small canal from No. 151, i.e., on south bank of Shațț an-Nil. 300 x 200 x 4. Highest point in south.
	Samarran: D, G. Late Abbasid: F
	Dating: Early Islamic to Late Abbasid.
153	No name. Oval mound, 100 x 200 x 2.5, on west side of modern north-south feeder canal from New Shakha. Directly south of new school. Ancient canal runs to east of the mound. Sherds: Late Abbasid: A, B, E, F.
	llkhanid: C, E. Post Ilkhanid: D, G, H, I, J.
	Dating: Late Abbasid, Ilkhanid, Post Ilkhanid.
154	No name. Mound between two branches of Shatt an-Nil, close to the major canal. $150 \times 300 \times 1.5$ . At this point, modern irrigation ceases.
	Sherds: Late Abbasid: A, B, E, F. Post Ilkhanid: B, G.
	Dating: Late Abbasid, Post Ilkhanid.
155	Ishān Khalfa (Adams No. 200). Previously known as Tuweirij, see Br. 1/4" map, 1917, and Langdon, Iraq, I (1934), 120. Langdon

describes site as group of straggling, low mounds. He ran a trench into one of these mounds in 1923 and found "glazed Achaemenian" pottery; *Old Babylonian tablets* are also reported to come from here, but it is not clear whether or not they were excavated or bought. This group of mounds consists of about four mounds, one higher than the rest, measuring NW-SE 200 x 150 x 4. There are some signs of digging on this mound.

	200 x 150 x 4. There a	te some signs of ulgging on this mound.
	Sherds:	Kassite: A.
		Neo-Babylonian: A. B. C. E. F.
		Achaemenid/Seleucid: A B Ba C Ca D G I K
		Reflactification and the second secon
		Parthian: A, C, F, G, H.
	Dating:	Kassite to Parthian.
156	Tuweirij (A Br. 1/4" map, 1917). In Sherds:	Adams 247). Previously known as Ishān Khalfah (see nformation from Adams' notes. Not visited by me. Achaemenid/Seleucid, Parthian.
157	No name. southeast of No. 154. 1	Small mound north of modern canal, about 1 km. $00 \ge 50 \ge 1$ .
	Sherds:	Late Abbasid: B, D, F.
	Dating:	Late Abbasid.
158	No name. No. 157. 50 x 50 x 0.5	Small mound south of modern canal, 100 m. south of 0.
	Sherds:	Late Abbasid: B. E. F.
	Dating:	Late Abbasid.
159	No name. sides. 200 x 200 x 3. A	In desert, sand and abandoned fields (ancient) on all bout 3 km. southwest of Abū Haṭab (No. 161).
	Sherds:	Achaemenid/Seleucid: A, Aa, B, Ba, C, Ca, D, E, G, J, K.
	Other finds	3:
		1 silver coin of Seleucus I, elephants drawing chariot.
	Dating:	Achaemenid/Seleucid.
1.0	N	
160	southwest of No. 159. 3	Same conditions, desert and sand.
	Sherds:	Neo-Babylonian: A, B, C, F. Achaemenid/Seleucid: C, G, H, I, and others, in-
	Dating:	NB to Achaemenid/Seleucid:
161	AL = 11-4-1	T
101	ADII Hatan	I TARGE CITY 4 TARGE MOUNDS STRUNG OUT DOLLINGEST TO

Abū Haṭab. Large city, 4 large mounds, strung out northwest to southeast, with main mound to the west. On this there is a ruined tomb, (see Sarre and Herzfeld, Achäologishe Reise, II, 244f.). datable to the twelfththirteenth century A.D. Brick sizes 20 x 20 x 6. Area of entire site, 500 x 1,000 x 8-9. At least 3 major branches of the Shatt an- $N\bar{i}l$  originated here. Entire area today covered by dunes, but fields, irrigation ditches can be seen as they were left at abandonment of the city.

Sherds: Early Islamic: A, B, C, E, F, G, H, I, J, K.
Samarran: A, B, C, D, G.
Late Abbasid: B, C, D, E, F, (many).
Ilkhanid: B, C, E.
Post Ilkhanid: A, B, D, G, H, I, J.
Dating: Early Islamic to Post Ilkhanid.

162

Niliyah. Large city stretching along both sides of Shatt an-Nil for more than 1 km. Up to 8 m. in height. Several smaller mounds on all sides. Described and mapped by Sarre and Herzfeld, *Archäologische Reise*, II, 239ff. The two sides of the city were joined by a bridge of four piers of baked bricks  $15 \times 15 \times 4$  cm. North of bridge is a large building of bricks 20  $\times$  20  $\times$  5, now in complete ruin, but stood several m. high in 1908 when Sarre and Herzfeld saw it. Layard and Loftus saw it in even better condition in 1850. Many buildings can be mapped from surface ruins. The city was founded in the reign of Abdal-Malik (685-705 A.D.), the Ummayad caliph who ordered the excavation of the Shatt an-Nil. Southeast of the main mound are a brick factory and a ruined, small, square tomb, about 20  $\times$  20 m. with an outer wall and steps up the northwest side.

Sherds:	Early Islamic: D, F, G, H, I.
	Samarran: A, C, F, G, (much).
	Late Abbasid: A, B, C, D, E, F (many and varied).
	Ilkhanid: B, C, E.
Dating:	Early Islamic to Late Abbasid, ephemeral Ilkhanid.

163

No name. Small mound running along western bank of Khait Zbar. 3 km. north of No. 162. 150 x 50 x 1.5. At the southern end, the mound swings west away from the canal. The ground is covered in this area with sherds for about 100 m. Brick-built walls of two rectangular buildings on top of mound.

Early Islamic: H (blue glazed), I, J. Samarran: A, C, G. Late Abbasid: E, F. Ilkhanid: C, D, E. Post Ilkhanid: A, B, C, D, G, H, I, J. Dating: Early Islamic through <i>Post Ilkhanid</i> .	Sherds:	Sassanian: B (animal stamp).
Samarran: A, C, G. Late Abbasid: E, F. Ilkhanid: C, D, E. Post Ilkhanid: A, B, C, D, G, H, I, J. Dating: Early Islamic through <i>Post Ilkhanid</i> .		Early Islamic: H (blue glazed), I, J.
Late Abbasid: E, F. Ilkhanid: C, D, E. Post Ilkhanid: A, B, C, D, G, H, I, J Dating: Early Islamic through <i>Post Ilkhanid</i> .		Samarran: A, C, G.
Ilkhanid: C, D, E. Post Ilkhanid: A, B, C, D, G, H, I, J Dating: Early Islamic through <i>Post Ilkhanid</i> .		Late Abbasid: E, F.
Post Ilkhanid: A, B, C, D, G, H, I, S Dating: Early Islamic through <i>Post Ilkhanid</i> .		Ilkhanid: C, D, E.
Dating: Early Islamic through Post Ilkhanid.		Post Ilkhanid: A, B, C, D, G, H, I, J.
	Dating:	Early Islamic through Post Ilkhanid.

164

Abū Suraydib (Adams 197). Large mound, lying along canal. Including minor knolls, total area NE-SW 500 x 200 x 10 m. On NE end is a ruined tomb, same size bricks as at Abū Sudaira (15 x 15 x 4 cm.).

Sherds: Sassanian: K, L, O, P, Q, R, S. Early Islamic: A, C, D, F, G, H, I, J. Samarran: A, G.

	Dating	<ul> <li>Late Abbasid: B, C, E, F (many).</li> <li>Ilkhanid: E.</li> <li>Post Ilkhanid: A, B, D, G, H, I, J.</li> <li>g: Sassanian to Samarran (little), Late Abbasid to Post Ilkhanid.</li> </ul>
165	No na canals from Shațț	ame. In Mussayib Project. Small, low mound in fork at two an-Nil, north of Surayib. No. 164. 75 x 50 x 0.50.
	Sherd	S: Late Addasid: F, many. Post Ilkhanid: A. C. I
	Dating	g: Late Abbasid to Post Ilkhanid.
166	No n branch canal. 50 y	ame. Small, low mound north of No. 165 along same x 150 x 0.50. New feeder canal of Mussayib Project cuts by
	Sherd	s: Late Abbasid: E, F. Ilkhanid: E.
	Datin	Post Ilkhanid: A, B, D, G. g: Late Abbasid to Post Ilkhanid.
167	No na Nil. 100 x 100 x Sherd Datin	ame. Mound on western bank of Khait Zbar, branch off the 1.5. Many small, fresh-water shells ( <i>Turritella</i> ) on surface. s: Early Islamic: A, G, I, K. g: Early Islamic.
168	No n No. 167. One hi masonry. Highest about 1 km. from where the canal m Sherd Datin	<ul> <li>ame. Mound on eastern bank of Khait Zbar, northeast of gh point near canal, 3 m., with a mass of baked brick point, to southeast, 4 m. high. Diameter 300 m. In desert, Mussayib outer drainage ditch. This tell is located at a point akes a sharp turn toward the northeast.</li> <li>Is: Early Islamic: D, F, I (holdovers?). Samarran: A, B, C, G. Late Abbasid: B, C, E, F. Ilkhanid: C, E. Post Ilkhanid: A, B, D, G, H, I, J.</li> <li>g: Early Islamic to Post Ilkhanid.</li> </ul>
	Datin	g. Early Islamic to Fost fixinama.
169	No n	ame. Small rise along canal. 20 x 20 x 0.40. Ground by
	canal littered with	th very fine blue glazed sherds, some of best collected.
	Surprising in site	so small.
	Snerc	Samarran: A C G
		Late Abbasid: C.
		Post Ilkhanid: A, B, G, H, I, J.
	Datin	g: Samarran-Late Abbasid; Post Ilkhanid.

No name. Large settlement on a major bend in the canal (Khait Zbar). Most of the mound is on eastern side. Assume that since the town antedates the Abbasid canal, the canal was "bent" to pass through it along its older bend.  $300 \times 100 \times 9$ . Mussayib outer drainage ditch within 300 m. Some sand in this area.

170

171

172

173

174

Sherds: Early Islamic: I, K (and "Roman" ware).
Samarran: A, G.
Late Abbasid: B, C, E, F.
Ilkhanid: E.
Post Ilkhanid: A, B, D, G, H, I, J, K.
Dating: Early Islamic to Post Ilkhanid.



No name. To southeast of Khait Zbar, across from No. 111 (Umm al Baidh). 200 m. from the canal itself.  $100 \times 50 \times 4$ .

Sherds:Early Islamic: D, I.Late Abbasid: C, D, E, F.Dating:Early Islamic, Late Abbasid.

No name. Small mound, 80 x 80 x 1. On both sides of canal where it makes sharp bend to northeast. Cf. No. 170. In desert, southeast of Mussayib outer canal.

Sherds:	Early Islamic: H, I (much), J.
	Samarran: A, B, C, G.
	Late Abbasid: B, C, E, F.
	Post Ilkhanid: A, D, G, J.
Dating:	Early Islamic to Post Ilkhanid.

No name. Small mound southeast of Khait Zbar, northeast of No. 171. 100 x 100 x 3. Two small rectangular excavation pits (DGA?) in north slope.

Sherds:Early Islamic: A, G, I.Late Abbasid: E, F.Dating:Early Islamic, Late Abbasid.

No name. Mound on both banks of Khait Zbar, about 1 km. northeast of No. 172.  $300 \ge 200 \ge 7$ . Graves on top, especially northwestern half.

Sherds:	Samarran: A, C, G.
	Late Abbasid: C, E, F.
	Ilkhanid: E.
	Post Ilkhanid: A, B, G, H.
Dating:	Samarran to Post Ilkhanid.

No name. Perhaps to be associated with Imam Zbar, which is shown on Kiepert map (1883) at about this location, but is on desert to east in newer maps. Mound 100 x 150 x 4, on southeast side of Khait Zbar. To the north of the main mound is a conical pile of yellow bricks, probably the remains of a tomb.

Sherds:	Late Abbasid: E, F.	
	Ilkhanid: E.	
	Post Ilkhanid: A, B, D, G, H, I, J. A very fine	
	collection of such wares.	
Dating:	Late Abbasid to Post Ilkhanid.	







## APPENDIX II. SURFACE SURVEY: DIAGNOSTIC SHERDS (Figs. 34-37)

The general organization of diagnostic sherds given here is adapted from R. McC. Adams' Land Behind Baghdad.<sup>1</sup> The relatively primitive state of Mesopotamian archaeology is indicated by the fact that Adams' compilation is the only published listing of sherd types spanning all periods from the introduction of ceramics in the alluvial plain through the Islamic eras. In this study, some changes have been made in Adams' list. In some cases, indicator sherds seemed atypical for the Kish area. In others, my work at Nippur in 1964-65 and on the Kish survey in 1966-67 led me to substitute other sherds as more useful criteria. In almost no instance was the substitution a correction of Adams' work, but rather a refinement made possible by excavations carried out since his surveys of the late 1950's. The types I have introduced for the later periods were determined on the basis of single-period-occupation sites, e.g., No. 159 for Achaemenid/Seleucid. The individual parts of Kish/Hursagkalama furnished valuable information for individual periods, e.g., the Sassanian town area (Nos. 5-6). Mr. Edward Keall, archaeologist at Nippur, 1966-67, gave valuable assistance in working out Sassanian types.

In the range of time that interests us most, the pre-Classical periods, there are several unavoidably vague areas. The types for the first and second millennia B.C., given as Kassite and Neo-Babylonian in the list of sites and in the figures, are obviously inadequate. The difficulty in dealing with this range of time lies not only in the relative lack of excavations, but in the apparent continuation of pottery types. The deep soundings at Nippur, which should allow a more precise differentiation of types, could not be presented in any more distinguishing terms than Old Babylonian, Kassite, Assyrian and Neo-Babylonian.<sup>2</sup> In a gross manner, I have attempted to deal with this problem by taking the year 1000 B.C. as a dividing line and making the term Kassite cover all material from the end of the Old Babylonian Period to that date. Likewise, Neo-Babylonian must be understood to include pottery typical of the entire first half of the first millennium. There is some overlap of types. Several diagnostic "Neo-Babylonian" sherds can be shown to have begun before 1000 B.C.<sup>3</sup> They seem to be more typical of the period after that date, however, and have thus been included with a "Neo-Babylonian."

The combining of Seleucid with Achaemenid as a category of sherds is a major departure from Adams' usage. This was done for several reasons. A study of Achaemenid pottery from Iran, especially at Susa, shows that some change is necessary in our assignment of sherds to this period. Excavations in the private house area at Susa<sup>4</sup> yielded mostly plain, utilitarian pottery. For survey, utilitarian pottery is of great relevance, since most of the sherds one finds are non-luxury wares. A reconnaissance that uses luxury wares only, or predomintely, must reach inaccurate conclusions and also deprive itself of valuable diagnostic criteria. It is of great importance to note that at Susa there was found no eggshell ware, no sherds with pushed-out, stamp-decorated nodules (as our Ach./Sel. types A-B), only one sherd with impressed leaf ornament (Ach./Sel. type Ba),<sup>5</sup> and no wedge shaped indentations except in the bottom of husking trays (Ach./Sel. type

J).<sup>6</sup> There does occur impressed or incised crescent decoration (as Ach./Sel. type K).<sup>7</sup> There are also several other shapes that are paralleled at Nippur.<sup>8</sup> The lack of eggshell ware and stamp-decorated sherds might be due to the fact that they were luxury ware, not to be expected in a town area. However, when we turn to Persepolis, we find that at that palace site, though there were parallels with Susa town pottery, and with Nippur,<sup>9</sup> there was no eggshell, and almost no impressed-decorated ware.<sup>10</sup>

Clearly there is enough evidence to assume that eggshell and stamp-decorated wares were not typically Achaemenid. The finding of several Seleucid coins on sites with this type of pottery, and little or no glazed ware, leads me to conclude that much of what we have been calling Achaemenid is actually Seleucid in time. Supporting this conclusion are the findings from the Hellenistic settlement of Nimrud.<sup>11</sup> Here were found numerous sherds of impressed, stamped pottery and other vessels that we class in our Achaemenid/Seleucid category (Fig. 35). There is no doubt that the Nimrud material dates from the Seleucid era.<sup>12</sup> Oates and Oates noted that in the top level of their settlement, a change seems to have taken place, with much more glazed ware, and the introduction of decorative motifs such as the rocker or wave pattern (our Parthian Types A, B, E, etc.).<sup>13</sup> Surely, the top level at Nimrud must be correlated with the arrival of the Parthians in Mesopotamia. It is also clear that the pottery from all lower levels of that settlement must be called Seleucid, and that our Achaemenid/Seleucid types are more Seleucid than Achaemenid. It is hoped that further work will enable us to separate the Achaemenid from the Seleucid, by reestablishing Achaemenid types on the basis of Susa, Persepolis and Nippur, then testing the results in this field.

The Parthian types presented here are incorporations of Adams' criteria plus additions based on experience with Parthian material at Nippur. I have, regrettably, not made use of one of Adams' types, his Type J, a red-ware cooking pot. This development has come about due to a doubt on my part, since resolved, as to the limitation of this ware to the Parthian Period alone. Adams' Sassanian type H is another hard-fired, red ware distinguished from the Parthian sherds by temper. A similar red ware was also in use in the Islamic era. The addition of Roman red-ware platters, easily distinguishable from all the other red wares, calls for precision in describing and analyzing each red-ware sherd. Because of initial doubts as to the worth of red ware as distinctive for any one period, I did not collect red ware sherds uniformly, and thus cannot use them as types.

