THE ANCIENT NEAR EAST

History, society and economy

Mario Liverani

Translated by Soraia Tabatabai

Routledge
Taylor & Francis Group
LONDON AND NEW YORK

First published in English 2014
by Routledge
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge
711 Third Avenue, New York, NY 10017

Routledge is an imprint of the Taylor & Francis Group, an informa business

Originally published in Italian as *Antico Oriente*

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

Library of Congress Cataloging in Publication Data
Liverani, Mario.
[Antico Oriente. English]
The Ancient Near East: history, society and economy / Mario Liverani ; translated by Soraia Tabatabai
pages cm
"Originally published in Italian as Antico Oriente © 1988, 2011, Gius. Laterza & Figli."
Includes bibliographical references and index.
1. Middle East–History–To 622. I. Title.
DS62.23.L5813 2013
939.4–dc23
2013018121

ISBN: 978–0–415–67905–3 (hbk)
ISBN: 978–0–415–67906–0 (hbk)
ISBN: 978–1–315–87989–5 (ebk)

Typeset in Bembo & Minion
by Swales & Willis Ltd, Exeter, Devon

MIX
Paper from responsible sources
FSC® C013056
FSC
www.fsc.org

Printed and bound in Great Britain by
TJ International Ltd, Padstow, Cornwall

1

THE ANCIENT NEAR EAST AS A HISTORICAL PROBLEM

1 The myth of the Ancient Near East

Over the past century and a half, excavations have provided the archaeological and textual evidence necessary for the study of Ancient Near Eastern cultures. Prior to these excavations, many of these populations had been completely forgotten, not only in terms of their history and cultural traits, but also in terms of their names, languages and written sources. Their rediscovery constitutes one of the greatest achievements and developments in ancient history. This rediscovery, however, has only just begun and continues to provide new information, requiring the revision or the first writing of these long and often complex chapters of history. Admittedly, Western culture always retained a sort of mythicised memory of the Near East, based on preconceptions rather than on actual historical evidence. To a certain extent, these views continue to influence historical research today. Consequently, a brief but critical reference to this phenomenon can be a useful premise for the delineation of current historiographical trends.

One of the main sources that preserved a historical memory of the Near East through time (that is without interruption) is the Old Testament. However, this complex collection of writings, which vary both in terms of dating and type, was compiled according to the ideological intentions of its editors. Moreover, the Bible is closely linked to the development of two religions, namely, Judaism and Christianity. Both these religions initially developed in the Near East, and then managed to spread beyond their spatial and chronological boundaries.

On the one hand, this link has allowed the survival of a distant memory of the Near East, despite the general disappearance of its literature. The latter had to be rediscovered, alas only partially, through archaeological investigations. On the other hand, being a holy book (and thus a divine revelation), the Old Testament has given this memory a sense of authority and an appearance of 'truth'. This overall impression has been accepted by Western culture without substantial revisions. Consequently, the conviction of the uniqueness of the Israelites as the 'chosen' people has negatively influenced the presentation of the surrounding cultures cited in the Old Testament – from the Assyrians to the Chaldeans, Canaanites, and the Philistines. These surrounding cultures were therefore seen as instrumental participants (in the hands of divine will) of the salvation story of the human race in its initial phase.

Originally, the archaeological rediscovery of the Ancient Near East was itself part of an attempt at recovering data and images of the so-called 'historical context' of the Old Testament. Only at a later stage, and undoubtedly as a reaction against a historical and textual analysis of the Old Testament, archaeological activities intensified in order to demonstrate its substantial accuracy. Using a famous expression of

obvious ideological brutality, these activities were aimed at documenting that 'the Bible was right'. Indeed, it has been noted that the majority of the earliest archaeological investigations pursued in the region were motivated, financed, and advertised for their (true or supposed) relevance in the exegesis of the Old Testament.

The majority of researchers involved (philologists, historians and archaeologists, to name a few) were initially spurred by common motivations. This was because they were mainly Jewish, Protestant pastors and, to a lesser degree, Catholic priests. Setting aside their intellectual integrity, these scholars were not entirely impartial in their research. Their main interest lay in the results of their investigations being able to confirm or deny the premises of their own worldview. From the nineteenth century onwards, however, a more secular approach has slowly managed to prevail, despite its occasional involvement in historically misleading controversies and debates – from the 'Babel und Bibel' of the nineteenth century, to the recent debates on Ebla.

The classical authors were another source guaranteeing the survival of information and images of the Near East in Western culture. These authors were representatives of a world (Ancient Greek, then Hellenistic and Roman world) that was contemporary, yet in a way in opposition to late Near Eastern cultures. From Herodotus onwards, the East began to be depicted as the polar opposite of 'our' West. As a result, several myths were centred on the despotism of the Near East (in opposition to Western democracy), its technological and cultural immobility (in opposition to the growing progress of the Western world), and the occult and magical nature of its wisdom (in opposition to the secular and rational sciences of the Ancient Greeks and their successors).

