History—The Evolution of the First Urban Civilisation

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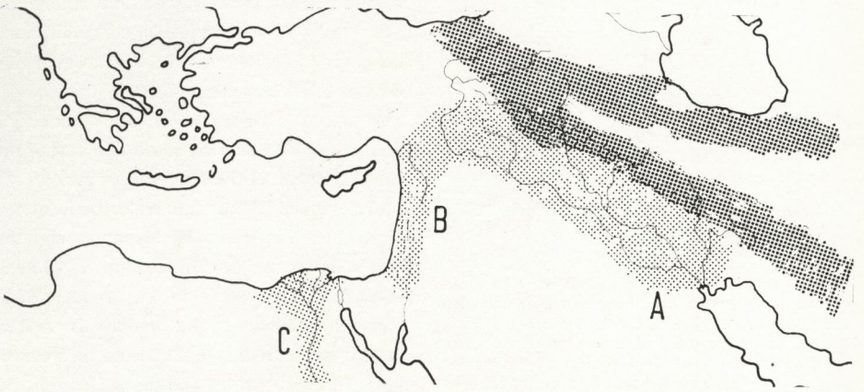
Above: Erbil in Northern Iraq, which is built on the site of Arbela and gives some indication of the appearance of early Mesopotamian cities

This article is the first in a series dealing with significant periods in the history of town planning. In this series the intention is to use original source material wherever possible with the intention of stimulating the reader's interest to further, more detailed study. In the relatively short space of such an article it is inevitable that some aspects of each period will be either omitted, or treated only superficially. In this respect it is intended to note the full bibliography relating to the period, in particular those aspects which have not been fully covered.



1 Map of Western Asia showing the "Fertile Crescent" in the light tint, and the ancient sources of copper in the dark tint. A—location of first Sumerian cities in Mesopotamia; B—Palestine; C—Egyptian valley and delta of the Nile

There are three main phases in the historical evolution of the first urban civilisations and their cities. Each of these phases involved ". . . radical and indeed revolutionary innovations in the economic sphere in the methods whereby the most progressive societies secure a livelihood, each followed by such increases in population that, were reliable statistics available, each would be reflected by a conspicuous kink in the population graph".[1]

The first phase covers the whole of the Palaeolithic Age, from about 500,000 BC down to the start of the second phase, the Neolithic Age, around 10,000 BC. This in turn leads to the third phase, the Bronze Age, starting between 3,500 and 3,000 BC and lasting for some 2,000 years, during which time the first urban civilisations were established.

Palaeolithic Age

Manlike creatures first appear on the earth some five to six hundred thousand years ago ". . . . dispersed from England to China, and from Germany to the Transvaal".[2] By about 25,000 years ago the physical and organic evolution of Homo Sapiens is considered to have come to an end and the process of cultural evolution starts.

From his first appearance, down to the beginning of the Neolithic Age, man existed on much the same basis as any of the other animals by gathering naturally occurring foodstuffs in the form of berries, fruits, roots and nuts, and somewhat later by preying on other animals and by fishing. The social unit was the *family* but the society was of necessity a mobile one carrying its few possessions from one crudely fashioned temporary shelter to another, always having to move to fresh sources of food. There was no permanent physical unit until about 140,000 BC when ". . . . as the last great ice-age was approaching men were sufficiently well equipped to evict other denizens and themselves to find shelter in caves. There we find true *homes*". (Author's italics)