Perhaps the most important contribution this study makes in the field of pottery is the assemblage of Sassanian and Early Islamic types. In these categories, the information to be gathered by the combination of elements rather than by the pin-pointing of one sherd type is manifest. The collections from single-occupation sites, the recurrence of several types on different mounds, the finding of one type of decoration on various types of vessels, all lead to the defining of an assemblage of types for a given period. This principle of operation is best illustrated by the Sassanian material, which was built up from very slightly published evidence of Sassanian settlements, as at Kish. Having a few types to build on, one goes on to add sherds found in conjuction with them. My Types, M, N, P, Q, R, S are linked by decorative technique and shape.

There is no doubt that some shapes and decorative elements such as the finger-
worked patterns (Types M-N, etc.) were carried over into Early Islamic times.<sup>14</sup> One can also see the beginning of such a distinctive Early Islamic type as the bent handled, groove- and cut-decorated jar (Early Islamic Types H, I) in Sassanian times.<sup>15</sup> As in any classification of sherds, there must be some overlap. The period assigned to each assemblage of types is demonstrably the main period of use.

The Early Islamic Period (to about 800 A.D.) is marked for us not so much by glazed wares as by cut and grooved, incised wave ware, called "Kufa ware" by the staff of the Iraq Museum, who know it best.<sup>16</sup> There can be no doubt that this type of decoration lasted beyond the Early Islamic Period, but it is my impression that it is most typical in this era. Again, it must be stressed that no sherd can be considered alone, but in context with the other sherds found at a given site. The Islamic material is due for some extensive revision if good excavations are carried out at a site that gives a full range from Early Islamic through the Ottoman Period. I feel that the basic patterns given here are valid for the Islamic periods, but that certain of the indicator sherds, such as some Ilkhanid and Post-Ilkhanid types, were introduced earlier. This is especially true of the excellent blue and black decorated, glazed sherds given as Post-Ilkhanid Types G-H. However, on present evidence, consisting of one well excavated site, Wāsit, <sup>17</sup> and several sites in the Kish area,<sup>18</sup> the types we give seem to be generally characteristic of their respective periods.

Ubaid:

Painted Ubaid sherds only. Baked clay sickles are clearly as characteristic for the early Protoliterate Period as for the Ubaid, and were thus not used as an indicator. Flint tools were also discounted because of the inadequacy of study of this type of material in southern Iraq.

Protoliterate:

- A. Beveled rim bowls. Adams A. (See Land Behind Baghadad, pp. 126-34, for his types.)
- B. Baked clay cones. Adams B.
- C. Shallow bowl, outer surface pared with knife. Adams C.
- D. Drooping spout. Adams D.
- E. Vessels with suspension lugs, cross- hatched, incised decoration on shoulder. Adams E not used since easily confused with later sherds.
- F. Monochrome or polychrome Jemdet Nasr pottery. Includes a wide range of pot shapes, from simple spouted jars (e.g., Ernest Mackay, *AM*, I, 3, Pl. LXIII, 20) to elaborate geometric or naturalistic motifs done in red, black, purple, etc. (e.g., *ibid.*, Pls. LXVIII-LXIX, LXXVII-LXXX).
- G. Twisted handle from pitchers, usually of more or less globular shape.

Early Dynastic:

A. Reserved slip ware. Since this type of decoration began in the Protoliterate, only reserved slip used in conjuction with punctate decoration around the upper part of the body of jars has been taken as diagnostic of Early Dynastic I. See Donald P. Hansen, "The Relative Chronology of Mesopotamia. Part II. The Pottery Sequence at Nippur from the Middle Uruk to the End of the Old Babylonian Period (3400-1600 B.C.)," *Chronologies in Old World Archaeology*, Robert W. Ehrich, ed. (University of Chicago Press, 1965), p. 208. For the type of pot and decoration, see Pinhas Delougaz, *Pottery*, Pl. 47 g, i, etc.

- B. Solid footed goblet. Early Dynastic I. Adams B.
- C. Monochrome painted ware. For this study, only "scarlet ware," as distinguished in Delougaz, *Pottery*, Pls. 9-15. Not more than four pieces of red-painted ware were found in the entire survey; color alone was not taken as indicative. Without corroboration in shape or decorative motif, such sherds were considered inconclusive. Early Dynastic I. Adams C, modified.
- D. Pierced horizontal lug as part of ridge-gutter of large jars. Differs from Protoliterate Type E in that the lug is drilled longitudinally. The Protoliterate lug is, besides, triangular, nose-shaped. Early Dynastic I. Adams D.
- E. Deep, irregularly made conical bowl with narrow, flat, string-cut base. Early Dynastic I. Adams E.
- F. More widely flaring conical bowls, characteristic of latter part of Early Dynastic Period. Adams F.
- G. "Cutware," excised triangles, etc. Especially from shoulders of large jars. Spans entire Early Dynastic Period. Adams I.
- H. Fruit stands. Adams H.
- I. Cross-hatched shoulder from "mother goddess" vessels.
- J. Stone bowls. Adams J. Accepted, but not found very useful, since almost none found.
- K. Goddess-handles, or their predecessors, scratched geometric, sprig-like, etc, motifs. See Delougaz, *Pottery*, Pls. 86-87, *passim*. The more developed, applied-face type is more characteristic of the late Early Dynastic III Period. This type of jar and handle continued into the Akkadian Period, usually having a higher foot and more elongated neck and handle.
- L. Beaded or notched ridge from shoulder of large jars, e.g., from goddess-handled jars.
- M. Very pronounced, sharply angular everted rim from large jars, especially goddess-handled types. See, e.g., Delougaz, *Pottery*, Pl. 172, C. 527. 471, and cf. *ibid.*, Pl. 181, C. 526.47la-b, d-f, all ED III to Protoimperial. Especially distinctive of late Early Dynastic III.

### Akkadian:

- A. Ribbed ware. Adams A.
- B. Large spouted bowls, spout with beaded rim. Adams B.
- C. Same type of bowl, no spouts. Adams C.
- D. A distinctive type of rim treatment, consisting of a vertical collar, almost like a band, set on a flaring neck. This type of rim is to be found on a variety of jars, e.g., Delougaz, *Pottery*, Pl. 160, B. 555. 540b; McCown and Haines, *Nippur I*, Pl. 80, No. 13, and others. At Umm al-Jir, this type of rim was most common. Adams D was not used by me because the type of grooved decoration began in Early Dynastic and lasted into Larsa times.
- E. A crude cup, usually of gray or buff ware, with a distinctive inner ledge rim. See Delougaz, *Pottery*, Pl. 149, B. 084. 210a-c (ED III-Akkadian); McCown and Haines, *Nippur I*, Pl. 80, Type 3. At Umm al-Jir, two cups of this type were found in a grave with ribbed ware.

- F. Distinctive rims of several types of vessels, consisting of a thinning of the rim at the edge. This type seems to be of the same family as our Akkadian Type D. See *ibid.*, Pl. 80, Nos. 8-9. At Umm al-Jir, this was also a frequent sherd type.
- G. Very well made, red slipped or plain surfaced jar, with globular or more often conical body, high neck and somewhat overdeveloped neck. Lasts into Ur III, but the later examples seem to have a more vertical ribbing on the rim. See McCown and Haines, *ibid.*, Pl. 80, 18 and cf. Pl. 84, 3-5 and 7-8.

## Ur III/Isin-Larsa:

- A. Low, flaring bowl with vertical band rim. Adams A.
- Aa. Tall, cylindrical vase with flaring rim. Cf. Delougaz, Pottery, Pl. 171, C. 257. 210.
- Ab. Jars with triple-grooved rims. Often burnished. Development of Akkadian Type G. See McCown and Haines, *Nippur I*, Pl. 84, type 14A.
- B. Large jars with "column-decorated" rims. Adams B.
- C. Jar with channel-rim and low horizontal ribs. Adams C.
- D. Well-levigated, thin-walled cylindrical cups, usually with vertical or concave sides. Adams D.
- E. Incised, white-filled grayware. Adams E.
- F. Tall, cylindrical jar, with inset collar and fairly high foot. Adams F. See McCown and Haines, *Nippur I*, Pl. 85: 4.
- G. Ledge rim, deep bowl with rounded bottom and ring base, frequently decorated with horizontal grooves. Cf. Delougaz, *Pottery*, p. 115, C.044. 310. Adams G.
- H. Clay plaque of bull-eared god. Adams H. None found by me.
- I. Sieve or collander with ring base or foot. Cf. Delougaz, *Pottery*, Pl. 168; C. 031. 300.
- J.-L. Adams j-l, accepted as diagnostic, but not used by me.
- M. Very large, crude, storage jars, often used as drains; out-turned rims, ribs. Sometimes decorated with applied ornament. Cf. Delougaz, *Pottery*, Pl. 197, E.
   223. 010. This type continues into the Old Babylonian Period. Cf. Adams, *Land Behind Baghdad*, p. 128, Old Babylonian, Type F.

## Old Babylonian:

- A. Truncated conical base with pedestal for small collared jar. O. Reuther, *Die Innenstadt von Babylon (Merkes) (WVDOG*, XLVII; Leipzig: Hinrichs, 1926), Abb. 9 and Abb. 2, i. See also McCown and Haines, *Nippur I*, Pl. 98, 4. This type is, however, not very useful since it continued in use into the Kassite Period. Adams Type A. I did not use Adams' Types B-E at all, since they continued into the Kassite Period. The following types were substituted.
- B. Tall, thin jar, usually with beveled, flaring rim. Often with a groove at the collar. A degeneration or development of Isin-Larsa Type F. Cf. McCown and Haines, *Nippur I*, Pl. 96, 11 and Delougaz, *Pottery*, Pl. 171, C. 228, 340a-b.
- C. Well made, flaring vase with solid or ring base. Sometimes has black paint on rim. See McCown and Haines, *Nippur I*, Pl. 95, 17.
- D. Black-painted bowls, jars, and other vessels. Usually fairly crudely painted. On jars, the painting most often confined to a band at the rim, sometimes having

beads or lines pendant. Usually, on bowls the painting is geometric, often crosshatching. The quality of the ware is most often superior to the painting. Cf. *ibid*, Pls. 88: 19, 91: 15-16, 94: 6, 8, 96: 10.

## Kassite:

- A. Tall chalice with solid disc-base. See McCown and Haines, *ibid*, Pl. 98: 14. Adams A.
- B. High necked, flaring, ring-footed chalice. Cf. *ibid*, Pl. 98: 11. Adams Type b not used because the button base was carried on into much later periods.

Neo-Babylonian:

- A. Deep, flaring-sided bowls with short concave or vertical neck above a sharp carination or shoulder. Rim may be rounded or flattened. Often with whitish or greenish glaze. Cf. *ibid*, Pl. 100: 3-6 Adams A.
- B. Rounded bowls with thickened rope rims. See Joan Lines [Oates], "Late Assyrian Pottery from Nimrud," *Iraq*, XVI (1954), Pl. 37: 6. Adams B.
- C. Flaring bowl with club rim, thin greenish-white glaze. Cf. McCown and Haines, *Nippur I*, Pl. 97: 18. Adams C.
- D. Jars with high vertical or slightly concave necks, rope rims. Sharp, low ridge at junction of body with neck. Cf. *ibid*, Pl. 102: 1. Adams Type d.
- E. Small jar marked by a blunt, often rectangular-sectioned, solid foot. Sometimes foot is flattened out. Begins earlier, but seems most typical of Neo-Babylonian. See *ibid.*, Pl. 100: 21.
- F. Well made jars with button-bases. Related to so-called "Hurrian" button-base jars and to Assyrian Palace wares. See Adams, *Land Behind Baghdad*, p. 129, Kassite Type b. See also, O. Reuther, *Innenstadt*, Abb. 9, e; 18, c. Cf. McCown and Haines, *Nippur I*, Pl. 102:16, where confined to Neo-Assyrian Period.

Achaemenid/Seleucid:

- A. Medallion stamps. Usually on shoulder of bowls, usually placed on extruded hump. See Adams, *Land Behind Baghdad*, p. 130, "... persists through the Seleucid period." Note that such stamps are found on bowls with incised grooves and vertical or slightly slanted rows of punctures. Adams A.
- B. Stamp in shape of palm leaf. See *ibid*, for discussion. Note also, however, that there are variations on the type, i.e., one in which the stamp is lightly pressed and the result is parentheses. The other variant, Ba, is an impressed stamp, usually more schematic, and usually accompanied by incised horizontal grooves. Type Ba is impressed into the body without the usual pushing out of a nodule. Adams B.
- C. Closely set, deep, often dripping punctures in vertical rows. Often accompanied by stamps and/or grooved lines. Found on same type of pots as Types A-Ba. Ware is usually well levigated, yellowish. Also associated with horizontal registers of crescent impressions (cf. *ibid.*, p. 132, Sassanian Type F.). Adams Type C, horse and rider figurine, not used by me because such figurines have a fairly wide range in time, and unless the entire figure is found, one cannot be precise as to dating.

- Ca. Variant of C. Impressed, vertical or slanting rows of comb-like decoration of shoulders of bowls.
- D. Eggshell ware. Thin, finely levigated deep bowls or cups in grayish, greenish or yellowish buff. Varied degrees of firing. Seems to shade into Type F, which is almost of eggshell thinness. Cf. McCown and Haines, *Nippur I*, Pl. 103: 12. Adams D.
- E. Vertical or slightly concave jar necks with one or more sharp horizontal ridges around middle or upper exterior. See Adams, *Land Behind Baghdad*, p. 130, and McCown and Haines, *Nippur I*, Pl. 102: 17. Adams E.
- F. Thin, well-made bowls with rounded profiles and inturning rims. See Adams, Land Behind Baghdad, p. 130, Type F, for references.
- G. Round-buttomed bowls or cups in fine, thin, well-levigated clay. Slightly bulging shoulders and flaring rims. Often with cuneiform identations on shoulder. Almost eggshell thin. See McCown and Haines, *Nippur I*, Pl. 103: 15. Adams G.
- H. Grayware, angular profile, thickened rims suggesting metal prototypes. See Adams, Land Behind Baghdad, p. 130. Adams H.
- I. Thickened jar necks with flattened rims and multiple exterior horizontal grooves. Adams i.
- J. Husking trays with interior punctured by wedge-shaped dents; sometimes with only light stippling. See *ibid.*, for details. Adams j.
- K. Incised decoration, usually on large, well-made, yellowish buff-ware bowls with slightly flaring sides, consisting of crescents in horizontal bands, often accompanied by horizontal grooves. Crescents sometimes combined with wedges. The bowls of the same fabric as those used for types A-C above, are sometimes a centimeter or so thick, and their shape is rather elegant.

## Parthian:

- A. Impressed decoration in sawtooth or chevron pattern, often under thin "Parthian green" or greenish-blue glaze. The designs sometimes are very elaborate, being used to indicate fish scales, etc. See *ibid.*, pp. 130-31 for references. Adams A.
- B. Carved, low-relief decoration, combined with molded or applied decoration under green or greenish-blue glaze. See *ibid.*, p. 131. Adams B.
- C. Single or double "twisted rope" handles. Often glazed. Adams C.
- D. Thin, flaring bowls with slight projecting ridge below rim. No glaze. Adams D. This type not found too useful since difficult to distinguish from earlier examples of like shapes.
- E. Dish or shallow bowl with straight flaring profile, everted down-turned or beveled rim. Usually glazed, green to gray green. Adams E.
- F. Outflaring double-rimmed neck of jar. Often glazed. Sometimes with strap handles. Adams F, modified.
- G. Channeled rim of jar, usually part of large, buff ware or yellowish water jars with two or three strap handles, stipple-decorated neck and shoulder. See H and I. Adams G.
- H. Stippled decoration, fine-tooth impressions in chevrons, intersecting patterns, etc. Often overlain by circular impressions randomly distributed. Combed waves or

meanders rare. Adams H.

- I. High, inflaring neck with rim thickened on inside. Not found very easily distinguishable by me. Adams I.
- J. Buff to yellow-buff or cream eggshell ware. Indistinguishable on superficial observation from Achaemenid/Seleucid eggshell ware (Type D). There are two distinctive shapes of Parthian eggshell, as found at Nippur, 1964-65. One is a wide, low dish with a slightly thickened, sometimes grooved rim (not found by me on the survey). The other is a very distinctive pitcher with double handles. See Neilson C. Debevoise, *Parthian Pottery from Seleucia on the Tigris* ("University of Michigan Studies, Humanistic Series," Vol. XXXII, Ann Arbor, Michigan: University of Michigan Press, 1934), Fig. 182. The Parthian eggshell ware from Nippur is much finer, thinner than that from Seleucia or similar examples from Warka; all compared in the Iraq Museum, 1965. Adams Type J, red-ware cooking pot, not used by me.
- K. Square jar rims, with multiple grooves. Adams K. Not used by me, but accepted as a type.
- L. Parthian green/gray-green/blue-green glaze, often crackled. This category is not very precise, but is defensible. Anyone who has worked with Parthian glaze finds it fairly distinctive. If not distinguishable in color from other glazes, the thickness, texture, condition of the glaze or the color, or consistency of the ware will help to identify it. Adams 1. (Adams Type m not used by me, since too wide a range of use.)