The shift from this anthropology by contraposition to a more historical anthropology of diversity – according to which each culture is different, including our own, the latter not being superior to the others – developed, and is still developing, along a difficult path. The latter fits within the general process of historicity and cultural relativism, characteristic of modern culture. Therefore, if this mythology of 'the different' as polar opposite seems to have disappeared today, it is not due to the rejection of the myth per se. It is rather due to its displacement elsewhere, perhaps in the extra-terrestrial and the futuristic, which have substituted the 'Oriental' and 'Ancient'. In fact, the latter are now known well enough to preclude any utopic assumption, or their interpretation as opposites of Western culture.

With the significant increase of information on the Near East, however, new myths have replaced the old ones. I am mainly referring to the modern version of the origin myth that sees the Ancient Near East as the 'cradle' or the 'dawn' of civilisation. This view sees the Near East as the initial place that developed those technological and operational instruments, and forms of organisations typical of a 'high culture' which, through constant modifications and improvements, has survived to this day. It is not by chance that the Ancient Near East has become one of those privileged periods of history that constitutes the backbone of a Eurocentric world history, followed by Ancient Greece, Ancient Rome, Medieval Europe, and Modern Western Europe. On the one hand, this backbone tends to give a sense of unity and progress in history. On the other hand, it inevitably causes the marginalisation of other historical phases that are left out and considered irrelevant.

This view is partly true, yet dangerous in its implications. It is undeniable that the range of phenomena which allowed the development of complex societies (the origin of the state, the city, writing, and so on) first appeared in the Near East, and that the reconstruction of the history of their transmission to our time is complex, yet possible. However, it is dangerous and misleading to imagine a monogenesis of civilisation, which instead had several starting points and different paths. Equally, one cannot underestimate the influence of the continuous and substantial changes that institutions, technologies, and ideologies underwent in their history. Historical phenomena do not have a single 'origin', but are always modelled upon the structure of the society in which they are found. This supposed origin, then, is only one of the rings in a chain (among the many rings in the many chains of history) that has to be reconstructed in its total length, which is neither short nor univocal. This is even more the case today, with the broadening of our knowledge of

the world and the drastic changes in the systems of transmission of ideas and concepts. This forces us to put our own ethnocentric point of view aside and to take advantage of the experiences and paths previously ignored by other ethnocentric worldviews.

The Near Eastern contribution to human history is certainly not the earliest one. It is preceded by other equally fundamental prehistoric phases. Therefore, the Near East is only one of many phases, and equal to any other period of history, including those that are not part of that privileged backbone of history established by modern Western historiography. Nevertheless, the history of the Near East attracts particular attention due to its crucial place in history, as a threshold or starting point of fundamental constitutive processes characteristic of complex societies. Moreover, these myths and misconceptions characterising the traditional image of the Near East need to be reconsidered and clarified with a critical eye, rather than ignored or all too easily removed from our memory.

2 Historiographical approaches to the Ancient Near East

Modern historiography has long abandoned those mythical motivations emphasising the uniqueness of the Near East (for theological reasons, as an anthropological categorisation, or as an issue of 'original' primacy). It now aims, at least in its most conscious trends, for a normalisation of this phase of history, to be analysed and evaluated in the same way as other phases and other cultures. This process of normalisation implies the abandonment of simplistic models (often too easy to apply, and thus tempting), in order to gain a variety of perspectives, allowing a more holistic reconstruction of the history of the Near East. Consequently, landscapes and material remains are analysed in conjunction with social, economic, and political aspects, as well as ideologies and symbolic systems, in an attempt to reconstruct the whole network of interconnections and motivations linking these elements to each other.

Unlike other ancient periods of history (Ancient Greece and Rome in particular), for the Near East this task is influenced, both positively and negatively, by two factors: one of absence, and one of presence. On the one hand, we lack an ancient historiography able to provide a sort of guideline for our reconstruction. This substantial, yet not total, lack is, however, a useful aspect. It forces the reconstruction of a guideline from a responsible evaluation of the sources, rather than encouraging a lazy reliance on pre-existing guidelines that are often unrealistic, biased, and reductive. In fact, when such a biased picture exists (such as in the case of Greco-Roman history), it turns a large part of modern historical research into a mere exegesis of ancient historiography. On the contrary, the history of the Near East has to be reconstructed *ex novo* from primary sources, unmediated by later historians. It is here that the availability of primary sources becomes an influential factor. In this regard, administrative texts (as well as commercial, legal, and, in general, archival material) have survived in large amounts. This is due to the trivial, yet essential, fact that the writing material used (i.e. clay tablets) has endured fire and burial much better than other materials in use later or elsewhere (for example papyrus, parchment, and paper). The disadvantage of this fortunate availability of sources is the fact that every year new excavations, both legal and illegal, uncover new material. This forces – even with the inconvenience of a considerable and growing delay in publications – a constant revision of entire chapters of history with new details and more secure data.