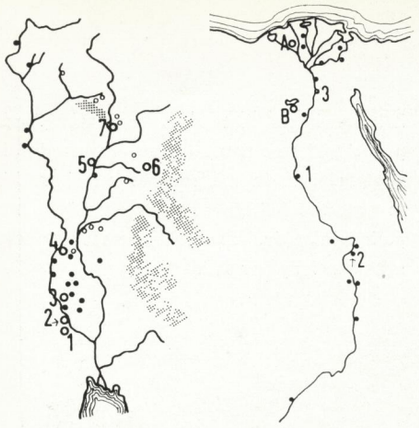
Professor Childe notes that this *gathering* economy corresponds to what Morgan calls *savagery,* and that it ". . . provided the sole source of livelihood open to human society during nearly 98 per cent. of humanity's sojourn on this planet. Such an economy imposed a limit on population with a direct relationship to the prevailing climatic and geological conditions. The entire population of the British Isles around 2000 BC has been put at no more than 20,000, with an increase to a maximum of 40,000 during the Bronze Age.[3] In France the Magdalenian culture between 35,000 to 10,000 BC, with at first exceptionally favourable food resources, had a maximum population density of 1 person per square mile, with the general figure around 0.1 to 0.2.[4] Other examples given by Professor Childe are that ". . . in the whole continent of Australia the aboriginal population is believed never to have exceeded 200,000—a density of only 0.03 per square mile . . .", whilst on the prairies of North America he quotes Kroeber's estimate that ". . . the hunting population would not have exceeded 0.11 per square mile".[5]

Neolithic Age

Somewhere around 8-10,000 years ago mankind started to exercise some measure of control over the supply of food by systematic cultivation of certain forms of plants, notably the edible wild grass seed ancestors of wheat and barley, and by the domestication of animals. "The escape from the impasse of savagery was an economic and scientific revolution that made the participants active partners with nature instead of parasites on nature".[6] This Neolithic agricultural revolution transformed the economy into one with an ncreasingly *food producing* basis enabling the social unit to expand, if only marginally so, to that of the *clan*, with the physical unit the *village.* Morgan terms this stage in the development of civilisation *barbarism.*

Neolithic man did not however bring about controlled food production solely by his own efforts. On the contrary all the evidence points to the fact that left to his own devices ". . . Homo Sapiens would have remained a rare animal—as the savage in fact is".[7] The crucial step forward towards eventual urban civilisation had to await the external stimulus provided by the climatic changes resulting from the ending of the last of the ice ages around 7000 BC. This melting of the vast northern ice sheets ". . . not only converted the steppes and tundras of Europe into temperate forests, but also initiated the transformation of the prairies south of the Mediterranean and in Hither Asia into deserts interrupted by oases".[8]

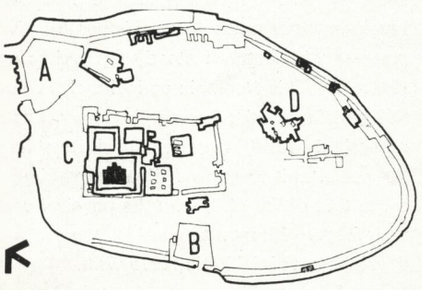
On these prairies ". . . when Northern Europe was tundra or ice sheet . . . grew the wild grasses that under cultivation became our wheats and barleys; sheep and cattle fit for domestication roamed wild. In such an environment human societies could successfully adopt an aggressive attitude to surrounding



2 Urban Development in Mesopotamia. 1 Eridu; 2 Ur; 3 Erech (all Sumerian cities); 4 Babylon; 5 Assur; 6 Arbela (Erbil); 7 Nineveh. Mountain foothills shown tinted

6 Urban centres in Egypt. 1 Akhenaton (Tell el Amarna); 2 Thebes; 3 Memphis. (A—neolithic villages at Merimde; B—at Fayum)

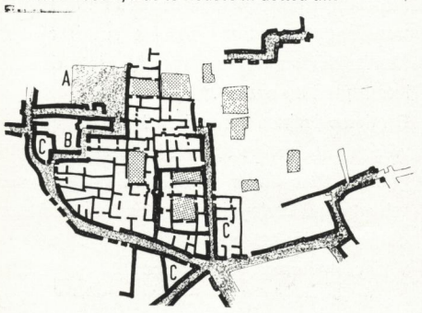
In Syria and Palestine a single isolated mound or tell generally represents the ancient city, and here its shape may give some inkling of what lies beneath—the higher lump at one end of a long ridge may be the fort or palace whose more solid walls have produced a greater mass of debris; a ring-mound broken by a gap at one point will stand for the ramparts and the town gate. In Mesopotamia, where a tangle of linked mounds may stretch for miles, the highest may be buildings deliberately raised on artificial platforms, such as the Ziggurat, or, in the majority of cases, they denote the quarters where human occupation has been most continuous, and the height is due to the repeated building of new houses over the ruins of the old.