## Sassanian:

- A. Flaring cup or bowl with thin, whitish-blue glaze and carinated base. The base is most distinctive, being almost a concavity, very sharply cut, in many examples. The base is often a very shallow ring also. The ware, a mustard yellow in most instances, is very distinctive. The glaze tends to flake very readily. Adams A.
- Aa. Bowl with plain profile, flat base, covered with same glaze as A. Glaze often thick or bubbled on rim. See S. Langdon and D. B. Harden, "Excavations at Kish and Barghuthiat 1933," *Iraq*, I (1934), 113 ff., Fig. 2b, 2.
- B. Stamp impressions on bodies of plain-ware jars. Most distinctive are animal representations. See Adams, *Land Behind Baghdad*, p. 131, and Fig. 16 for variations. Adams B.
- C. Impression of stamp, Sassanian royal symbol, crescent on staff. Adams C.
- D. Stamp of "net" or double-x symbol. Adams D.
- E. Low ring bases of large reddish brown ware jars, with finger indentations widely space on exterior surface where joined to body. Adams E.
- F. "Large, coarse jars with slash decoration on low neck and shoulder. Decoration consists of rows of diagonal slashes separated by concentric grooves." *Ibid.*, p. 132. Adams F. This criterion was not used by me since, lacking any illustration in Adams' publication, and having no references given, I could not evaluate it.
- G. Crudely made crescent handle attached to rim of coarse bowl. Adams G.
- H. Hard fired reddish-gray ware with distinctive tab lug. Not used by me as a type. Adams H.
- I. "Thickened rim of large bowl, entire interior and exterior rim covered with thin, bluish glaze." Adams I. Not found especially useful by me.
- J. "Base of thick-sided, flaring bowl, unevenly finished on inside with pronounced

spiral corrugations. Low rope-ring base, thickly covered with dark, bluish-green glaze on inside and out." Adams J. Not found especially distinctive.

- K. Base of large torpedo-shaped jar. In general, the Sassanian version of this jar, which seems to have been introduced much earlier, and was standard in Parthian times (Nippur 1964-65), can be distinguished from earlier examples by the ware, since the Sassanian jars are dark red and gritty while Parthian and earlier examples are usually buff. Jars of similar ware found on Islamic sites differ in that they do not have the solid, plug-like ball inside the pointed base. Adams k.
- L. Rim of torpedo-shaped jar. Rather than having a rope rim (*ibid.*), we found that most often, the Sassanian specimens had a rather wide, thickened, band-like rim. Again, the red ware helps distinguish this jar from the rope-rim Parthian types. Adams 1.
- M. Honeycomb ware. Body sherds of large jars treated with a surface worked into a honeycomb or net pattern with fingers. Applied to body of the jars. *Ibid.* Adams M. This treatment is to be found on a few Early Islamic vessels, but is most characteristic of Sassanian. Ware tends to be same red-gritty material as K-L.
- Ma. Variation on M, consisting of an overall surface treatment of wave-like ridges made with fingers.
- N. Another variation of M. Finger-produced decorations in form of long, parallel stripes and ridges, often arranged in checkerboard fashion. Sometimes combined with M or Ma. See W. Andrae and H. J. Lenzen, *Die Partherstadt Assur (WVDOG*, LVII, Leipzig: Hinrichs, 1933), Pl. 56 h-k, n for variations of this sort of decoration. Ware is usually same sort of red gritty material as previous types.
- O. Overall surface decoration consisting of short, close-set knife slashes, not very deep. Sometimes arranged in patterns, often not.
- P. Guilloche-like pattern, usually limited to one row, made with the finger or thumb. On the side, or rim of a bowl of red ware; usually impressed into a separate, applied strip of clay, sometimes merely into the rim of the vessel itself. Most often found on the body of large bowls, just below the rim. See Types Q-S.
- Q. Large open bowl with distinctive, everted, down-curving rim. Red ware. Usually round bottomed.
- R. Variation of Q. Same ware and shape, but rim has a sharp up-curve, usually thickened. Perhaps this vessel really is a cover.
- S. Variation of Type Q. Same red ware, but rim is everted and ridged.
- T. Large, thick pottery objects, usually crudely made. More or less round in shape. Up to 50 cm. in diameter, and up to 3 centimeters thick. Around the edges, holes are punched in with the thumb or finger. Often more elaborately decorated with radiating, raised, applied ribbons of clay indented by fingers in guilloche-like pattern. Perhaps some sort of husking device. Cf. similar objects from Old Babylonian levels at Nippur, McCown and Haines, *Nippur I*, Pl. 148, 9.

Early Islamic:

A. Large, coarse buffware jars, greenish glaze, decorated with incised waves,

applied waves and dots, and rosettes. Uneven and ugly glaze. Adams A.

- B. Rim sherds of same material as A. Multiple grooves on neck. Crescent-lug handle. Adams B.
- C. Flaring bowls with crude blue-glaze splashes radiating on white-glazed ground. Adams C.
- D. Imitation T'ang ware: glazed, with long green or green and yellow splashes on white slip on reddish, well-levigated ware. Adams D.
- E. Similar to D, but with simple graffito incised through slip. Under a glaze. Adams E.
- F. Flaring or rounded buffware bowls with allover white glaze, imitating Chinese Celadon, which differs in having white core, and being translucent to varying degrees. Often fluted or ribbed. Adams F.
- G. High-necked jars with horizontal corrugations, flattened rope-rims, strap handles under light blue glaze. Not very reliable indicator. Range extends much later.
- H. Fairly sizable jars, usually unglazed, decorated by incisions, grooving, etc. High vertical neck and strap handles. The handles are usually more or less rectangular in section, but set at a decided angle. The ware is fairly well levigated, and cream yellow. The shape and decoration can be traced to Sassanian prototypes, e.g., Langdon and Harden, "Excavations," Pl. 17: a; Fig. 2a: 27.
- I. Decoration, usually on jars and two-handled jugs, pitchers, etc., consisting of incisions, grooves, and waves. One frequent pattern is of wavy lines between parallel vertical lines. Most usual decoration is running waves, meanders, between parallel horizontal grooves, on the neck or shoulder of large jars. For published examples, see D. Talbot Rice, "The Oxford Excavations at Hira," Ars Islamica, I (1934), 51ff., esp. Figs. 18-21. See also Raymond Koechlin, Ceramiques Musulmanes, esp. Pls. I-II.
- J. Roughly made, reddish or brown pottery with rows of circles, very crudely impressed. Often found on crude red-brown ware handles.
- K. Torpedo shaped storage jar (cf. Sassanian Type K) with no ball of clay in bottom.

## Samarran:

- A. Classic graffito. Complex incisions under transparent glaze inside flaring bowls. Differ from preceding graffito bowls in being more carefully incised, having more variety in design. Shift to zones of green or brown dots rather than radiating stripes. However, these distinctions may not be as real as we pretend they are. Adams A.
- B. Fine repoussé decoration on thin-sided vessels. Greenish-yellow glaze. Adams B.
- C. Fine buff pottery with white lead glaze painted with cobalt blue floral designs. Pigment diffuses to give mottled edge. Adams C.
- D. Thin buffware bowls with well-executed geometric designs. Olive-brown or gold luster under transparent glaze. Adams D.
- E. Soft gray sandstone vessels with ledge lugs. Found none. Adams e.
- F. Small applied knob on handles, turban type. Sometimes decorated with radiating cuts. Seems actually to begin in the Early Islamic Period. See D. Talbot Rice, "Hīra," Fig. 20:2 and M. A. Mustafa, "Kufa," Pl. 15. Adams Type

f. The earlier versions of this handle tend to be decorated with applique snakes, faces, etc.

G. Large buffware bowls with dark, violet-brown glaze on entire inner surface. Adams, Land Behind Baghdad, p. 133, notes that this glaze continued into the post-Samarran period. I think this color can be shown to be the result of a firing error or a deliberate effect caused by a change in firing. I found several bowls with this glaze from both Samarra-period and Ilkhanid sites. I also collected several examples of bowls with checkerboard-pattern (a mark of Ilkhanid and Post-Ilkhanid ware) that would normally be blue and black in color.

## Late Abbasid:

- A. Flaring bowls with black geometric and scroll designs in reserve on white or light buff body under semitransparent, blue glaze. Most often the design features registers of elements. Adams A.
- B. Decorated, applied turbans on handles of buffware jars. Cf. my Samarran, Type F. Adams B.
- C. Decadent graffito. Diffused large splashes of green and reddish-brown under transparent glaze. The incised lines are broader and more irregular in width and color tends to diffuse from the lines more than classic graffito. Glaze tends to flake. Ware is soft, buff. Adams C.
- D. Same as C, under yellowish-brown, green or blue glaze. Adams D.
- E. Large bowls or dishes with soft buff body, covered inside with turquoise lead glaze, dripping down outside. Adams E.
- F. Stamp impressions, non-representational. Usually radiating lines, crosshatching, bars and dots, stars, etc. Adams F. A very inexact indicator.
- G. Fine buffware jars with high necks. Sometimes decorated with multiple grooves and incisions. Adams, Type g.

# Ilkhanid:

- A. Reserve designs excised from black paint on white slip under white glaze. Scrolls and geometric designs arranged in registers. Cf. G. Reitlinger, "Islamic Pottery" p. 204, pointing out the rarity of this type in the Kish area, and a propensity for retaining the manganese blue of previous times.
- B. Thin flaring bowl with blue and black designs under white glaze that often flakes off. Horse-shoe motif a favorite. Cf. Fuad Safar, *Wāsit*, Fig. 20:92. Adams B.
- C. Large, rounded, buff ware bowls with gray-white glaze that bubbles and curdles. Adams C.
- D. Black lightning or zigzag patterns under blue or white glaze. In Kish area, the zigzag is often made with a black outline and filled in with dots. See G. Reitlinger, "Islamic Pottery," Fig. 8, for several Ilkhanid sherds, and note the popularity of dots, diaper pattern, lozenges, diamonds, etc. Note also Safar's remark that he has not encountered the zigzag decorated ware outside the Diyala. (Adams d).
- E. Turquoise blue lead glaze inside small bowls or outside jars and pitchers with

strap handles. Sometimes with incised patterns under glaze. Adams E.

Post-Ilkhanid:

- A. Soft white buffware bowls, with motif of blue circles surrounded by black dots under a whitish lead glaze. Adams A. To be connected with this design are the many stipples, cross-hatched designs of our Post-Ilkhanid Types G-H.
- B. Radial designs on inner surface of bowls. Black and blue under white glaze. Ladder and lattice designs. See Adams B. Cf. G. Reitlinger, "Islamic Pottery," Figs. 16B, D;17B. Reitlinger assigns this type of design to the thirteenth century.
- C. Flat-rimmed dishes with black and blue designs on a white slip under transparent glaze. Adams C.
- D. Thickened rims of very large bowls with straight-flaring sides. Thick blue or green glaze on interior. Very crude.
- E. Pinkish, very crude cooking pots or jars tempered with large black grits. I am very dubious about this type, since there seems some evidence for dating this type of ware as early as Early Islamic, but I have not enough proof to do so.
- F. Pseudo-prehistoric ware. This peculiar pottery, in form sometimes very close to Halaf ware or Ubaid, and painted in crude imitation of early prehistoric pottery, seems to be a widespread phenomenon throughout the Levant and Iraq in Ottoman times. See Safar,  $W\bar{a}sit$ , p. 46, No. 33, for one example.
- G. Bowls of varying profiles decorated in black under blue glaze with glaze on outside as well as inside. Much space in the design. Fondness for leaves and dots, circles filled in with checkerboard pattern, cross-hatching, or solid color. Cf. *Ibid.*, No. 100. On outside, usually one well executed black band at rim. Sometimes, several black bands down to the carination on outside. Ware is very fine, technique and color are excellent. Associated with this ware is a much thinner, more delicate type of pottery done in a very striking, intense turquoise blue, that is often found worn away in part. The designs are the same as for the more robust bowls. The stipples, stippled diamonds, diapers, circles, checkerboards, and radiating ladders (as in our Type B) show a link in time among all these sherds. Reitlinger, "Islamic Pottery," pp. 211f., Figs. 16-17, dates this type of pottery to the thirteenth century. Safar, at Wāsit found it to be Post-Ilkhanid.
- H. Bracelets of blue and white glass, alternating in spirals. Such bracelets seem to begin earlier, but the blue and white variety are to be linked with the black and blue pottery of Ilkhanid and Post-Ilkhanid eras.
- I. Porous buff ware, usually thin. Fine, thick transparent glaze over blue, diffuse paint, used in conjuction with black. Geometric and floral patterns, on a basic white slip. On outside, often have black and blue lines pendant from a line at rim, running almost to base. Cf. Safar,  $W\bar{a}sit$ , No. 53, for exact parallel.
- J. Large bowls, buff ware, with everted, flat rims; either not glazed on outside, or have light gray-green glaze. Inside, designs in diaper pattern or lozenge, painted in black (turned olive green). The interior of the lozenge or diaper is stippled with the same color, linking this type of glazed bowl with Type G. A very usual variation in this color scheme has rather thin black and blue lines pendant

from a band at the rim and radiating somewhat sloppily from the center. Safar, *ibid.*, has some stippled pieces, e.g., his No. 105, but no exact parallels to the diaper pattern, so perhaps the stipples are a later development that did not occur at Wāsiț. Such pottery does occur in the south. In 1965, I collected many examples of it, and of my types A-H, from Islamic mounds in the vicinity of Isin.

K. Molded jars with Kufic inscriptions on the bodies. Cf. *ibid.*, p. 38, who dates such vessels to the seventh and eighth centuries A. H. (thirteenth-fourteenth centuries A.D.). Reitlinger, "Islamic Pottery," dates such wares from Abū Sudaira as fourteenth century A.D.

#### APPENDIX II – Footnotes

- 1. Adams, Land Behind Baghdad, pp. 126-34, and Figs. 11-16.
- 2. D. McCown and R. C. Haines, Nippur I, esp. Table II.
- 3. E.g., my Neo-Babylonian Type E. This corresponds to Nippur Type 56, beginning in the Kassite Period (*ibid.*, Table II). Almost all my "Neo-Babylonian" types correspond to Nippur types that began in Assyrian times (e.g., *ibid.*, Types 49, 60, 62).
- 4. R. Ghirshman, Village Perse-Achéménide (MDP, Vol. XXXVI [Paris, 1954]).
- 5. *Ibid.*, Pl. XXX, GS. 1208b.
- 6. *Ibid.*, GS. 1210e.
- 7. *Ibid.*, GS. 1208a.
- E.g., *ibid.*, Pl. XXV, GS. 1203, 1272, 954, etc., equals *Nippur I*, Type 68. *Village*,
   Pl. XXVI, GS. 1263 equals *Nippur I*, Type 71. *Village*, Pl. XXXI, GS. 2397 equals *Nippur I*, Type 72.
- 9. Cf. E. F. Schmidt, *Persepolis II (OIP, LXIX [Chicago: University of Chicago Press, 1957]), Pl.72, 1-5; and Pl. 72, 1 with Nippur I, Type 44; and with Ghirshman, Village, Pl. XXIX GS. 1210a-c; Pl. XXVI, GS. 1264; Pl. XXIX, GS. 2242; etc.*
- 10. One sherd with circular impressions. See Schmidt, Persepolis II, Pl. 74, 43.
- 11. D. Oates and J. L. Oates, "Nimrud 1957: The Hellenistic Settlement," Iraq, XX (1958), 114ff.
- 12. Coins were found in five of the six levels, dating from the time of Seleucus III (226-223 B.C.) to Demetrius II Nicator (146-140 B.C.).
- 13. *Ibid.*, p. 135 "... impressed concentric circles, the 'falling leaf' zigzag and wavy comb incisions... common on the later Parthian pottery found at Dura, Seleucia and ... Ain Sinu."
- 14. See, for instance, A. U. Pope, A Survey of Persian Art, Vol. V, Pl. 555, for an early Islamic jar with finger-decorated bottom; cf. Raymond Koechlin, "Les céramiques musulmanes de Suse ...," MDP, Vol. XIX (1928), Pl. II, No. 18.
- 15. See S. H. Langdon and D. B. Harden, "Excavations at Kish and Barghuthiat,"

Iraq, I (1934), Pl. XVIIa, Fig. 2a, 27.

- 16. I wish to express my gratitude to M. A. Mustafa and Fuad Safar of the Iraq Museum for their assistance in identifying Islamic sherds. There have been some publications of Early Islamic cut ware, e.g., in D. Talbot Rice, "The Oxford Excavations at Hira," Ars Islamica, I (1934), 51ff.; also, M. A. Mustafa, "Preliminary Report on the Excavations in Kūfa during the Third Season," Sumer, XIX (1963), 36ff. It is of great interest to note that the comb-incised wave patterns, incised plain wares, etc., that we take as typical of Early Islamic Iraq have been found as far away as Algeria, though in later context. See Alfred Bel, Un Atelier de Poteries et Fäiences au X Siècle de J.-C. découvert à Tlemcen (Constantine, 1914), esp. Figs. 21-23, parallel to our Types H, I, J. For discussion of the development, see Koechlin, Céramiques musulmanes.
- 17. Fuad Safar, Wāsiț, the Sixth Season's Excavations (Cairo: Imprimerie de l'Institut Français d'Archéologie Orientale, 1945).
- 18. Excavations carried out by G. Reitlinger while attached to the Kish Expedition in 1930-31. Reitlinger sounded Ishān al-Khazna (No. 25), Abū Sudaira (No. 47), Tell as-Su'aydan (No. 145). See Ars Islamica, II (1935), 198-215. This article is very valuable, especially in establishing a local style of Late Abbasid glazed ware.

## APPENDIX III KISH: SEASONS AND STAFF

1. March 13-May 28, 1923.

Staff: Ernest J. H. Mackay; Mr. Hesketh, a retired British army officer forced upon Mackay by Miss Gertrude Bell, Honorary Director of Antiquities, to fulfill legal requirements.
80 laborers, mostly local Amar tribesmen, with pickmen from

modern village of Kuwairish near Babylon.

- Areas: Uhaimir, ziggurat and town area, until May 8, when permission was granted to put a trench into the mound Ingharra, the larger ziggurat.
- 2. October 1, 1923-March 20, 1924.
  - Staff: E.J.H. Mackay, Mrs. Dorothy Mackay (unofficial), Col. W. H. Lane, S. H. Langdon (from the end of December), 80, then 300 workmen.
  - Areas: Uhaimir, ziggurat, town area, fortress (Mound X, No. 21), and deep pits.