Therefore, the absence of ancient historiographical guidelines, the constant publication of new sources, and the progress of philological knowledge and excavation methods make the history of the Near East a young and wide-ranging field of research, relatively free of traditional historiographical problems. The disadvantage of this situation is not really the constant out-datedness of current historical research (which is, on the contrary, a proof of its fast progress). It is the need for a vast array of specialised fields to access the primary sources, and the constant effort in the publication of the first editions of these sources. In fact, the majority of researchers specialised in the study of the Near East are focused on finding and publishing new material: they are therefore predominantly archaeologists and philologists. Fully-fledged historians – separate from the other two categories – are almost non-existent, and Italy is in this case a positive exception. The

history produced is therefore anchored in strong philological foundations, and more faithful to the sources (possibly in the hope that they would speak for themselves), rather than guided by problems and issues of interpretation. The general histories of the Near East published today are a clear demonstration of this, since they convert more specialised studies in the field into a general synthesis.

However, this historiographical delay is contrasted by this field's enormous potential, which has now begun to be applied. The lack of historiographical traditions and the constant influx of new material allows for the development of new approaches and methodologies, at times close to the most naïve and reckless of improvisations. However, this field's eclecticism and receptiveness for schemes developed elsewhere (for other phases in history, as well as completely different anthropological situations) are in great danger of causing misunderstandings and superficial approaches in the study of the Near East. Nonetheless, these schemes have to be considered constructive – at least for the phase of history that we can rightly consider as 'pre-paradigmatic' – for the potential reactions and innovative approaches they unleash in the field. It can be said that there has not been a single analytical method or theme in historiography, recent or not so recent, which has not been applied to the Near East: from neo-geographic spatial analysis to the structural analysis of the narratives; from acculturation to frontier studies; from modes of production to systems of exchange; from the structure of myths to political discourse; from settlement patterns to historical semantics; from systems theory to mental maps, and so on. This experimental phase will sooner or later have to be consolidated into coherent lines of research, and become a mature and less adventurous 'paradigmatic' historiography. However, the first essential objective towards an enrichment of the overall picture of this phase has been achieved, having overcome the restrictions that a too-strong tradition is still enforcing on other phases of ancient history.

Therefore, the history of the Near East also constitutes a sort of 'fringe discipline', creating the right environment for the circulation of different experiences and interpretations. In this regard, the complex set of materials available and the complementarity of the archaeological and textual evidence have prompted a more holistic reconstruction of the past (from material culture to ideology). This should long have been part of the work of the historian, but is so hard to find in many historical works. Therefore, the historian of the Ancient Near East is forced to take on the role of field archaeologist as well as philologist, to a degree unknown to other fields of research, whose areas of expertise appear better defined and seem to be working in a sort of consolidated production chain.

The reconstruction of late prehistoric phases in particular – characterised by the difficult task of reconstructing complex social structures on the basis of non-textual evidence – has acted as an incentive for the coordinated and in-depth application of all the clues and evidence available: from data regarding ecology to pedology, paleo-botany, archaeo-zoology, ethno-archaeological comparisons, and experimental archaeology, along with all the refinements in prehistoric excavations (stratigraphic investigations as well as surveys), and all the problematic complexity of social, political, and economic anthropology. On the one hand, the results remain outside the margins of history, since the lack of textual evidence hinders an access to the historical events. On the other hand, these results open up a sort of 'New History', characterised by a desire to establish 'laws' (in a way similar to other, typically American, new sciences such as New Archaeology, New Geography, and New Economic History), aimed more at 'predicting' the past rather than reconstructing it. These trends manifest a tendency to detect laws instead of identifying exceptions. Moreover, the introduction of electronic programs has opened up a range of possibilities (and risks) through 'simulations' applied to the uncertainties of the past, rather than the uncertainties of the future. This has formed a generation of 'demiurge' historians who prefer to creatively construct the past, rather than reconstructing it.

In many respects, then, the history of the Near East is increasingly becoming a workshop for the study of highly interesting phenomena characterising the history of human societies. The concept of 'workshop' has to be understood as a place that allows the breaking down of complex phenomena in their constitutive factors, analysed on their own, in order to detect norms and recreate patterns of behaviour. Moreover, due

to its place at the 'dawn' of history, the Near East can be considered a privileged workshop, since it deals with phenomena at the time when they were starting to become more complex. Yet this phase remains distant enough from our times to prevent an emotional or cultural attachment. The latter could in fact hinder a full understanding of the real development of the various factors. Therefore, apart from the immediate results gathered from an understanding of the historical facts examined, the study of the Near East constitutes an opportunity to gain a wider perspective on the results gathered, allowing a reconstruction of influential historical and anthropological patterns.