3 General Plan of Ur. A—North Harbour; B—West Harbour; C—Temenos area; D—Housing area

At el Amarna we dug out a model village put up for the labourers who excavated the rock-cut out tombs made in the desert hills for the aristocracy of the capital; it had been built all on one plan, and had been deserted when the court of Egypt moved back again to Thebes, and no more tomb-making was required. A square walled enclosure was entirely filled with rows of small houses divided by narrow streets; except for the foreman's quarters near the gate they were all monotonously alike, each with its kitchen-parlour in front, its bedrooms and cupboard behind, the very pattern of mechanically devised industrial dwellings.

4 Housing Area at Ur. A—"Bakers Square"; B—Bazaar Alley; C—Chapels. Streets in lined tint, internal courtyards to houses in dotted tint



nature and proceed to the active exploitation of the organic world. Stock breeding and the cultivation of plants were the first revolutionary step in man's emancipation from dependence on the external environment".[9]

As a result of the contrast in environment between most of Europe and the near and middle eastern regions, neolithic agriculture and the associated village civilisations developed in different ways and to markedly different time scales.

Favourable conditions for the agricultural revolution first occurred south and east of the Mediterranean in the river valleys and on the broad alluvial plains and watersheds of the Tigris and Euphrates in Mesopotamia, the Nile in Egypt, and the Indus in India. (Similar conditions also arose in the Yellow River basin in China.) This article is mainly concerned with the three rivers, in order of time, Tigris/Euphrates and the Nile.

These three rivers form the basis of what is known as the "Fertile Crescent",—a term first used by Professor Breasted[10], and which is synonymous with the phrase "The Cradle of Civilisation". This fertile zone, within which arose all the village and later urban civilisations of the near and middle east, is shown in the light tint on Map 1. The zone is shaped appropriately enough in the form of a sickle, starting at the head of the Persian Gulf and extending northwards towards the mountain sources of the Tigris before turning westwards across to the Euphrates. From here the zone curves south through Syria and the valleys and plains of Palestine before dying out on the edge of the Sinai desert. The broad delta and then the narrow valley of the Nile form a continuation further south into the Egyptian hinterland.

In Mesopotamia the record of neolithic settlement ". . . begins in small oases on steppes and plateaux. Despite the threat of drought the difficulties of taming the soil were less formidable there than on the flood plains of the major rivers".[11] By 5500 BC farming communities were firmly established on the higher ground and were gradually moving down the valleys of the Tigris and Euphrates as they dried out.

In Egypt at Merimde in the NW Delta area Professor Fairman records that ". . . perhaps as early as 4000 BC the settlement occupied an area of at least 600 by 400 yards, and in one part some of the huts are arranged in two definite rows with a lane between". Other Egyptian neolithic village sites are recorded at Fayum, alongside a lake west of the Nile valley, as being firmly established during the first half of the fifth millenium.

Bronze Age

Before describing the transformation between 3500 and 3000 BC of the neolithic folk-society villages into the first cities, Professor Childe's "urban revolution", a definition of the term city is needed. This has been concisely provided by Gideon Sjoberg as ". . . a community of substantial size and population density that shelters a variety of non-agricultural specialists, including a literate elite".[12]

Two of the requirements for the urban revolution are implicit in this definition :

1. The production of a surplus of storable food, and other primary materials, by a section of the society, in order to support the activities of the specialists.
2. The existence of a form of writing, without which permanent records cannot be kept and the development of mathematics, astronomy and other sciences is impossible.

There are other requirements which must be considered, the most important of which are :

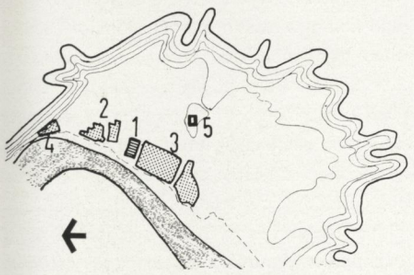
3. Social organisation to ensure continuity of supplies to the urban specialists and to control labour forces for large scale communal works.
4. Technological advances providing the means for transporting materials in bulk and a significant improvement in the nature and quality of tools.