Plano-Convex Building (PCB, my No. 11).

Ingharra; trench in northwest face of smaller ziggurat;

Mound B (No. 3).

Mound C (No. 9), Langdon.

- Mound W (No. 13), Langdon.
- Mound A (A Palace and Cemetery).

Tuweirij, mound southeast of Kish, my No. 155 (Langdon).

3. October 8, 1924-March 20, 1925.

Staff: E.J.H. Mackay; Mrs. Mackay (unofficial); David Talbot Rice, anthropologist; Father Eric Burrows, Assyriologist.

Areas: A Palace. Mound W (Burrows). Mound H (No. 5), one small trench.

- 4. December 21, 1925-March 26, 1926.
  - Staff: E.J.H. Mackay; Mrs. Mackay (unofficial); S. H. Langdon; L.H. Dudley Buxton, reader in Physical Anthropology, Oxford University (December 20-January 9); Henry Field, student anthropologist (December 20-January 9); Dr. Leibnitz (?), from Switzerland, Assyriologist (mentioned only in a report from Field to Director of Field Museum dated January 29, 1926).

200 workmen.

Areas: A Palace. Mound W (Langdon, for two weeks). Ingharra (trenches around west corner of NB temple, IGQ, "Sargon Wall," "Shulgi Wall" (IGS, ISW), and small trenches in plain south of the mound (IGS, also). Mound H (Nos. 5-6), a few trenches. Jemdet Nasr (Langdon with twelve men, early January to about March 15). Barghuthiat (Langdon), one trench in Mound D.

5. December 19, 1926-March 20, 1927.

Staff: Louis Charles Watelin; Eric Schroeder, recorder.
Areas: Ingharra, around NB temple; Trenches A-1 to A-5. Monument Z; Trench B; Trench C\*. Mound W. February 25-March 13. Mound I (my No. 14), a single large trench in top.

- 6. December 1, 1927-March 22, 1928.
  - Staff: Louis Charles Watelin; Eric Schroeder, recorder; Henry Field, physical anthropologist; O. E. Ravn, Assyriologist from Copenhagen (semi-detached).
  - Areas: Ingharra, Neo-Babylonian temple, Trenches B-1, B-2, B-3, to 5 m. from original surface; Monument Z, Trenches Z, Z-1, Z-2, Z-3, and Z-A; Trench Y and Ya.

Jemdet Nasr: Watelin, Field and Schroeder with 200 men; March 13-22.

Barghuthiat: Field found Neo-Babylonian figurine and collected many sherds. March 18-22.

- 7. November 28, 1928-March 12, 1929.
  - Staff: Louis Charles Watelin; René Watelin (son), photographer and architect; T. K. Penniman, physical anthropologist.
  - Areas: Ingharra, Trenches C, C-1, C-2, C-3, C-4; Trench Y.
- 8. November 23, 1929-March 18, 1930.
  - Staff: Louis Charles Watelin; René Watelin; J. Martel, architect.
  - Areas: Ingharra, Trenches Y, C-5 to C-7; B-1 to B-3, from -5 down to -10 m.; B-4 to B-7 down to -10 m.; Yw, Ywn.
- 9. November 15, 1930-March 17, 1931.
  - Staff: Louis Charles Watelin; René Watelin; Miss J. A. Watelin (daughter, now Madame J.A. Watelin-Pilet), unofficial; Gerald Reitlinger (semi-autonomous, self-supporting. Received a share of Islamic finds from Abū Sudaira, Ishān al-Khazna, Tell as-Su'aydan, which are now, for the most part, in Victoria and Albert Museum, but some pieces are in his personal possessions).
  - Areas: Ingharra, Trench Y, C-7, C-8, B-7, B-8, Trench ZY.Mound D, trenches (D\*).Mound H, Sassanian town area, SP-1, 2, 3.

Ishān al-Khazna (my No. 25), excavated by Reitlinger. Abū Sudaira (December to March), excavated by Reitlinger. Tell as-Su'aydan (my No. 145), excavated by Reitlinger.

10. November 25, 1931-March 18, 1932.

- Staff: Louis Charles Watelin; René Watelin; Robert Van Valzeh, American college student.
- Areas: Sassanian town area (my Nos. 5-6), SP-3 to 5.
  Mound W, few days at beginning of season.
  Ingharra: Trenches C-9 to C-15, Trench D.
  Trench Y, very little work.
  Umm al-Jerab (Umm al-Jir, No. 97), March 1-17, with 36 workmen, but without Van Valzeh.
- 11. January-March, 1933. Field Museum no longer associated with the excavation. Financed by the American Institute of Persian Art (A. U. Pope).
  - Staff: Louis Charles Watelin, René Watelin. 200 workmen.
  - Areas: Sassanian town, Sp-6, 7, 8 (Mound H, Nos. 5-6).
    Tell Bandar (No. 8), northern end.
    Tell Barghuthiat, near Jemdet Nasr. Main part of season's work.
    February to March.

## APPENDIX IV FIELD MUSEUM-OXFORD UNIVERSITY KISH EXPEDITION RECORDS

## Field Museum

I. Records of objects. Room 58, wooden filing cabinet.

- 1) Object register, typed on large sheets. 1923, 1923-24. Two copies of each season's work.
- 2) Xeroxed, bound sheets of object cards for year 1924-25. Reproduced from photographs of cards made by M. Gibson at Ashmolean Museum, 1967.
- 3) Object cards, 3 x 5 inches. Seasons 1925-26, 1926-27, 1927-28, 1928-29, 1929-30, 1930-31, 1931-32.
- 4) Xeroxed, bound sheets of object cards for 1933 season, reproduced from photographs of cards made by M. Gibson at the Ashmolean, 1967.
- II. Cards, 5 x 8 inches, with object and pottery drawings made at Field Museum by Richard A. Martin, 1935-37. In one wooden file box.
  Cards, 3 x 5 inches, sorted by type of object, date, material, etc. About 200 cards in all. Made by Dr. Ann Perkins while still a student, 1930's.
  Location: in wooden file cabinet with object cards.
- III. Sketches of Sassanian stucco decoration in Field Museum. Large sheets, 15 x 18 inches, in black folio casing. Work of R. Rathbun. Published in full in Arthur Upham Pope, Survey of Persian Art, Vol. I. Location: Room 58, on shelf with Kish objects.
- IV. Cards, typed and handwritten, by Mackay. Details of architecture, objects, loci, etc. 30 to 35 in all.Location: Room 58, wooden file cabinet with object cards.
- V. Letters, reports, etc.
  - 1) Anthropology office, Expedition File.

Several folders of letters, reports, newspaper and related items arranged by date. Like objects found in the Director's file were incorporated into the Anthropology file with the permission of Director of Field Museum. Often, there are duplicate copies of letters and reports. Any incoming mail was regularly copied and carbons sent to any interested Departments in Museum until about 1931.

- Director's File.
   In Director's office. Now contains only letters concerning business, financing of the Expedition, etc., plus duplicates of items in the Anthropology File.
- VI. Photographs.
  - 1) Anthropology office, photograph cabinet.

Several hundred photographs, including original field photos sent to the Museum with reports. These field photos are often annotated, with

sketches, on the backs. The great majority of the field photos have been re-photographed by the museum and mounted into albums along with the field photographs. The negatives of Field Museum photographs are filed in the photographic section of the Museum.

Albums 140, 140A, 140B, 140C, 140D, 140E, 140F, 140G, 140H, are arranged in general by season, then by type of object, material, etc. The albums arranged by season are in some disorder and will be reassembled with the permission of the Curator of Anthropology.

Location: Anthropology Office, photograph cabinet.

- 2) Several reels of 8 mm. film, made up from decomposing reels of 16 mm. stock photographed by S. Y. Showket, Mesopotamia Studio, a Baghdad photographer, for Henry Field in 1927-28. This film can be edited for valuable information on that season, especially the Y Trench. Location: Museum Photographic Section.
- VII. Museum Accession Files.
  - 1) Listing usually only by case, of acquisitions of Kish, Jemdet Nasr objects.
  - 2) Accession cards. Arranged by Museum Number. Give all information available from object cards, plus dimensions.
  - Accession Registers. Large Ledgers arranged by Museum Numbers, giving all information on object cards. Arranged by date of reception of lot of objects each year.
     Location: Anthropology Office

Location: Anthropology Office.

Ashmolean Museum

- I. Object cards for 1923, 1923-24, 1924-25, 1929-30, 1930-31, 1931-32, 1933, with some missing cards. Seasons 1925-26, 1926-27, 1927-28, 1928-29 are in the form of xeroxed sheets, bound together, reproduced by M. Gibson from cards in Field Museum with the permission of the Chief Curator of Anthropology, Field Museum.
- II. Records, letters, reports.

Four cardboard file boxes of reports and letters, duplicating many of the records in the Field Museum, but not as full. The basic source is a translation made by Dr. Ann Perkins in 1935-36 of many of Watelin's letters to Langdon. The originals, in purple ink, are for the most part in Field Museum Anthropology File.

- III. Several hundred typed and handwritten cards made by Mackay giving details of architecture, loci, etc.
- IV. Kish field negatives.

A virtually complete set of field negatives, now badly decomposed, arranged by year and number. Photos have been made of many of them.

- V. Annotated field photos. Between 100 and 200 in all.
- VI. Ashmolean Central Register. A set of large ledgers, often having very useful sketches of objects. Gives information on loci, measurements, material, etc. Often

information comes only from this source, but since mistakes or misconceptions were made in the original listing, these registers must be used very carefully. Often a locus is assumed to hold for several objects, though only one or two were found there. Mrs. Dorothy Mackay worked for some time in the 1940's for the Museum, trying to put some order in the records after much of the material was lost or destroyed.

- VII. List of Accession numbers by site, and often by locus. A very useful, time-saving index to the central registers.
- VIII. A file of tablets in the Museum by site and subject as well as by period. Made by O. R. Gurney. Almost no loci for Kish tablets until re-established by M. Gibson in summer of 1969 with a grant from the American Philosophical Society.

These records can be used with the permission of the Keeper, R. W. Hamilton, and very gracious co-operation of P.R.S. Moorey.

Iraq Museum

- I. Large, bound, typed copies of the object register for 1923, 1923-24.
- II. Object register for 1927-28, in form of a small, thick, bound notebook. Includes the objects found at Jemdet Nasr.
- III. Object cards, in wooden file box, for 1933. Cards are printed, with information filled in ink by Watelin. Includes Barghuthiat.
- IV. Division lists, bound sheets in black covers.
   Made up for division between museum and expedition. Gives objects by number according to type of object. Designates the recipient of each object. Usually gives IM. number of objects kept by Baghdad.
  - Lists for 1923, 1926-27, 1928-29 are missing.
- V. Iraq Museum Central Register. Large ledgers. Original is handwritten. Copies have been typed in the last few years.
- VI. Small group of photographs, perhaps fifty in all, from Mackay seasons for the most part. In Museum photograph archive, there are also some Museum photos of specific objects.
- VII. Letters.

In the Museum's central Expedition files, there is a folder on Kish and Jemdet Nasr. Most of the letters are official, administrative documents concerning permissions, police matters, and the like. Of little relevance to the reconstruction of the excavations.

Records of the expedition can be found in the Archive Room of the Museum and used with permission of the Director.

# General Note on the System of Recording Finds at Kish

There were several systems of designating objects as well as loci at Kish. Mackay originally established a relatively orderly system of numbers running consecutively through the first four seasons. He employed various abbreviations before the numbers to

indicated findspot, e.g., HMR, for Uhaimir, with specific sub-headings such as House Ruins, Town Ruins, Chamber 50, Fort, and so forth. Tablets from the western part of Uhaimir, i.e., the House Ruins, were given the letter W, thus resulting in numbers like HMR, 287W, meaning a tablet, from the House Ruins. This designation was, of course, easily confused with tablets from Mound W. One does not know whether a few tablets published with W numbers by Langdon are from Mound W or Uhaimir House Ruins.

For Ingharra, Mackay did not change the numbering, but did give another abbreviation, initially UG for Umm Gharra, then IG, with variations IGS (Ingharra South), ISW (Ingharra, southwest), IGW (Ingharra West = Mound W), IGA, IGB (Mounds A and B), etc. IGQ was his designation for the Neo-Babylonian Temple. PCB was the abbreviation for the Plano-Convex Building.

During the 1924-25 season at Jemdet Nasr, the objects were listed in the same series of numbers with the Kish objects, and given the abbreviation GN. Potentially then, with Mackay's system, one could have a sequence such as HMR. 142, IGS. 143, IGA. 144, GN. 145, etc.

In 1924, however, Mackay abandoned his system, giving only a number, then specifying the locus by abbreviation on a lower line. In general, I have tried to quote this entire series of numbers as "Kish\_\_," rather than "K.\_\_." to avoid confusion with later seasons.

In 1925-26, Mackay erroneously re-used Nos. 2396-2607. Moorey and I have agreed to add an asterisk to these re-used numbers, thus we have Kish 2396\*,-2607\*, from 1925-26, as well as Kish 2396-2607 from 1924-25.

In all, Mackay's numbers run to Kish 3472. Then, in 1926-27, Watelin began a totally new system, giving each season a separate letter. Thus 1926-27 was designated X. Photos were also given this letter and a series of numbers. It is thus easy to confuse object and photo numbers for any given season.

In 1927-28, the abbreviation was Y, except for the objects and photos from Jemdet Nasr, which were recorded as PJN. 1-\_\_. The P not only discriminates this season's work from that done at the site in 1925-26, but also honors Mr. James M. Patten, a Chicagoan who paid for this specific operation.

In 1928-29, object and photo numbers were prefixed with a V., i.e. V.I - 949. With the 1929-30 season, however, another system was established. On formally printed cards, objects were originally designated M. 1 K., etc., but this abbreviation soon became KM.\_\_.

The 1930-33 seasons employed consecutive numbers but dropped the M, resulting in numbers K. 540-2399. In 1931-32, some numbers were abbreviated Kb.\_\_\_, and so forth, indicating "Kish, Near Barghuthiat," referring to the sounding made at Umm al-Jerab (Umm al-Jir, No. 97) near Barghuthiat.

With these different systems of numberings it is easy to understand the confusion in Museum records and publications. X can be read Y, K as X, etc. The greatest problem is the confusing of Mackay's consecutive numbers with the K. numbers of the last three years.

Season											Numbers
1923	•	•	•					•			1-342, almost all HMR.
1923-24	•	•	•	·	•	•	•	•	•		(342?-) 350-1556. HMR., UG., UGW. PCB., etc.
1924-25	•	•	•	•	•	•	•	•			1557-2936, IGA., IGS., ISW., IGB., etc., but most give only numbers.
1925-26						•					.2396*-2607* (duplicates) 2937-3472.
1926-27						•				•	X. 1-650
1927-28											Y. 1-506; PJN. 1-179
1928-29										•	V. 1-949
1929-30			•		•	•	•			•	M I K, etc., but generally referred to as KM. 1-539.
1930-31											
1931-32						•	•			•	K. 1443-1884 (includes Kb. 1837-41, Kb. 1858-79, Kb. 1881-82)
1933											К. 1885-2399

## APPENDIX V. SETTLEMENT AND IRRIGATION PATTERNS IN ANCIENT AKKAD

by

Robert Mc C. Adams

The larger region of ancient Akkad, of which Kish and its environs are a part, was first systematically surveyed in 1956 - 1957. Brief preliminary reports on the outcome of that reconnaissance have appeared,<sup>1</sup> and cartographic work in anticipation of a final publication was completed during the mid-1960's. In the meantime, however, subsequent surveys of other portions of the Mesopotamian plain had brought to light important lacunae in the earlier coverage of Akkad. Hence by 1966 it seemed preferable to make the primary data available to McGuire Gibson, to assist in his study of Kish and its hinterlands, rather than to proceed with an independent publication. For the entire central portion of the region originally visited during the Akkad Survey, the earlier findings in their original form have been entirely superseded by Gibson's re-study. It remains to make available the maps and catalogue of sites prepared as a consequence of the earlier work, since these have also been employed by Gibson and in any case cover a considerably larger region.

The major part of the Akkad Survey was carried out by the author and Vaughn E. Crawford between October 1956 and March 1957, under the joint sponsorship of the Oriental Institute and the Baghdad School of the American Schools of Oriental Research. At the conclusion of the fieldwork phase of the Diyala Basin Archaeological Project in May, 1958, the author undertook to extend the coverage of the previous year's reconnaissance with the aid of maps, air photographs and transport made available by the Iraq Directorate General of Antiquities. This involved several weeks of exploration along the tails of the Ishaqi Canal north and northwest of Baghdad, as well as along the right bank of the Tigris from Seleucia downstream almost to Na'aminiya. An additional short period of fieldwork was made possible for the author in 1960, prior to the onset of other research commitments in southwestern Iran. Work at that time was concentrated in the region north and northwest of the Oriental Institute's operations at ancient Nippur.

The catalogue of ancient sites recorded as part of the Akkad Survey terminates with all but twenty-two of the additions made in 1960. These latter sites will be included in a much larger number to be published as part of a separate study made in 1968. Taking advantage of the availability by that time of aerial photographs, the author conducted a considerably more intensive reconnaissance of the Nippur region as a whole. This latest phase of fieldwork already has led to much more systematic coverage than that obtaining earlier, and a furthur development of the new approach in the same area is anticipated during future years. Ultimately the complex picture of settlement and irrigation patterns that has begun to emerge in desert regions northwest and northeast of Nippur, as contrasted with the relatively small number of sites and limited watercourse network shown in the present maps resulting from the initial Akkad Survey, will at least serve to illustrate the profound advances in interpretation that a more intensive approach makes possible.