3 Unity and variety, centre and periphery

The chronological and spatial delimitations of the Near East (in other words, this book's delimitations) constitute a problem both in practical and historical terms. Practical difficulties certainly bear a considerable weight on the matter, such as the specialised expertise (especially philological expertise) of the researchers, or their discipline's traditions. In terms of chronology, the emergence of the history of the Near East out of its prehistoric phase is linked to the appearance of written sources in addition to the archaeological evidence. Conversely, the end of Near Eastern history, separating Pre-Classical from Classical history, is marked by the appearance of Greco-Roman sources, which differed in language, typology, and scholarly traditions from Near Eastern sources. The same is true for the geographical delimitations of the Ancient Near East in relation to the surrounding regions, which remained less structurally complex for a longer period of time.

However, these practical aspects are linked to wider historical phenomena, which need to be emphasised here in order to allow a periodisation into historical phases without excessive conventionalisms and artificial assumptions. The invention of writing is not an isolated phenomenon. It developed within the framework of social differentiation, the division of labour, and the rise of complex administrative and political units, as well as larger settlements. Therefore, the development of writing belongs to the process of city and state formation, as well as socio-economic stratification. Thus, it is the culmination of that process defined by Gordon Childe as the 'Urban Revolution'. Due to its long-term implications, this 'revolution' deserves to be considered as a fundamental moment in history. The Near Eastern cultures considered in this book emerged from this Urban Revolution, which reached completion, after a long formation period, around 3500 BC. Before and at the periphery of these cultures, prehistoric communities had a different (and less complex) level of political structure, technological development and social control, as well as a different mode of production. Even the final phase of the period under study, marked here by the rise of the Persian empire (ca. 500 BC), followed by the Hellenistic period, coincides with an important historical phenomenon. This is the approximation of the Near East in supra-regional historical events and political entities. With the appearance of these phenomena, then, it becomes clear that an isolated study of the history of the Near East becomes inadequate and needs to be abandoned in favour of a wider approach.

This first level of approximation is, however, not enough, since it leaves aside the problem of the plurality and interconnection of the various centres of urbanisation. In fact, the early nucleus of urbanisation in Lower Mesopotamia is contemporary to other centres attested in Egypt, Iran, Central Asia, the Indus Valley, the Aegean, and southern Arabia, not to mention other comparable centres, not linked to the area under study, such as China, Mexico, or Peru. Despite the fact that all these areas are characterised by unique features, they nonetheless remain, to a lesser or larger degree, interlinked depending on their location and sphere of influence. Another factor that cannot be underestimated is the role of regions located in between these urban centres. These areas were less densely populated and less involved in the history of the Near East, but played a crucial role as buffer zones or as resources for workforce and technological developments. Consequently, their study is fundamental for the understanding of the developments taking place in neighbouring urban centres. Therefore, while the selection of a specific area highlights the unique character of the chosen region, a wider perspective allows for an appreciation of the plurality of centres and their mutual relations.

This book's choice to specifically focus on the Lower Mesopotamian area – alongside its links with Upper Mesopotamia, the Syro-Palestinian area, Anatolia, the Transcaucasian area, and western Iran – is mainly due to the author's expertise in the area and the size of this volume. However, this choice is not meant to support the idea of the primacy of Mesopotamia in the Near East. On the contrary, its historical value will be presented only within the wider perspective of the history of the surrounding regions, characterised by other important centres and border regions rich in resources, and the network of relations existing between these areas.

Despite this attempt at delineating the Near East, the area remains difficult to define. Its geographic borders are clear to the west (with the Mediterranean) and north-west (with the Black Sea), but unclear to the north (the Caucasus and the steppes of Central Asia) and the south (the Arabic desert), and more flexible to the east (the Iranian plateau and the Persian Gulf). In terms of chronology, the first process initiating the periodisation of this phase (that is the rise of urban centres) takes place at different times in different areas. These chronological and spatial variations interact with and influence each other. The entire region is held together by strong cultural, political, and commercial interactions. Nonetheless, each area maintains deeply embedded traits that allow a clear distinction between, for instance, the cultural context of Syria and Central Anatolia, or Lower Mesopotamia and Elam, and so on. Therefore, even on a local level (though only to a certain extent), one finds those contrapositions between unity and difference, centre and periphery, singularity and interrelation. These contrapositions have also characterised the wider region, including Egypt and the Aegean, the Indus Valley, Central Asia, and southern Arabia.