"The possibility of producing the requisite surplus was inherent in the very nature of the neolithic economy. Its realisation, however, required additions to the stock of applied science at the disposal of all barbarians, as well as a modification in social and economic relations".[13] Throughout the fourth millenium BC all of the technological requirements for the urban revolution were met, either by invention or discovery. "As far as the present record stands, grain cultivation, the plough, the potter's wheel, the sail boat, the draw loom copper metallurgy, abstract mathematics, exact astronomical observations, the calendar, writing and other modes of intelligible discourse in permanent form all came into existence around 3000 BC, give or take a few centuries".[14]

The critical requirement for the urban revolution is the production of a food surplus. This first became a possibility on the alluvial plains of the Tigris/Euphrates, and later the Nile. Between 4000 and 3000 BC some of the village communities in the lower Tigris/Euphrates region not only increased greatly in size but changed in structure, culminating in the Sumerian city states of 3000 BC onwards, with their tens of thousands of inhabitants, elaborate religious, political and

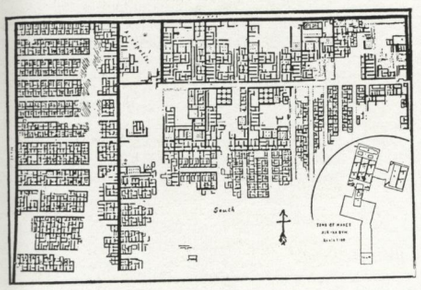
The Mesopotamian delta held out to early man the promise of a richer and better life than could be found in any neighbouring land, but it was a conditional promise; its fulfilment required a co-operative effort and a centralisation of control quite beyond the scope of a village community. The very nature of the country and of the river forced the inhabitants to make common cause throughout a territory whose size was decided by the limits of an interdependent canalisation system, and the planning and upkeep of the canals required the direction of a regional authority enjoying absolute powers.

Generally speaking the Egyptian town was open, and also small in size. It must be remembered that from first to last the Egyptian economy was based on agriculture. The vast bulk of the people lived on the land . . . there were no big industries and no large scale commerce to swell the population or to give rise to a responsible middle class; there was nothing that called for the urban organisation proper to a city.



7 Layout of Akhenaton (Tell el Amarna). 1 central area; 2 north suburb; 3 south city; 4 customs house; 5 workers village

Most of the towns and cities of Ancient Egypt have disappeared for ever, engulfed under the rising alluvium, buried under the dwellings of succeeding ages or ruthlessly swept away by the natives who find in ancient bricks and remains a useful source of fertiliser. **3** *If we would lay a new foundation for urban life, we must understand the historic nature of the city, and distinguish between its original functions, those that have emerged from it, and those that may still be called forth. Without a long running start in history, we shall not have the momentum needed, in our own consciousness, to take a sufficiently bold leap into the future; for a large part of our present plans, not least many that pride themselves on being "advanced" or progressive, are dreary mechanical caricatures of the urban and regional forms that are now potentially within our grasp.*



9 Plan of workers village at Kahun

. . . how do houses and cities sink below the earth's surface ? They do not : the earth rises above them, and though people do not recognise the fact, it is happening all around them every day. Go no further than London. How many steps has one to go down to enter the Temple Church ? Yet it stood originally at ground level. The mosaic pavements of Roman Londinium lie twenty-five to thirty feet below the streets of the modern city. Wherever a place has been continuously occupied the same thing has happened.

The most important change that ensued when man began to control his natural environment was that he was enabled to settle down. Great possessions became at least a possibility, substantial and enduring monuments were worth the building. Children could live where their parents had lived, inherit what they had made; their numbers could increase.

military class structures, advanced technology and extensive trading contacts.

Agriculture on the alluvium depended on irrigation, at first only in localised, rudimentary forms with the eventual large scale canal and embankment works following the advent of fully established cities.

Mesopotamia

The best example of a Sumerian city is Ur, both on account of its importance as the capital of one of the dynasties, and the greater extent of the excavations there than at any other site. The location of Ur is about half-way between the present-day head of the Persian Gulf and Baghdad. During the period of its greatest prosperity and power, the Third Dynasty between 2079 and 1960 BC, it was only a few miles from the sea, alongside the Euphrates which now runs ten miles away to the west.