It is important to specify a number of external constraints and inadvertent defects of approach affecting the completeness of the Akkad Survey and the accuracy of historical generalizations that may be drawn from it. To begin with, most of the area covered lay in cultivated terrain. Particularly in the absence of aerial photographs (which then were unavailable), this severely limited the discovery of smaller sites of low relief. Tracks passable for vehicles generally follow the elevated levees of medieval and contemporary canals. As a result, the main routes of the Survey tended to pursue the same lines, with lateral excursions only to mounds visible from a distance or previously recorded on the Arabic 1:50,000 map series from which the base-map for the entire area has been drawn. Moreover, this series was found in practice to vary considerably from sheet to sheet in accuracy and completeness. There was, in short, a prevailing and not entirely consistent selectiveness of coverage, on the whole introducing a significant bias toward larger and more prominent sites along the major ancient levees.

As the objectives of the Survey were understood initially, this bias was less important than it appears in retrospect. What the understanding of Mesopotamian historical geography at the time led us to anticipate was only a limited number of ancient canals or Euphrates branches, potentially indentifiable by name in cuneiform sources through the occurrence at intervals along their banks of important towns like Sippar, Kutha and Kish. This presupposed a stable, simple hydrological regime for the Mesopotamian alluvium, little influenced by the dynamics of meander cutting, flooding or siltation and not greatly modified by artificially induced expansions, changes or contractions in the use of waterways for irrigation and transport.

Subsequent study of alluvial river and canal regimes generally has made it clear that such a pattern was as unlikely to occur on the Mesopotamian plain as it is unknown in geologically similar regions elsewhere. Hense it now is to be regretted that we generally identified only a few lines of ancient sites as the approximate paths of ancient watercourses and then tended to follow them linearly for long distances. This faciliated the discovery of some plausible courses but opens the possibility that significant portions of the river and canal system remain unnoted. In addition, of course, the recorded distributions of sites at any one period must be regarded as an only very partial index to important new research focuses like population density levels, settlement hierarchies, and average settlement size. In the absence of more systematic lateral coverage, in short, our results are almost certainly oversimplified.

In the light of subsequent developments, a second feature of the approach taken in the Akkad Survey may be regarded as a defect. Consistent with the originally primary objective of rapidly tracing the channels in the ancient waterccurse network that were most important for Sumero-Babylonian history, little attention was devoted to post-Kassite remains. The absence of adequate dating criteria for surface collections from some later periods was an additional justification for this emphasis. But the result was a relative neglect of many immense sites of the Parthian, Sassanian and Islamic periods in particular, constituting by far the most extensive occupation of the region as a whole. The clear importance of these later remains in their own right, as well as the desirability of comparing their overall patterns with those of earlier periods, led to a gradual revision of this approach even before the end of the first phase of fieldwork. All subsequent work beginning with the author's survey of the Diyala plains in 1957-58<sup>2</sup> has been concerned with the full sequence of human occupation in an area rather than merely with its earlier portions.

The inadequacy of the available dating criteria for later periods has already been adumbrated. Fortunately, photographs were taken of the ceramic collections made during the Akkad Survey, and in some cases these have permitted a reconsideration of the dates originally established. Particularly for later periods, however, collections often were omitted or were limited to a few sherds whose representative character cannot be assured. Hence the spans of occupation suggested for sites ascribed to Hellenistic and later periods must be regarded as particularly rough and questionable. For these periods, separate reconstructions of the successive and canal patterns do not seem to be justified by the quality of the data. Hence the Parthian, Sassanian and Islamic maps show a single watercourse system, although in each case the accompanying sites are those provisionally thought to have been occupied during the period in question.

For the earlier periods that represented the main focus of the Akkad Survey, there has been little improvement in the corpus of ceramic dating criteria since the time it was undertaken. Primary reliance was placed on the extensively published Diyala pottery sequence, supplemented for earlier periods by other site reports and comparative discussions that still remain generally up-to-date.<sup>3</sup> Unpublished photographs were available illustrating complete, stratigraphically secure pottery vessels from the Nippur sequence,<sup>4</sup> and these were also an invaluable aid. Only a single "index fossil" has had to be substantially reconsidered since the time of the original fieldwork. This is the ubiquitous baked clay sickle, which then was thought to be a hallmark of the Ubaid period alone. More recent experience makes it clear that this artifact continued in use at least until the advent of the Jemdet Nasr period and perhaps later, probably reaching its floruit only after the end of Ubaid times.<sup>5</sup> Although accurate chronological placement still presents difficulties in many cases where prehistoric ceramic collections were limited, sites with such sickles but without painted Ubaid pottery accordingly have been assigned here only to the Uruk period.

Although not actively present during the fieldwork, Thorkild Jacobsen served as scientific advisor during the initial season of the Akkad Survey. This was a fitting reflection of his contributions to the methodology of surveys under conditions obtaining on the Mesopotamian alluvium, as well as of his early and continuing recognition of their potential contribution to historical problems. It is also a pleasure to acknowledge the material assistance rendered to the project by Fuad Safar. The gradual elaboration of ceramic criteria adequate for surface reconnaissance owes much to his advice, and his many probing questions about the assumptions and methodology of such efforts helped to pave the way for rapid improvements in the surveys that followed.

#### **UBAID PERIOD**

Defining Ubaid sites by the presence of painted Ubaid pottery, it is significant that their number is small and that they tend to be widely and uniformly spaced. On the other hand, Ubaid settlement in Akkad clearly was not limited to small villages and hamlets. Tell 'Uqair is the best known and most striking example of a site that must be described as a fairly large and complex town, and it affords a perhaps unique opportunity for economical, large scale exposure aimed at the recovery of an entire town plan of this period. But although obscured by later overburdens, it is quite possible that a number of other sites of the same date also attained considerable size.

Small towns (in excess of 4 ha.): 149, 201, 203 Villages or hamlets: 119, 140, 151, 180, 196, 207, 259, 282

# URUK AND JEMDET NASR PERIODS

Within the limitations of the available evidence, there is little to suggest an increase in average settlement size during at least the earlier part of this interval. The greatly increased number and wider distribution of sites does suggest some lateral extension of settlement further to the northwest, into the uppermost portion of the alluvial plain where there is as yet no record of an earlier human occupation. However, many of the Uruk sites clearly were very small. It is also interesting to note that their distribution tends to be somewhat less uniform and more clustered than was the case with sites of the Ubaid period.<sup>6</sup> As suggested by the decline of Tell 'Uqair after Ubaid times, a trend toward intensified settlement was by no means uniform throughout the area. From the evidence of the Akkad Survey, it would appear that a serious decline in occupation had commenced all along the northernmost of the former Euphrates branches by no later than the Jemdet Nasr period. This same trend is even more evident in the Nippur region. as will be documented in a forthcoming publication of reconnaissance in that area. Also by the Jemdet Nasr period if not earlier, of course, we may assume that settlements underlying the important later towns and cities along Euphrates branches further to the south and southwest were undergoing rapid growth. Hence the possibility must be entertained that the apparent abandonment of one part of the region was significantly related to urbanization in another. The distribution of the clay cones used in mosaic wall decoration may be of some interest as a possible indicator of the presence of specialized religious or administrative functions. Cones were found at the following sites: 140, 145 (?), 149, 151, 201, (?), 203, 275.

Small towns: 058, 149, 166, 184, 201, 203, 213, 248, 256, 275

Villages or hamlets: 061, 070, 071, 076, 092, 093, 099, 101, 115, 119, 137, 139, 140, 145, 180, 183, 192, 202, 204, 207, 211, 215, 216, 217, 219, 220, 221, 255, 258, 261, 264, 282

#### EARLY DYNASTIC PERIOD

While the total number of catalogued Early Dynastic sites represents a considerable reduction from that of the Urak and Jemdet Nasr periods, there is no doubt of a very large increase in average size. Moreover, the tendencies toward formation of larger centers culminated in the appearance of cities like Kish, Nippur and Abu Salabikh, which are not included in the catalogue since they are better known from texts and excavations. On the other hand, it should be noted that the enlargement of average settlement size was not solely a consequence of the formation of a few, widely separated city-states. Although not attaining fully urban proportions, a number of other towns seem to have undergone important growth at the outset of or during this period.

Towns: 016, 058, 140, 203, 213, 220, 248, 256, 275

Villages or hamlets: 069, 070, 071, 076, 093, 101, 102, 110, 115, 119, 137, 149, 180, 192, 207, 235, 255, 258, 282

Questionable: 092, 126, 217, 272

#### **AKKADIAN PERIOD**

Some further reduction in the total number of settlements seems to have occurred as a result of politically unsettled conditions during the late Early Dynastic period. Perhaps even more important was an apparently severe reduction in the occupied area of some of the larger towns. For Akkad as a whole during the period identified with its name, it is ironic to note that at least the settled population must have declined to at least as low a level as was reached at any time during the preceeding or following millennium.

Towns: 057, 058, 126, 140, 166, 195, 213, 248

Villages or hamlets: 047, 053, 076, 215, 217, 220, 221, 255, 256, 258, 282 Questionable: 016, 092, 120

#### **UR III AND ISIN-LARSA PERIODS**

Some recovery of permanent settlement from previous low levels is apparent, although such a process probably began later here and was considerably less vigorous than in southern Mesopotamia where political control became concentrated.

Cities (over 25 ha.): 078, 195 Towns: 047, 057, 058, 126, 140, 166, 213, 215, 248, 250 Villages or hamlets: 053, 092, 133, 180, 182, 204, 217, 221, 235, 255, 256, 258, 282

Questionable: 120

#### OLD BABYLONIAN AND KASSITE PERIODS

A time of very rapid extension of settlement, obviously connected with the rise of Babylon to a postion of political supremacy and great urban size under the dynasty of Hammurabi. In all earlier periods it will be noted that almost all of the recorded sites can be brought into alignment with one or another branch of the Euphrates as a naturally anastomosing river system. Now there are suggestions of new lines that probably reflect large-scale canal construction, perhaps opening up new lands for settlement and cultivation by conquered peoples under closer Babylonian supervision than was possible in their original territories. Babylon undoubtedly was the largest center of the time by a full order of magnitude, but there are clear indications of at least a four-tiered settlement hierarchy that may correspond with an equal number of levels in a firmly established administrative system.

Cities: 047, 058, 078, 095, 140, 195 Towns: 045, 057, 060, 072, 105, 107, 113, 125, 126, 129, 136, 139, 144, 161, 163, 179, 213, 250, 258, 282 Villages and hamlets: 053, 062, 063, 067, 074, 075, 079, 080, 098, 100, 109, 111, 114, 115, 116, 118, 120, 124, 133, 134, 142, 145, 148, 149, 151, 166, 167, 168, 182, 184, 191, 194, 202, 204, 206, 211, 219, 235, 253, 255, 256, 259, 260, 261, 264, 273 Questionable: 073, 106, 150, 181, 192, 193, 200

#### **NEO-BABYLONIAN PERIOD**

After a Middle Babylonian interval of extremely limited permanent settlement, this period witnessed a rapid return of favorable conditions for sedentary life. Sites where stamped bricks of Nebuchadnezzar were found were numerous, and are shown in the tabulation by numbers in italics. Some may attest only to the construction of isolated shrines or administrative buildings, but the appearance of most of these bricks in larger centers suggests a widespread and important building under royal aegis outside the capital. By contrast, it may be noted that not a single stamped brick of an earlier dynasty was found in the entire reconnaissance.

Cities: 058, 079, *140*, *233* Towns: 023, *053*, *055*, 060, 064, *072*, 073, 096, *107*, *108*, 122, *123*, *129*, *135*, 144, 163, 164, 165, 183, 193, 213, *214*, *218*, 232, 234, 249, 266, *282* Villages and hamlets: 020, 028, 050, 067, 070, 077, 099, *117*, 118, 120, 121, 134, 142, *145*, 148, 155, 157, 158, 159, 160, 195, 198, 206, 219, 229, 231, 234, 235, 246, 253, 254, 255, 257, 258, 264, 265 Questionable: 050

#### ACHEMENID (-SELEUCID) PERIOD

The dominant impression is one of continuity from Neo-Babylonian times. It should be borne in mind that ceramic criteria for this period are still ill-defined, with most individual types and features almost certainly having a longer life span than the limited period of Achaemenid political control of Babylonia. Any demarcation between Achaemenid and Seleucid sites seems particularly speculative and probably should not even be attempted.

Cities: 079, 140 Towns: 023, 052, 053, 055, 060, 064, 072, 073, 077, 108, 122, 123, 129, 135, 144, 163, 164, 165, 181, 183, 193, 200, 210, 212, 213, 234, 247, 250, 266, 282, Villages and hamlets: 020, 028, 046, 050, 067, 070, 099, 117, 121, 127, 134, 145, 148, 155, 157, 159, 160, 169, 170, 190, 206, 219, 229, 248, 253, 254, 255, 257, 264, 265 Questionable: 050, 120, 187

#### (SELEUCID-) PARTHIAN

With the availability in published form of the Parthian ceramics from Seleucia,<sup>7</sup> ceramic dating criteria for the latter portion of this period were fairly well understood at the time of the original fieldwork. This lends credence to the finding of the Survey that the number of occuped sites reached a maximum during the Parthian period. Examination of the site catalogue and maps also makes clear that many of the numerous towns of the period approached urban dimension. This may have been, in short, also a period of population maximum. If so, the subsequent reduction is likely to have been at least partly a consequence of the flight and re-settlement of the population into more protected regions as a result of repeated Roman invasions.<sup>8</sup>

Cities: 004, 006, 026, 079, 140, 205, 262

**Towns:** 023, 033, 038, 052, 054, 068, 072, 077, 083, 091, 096, 112, 113, 128, 144, 151, 164, 168, 193, 194, 200, 201, 210, 212, 221, 228, 232, 234, 247, 250, 255, 266 **Villages and hamlets:** 003, 005, 020, 022, 025, 028, 032, 034, 036, 037, 042, 045, 046, 050, 061, 065, 067, 069, 081, 084, 085, 086, 088, 089, 090, 097, 103, 104, 106, 125, 127, 130, 134, 143, 145, 147, 148, 152, 153, 154, 156, 157, 162, 165, 167, 169, 170, 186, 187, 190, 226, 227, 229, 233, 248, 254, 264, 282

Questionable: 073, 120, 123, 216, 256

#### SASSANIAN PERIOD

Ceramic dating criteria useful for surface collections from Sassanian sites were virtually unknown at the time of the initial reconnaissance in Akkad. Hence the listing of such sites here must be regarded as tentative at many points. While there was a considerable reduction in the apparent total number of occupied sites, however, it may be significant that the number of those of urban proportions apparently reached a maximum.

Cities: 004, 006, 013, 015, 016, 017, 026, 140, 205, 210, 262 Towns: 007, 030, 033, 038, 049, 051, 068, 083, 096, 113, 128, 132, 151, 168, 208, 209, 221, 224, 228, 234, 255 Villages and hamlets: 002, 003, 005, 011, 018, 019, 022, 031, 032, 036, 039, 044, 045, 048, 065, 082, 084, 087, 097, 103, 104, 106, 112, 130, 143, 154, 156, 161, 186, 189, 226, 227, 264 Questionable: 034, 042, 046, 094, 131, 173

### **ISLAMIC PERIOD**

Considerable refinement in the ceramic criteria for the Islamic period took place during the course of the Survey. Hence there are some sites that can be assigned to particular Islamic sub-periods, while for others only a very general attribution is possible. This listing accordingly groups all sites together for the period as a whole. Where additional information is available it is given in the catalogue.

Cities: 001, 015, 017, 026, 140

Towns: 009, 012, 014, 040, 056, 059, 078, 112, 136, 177, 178, 179, 188, 197, 198, 208, 224, 228, 232, 234, 238, 239, 246, 252, 253, 263, 283 Villages and hamlets: 008, 010, 011, 019, 021, 024, 029, 035, 041, 043, 053, 066, 071, 087, 111, 125, 138, 141, 143, 145, 146, 147, 150, 161, 169, 171, 172, 173, 174, 176, 181, 185, 199, 207, 213, 215, 217, 219, 222, 225, 227, 229, 233, 235, 236, 237, 240, 241, 242, 243, 244, 245, 249, 251, 260, 261

Questionable: 016, 049, 052, 170, 175, 223, 230.

#### CATALOGUE OF SITES RECORDED IN THE AKKAD SURVEY, 1956-1960

(Except as otherwise indicated, length of visual scale in sketch plans is one kilometer.)

- 001. Tell Harba. 1000 m NW x 750. Ilkhanid and later.
- 002. Scattered low summits; see sketch plan. Sassanian.
- 003. Two tells about 500 m. apart, E W, each 120 diam. Limited Parthian, mainly Sassanian.
- 004. Tell Miskin. 700 diam. Limited Parthian, mainly Sassanian.
- 005. Scattered low mounds; see sketch plan. Parthian Sassanian.
- 006. Tulûl al-Hibir. See map for large, irregular outline. Limited Parthian, mainly Sassanian.
- 007. 800 NW x 250. Sassanian.
- 008. Tell Abû Sukur. 130 diam. Ilkhanid and later.
- 009. Main mound 200 diam. Adjacent to SE is a second, smaller mound. Ilkhanid and later.