A similar situation can be envisioned on a diachronic level: the long span of time (three millennia: from 3500 to 500 BC) considered here has its own fundamental continuity and solidity, mainly arising from the increasing spread and development of the urban model and state formation. However, this apparent unity does not preclude interruptions, at times quite dramatic (often due to the rise or reappearance of non-urban and non-palatial features), or distinctions into phases (and 'centuries'). These can be identified thanks to the long process of enrichment and re-elaboration of the evidence. Phases are often so typified that they promote a solid and chronologically defined image of the Near East, in marked contrast with the history of each individual region, which developed over a long period of time. On the whole, the geographical and chronological delimitations laid out in this book seem to be the ones which best underline the socio-cultural unity of the Near East. However, the internal division into chapters allows an evaluation of the geographic and chronological structure and uniqueness of each area, whose interaction allows a better view of the overall history of the Near East.

Apart from chronological and geographical difficulties, there are internal complexities and variables due to the social context, economic and technological knowledge, and political participation of the areas under study. Some of these variables, such as the opposition between nomadic and sedentary communities, or between urban and rural settlements, create a series of interfaces that are very close to each other, yet distinctly located in space. Despite the low density of occupation, this area therefore experienced the close coexistence of very different lifestyles and technologies. In addition to these variables, there is also a network of 'invisible frontiers'. These cannot be traced on a map, since they separate cultural spaces rather than geographic ones and are the result of the coexistence, interaction, and conflict of different ideologies.

On a practical level, there is a series of 'documentary boundaries', allowing certain characteristics to emerge more (or better) than others. This distorts many aspects of our image of the Near East, and condemns entire sections into oblivion. Through the partial survival of ancient sources, as well as the bias of modern interpretation, a world that was mostly made of villages and agro-pastoral economy runs the risk of being considered by us as a world of cities, palaces, and luxury goods. A world that was 90 per cent (if not 99 per cent) illiterate runs the risk of being remembered for its writings and literature. Finally, a world that had to deal with an endemic scarcity (of food, resources, and workforce) runs the risk of being remembered as the opulent paradise of an abstract 'civilisation'. Thus, the duty of modern historiography is to balance this biased picture of the Near East, providing a historical reconstruction with a certain degree

of quantitative evidence, and a more critical evaluation of the sources, making it more understandable and accessible to us.

4 The problem of chronology

From a technical point of view, it is necessary to clarify ancient chronology and the methods used to reconstruct it. Anyone interested in Near Eastern history immediately notices the existence of two types of dating systems: one is an archaeological chronology, characterised by round numbers, which are obvious approximations (such as 'Ghassulian, ca. 3700–3300 BC', or 'Akkadian period, twenty-fourth–twenty-second century BC', or 'Late Bronze Age III A, 1365–1300 BC'); and there is a historical kind of chronology, with precise numbers (such as 'Sennacherib, 704–681 BC', or 'Third Dynasty of Ur, 2112–2004 BC'). The latter differ from book to book (for instance, in the case of Hammurabi, one can find dates such as 1792–1750, or 1848–1806, or 1728–1696 BC), a fact that raises the issue of the effective value of such dates.

These two kinds of dating systems are complementary in principle, but one prevails in prehistoric periods, while the other prevails in historical phases. Archaeological chronology is based on more objective and scientific data. It tends to reconstruct the dating of ancient artefacts (or, better, of their finding spots) in relation to one another, and to the present (dates BP, 'before present'). Historical chronology is more cultural in character. It tends to reconstruct ancient dating systems and chronological sequences and then place them within our own chronological framework and sequence in order to make them useful to us. For both procedures, the first step consists of placing the elements to be dated in a reciprocal relationship of before and after, or even of contemporaneity (relative chronology). The second step consists of linking the sequence obtained through the relative chronology to one or more fixed dates, transforming it into a sequence of dates (absolute chronology). These can be more or less precise, down to the century or the decade, the year or even the day, according to the level of detail provided by the available evidence.

In archaeology, relative chronology relies heavily on stratigraphic evidence gathered from excavated settlements. Stratigraphy allows the reconstruction of the various layers found in the ground (formed either by accumulation or deposition), the recovery of the remains found in each layer, and the establishment of relations between the layers (such as 'covers', 'cuts' and so on), allowing a diachronic reconstruction of the site. This evidence is then summarised on grids showing the sequence of interventions on the ground through time – both voluntary (constructions, the deposit of objects, evidence for destruction, etc.); and involuntary (such as waste deposits, wind deposits, floods and so on). A rigorous method used by virtually all archaeologists excavating in the Near East to analyse this process is the Harris matrix, which compares sequences obtained through the stratigraphic analysis of each excavated area. In this way, it becomes possible to reconstruct the overall stratigraphic history of the site. Therefore, the comparison of various sequences gathered from several sites (and here the typology of the artefacts comes into play) allows the reconstruction of a comparative stratigraphy of an entire area as well as a relative chronology of a certain period (thus becoming a chronology of the material culture, since it is based on the archaeological evidence). This leads to a sequence that encompasses the whole of the Near East (and beyond), including all its historical and prehistoric phases.