The most consistently preserved level of ruins is that of the Isin-Larsa period of around 1700 BC, the excavation of which is described in Sir Leonard Woolley's book *Ur of the Chaldees.* At this time the layout retained the basic form of the Third Dynasty city ". . . and work upon other sites makes it clear that Ur was in all essentials typical of the Sumerian state capitals, from the Persian Gulf right up to Mari on the middle Euphrates".[15]

There are three basic parts of the Third Dynasty city; the old walled city, the Temenos or religious precinct, and the outer town. (Fig. 3) The walled city was an irregular oval in shape, about three-quarters of a mile long by half a mile wide. It stood on the mound formed by the ruins of the preceding buildings with the Euphrates running along the western side and a wide navigable canal to the north and east. Two harbours to the west and north provided protected anchorages and it is possible that a minor canal ran through the city area. The Temenos occupied most of the north-western quarter of the city and with the exception of the harbours contained the only significant open spaces in the city, although their use was essentially reserved for the priests and members of the royal household. The remainder of the city within the walls was densely built up as the residential quarters, with a considerable part of one such district having been excavated to the south-east of the Temenos. This housing area was one of the oldest parts of the city ". . . where for many hundreds of years houses had been built, and had fallen into decay, only to pile up a platform for fresh building, so that by 1900 BC it was a hill rising high above the plain".[17]

Although these houses with their highly civilised room arrangements and adequate servicing clearly represent the results of a long evolutionary process they are grouped together in layouts which have ". . . grown out of the conditions of the primitive village, not laid out on any system of town planning. Estimates of the population of Ur have been made by Sir Leonard Woolley taking for the approximate total built-up area of 1,450 acres assumed densities of 150 and 250 persons per acre, giving totals of 250,000 and 360,000 persons.

Egypt

Although superficially closely comparable with Mesopotamia in that both countries contain great rivers running through immensely fertile valleys and plains, offering parallel opportunities to early man, the evolution of urban settlements took place along totally opposed lines. "Nothing could be more unlike the mosaic of city states that divided between them the valley of the Euphrates and the Tigris than the unified kingdom of Egypt in which the city was really non-existent".[20]

The absence of urban remains of any significance earlier than around 2600 BC has encouraged the false impression that civilisation in Egypt has much more recent origins than in Mesopotamia. This is far from the truth as is proved by the technological advancement needed to carry through the Great Pyramid of Cheops in 3733 BC. That there were "cities" in Egypt almost as early as the Sumerian examples is now generally agreed but for a number of reasons they took a completely different form resulting in the absence of identifiable early remains.

The first, and in most respects the determining reason, is that the internal peace which existed in Egypt from earliest times, so that there was no economic necessity, as in Mesopotamia, to continually occupy the same site in order to take advantage of the enormous capital investment represented by the walls.

The second reason directly relates to the first, in that given urban mobility each successive Pharaoh was free to spend his reigning life on earth preparing his tomb for the life after death—the basis of Egyptian religion, in a different location to that of his predecessor. A further related reason for the paucity of urban remains, as compared with the many surviving religious buildings, is that almost all of the resources of the building industry together with all the durable materials were made available for the process of tomb and

temple construction. The Egyptain urban areas were built of mud-brick, as in Mesopotamia, but failing the creation of a recognisable "tell" resulting from long-term site occupation there is no way of locating the ancient cities, even if worthwhile remains would have survived unprotected by later layers of buildings. As explained best by Henri Frankfort ". . . each Pharaoh took up residence near the site chosen for his tomb, where, during the best part of his lifetime, the work on the pyramid and temple was carried out whilst government was based on the nearest town. After the death of the Pharaoh the place was abandoned to the priests who maintained his cult, and managed his mortuary estate unless the successor also decided to build his tomb in the area".[21]

City building under the Pharaohs was a quick one stage process so as not to delay the mortuary work. This is illustrated by the only partially excavated Egyptian city, that of Tell el Amarna, situated about half-way between Cairo and Luxor and occupied only between 1369 and 1354 BC. The city was built on the eastern bank of the Nile ". . . at a spot where the cliffs recede to form a huge semi-circle some seven miles long by two and a half to three miles wide".[22] The reason for starting the new city was that the Pharaoh Akhenaten found it difficult to institute religious reforms in the existing capital of Thebes and moved down river to the new site. Two years after his death in 1356 BC his successor returned to Thebes and the old faith. Amarna was abandoned and never occupied again.