- 010. Imâm Mohammed ibn Hassan. Very small and low. Ilkhanid and later.
- 011. Three small mounds along an E-W line. Sassanian, Late Abbasid Post-Ilkhanid.
- 012. Tell Abû Sakhir. 200 diam. Late Abbasid Post-Ilkhanid.
- 013. Tell Abû Jelâmîd. About 800 diam.; see map for irregular outline. Sassanian.
- 014. Tell Kuwayt. Main mound 350 diam., a much smaller mound immediately SW. Ilkhanid and later.
- 015. Tell Ishnayt. See map for large, irregular outline. Sassanian Post-Ilkhanid.
- 016. Tell Sinker. This name applies specifically to a central mound 250 x 100 x 10, rising to this heigth just E of a clearly marked old Tigris bed. But smaller, closely spaced summits surround it on the N, E, and S, suggesting a gross occupied area for the site of at least 600 N x 300. The bulk of the debris composing the mounds apparently is Early Dynastic, perhaps continuing on a lesser scale into the Akkadian period. Thinner overlying debris is primarily Sassanian, with possibly some Early Islamic as well. Mounds of Sassanian and Islamic debris continue southward to merge with the adjoining site of ancient 'Ukbara.
- 017. 'Ukbara. Cf. published discussions of the history of this city elsewhere.<sup>9</sup> It was noted that debris became progressively later in terminal date as surface reconnaissance proceeded southward across this site. Sassanian pottery predominated at the N end adjoining Tell Sinker, then Early Islamic Samarran, then at S end of site Post-Samarran Ilkhanid.
- 018. Sparse debris on scattered, low, gypseous gravel outcrops. Sassanian.
- 019. Sparse debris on scattered outcrops. Sassanian Early Islamic.
- 020. Neo-Babylonian Parthian; debris sparse.
- 021. About 100 diam. Ilkhanid and later.
- 022. 140 E x 100. Parthian Sassanian.
- 023. 550 NNW x 180. Neo-Babylonian Parthian.
- 024. Tell al-Dhahab. 220 N x 150. Ilkhanid and later.
- 025. 90 diam. Parthian.
- 026. Tell al-Mas'oud. N end 500 diam., tailing off 800 m. further S. Parthian Sassanian; Late Abbasid Post-Ilkhanid.



- 028. Tell al-Mas'oud Sharqi. 120 diam. x 5, with a low SW extension. Little Neo-Babylonian Achaemenid; mainly Parthian.
- 029. Tell al-Tharza. 220 N x 160. Ilkhanid and later.
- 030. 350 NW x 140. Sassanian.
- 031. 120 diam. Sassanian.
- 032. Tell Abû Dhaba'. 250 N x 100. Limited Parthian; mainly Sassanian.
- 033. 650 N x 200. Parthian Sassanian.
- 034. Tell Tariq. 150 diam. Mainly Parthian; possibly limited Sassanian.
- 035. Tell Ahmur. 200 E x 120. Ilkhanid and later.
- 036. Scattered small tells. Those adjoining old canal levee to W are Parthian Sassanian, while those further E apparently are Sassanian only.
- 037. Scattered small tells. Parthian.
- 038. Tell Ustaih. See Sketch plan. Parthian Sassanian.
- 039. Scattered small tells forming an E W line. Sassanian.
- 040. Tell Nadhri. 220 diam. Ilkhanid and later.
- 041. Tell Abû Skhayr. 100 diam. Ilkhanid and later.
- 042. 200 E x 120. Parthian; possibly also limited Sassanian.
- 043. 140 diam. Late Abbasid.
- 044. One mound 130 E x 100. 150 m. ESE is a second, 100 diam. Sassanian.
- 045. Tell Kurr. See sketch plan. Small, high part of mound to NW rises to 7.5 m. ht. and is Parthian - Sassanian as well as Kassite. Some Old Babylonian and perhaps limited Middle Babylonian debris also is present there. The remainder of the site is 1 - 2 m. ht., and seems to contain only the 2nd millennium material. This would have been a substantial town at that period, while the Parthian - Sassanian re-occupation may have consisted only of a small fortress.

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- 046. Tell al-Melâqut. 200 N x 120. Primarily Achaemenian Parthian; perhaps also limited Sassanian.
- 047. Aqarquf, ancient Dur Kurigalzu. See sketch plan of site, drawn by H.T. Wright in 1966. Clearly, settlement here covered a considerably larger area that has usually been realized. Surface collections also suggest that it began considerably earlier than the Kassite period, although the latter was undoubtedly the time of maximal occupation. Large spouted bowl and carinated bowl sherds indicate a beginning of settlement in the Akkadian or Ur III period.



- 048. Tell Saff al-Gharbi. 150 diam. Sassanian.
- 049. Tell Saff al-Sharqi. 350 NW x 120. Mainly Sassanian; possibly also a small Islamic occupation.
- 050. 180 NW x 60 x 4.5. Limited Neo-Babylonian Achaemenid; mainly Parthian.

- 051. 250 diam. x 18, covered with fragments of yellow, poorly fired bricks and white mortar. Since pottery is extremely sparse in spite of the size of the site, this may have been only an isolate fortification. Probably Sassanian.
- 052. Tell Abû Dhaba. 250 diam. x 12. A smaller mound lies 100 m. S.W. Limited sherd collection was primarily Achaemenid Parthian, but also included one post-Samarran sherd. Several baked bricks of Neo-Babylonian type were seen, including one with an illegible three-column stamp, but these have been secondarily transported from 053.
- 053. Tell Abû Gabûr. Main mound is an oval with 300 m. long NW axis, 6 m. high. Numerous baked bricks found on surface there included several with Nebuchadnezzar stamps, while associated pottery was Neo-Babylonian - Achaemenid. Immediately NW is a second mound of same extent, shape and orientation but only half as high. Several low summits of the latter seem to reflect important buildings, with two floor plans exceeding 47 x 34 and 35 x 35 m. faintly traceable in salt encrustations. Ceramics here also were Neo-Babylonian - Achaemenid. Smaller mounds trail off further NW, with additional traces of substantial architectural monuments. Some Islamic glazed sherds there, as well as on main mound, may reflect a re-occupation during part of that period. To the NNE lies an additional low mound or mounds, at least 200 m. long but with borders ill-defined. On its surface and in surrounding fields is pottery of Akkadian - Larsa date, in addition to Neo-Babylonian ceramics and some indicators of Old Babylonian - Kassite date. The surface material here concludes many pebbles, and from the worn appearance of many sherds it may be concluded that secondary redeposition by water has played an important part. Unfortunately, the nature and extent of the early occupation is largely masked by this later alluviation.
- 054. Ishân Abû Amoud. 400 E x 200 x 7, with a smaller mound adjoining to NW. Seleucid Parthian.
- 055. Tell al-Hargâwi. Roughly triangular, 400 m. along each side, rising to 5 m. ht. at W end. Numerous, deep brick-robbers' trenches near summit. Small contemporary mound to S. Stamped 4- and 7-line Nebuchadnezzar bricks, Neo-Babylonian -Archaemenid pottery.
- 056. Tell Abû Sukhîya. 450 NE x 250 x 4. Many baked brick walls visible on surface. Islamic, probably only Late Abbasid and later. Two fragments of Nebuchadnezzar 3- and 7-line stamped bricks probably were secondarily re-used and do not reflect a Neo-Babylonian occupation.
- 057. Tell al-Dayr. Surface inspection suggested that occupation of this important site commenced no later than the Akkadian period and continued through Kassite times and probably somewhat later.<sup>10</sup>
- 058. Tell Abû Habba (ancient Sippar). Detailed surface inspection indicated that occupation here began no later than the Urak period and went on more or less continuously through the Neo-Babylonian period.<sup>11</sup>
- 059. Tell al-Ishaqi. About 250 diam. x 8. Late Abbasid Ilkhanid.
- 060. Tell Mahmudiyah. 300 diam. x 8. Railroad cut to E, Baghdad Hilla highway to W, and large excavation for fill along N side have reduced its earlier dimensions. In addition, it is reported that Mahmudiya municipal buildings 200 m. S of mound occupy an area where there was orginally a large, low extension of the mound. Possibly Old Babylonian, mainly Kassite Achaemenid.
- 061. Tell Gelsenah. 65 diam. x 2.5. Numerous clay sickles reflect a presumed Uruk

period occupation. Other surface ceramics reflect a late re-occupation, probably in the Parthian period.

- 062. Small, low. Old Babylonian Kassite.
- 063. 100 diam. x 2. Old Babylonian Kassite.
- 064. Roughly 200 diam. x 2.5. One clay sickle and one spouted bowl sherd hint at occupations in the Uruk and Akkadian periods respectively. The only substantial occupation here, however, was in the Neo-Babylonian Achaemenid periods.
- 065. 120 diam. x 3.5. 100 m. SE is a second mound, 80 diam. x 3. Mainly Parthian, less Sassanian.
- 60 diam. x 4, part of this height including an underlying canal levee. Early IslamicLate Abbasid.
- 067. 100 NNW x 25 x 3.5. One clay sickle may indicated a minor Uruk occupation nearby. Old Babylonian, Neo-Babylonian Parthian.
- 068. 750 x 300 x 7, with old concrete gun emplacements on summit. Parthian Sassanian.
- 069. About 150 diam. x 4, deeply trenched for an irrigated palm garden. Early Dynastic I, Parthian.
- 070. 170 E x 100 x 1.7. Uruk Early Dynastic I, Neo-Babylonian Achaemenid. 100 m. away lay another mound, post-Neo-Babylonain.
- 071. 105 E x 65 x 1.5. Mainly Uruk Early Dynastic I, limited Islamic.
- 072. Tell al-Umfuggar. Perhaps 500 m. in diam. x 8, but with irregular outline and many minor summits. Fragment of Nebuchadnezzar 4-line stamped brick. Old Babylonian Parthian.
- 073. 500 N x 200 x 2.5, tailing off to S beyond these dimensions. One Uruk sickle fragment, one Kassite chalice fragment, major occupation Neo-Babylonian Achaemenid, perhaps continuing somewhat longer.
- 074. Small, low. Mainly Old Babylonian Kassite. Some later (Parthian?) material may derive from major nearby sites along old canal levee known as the Habl Ibrahim.
- 075. Small, low. Old Babylonian Kassite.
- 076. 175 x 100 x 5.5. Traces of ancient architecture visible near summit of mound. Uruk - Akkadian, with a very superficial late occupation perhaps consisting only of Parthian - Sassanian graves.
- 077. Tell Itwaybah. Mound area ill-defined, mixed with old canal levee; may cover an area 500 m. diam. Small mud brick tower on main summit may reach 10 m. above plain level. Neo-Babylonian at NW end of site; remainder Achaemenid-Parthian.
- 078. Tell Nimrud. (Gibson 26). Low elevation 800 diam., central mound 200 diam. x
  5. Mainly Akkadian Old Babylonian; also a limited Late Abbasid Ilkhanid occupation.
- 079. A large number of individual mounds extending for about 4 kms. along old canal levee, as shown on map. Major occupation Neo-Babylonian Parthian, but also with sparse, widely scattered occurances of Old Babylonian ceramics.
- 080. Small tell about 100 m. diam. x 2, its flanks (but not summit) deeply trenched for irrigation of palm grove. Old Babylonian Kassite.
- 081. Main mound 250 NNW x 100 x 4.5. 200 m. SW is a second mound, 100 diam. x 4.5. Parthian.
- 082. Jemdet Diwân. 40 diam. x 1.5. Sassanian.

- 083. Tell Khattar. 500 WNW x 220 x 7. Mainly Parthian, limited Sassanian.
- 084. 200 E x 80 x 4.5. Some Parthian, apparently mainly Sassanian.
- 085. Main mound triangular, sides 110 m. x 4. Two very small outliers to NE, one to SE. Parthian.
- 086. 90 diam. x 2.5. Parthian.
- 087. Tell Dhayyah. 140 N x 100 x 4.5. Sassanian Late Abbasid.
- 088. 80 diam. x 1.5. Parthian.
- 089. Tell Juboyl. 120 diam. x 4.5. Parthian.
- 090. 120 diam. x 2.5, small outliers immediately NE and about 150 m. SE Parthian.
- 091. Large, complex group of low mounds interspersed with old canal banks. All seemingly Parthian only.
- 092. 60 diam. x 2. Uruk, possibly Early Dynastic-Akkadian, Larsa.
- 093. 100 diam. x 1.5, extremely saline. Uruk Early Dynastic.
- 094. Tell Abû Jerabi'. Parthian; possibly also Sassanian.
- 095. Tell al-Habbis al-Gharbi. Large, evenly contoured, at least 800 m. E, rising to 5 m. near E end. One Uruk sickle; occupation mainly or exclusively Old Babylonian.
- 096. Tell al-Habbis al-Sharqi To the N is a mound shaped like a high, truncated cone, 200 diam. x 7.5. S across a modern canal-cut is a more irregular mound, perhaps 250 diam. x 5. Contours suggest that these may be parts of a single site. The N mound is primarily Neo-Babylonian, the other primarily Parthian Sassanian.
- 097. One mound 100 diam. x 4. The other, 200 m. N, 200 x 70 x 3. Parthian Sassanian.
- 098. Less than 100 diam., very low. Old Babylonian Kassite.
- 099. Tell Suraysur. Irregular oval 200 m. long, 5 m. high. Very saline. Uruk, Neo-Babylonian Achaemenid.
- 100. About 150 diam., less than 2 m. ht. Old Babylonian Kassite.
- 101. Ishân Hamîd. 100 diam. x 1.5. Uruk Early Dynastic.
- 102. 80 N x 50 x 1.8. Early Dynastic.
- 103. Three small mounds 100-150 m. apart along a NW line. Ht. 3-4 m. Parthian Sassanian.
- 104. Tell Alwiya. 150 diam. Parthian Sassanian.
- 105. Tell Harbi. 200 diam. x 3. Old Babylonian Kassite.
- 106. Tell Twagiyyât. Six small summits 4-6 m. high, forming a rough N-S line. Mainly Parthian - Sassanian; possibly an early Old Babylonian - Kassite occupation also.
- 107. See sketch plan. Individual mounds 2-4 m. ht. Old Babylonian Neo-Babylonian. Small fragment of a baked brick with a Nebuchadnezzar 3-line stamp.



- 108. See sketch plan. Most mounds 2.5 m. ht. Neo-Babylonian Achaemenid. Fragments of baked bricks with Nebuchadnezzar 3- and 7-line stamps.
- 109. Perhaps 120 diam., very low. Old Babylonian Kassite.
- 110. 120 diam. x 1.5. Urak Early Dynastic.
- 111. 100 diam. x 1.5. Old Babylonian Kassite, Islamic.
- 112. Tell Hilaylah. Main mound 250 NW x 200 x 5. Small outliers 50 m. E and 100 m. W. Parthian Islamic.
- 113. Tell Jeshiyat. See sketch plan. Individual mounds 4.5-7 m. ht. Old Babylonian Kassite, Parthian Sassanian.



- 114. 150 diam. x 2. Old Babylonian Kassite.
- 115. Tell Imríyah. 150 N x 100 x 3. Uruk, Early Dynastic, Old Babylonian Kassite.
- 116. 120 diam. Old Babylonian Kassite.
- 117. Three small tells; largest, on W end, is 80 diam. x 2.5. Neo-Babylonian Achaemenid. Fragment of baked brick with Nebuchadnezzar 7-line stamp.
- 118. 220 N x 120 x 2.5. Old Babylonian Neo-Babylonian.
- 119. Slay' al-Hamrah. 150 N x 100 x 2.5. Ubaid Early Dynastic I. Clay sickles extremely numerous not only on mound but in nearby fields.
- 120. Ishân Muqfayshah. 120 diam. x 2.5. 600 m. S is a lower, smaller mound of same date. Four clay sickles assumed to be strays from nearby No. 119. Main occupation Old Babylonian Neo-Babylonian, perhaps beginning slightly earlier and continuing on a limited scale into Parthian times.
- 121. 80 diam. x 3. Neo-Babylonian Achaemenid.
- 122. Tell Abû Gulub. 300 NW x 200 x 7, although less a continuous mound than a series of semi-detached summits separated by deep erosion channels. Neo-Babylonian Achaemenid.
- 123. Tell al-Zibentari. 200 diam. x 5, with a small, free-standing mound at W end rising to 7 m. To S is a mound 500 N x 200 x 3.5. Numerous baked bricks with Nebuchadnezzar 3- and 7-line stamps. Mainly Neo-Babylonian Achaemenid. perhaps continuing into Parthian times at S end of S mound.
- 124. 80 N x 50 x 2.5. One Uruk clay sickle fragment found near mound foot. Otherwise Old Babylonian - Kassite.
- 125. Tell Slay' al-Bidh. Smaller of two mounds, to W, 250 N x about 220 x 5. Very sparse Old Babylonian Kassite pottery. Other mound about 450 diam. x 5. Old Middle Babylonian, with evidence of small later (Parthian, Islamic) occupations concentrated at S end of larger mound.
- 126. Tabor Arasi. 500 N x 400 x 2, with several scattered summits rising to 5m. One Uruk clay sickle, possible late Early Dynastic, mainly Akkadian Old Babylonian.
- 127. 65 diam. x 6. 200 m. SSE is a second mound, about 100 diam. x 5, with traces of extensive ancient walls on summit. Achaemenid Parthian.
- 128. Three large and numerous smaller tells, as shown in sketch plan. Heights range from 3 - 9 m. Large S mound has extensive indications of ancient architecture. Parthian - Sassanian.