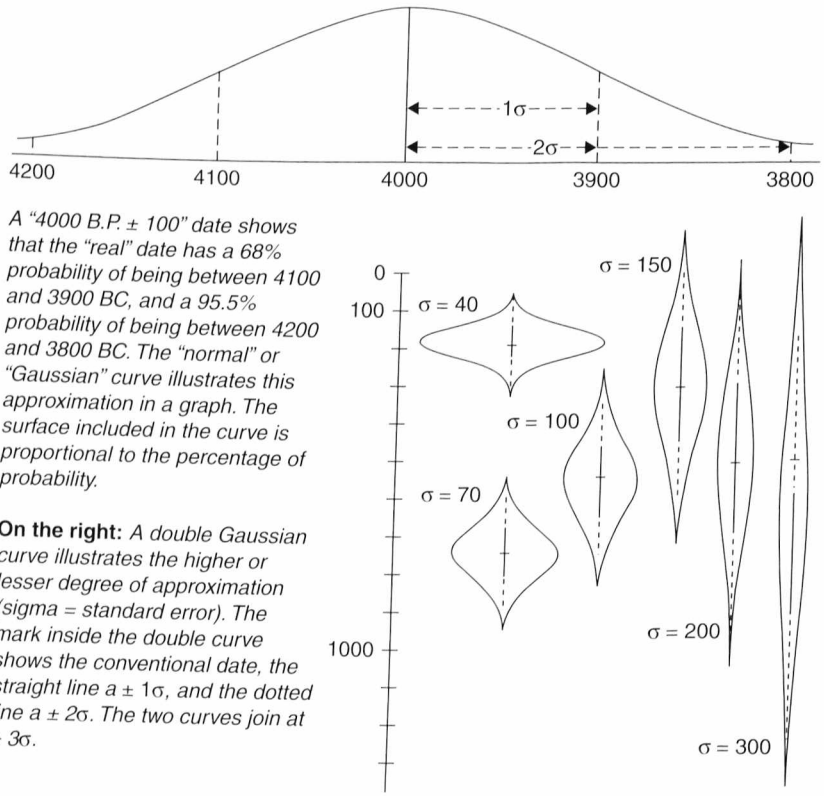
There are two ways to turn this archaeological relative chronology into an absolute chronology. First, the discovery of written documents within the excavated layers can become a useful link of the stratigraphic sequence with the historical chronology, which will be considered later. Second, there are scientific methods to date some kinds of materials, mostly organic. Some methods, though useful for the earliest prehistoric phases (such as thermoluminescence dating), are too imprecise for late prehistoric and historical phases. For the latter, carbon-14 (or radiocarbon) analysis is used, along with the increasing use of dendrochronology.

Radiocarbon dating is based on the fact that the radioactive isotope of carbon (^{14}C), which occurs in living organic material in a known quantity, progressively decays through time and, according to Willard

Libby, is halved in 5568 years (*lower half-life*). Measuring the quantity of ^{14}C contained in an organic remain therefore allows us to establish the age of the sample, with an approximation which varies according to the state of the sample and the accuracy of the process. Therefore, dates established through radiocarbon analysis are always written with a '± 50' or '± 70', or simply with a ± sign to show that the date is an approximation (Figure 1.1).

Dates can be more or less reliable, or even completely wrong if gathered from samples contaminated by other organic materials, or a certain type of soil. Moreover, dates gathered from carbonised grains found on the floor of a burnt building are the most precise, and refer to the moment of the fire. Conversely, dates gathered from the timber frames of the same building refer to the moment of construction and will be less precise, since the material could have been recycled or used years after it was cut. Nonetheless, a good number of matching dates recovered through radiocarbon analysis from the same layer allow a relatively precise dating. Currently, the use of the accelerator allows an even more precise dating from a small amount of carbon.

Dendrochronology (or tree-ring dating) is based on the fact that the width of tree-rings (which grow yearly and are visible in a horizontal cross section of a tree's trunk) is proportional to the humidity absorbed by the tree in that same year (i.e. the intensity of rainfall). Therefore, tree-rings belonging to different trees growing in the same area should be equally wide each year, but different year by year. Cross sections thus become *bona fide* graphs documenting rainfall variability, following a fixed pattern in a certain amount of years. This pattern can then be recognised and used on new trees. Starting from sequences obtained from



A "4000 B.P. ± 100" date shows that the "real" date has a 68% probability of being between 4100 and 3900 BC, and a 95.5% probability of being between 4200 and 3800 BC. The "normal" or "Gaussian" curve illustrates this approximation in a graph. The surface included in the curve is proportional to the percentage of probability.