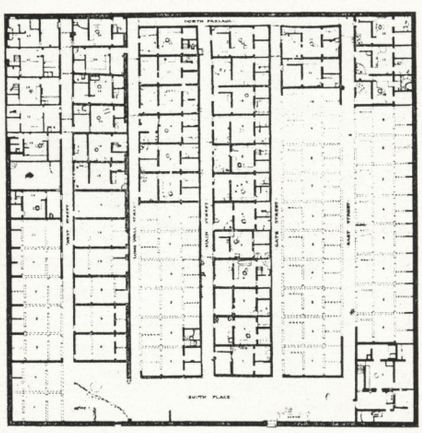
The plan of the city shows a form of linear development alongside the Nile with three main routes parallel to each other and to the river, linking the various areas together. (Fig. 7) Its maximum length is about five miles with a width in from the bank which varies between half a mile to one mile. There is hardly any evidence of deliberate controlled town planning in its layout. The religious and other public buildings are not formed into a single zone so that ". . . while there is a main central group which includes the vast Temple of the Sun's Disk, the official Palace, the Hall of Foreign Tribute and the Secretariat, the Northern Palace is a mile and a half away in one direction and the main pleasure park is three and a half miles to the south".[23]

In the housing districts ". . . there were no defined blocks of insulae, no standardised sizes of estates. What appears to have happened is that the wealthiest people selected their own house sites, and built along the main streets, to whose line in general they adhered. Less wealthy people then built in vacant spaces behind the houses of the rich and finally the houses of the poor were squeezed in, with little attempt at order, wherever space could be found. The houses of all types were found in a single quarter, and though there are slum areas it is evident that there was no zoning".[24] To the east of the city centre, there is the workmen's village which, by contrast, is rigidly laid out (Fig. 8).

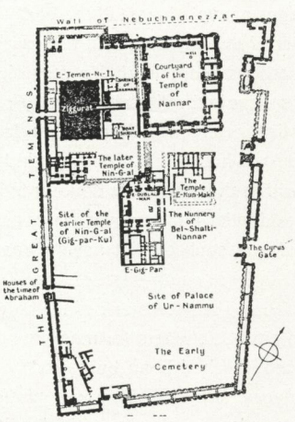
A second workers village, dating from 2670 BC, completes the very short list of urban sites in Egypt. This village is at Kahun, where it was constructed for the workers employed on building the pyramid at Illahun for the Pharaoh Usertesen II. (Fig. 9) Kahun was a small settlement covering less than 20 acres within a wall, also intended to prevent people getting out. It was occupied for only twenty-one years. Sir Flinders Petrie has observed that "each street was of a uniform type of house, no gardens, but each house no matter how small had its own open court, just as the present-day Egyptian houses. The ordinary workman had at least three rooms plus the courtyard, and other houses depending on the status of the occupants had four, five and six rooms, with some of the larger houses being on two floors".

Both of the workers villages have plan forms singularly ill-adapted to the climate with its intense sunlight. The tortuous, narrow lanes of Mesopotamia are of the organic growth form, but the simple regularity of these proto-gridiron plans results from the need to establish the buildings as soon as possible.

In conclusion is must be emphasised that this article has been written as an introduction to a still comparatively uninvestigated subject with each new discovery either confirming and filling in existing conclusions or causing them to be modified. One such modification has resulted from the discovery at the famous "tell" of Jericho, of authenticated evidence of a fully established town of perhaps 3000 population as early as 7000 BC.[25] Whilst this effectively predates the Sumerian first cities, Jericho is at present regarded as an exceptionally advanced, isolated example, rather than representative of an earlier urban civilisation.



8 Plan of workers village at Tell el Amarna



5 Temenos area at Ur (from *Ur of the Chaldees*)

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