- 129. Tell Humadi. About 250 diam. x 6, with a small outlier 200 m. E Old Babylonian
   Achaemenid, with one fragment of a baked brick bearing a portion of a Nebuchnezzar 7-line stamp. As shown in sketch map, aerial photographs indicate clear traces of ancient river meander immediately to N.
- 130. About 70 diam. x 2.5. Parthian Sassanian.
- 131. 80 NE x 40 x 2. Probably Sassanian.
- 132. About 200 diam. x 2, but size obscured by modern roads. Sassanian.
- 133. Tell Shegrah. 60 diam. x 0.5, although pottery on plain extending 150 m. NW suggests that original size may have been considerably longer. One Uruk clay sickle, otherwise site is Larsa Kassite.
- 134. 100 diam. x 1.5. Kassite Parthian.
- 135. Ishân Angur Zuraybah. Near main mound 500 N x 200 x 8. 400 m. W is a second, 150 diam. x 6. Numerous bricks with Nebuchadnezzar stamps on latter. Neo-Babylonian Achaemenid, the later period probably confined to the larger, higher mound.
- 136. Ishân Zuraybah. (Cf. Gibson 58) About 800 E x 250 x 7, although consisting of several semi-detached summits rather than a uniformly elevated mass. Old Babylonian - Kassite, Early Islamic.
- 137. Ishân Slay' al-Jamir. About 100 diam. x 5. Several small-scale soundings were made here by the Directorate General of Antiquities in 1955-56. Uruk - Early Dynastic.
- 138. W tell 150 SE x 120, low. E tell 400 m. away, 180 diam., also low. Both Samarran, E tell perhaps continuing into Late Abbasid times.
- 139. 200 diam. x 4. Just NW is an outlier, 80 diam. x 0.5. Latter was Old Babylonian -Kassite. Main mound collection included six Uruk clay sickles, mainly Old Babylonian - Kassite, undated late material.
- 140. Tell Imam Ibrahim (ancient Kutha). (Gibson 48). 900 NW x 600 x 20, with the imam standing on the summit of a small, lower mound immediately adjacent SW. Early material, concentrated along E flanks and ridge of site, included numerous examples of many diagnostic types reflecting a continuous occupation from Ubaid through Early Dynastic times. Examples of ribbed ware, presumably of Akkadian date, also were present, but the Ur III and Isin-Larsa periods are essentially unrepresented in large, systematic collections. Old Babylonian Achaemenid present in quantity, including many baked bricks with Nebuchadnezzar 3- and 7-line stamps. Large-scale occupation of main tell continued through Parthian, Sassanian and Islamic times into the Late Abbasid period. The mound of the imam is Islamic only.
- 141. 200 N x 80 x 2, with N and S limits particularly ill-defined. Islamic; probably Early Islamic Samarran.


- 142. Probably about 150 diam. originally. Site virtually obliterated by excavation for new canal prior to Survey. It was reportedly sounded briefly by the D.G. of Antiquities in 1955-56, yielding a number of Neo-Babylonian tablets. Ceramics on site are Kassite - Neo-Babylonian.
- 143. Two adjoining small tells, less than 100 m. diam. x 2. Parthian Samarran.
- 144. 200 diam. x 6. Small outliers 150 m. N and 200 m. NW. Kassite Parthian.
- 145. Three adjoining small mounds, the highest rising to 4 m. Two bricks with Nebuchadnezzar 7-line stamps. Uruk, Kassite Parthian, Samarran.
- 146. 80 diam. x 4. Probably Samarran Late Abbasid.
- 147. 100 diam. x 3.5. Mianly Parthian, limited Early Islamic and/or Samarran.
- 148. Three mounds forming a NE line, 4 6 m. in ht. NE mound 150 diam. Center mound is 50 m. away, 60 diam. SW mound is 80 m. away, 120 diam. Old Babylonian Parthian.
- Tell 'Ugair. Excavation in the form of architectural clearance has so far been 149. confined to mound A, which rises more than 10 m. above plain level in association with Uruk - Jemdet Nasr temples. On a lower lying portion of this mound a sounding was made through a succession to Ubaid building levels, apparently reaching virgin soil at a depth of about 5 m. below plain level. On Mound B, adjacent to the SE, the report mentions only that "a number of fairly rich graves had been encountered, suggesting a cemetary of the Early Dynastic Period"<sup>12</sup> A plane-table plan is shown of Mounds A and B, the latter reaching an elevation of only 2.5 - 3 m. above plain level. Careful, systematic surface inspection of both mounds suggested that major occupation occured during or very soon after Ubaid times, with sharply reduced use by the Jemdet Nasr period or even before. A few solid-footed goblets suggest at most a very small Early Dynastic I occupation, perhaps contemporary with several plano-convex bricks noted in a small area on E side of larger SE mound. For the SE mound as a whole, surface collections make clear that its occupation as a significant settlement came to an end with the Ubaid period. Hence it was felt that traces of ancient streets and buildings shown in the plan, observable as heavy encrustations of salt after a heavy rainfall, could confidently be assigned to that period. Finally, mention should be made of a few Old Babylonian - Kassite sherds that may reflect an at most very minor re-occupation.
- 150. 120 diam. x 3. One Uruk clay sickle, one Kassite chalice fragment, remainder Early Islamic.
- 151. Tell Abû Huraybah. 600E x 350 x 10. Ubaid Uruk, Old Babylonian Kassite, major occupation Parthian Sassanian.
- 152. 90 diam. x 2.5. Parthian.
- 153. Two small, low mounds continuing ESE of no. 152. The W mound is smaller than no. 152, the E mound roughly the same size. Both Parthian.
- 154. Tell al-Hamr. 140 diam. x 4. Mainly Parthian, limited Sassanian.
- 155. Main mound 110E x 80 x 2.5. Immediately adjacent to Nw is a second mound, 100 diam. x 2.5. Neo-Babylonian Achaemenid.
- 156. Tell Gabur Hamoud. 100 diam. x 4. Some Parthian, main occupation Sassanian.
- 157. Khayt Jed'an. 150 diam. x 6. Neo-Babylonian Parthian, the bulk of the occupation apparently before the latter period. Several very small Parthian sites occur along the old E-W canal passing just N of site, from which its name is



probably derived.

- 158. Tell Meli'ah. 140 E x 50 x 2.5. Neo-Babylonian,
- 159. 180 NNW x 40 x 3. Neo-Babylonian Achaemenid.
- 160. 120 diam. x 3. Neo-Babylonian Achaemenid.
- 161. The substantially elevated area is about 300 diam. x 5, bifurcated into two summits by a much later (but long-disused) canal cut. However, thickly scattered sherds continue at plain level for a long distance, extending to the SE at least as far as the foot of a later mound 1 km. away. Mainly Old Babylonian Kassite, with a minor Sassanian Early Islamic re-occupation. Two clay sickles may suggest a small, underlying Uruk settlement.

- 162. 130 NNW x 70 x 4. Parthian.
- 163, Tell Abdullah. 250 diam. x 5.5, but with a central depression suggesting a cut for a later canal from the NNW. to the E of this depression there are traces of large-scale and mud brick architecture. Kassite Achaemenid.
- 164. Tell Resâsi Kabîr al-Sharqi. 220 NNE x 180 x 6. Neo-Babylonian Parthian.
- 165. Tell Abû Dhaba'. 700 NNW x 200 x 3.5. Neo-Babylonian Achaemenid, very limited Parthian.
- 166. Ishân Hamîd. Limits of site obscured by drifting sand. Highest of several summits is 150 diam. x 7, while aggregate area must approach 400 diam. Numerous Uruk clay sickle fragments. Akkadian Larsa, limited Old Babylonian.
- 167. Jemdet Hadi. Larger mound 180 diam. x 3. Other mound about 120 m. N, 70 diam. x 2. Old Babylonian Kassite, Parthian, the earlier periods mainly represented on the N mound.
- 168. Ishân Rishayd. The main mound is roughly circular, 400 diam. x 7. Adjoining it to the SW, separated only by a modern canal cut, is a mound about 100 diam. x
  4. Deep, uniform depression in center of the latter suggests its possible use as a fort. Surface collection on the smaller mound included an Old Babylonian Kassite component; elsewhere Parthian Sassanian.
- 169. Tell Sayyid Mansûr. 125 diam. x 4, with a flat top 50 m. in diam. Achaemenid -Parthian, Early Islamic - Samarran.
- 170. Tell Abû Rothan (Gibson 115). Probably originally about 120 diam. x 4, but now reshaped and partly obliterated by railroad and highway cuts. Achaemenid Parthian, possibly also Early Islamic.
- 171. (Gibson 116). 140 NNW x 85 x 5. Early Islamic Samarran.
- 172. Tell Mohammed (Gibson 117). 80 diam. x 4. Early Islamic.
- 173. (Gibson 121). 230 N x 165, a series of low hummocks at most 2 m. high rather than a single mound. Possibly Sassanian, mainly Early Islamic Samarran.
- 174. Tell al-Egrayni (Gibson 122). 150 diam. x 9. Islamic.
- 175. (Gibson 123). 65 diam. x 2, perhaps bifurcated by old canal. Probably Early Islamic.
- 176. Jemdet Khisbak (Gibson 124). 150 E x 105 x 4. Early Islamic.
- 177. Tell Hutlayfa (Gibson 125). N mound 230 E x 120 x 8. S mound 50 m. away, 220 N x 120 x 8. Early Islamic Samarran.
- 178. Tell Abû Dihn (Gibson 126). See sketch map; long mound 6 m., others about 3 m. high. Islamic.



- 179. (Gibson 27). 300 N x 200 x 1; limit of site diffuse and somewhat arbitrary. Old Babylonian Kassite, Islamic.
- 180. Tell Murhish. 150 diam. x 2.200 m. E is a second mound, 200 E x 100 x 1.
   Ubaid Early Dynastic, Larsa, with many baked plano-convex bricks on surface



suggesting that the Early Dynastic occupation was perhaps the last major one. As shown in the accompanying sketch, aerial photographs indicate clear traces of a meandering ancient watercourse between the W mound of this site and No. 181.

- 181. Tell Murhish (Gibson 28). 300 NW x 250 x 3.5, with two successively smaller mounds tailing off SE. a fourth mound, 200 diam. x 1.5, is 400 m. N of main mound. Main occupation, particularly on the largest mound, apparently Achaemenid. Possibly also Old Babylonian. Limited Islamic.
- 182. Tell Abu Dhaba' (Gibson 31). 125 diam. x 3. Larsa Old Babylonian.
- 183. (Gibson 30). See sketch plan; middle mound 4 m. ht. Numerous Uruk clay sickles, mainly Neo-Babylonian Achaemenid.



- 184. (Gibson 32). 200 diam. x 3.5. Uruk, Old Babylonian Kassite; the former occupation seems to have been the major one.
- 185. (Gibson 33). 150 N x 100 x 1.5. Late Abbasid. Two clay sickles were regarded as strays from No. 184.
- 186. (Gibson 49). 180 N x 140 x 5. Parthian Sassanian.
- 187. (Gibson 50). 100 diam. x 3. Possibly Achaemenid, mainly Parthian.
- 188. (Gibson 51). Main mound 400 NE x 150 x 4; small outlier NE. Samarran Late Abbasid.
- 189. (Gibson 52). 110 diam. x 2. Sassanian.
- 190. (Gibson 53). Main mound 180 N x 100 x 5; small outliers NW and SE. Achaemenid Parthian.
- 191. (Gibson 54). 80 diam. x 1, but with sherds extending N for 350 m. at plain level suggesting an originally greater size. Old Babylonian Kassite.
- 192. Jemdet Gumrah (Gibson 38). 160 N x 100 x 2. Mainly Uruk Early Dynastic. A few sherds may reflect minor Old Babylonian and later occupations.
- 193. Tell Abû 'Ajrash (Gibson 39). 300 N x 220 x 4. One Uruk clay sickle, 2 Kassite chalice fragments; main occupation Neo-Babylonian Parthian.
- 194. Tell Abû Biyariq (Gibson 57). See sketch plan. Mound at W end is 130 diam. x 6, Old Babylonian - Kassite, Parthian. Remainder of site is Parthian.



- 195. Ishân Mizyad (Gibson 37). Main mound is 1 km. N x 600, mostly quite low but rising to 4 m. ht. near S end. Akkadian - Kassite; The smaller mound immediately N has extremely little pottery; the only dateable pieces observed were of Neo-Babylonian date.
- 196. Ras al-'Amiya (Gibson 40). Better known locally as Holandia.<sup>13</sup> Early Ubaid.
- 197. Tell Abû Suraydîb (Gibson 164). 300 NE x 200 x 10, with a ruined building (possible a former *imam*) standing on its NE end. Late Abbasid Ilkhanid.
- 198. Tulûl al Sidrah or Abû Sudayrah (Gibson 47).<sup>14</sup> Neo-Babylonian, Early Islamic Ilkhanid.
- 199. (Gibson 140). 80 diam. x 3. Late Abbasid.
- 200. Ishân Khalfa. (Gibson 155). Low, scattered mounds obscured by dunes. Dimensions unrecorded. Achaemid - Parthian. Apparently this site is that noted by S. Langdon as Tuweirij (see No. 247), although the reported find of Old Babylonian tablets here seems unlikely.<sup>15</sup>
- 201. Tell al-Rishayd (Gibson 90). 450 NNE x 230 x 11. Ubaid Uruk, Parthian.
- 202. (Gibson 91). 230 ESE x 150 x 2.5. Uruk, Old Babylonian Kassite.
- 203. Jemdet Nasr (Gibson 92). 250 N x 160 x about 3.<sup>16</sup> A careful and extensive

surface collection made here reflected an occupation beginning in Ubaid times and continuing into the Early Dynastic I period.

- 204. (Gibson 93). 200 NE x 170 x 4. Uruk, Larsa Kassite.
- 205. Ishân Barghuthiyât (Gibson 94). See sketch plan.<sup>17</sup> Main mound reaches an elevation of about 10 m. Parthian Sassanian.



- 206. 130 NW x 80 x 1. Old Babylonian Achaemenid. Immediately adjoining to the NE is a slightly larger and higher mound with later (but undated) material. Two clay sickles may suggest a small Uruk occupation here or nearby.
- 207. 120 diam. x 1.5. Main occupation Ubaid Jemdet Nasr. Very limited Early Dynastic, with E.D. I solid-footed goblets absent. Finally, there is a thin Early Islamic occupation.
- 208. Ishân Gurtîyah. 500 NNW x 400 x 14. Very numerous kiln-supports suggest that this site was important as a center of commercial pottery production. Sassanian Early Islamic.
- 209. Tell Karunah (Gibson 95). See sketch plan; main mound rises to 6 m. Sassanian.



210. Tell Suraysur - Tell Karuk (Gibson 96). The first of these names generally applied to the NW end of this large and complex group of mounds, the second to the central and SE portions. See sketch plan. Many mounds rise to 6 m. and more. Some Achaemenian - Parthian, but site appears to be mainly Sassanian.

- 211. 50 diam. x 1. Uruk, Old Middle Babylonian.
- 212. Tell al-Daym (Gibson 61). Main mound 200 N x about 140 x 5.5, but now bisected along its long axis by a recent canal cut. Smaller mounds 150 m. E and SSE, tending to enclose a densely sherd-strewn plain, so that settlement at one time may have approached 500 m. diam. Achaemenid Parthian.
- 213. Tell al-Jir, formerly Umm Jerab (Gibson 97). At least 500 WNW x 200 x 3, but with limits obscured at time of visit in 1956 due to presence of dunes. See foregoing discussion by McGuire Gibson (pp. 142-246f.) The locus of settlement at this site seems to have moved progressively SE, so that early material is concentrated at NW and end while the Islamic occupation was confined to a small, detached mound at SE end. Uruk Achaemenid, with the earliest period extremely well represented, Late Abbasid. A cache of flints found on the surface of the NW end was submitted to Bruce Howe for analysis. His description of this suprisingly large and varied collection, which must date from no earlier than the Urak period, is given below (Appendix VI).
- 214. Main mound about 250 diam., with several 4-5 m. summits. Two smaller, lower mounds tail off SW. Brick paving and/or architecture observed in place. Bricks with Nebuchadnezzar stamps extremely numerous. Neo-Babylonian.
- 215. 200 diam. x 1. Uruk, Akkadian Larsa. A little Islamic pottery also was observed on mound, and this continued for several hundred meters at plain level to the N.
- 216. Chebab al-Nar (Gibson 109). Small, size not given. Reportedly sounded by the D.G. of Antiquities in 1955-56. Uruk, Parthian or later.
- 217. Shcutha. 100 diam. x 1. Uruk, Early Dynastic probable, Akkadian Larsa, Samarran. Reportedly also sounded by the D.G. of Antiquities.
- 218. Tell Mahari Ismayan. 400 NE x 200 x 8. Stamped bricks of Nebuchadnezzar extremely numerous. Neo-Babylonian.
- 219. Many minor summits, up to 4 m. high, may extend for more than 500 m. WNW. Limits of site obscured by dunes. Uruk, Old Babylonian - Achaemenid mainly near W end, Samarran - Late Abbasid at E end.
- 220. Tell Khfay. 250 diam. x 4. Uruk Akkadian, with the apparent floruit of the site in Early Dynastic times. Finally, a few sherds suggest s small, late (but undated) re-occupation.
- 221. A kidney-shaped mound roughly 250 NW x 100 x 4. The deep main drainage canal of the Mussayib Project has been cut through the E end of the site, providing an exposed section of occupational debris dateable to the Akkadian period at a depth of 5-6 m. below plain level.<sup>18</sup> This mound apparently is Uruk, Akkadian Larsa, and Parthian Sassanian. Other mounds shown in sketch map are Parthian Sassanian only.



- 222. Tell Kochiyah. 120 N x 90 x 4. Late Islamic.
- 223. Tell Shahmah. 200 N x 150 x 4. Probably Islamic.
- 224. Argûb 'Abbar. See sketch plan. Ht. of main mound 4 m. Sassanian Early Islamic.