On the right: *A double Gaussian curve illustrates the higher or lesser degree of approximation (sigma = standard error). The mark inside the double curve shows the conventional date, the straight line a ± 1σ, and the dotted line a ± 2σ. The two curves join at ± 3σ.*

Figure 1.1 Radiocarbon dating approximations.

living trees (thus with a known final date) and comparing them with each other and back in time (through a partial and progressive overlapping of the various samples) with ancient tree-ring samples (timber beams used in buildings, churches, mosques, for example), it has been possible to establish a sequence for the Near East reaching as far back as the Classical period.

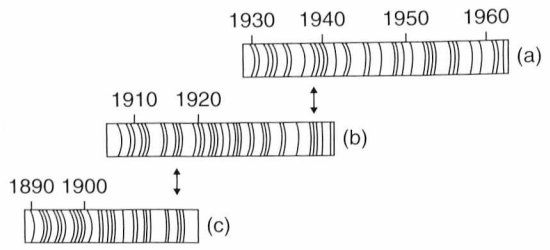
Despite a considerable chronological gap of several centuries, a long sequence has been established for the Iron Age (and Late Bronze Age) in Anatolia, initially developed from the data found in the funerary tumuli at Gordion (modern Yassihüyük). This and other sequences disconnected from the present are dated through radiocarbon dating (taking a sample from the earliest and latest tree-rings), leading to the development of sequences going as far back as the Bronze Age. Only when these sequences are successfully linked to each other and to the principal sequence (which can be precisely dated), will it be possible to have an exact chronology (by year). However, this chronology is based on a specific type of material (trunks, even burnt ones) and is thus only useful for dating buildings in which these remains were found.

While dendrochronology is still working towards a reconstruction of an entire sequence for the Near East, it has already brought an important, yet indirect, development. In fact, radiocarbon analysis of trunks accurately dated through dendrochronology has revealed that the dates obtained were too early for later periods and too late for ancient periods (especially between 2000 and 7000 BC, that is the prehistorical phases). The reason for this is that the rate of radioactive decay of ^{14}C has not been homogenous through time, but has experienced fluctuations, detected through dendrochronology. Therefore, dates gathered through radiocarbon dating have to be re-calibrated, even when they were obtained from materials other than timber or for other periods that could not be covered by dendrochronology (Figure 1.2).

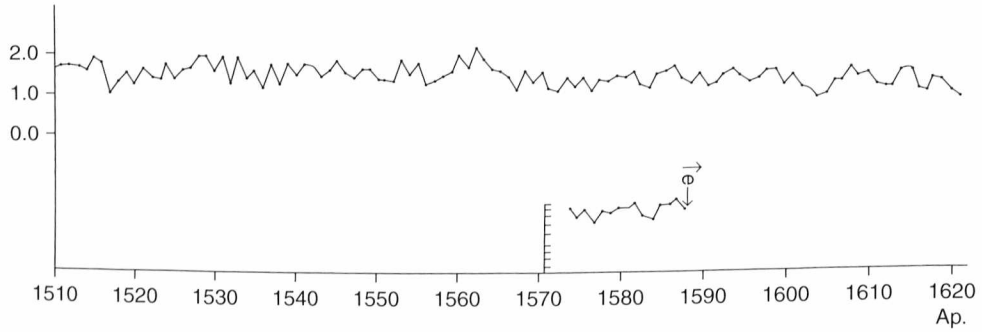
These are not inconspicuous differences in dating. For instance, the same sample (from the late Ubaid period) has been dated ± 4133 with the *lower half-life*, ± 4322 with the *higher half-life*, and ± 5072 through calibration. Since this calibration develops into a series of complex percentages of probability spread through time, laboratories continue to follow the convention of using B.P. dates according to the *lower half-life*. Nevertheless, thanks to computer programmes specifically developed for this purpose, anyone can calculate the calibrated date.

Regarding historical phases, this archaeological and scientific chronology has to be integrated and improved (to the level of the actual events) through the data derived from written sources (Table 1.1). In fact, every culture has some form of chronological structure, not necessarily for historiographical reasons, but mainly for legal and administrative purposes, in order to be able to refer back to previous legal and administrative documents. Such chronologies are based on 'eras', namely, temporal sequences linked to a known initial date. Our own sequence (which calculates time according to the year Jesus Christ was allegedly born) has been in use for such an extended period of time – to the point that it has become retrospective (with the establishment of dates 'before Christ') – that we have almost forgotten that it is only one possible convention among the infinite ways to establish time, and the many ways which were in use before and at the same time as our system (both in Christian and non-Christian contexts).