- 225. Tell al-Mehwathah. 60 diam. x 4. Islamic.
- 226. 45 diam. x 1.5. Parthian Sassanian.
- 227. 180 NE x 100 x 4. Parthian Early Islamic.
- 228. Tell Isayli<sup>4</sup>. 220 NNW x 150 x 7. Adjoining NE across an old canal cut is a second mound, 180 NNW x 130 x 7. Parthian Sassanian, Late Islamic.
- 229. Ishân Rizah. 100 diam. x 6. Neo-Babylonian Parthian, Early Islamic.
- 230. Ishân A'tishah. 100 NE x 50 x 4. Probably Early Islamic.
- 231. Small, dimensions unrecorded. Neo-Babylonian.
- 232. 500 NE x 150 x 3, but in fact an irregular area of low hillocks rather than a continuous mound. Neo-Babylonian, Parthian, Early Islamic.
- 233. Birs Nimrud, ancient Borshippa.<sup>19</sup> Except for a very slight admixture of later Parthian and Islamic types, ceramics noted in the vicinity of the old excavations at this site were exclusively Neo-Babylonian.
- 234. Tell Imâm Ibrahim al Khalîl. 400 N x 250 x 12, badly gullied. Neo-Babylonian Ilkhanid.
- 235. Tell Abû Dhaba'. 80 diam. x 8, merging on S and W with ruins of Birs Nimrud. Early Dynastic I, Larsa - Neo-Babylonian, Islamic.
- 236. Tell Ba'iriyah. 110 N x 50 x 2. Early Islamic.
- 237. Nugrah Zayn al-Abadîn. 110 NNW x 70 x 2. Islamic.
- 238. Tell Abû A'rzal. Main mound 430 ENE x 200 x 8, smaller outliers to SW and NE. Islamic.
- 239. Imâm Baqir ibn 'Ali. 250 ENE x 175 x 6. Late Abbasid.
- 240. Ishân al-Môt. 100 diam. x 6, with a second mound just W, 200 N x 100 x 3. Late Abbasid.
- 241. Ishân al Sahneh (Gibson 139). 150 diam. x 6. Early Late Islamic.
- 242. Ishân ibn Hassan (Gibson 141). 80 diam. x 3. ENE is a second mound, 60 diam. x 3. Late Abbasid Ilkhanid.
- 243. Ishân Imru'ah (Gibson 142). 150 x 100 x 4. Late Abbasid Ilkhanid and later.
- 244. Tell Adhem (Gibson 143). 70 diam. x 4. Early Islamic Late Abbasid.
- 245. Tell Jidr (Gibson 144). 250 NW x 150 x 4. Late Abbasid Ilkhanid.
- 246. Tell al-Su'aydan (Gibson 145).<sup>20</sup> Neo-Babylonian, Late Abbasid Ilkhanid.
- 247. Tuweirij (Gibson 156). About 300 diam. x 10. To the NNE is a smaller mound, about 120 diam. x 4. Achaemenian Parthian. Note that S. Langdon apparently applied this name to Ishan Khalfa<sup>6</sup> (no. 200), located about 5 km. NW.
- 248. Tell Zayn al-Abadin. 400 NE x 300 x 5, but consisting of several summits rather than a continuously elevated mound. Uruk - Larsa. Achaemenid - Parthian sherds occur on a small tell nearby, but not on main mound.

- 249. Imâm 'Abbâs. Mound with imam building, Islamic only. Immediately W is a second mound, 200 diam. x 4. Neo-Babylonian.
- 250. Straggling low mounds extend over an area 500 N x 250, mostly less than 3 m. ht. Larsa Kassite, Achaemenid Parthian.
- 251. Tulûl Khamsât. Three small mounds, each about 100 diam. Early Islamic Late Abbasid.
- 252. Tell Abû Khamîs. 400 NNW x 300. Early Islamic Late Abbasid.
- 253. Tell Ghafil. See sketch plan. Mound on W of central group rises to 7 m., others considerably lower. The entire central area is somewhat elevated, suggesting a settlement about 500 m. diam. Some Old Babylonian Achaemenid, but the Sâmarrân Late Abbasid occupation probably was much more important.



- 254. 100 diam. x 3.5. Neo-Babylonian Parthian.
- 255. Tell Abû 'Awad. 300 N x 200 x 6. Uruk Sassanian.
- 256. 250 diam. x 5.5. Mainly Uruk Early Dynastic; Akkadian Old Babylonian less well represented. Parthian pottery may reflect only graves.
- 257. 50 diam. x 3. Neo-Babylonian Achaemenid. Small, later (but undated) mounds flank this one to the E and W.
- 258. Ishân Abû Jasib. See sketch plan. Main mound Uruk Neo-Babylonian, probably reaching its greatest extent of settlement in Old Babylonian or Kassite times. The hollow enclosure nearby is known as Tell al-Dayr. Its mud brick walls and interior are nearly sterile. A few Akkadian Larsa sherds may have weathered out of brick made on or near the main mound. To judge from numerous examples elsewhere in Iraq, the enclosure is probably late.



- 259. 120 NW x 50 x 1. Ubaid, Old Babylonian.
- 260. 70 diam. x 1.5. Old Babylonian Kassite, Ilkhanid.
- 261. 150 NNW x 70 x 3, bisected almost to plain level by old canal cut that is now used as roadbed. Uruk, Old Babylonian Kassite, Ilkhanid.
- 262. 800 NNW x 350 x 7. Parthian Sassanian.

- 263. 400 ENE x 240, ht. not recorded. Sâmarrân Ilkhanid.
- 264. 220 NNW x 120 x 2. Old Babylonian Sassanian. 20 m. SW is a second mound, 80 diam. x 1.5. Uruk, Old Babylonian Kassite.
- 265. 100 diam. x 3. Neo-Babylonian Achaemenid.
- 266. Tulûl Abû Adhem. Large mound group; see map; none of summits shown is more than 3.5 m. in ht. Neo-Babylonian Parthian.
- 267-272. See forthcoming report of 1968 surveys in Nippur area.
- 273. Two small mounds, 100 diam. x 2 and 75 diam. x 1.5. Old Babylonian Kassite.
- 274. See forthcoming report of 1968 surveys in Nippur area.
- 275. Ishân Abû Salabikh. See forthcoming account of excavations by Donald P. Hansen.
- 276-281. See forthcoming report of 1968 surveys in Nippur area.
- 282. Tell Sadûm, ancient Marad. See sketch plan. Mound attains ht. of 8 m. near W end, elsewhere lesser summits reach 6 m. Old Excavation dumps N of W end. Railroad cut through E end. Ubaid Parthian.



- 283. Tell al-Sa'id. 200 diam. x 1, with a small nubbin at center (possibly a tomb formerly covered by a shrine) reaching 2.5 m. ht. Post-Ilkhanid.
- 284-291. See forthcoming report of 1968 surveys in Nippur area.

## Footnotes

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- 2. R.McC. Adams, "Land Behind Baghdad: a history of settlement on the Diyala plains," (Chicago, 1965).
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- 5. Cf. the discussion of this question in R.McC. Adams and H.J. Nissen, "The Uruk Countryside," (Chicago, 1972).

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- 7. N.C. Debevoise, "Parthian pottery from Seleucia on the Tigris," University of Michigan, Humanistic Series, 23 (Ann Arbor, 1934).
- 8. Adams, 1965, op. cit., p. 70.
- 9. *ibid.*, pp. 90-91 and *passim*; E. Herzfeld, "Geschichte der Stadt Samarra," Ausgrabungen von Samarra, 6 (Berlin, 1948), pp. 64-69
- 10. A plan of the site is conveniently available in A. Parrot, "Archéologie Mésopotamienne," (Paris, 1946), fig. 84.
- 11. ibid., fig. 83.
- 12. Lloyd and Safar, op.cit., p. 135.
- 13. D. Stronach, "The Excavations at Ras al-'Amiya," Iraq 23 (1961), pp. 95-137.
- 14. G. Reitlinger, "Islamic pottery from Kish," Ars Islamica 2 (1935) pp. 198-218.
- 15. S. H. Langdon, "Excavations at Kish and Barguthiat 1933," Iraq 1 (1933), p. 120.
- S. Langdon, "Ausgrabungen in Babylonian seit 1918," Der Alte Orient 26 (1927), pp. 67-75 and fig. 12; E. MacKay, "Report on excavations at Jemdet Nasr, Iraq," Field Museum of Natural History, Anthropology Memoirs 1, no. 3 (Chicago, 1931).
- 17. Only the central part of this extensive group of mounds is shown in Langdon, 1933, op.cit., fig. 4.
- 18. S.A. Harris and R.M. Adams, "A note on canal and marsh stratigraphy near Zubediyah," Sumer 13 (1957), pp. 157-63.
- 19. For an extended account of the site see E. Ebeling, "Borsippa," *Reallexikon der* Assyriologie 1 (1928), pp. 402-29 and plate 25.
- 20. Reitlinger, op. cit., p. 200.

## APPENDIX VI.

## FLINT CACHE FOUND AT SITE NO. 213, Tell al-Jir by Bruce Howe<sup>1</sup>

The cache, believed collected in its entirety, appears to include some original cores, the incidental debris, and a series of finished tools produced and remaining from the working of a number of chert pebbles at, or perhaps near, this spot. The industry derived from these cores is predominantly of microlithic bladelets. It comprises two main types of implements, drills and end scrapers. In addition there are a number of used bladelets and flakes, as well as a considerable quantity of unused trimming debris.

All of the material appears fresh and unpatinated and bears no traces of sickle sheen. Much of the debris and some of the used pieces and finished tools can be assigned by their color characteristics and the pebble cortex they retain to one or another of at least four distinct pebbles. Two of these may be represented by two of the cores. The assemblage is described below.

5 pyramidal bladelet cores (1 fragmentary). Made of pebbles or pebble halves, these small to medium sized cores have neat parallel scars of blades or bladelets removed in an arc from around the edge of a flat, roughly oval striking platform. In every case but the fragment, part of the original pebble cortex remains; the fragment and one core have more irregular scars and striking platforms than the rest. The complete examples range in size from 5 x 3 x 2 cms. to 4 x 1.5 x 1.5 cms. or  $3.5 \times 2.5 \times 2$  cms., and the bladelets, blades, flakes and fragments found associated with them conform to these dimensions.

12 drills on microlithic bladelets (including 3 fragmentary). Relatively long, narrow, thick drill-like points are made by steep, deep-biting retouch along both edges of the dorsal face at the distal end of bladelets. The proximal, or bulbar, end is left unmodified, but the remaining portions of the long edges usually bear small-scale steep nibbled retouch and/or wear, mostly on the dorsal face. Three examples retain what appears to be the full length of the drill; others are stubbier, perhaps worn, reworked or broken there.

2 combination drills and end scrapers on microlithic bladelets. Drills as above, but with small-scale end scrapers developed, as described below, on the opposite end of the bladelet. In one case the intervening long edges are both retouched. In the other case they are not, and the so-called scraper end is less developed and may conceivably be merely the result of pressures applied during drilling operations.

<sup>&</sup>lt;sup>1</sup> For a comparison with similar material see Anne H. Fuller, The Stone Implements of Kish, Iraq on American Documentation Institute Microfilm No. 4469, pp. 96-116, 1935 in Photoduplication Service, Library of Congress (H.F.).

45 end scrapers on microlithic bladelets or slightly larger blades. These small-scale end scrapers are made by minute retouch and/or wear across the end of microlithic bladelets, snapped blades, or segments thereof, or, more rarely, on parts of medium-sized blades. The great majority retain an unmodified bulbar end. The rest are made on tip ends or mid-sections. All but a half dozen show minute wear, or, more rarely, nibbled retouch along one or both long edges on either face:

- 15 are *rectilinear* with the scraper edge set squarely in a straight line across the blade end;
- 7 are *oblique* with the scraper edge slanted down to the right in six cases and to the left in one;
- 11 are *concave* with the scraper edge incurved slightly and more or less systematically between two flanking outer edges;
- 9 are *concave oblique* with the scraper edge incurved and tilted down more to the right in seven cases and to the left in two;
- 3 double ended scrapers are combinations of the above types.

44 used bladelets, blades or segments thereof. These show various minute signs of wear along one or both edges on either face. This may consist of irregular, discontinuous nicking or close-set, continuous nibbling and tiny steep scars. Only five are unbroken pieces with bulb and tip end intact. The large majority are bulbar ends, some are tip ends, and a very few are mid-sections.

13 used flakes and fragments. These show the same sort of minute, unobtrusive signs of wear at some points along their edges on either face as occurs in the previous category. If anything, however, this wear is more rudimentary and discontinuous than on the bladelets.

l snapped blade mid-section has a possible trace of polish or a shiny, rounded rubbing facet across one end. Both long edges are marked by minute traces of wear.

1 elongated fragment with invasive squamous retouch irregularly along one edge. This may be part of a larger implement, or it may be complete in itself.

309 pieces of unused chipping debris. These consist of:

- 23 core revival pieces (8 tablets, 9 flakes, 6 bladelets);
- 50 blades, bladelets or fragments;
- 236 flakes and fragments.

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Note: FRP = Field Research Projects.

- Addendum: The following items, not included in the Bibliography, deal with various aspects of Kish and its area.
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Fig. 1. Mesopotamian alluvial plain.



Fig. 2. Drainage pattern in the alluvial plain.



Fig 3. Average rainfall per year in modern Iraq



Fig. 4. Kish area canal system, 1917 to present.



Fig. S Kish area, general map, ancient sites and canals visible today.





Fig. 7. Kish area, Early Dynastic I.



Fig. 8. Kish area, Early Dynastic III.



Fig. 9. Kish area, Akkadian.



Fig. 10. Kish area, Ur III/Isin-Larsa.



Fig. 11. Kish area, Old Babylonian.



## Fig. 12. Kish area, Kassite.



Fig. 13. Kish area, Neo-Babylonian.





Fig. 15. Kish area, Parthian.



Fig. 16. Kish area, Sassanian.



Fig. 17. Kish area, Early Islamic.



Fig. 18. Kish area, Samarran.



Fig. 19. Kish area, Late Abbasid.



Fig. 20. Kish area, Ilkhanid and post-Ilkhanid. 260



Fig. 21. Kish area, 1859.



## Fig. 22. Kish area, 1909.



## Fig 23, Meander patterns of ancient river



Fig. 24. City of Kish, R.A.F. photograph.



FIG. 25 CITY OF KISH, GENERAL SURVEY MAP


























FIG. 32A CITY OF KISH: SAMARRAN







Fig. 34. Survey, diagnostic pottery, Ubaid to Isin-Larsa.



Fig. 35. Survey, diagnostic pottery, Old Babylonian to Seleucid.



Fig. 36. Survey, diagnostic pottery, Parthian to Early Islamic.



Fig. 37. Survey, diagnostic pottery, Samarran to post-Ilkhanid.



Fig. 38. Contour map of the city of Kish.



Fig. 39. Contour map of Uhaimir, western Kish.



Fig. 40. Plan of ziggurat at Uhaimir.





Fig. 42. Contour map of Ingharra.





## Fig. 44. Plan of Parthian fort, Tell Bandar.



Fig. 45. Contour map of the city of Kish.



Fig. 46. Plan of Ziggurat and surroundings at Uhaimir.









Fig. 49. Eastern Kish, late settlement: a) Tell Bandar b) Sassanian town. 296



b. Palace II. Scale 0.0025 = 1 M. F10. 169 a, b. Kish, Sāsānian buildings: ground plans.

Fig. 50. Eastern Kish, Sassanian town: a) Palace I (SP-1); b) Palace II (SP-2)







Fig. 52. Eastern Kish, Palace A, from H. W. Eliot, Excavations in Mesopotamia, p. 19.



INGHARRA

MACKAY TRENCHES 1923, 1924-25, 1925-26

Fig. 53. Ingharra, Mackay trenches, 1923, 1924-25, 1925-26.



Fig. 54. Ingharra, Watelin trenches, 1926-27.



Fig. 55. Ingharra, Wateliń trenches, 1927-28.

2 M	5M	6M	6 <b>M</b>	14 M
	7_4	7 0		
	2-1	2-2	25	2-4







Fig. 57. Ingharra, Watelin trenches, 1928-29.


Fig. 58. Ingharra, Watelin trenches, 1929-30



Fig. 59. Ingharra, Watelin trenches, 1930-31.



Fig. 60. Ingharra, Watelin trenches, 1931-32.







Fig. 62. Plan of Y Trench, "Early houses stratum".







Fig. 65. Photo of Y Trench, showing north baulk with floor levels connecting retaining wall on right with Monument Z on left.



Fig. 66. Photograph of the area of C Trenches, showing uneven nature of mound, and occupation levels visible in face.



Ground plan of the Temple at Kish

Fig. 67. Ingharra, plan of Neo-Babylonian temple.



Fig. 68. Reconstruction of ancient water courses in Mesopotamia (Adams).



Fig. 69. Reconstruction of watercourses in Mesopotamia to About 1000 B.C. (Gibson).



Map 1. Base Map of Surveys in Ancient Akkad.















Map 2. Settlements and Hypothetical Watercourses in the Ubaid–Uruk–Jemdet Nasr Periods.



Map 3. Settlements and Hypothetical Watercourses in the Early Dynastic Period.



Map 4. Settlements and Hypothetical Watercourses in the Akkadian–Ur III–Isin-Larsa Periods.



Map. 5. Settlements and Hypothetical Watercourses in the Old Babylonian and Cassite Periods.



Map 6. Settlements and Hypothetical Watercourses in the Neo-Babylonian and Achaemenian Periods.



Map 7. Parthian Settlements and Visible Ancient Levees.



Map 8. Sassanian Settlements and Visible Ancient Levees.



Map 9. Early and Middle Islamic Settlements and Visible Ancient Levees.

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