In the Near East, the 'eras' used were short, normally based on the enthronement year of a ruling king, thus varying between cities and between reigns. In order to make use of the chronological data reported in ancient sources, it is therefore necessary to reconstruct the complex network of dynastic sequences found in each state. A text mentioning a precise date, such as 'fourth day, third month, sixth year of Nebuchadnezzar', is not datable for us, unless we are able to relate that specific chronological phase (that is Nebuchadnezzar's reign) to our own time. Thankfully, our difficulty is not substantially different (though with a different purpose and scope of research) from the problem encountered by ancient scribes and archivists. The latter had to establish concordances between the various dating systems used in their recent past, and which continued to be used in their own documents. Therefore, they developed specific tools that we can use again today.



Principle of dendrochronology: starting from a tree ring sequence whose dating is certain (i.e. a living tree), it is possible to go back in time through partial overlapping of more ancient tree ring sequences (taken from dead trees), thus finding their exact dating.



Dendrochronological diagram: the y-axis shows the width of the tree rings (in millimetres), the x-axis the years (here: AD). A short sequence is dated by matching it with the main sequence.

Radiocarbon calibration. The y-axis shows the "calendar" (real) years gathered through dendrochronology (in this case, the dates are all AD), the x-axis shows radiocarbon dates (compared to the half-life of radiocarbon at 5568 years), counted from the present (BP).

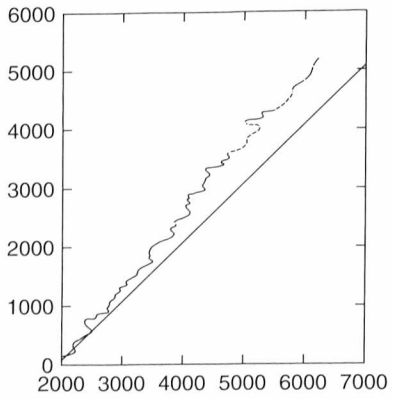


Figure 1.2 Dendrochronology and radiocarbon calibration.

In Mesopotamia, there were three main ways to identify a year: 1) through an eponymous official (*līmu*), a system in use in Assyria throughout its history; 2) through a year name (for instance 'year of the construction of the walls of Sippar'), a system in use in Sumer and Babylonia until the mid-second millennium BC; 3) by referring back to the enthronement year of the ruling king, a system in use in Babylonia from the Kassite dynasty onwards. Therefore, in order to make use of their chronology, Assyrian scribes composed and kept up-to-date a list of eponyms. Similarly, Sumerian and Babylonian scribes developed lists of year names and ruling kings, either for a single or several dynasties, reaching the compilation of lists

Table 1.1 Chronology of the Ancient Near East

Dates BC	Archaeological phases	Syria – Palestine	Anatolia	Upper Mesopotamia	Lower Mesopotamia	Iran
	"Urban Revolution"	Late Chalcolithic Uruk colonies	Late Chalcolithic Uruk colonies	Late Chalcolithic Uruk colonies	Late Uruk 3300–3100	Uruk colonies
3000	Early Bronze Age I	Amuq G			Jemdet Nasr 3100–2900	Proto-Elamite period 3100–2700
	II	Amuq H		Nineveh 5	Early Dynastic period I 2900–2750	
2500	III	Ebla 2500–2300 Amuq I			II 2750–2600 III 2600–2350	
		Sakkanakku in Mari Amuq J		Urkish and Nawar	Akkad 2350–2200	Awan 2350–2200
	intermediary period Early/ Middle Bronze Age	Amorites 2000		Amorites 2000	Gutians 2200–2120 Ur III 2120–2000 Amorites 2000	Simash 2050–1950
2000		Mari 1850–1750 Yamhad 1800–1600 Alalah VII *Hyksos	Assyrian colonies 1900–1750 Old Hittite kingdom 1650–1550	Old Assyrian kingdom 1950–1750 Dark Age 1750–1550 Hana	Isin 2017–1794 Larsa 2025–1763 Babylon 1894–1595 Sealand	Sukkalmaḫ 1900–1750

Table 1.1 Continued

Dates BC	Archaeological phases	Syria – Palestine	Anatolia	Upper Mesopotamia	Lower Mesopotamia	Iran
1500	Late Bronze Age	Egyptian and Mitannian rule 1550–1370	Middle Hittite period – Kizzuwatna 1550–1370	Mitannian rule 1550–1360	Kassites 1600–1150	
		Egyptian and Hittite rule 1370–1190	Hittite empire 1370–1190	Middle Assyrian kingdom 1360–1050		Middle Elamite kingdom
	"Sea Peoples" 1200					
1000	Iron Age I	Arameans 1100–720 / Neo-Hittites 1100–720	Phrygia 750–650 / Lydia 650–550	Nairi	Isin II 1150–1025	
	Iron Age II			Assyrian crisis 1050–900	Various dynasties 1025–725	
	Iron Age III	Assyrian rule		Assyrian empire 900–615	Assyrian rule 725–625	Neo-Elamite kingdom 750–650
		Median and Chaldean rule			Chaldeans 625–539	Media 650–550
500		Persian empire (from 550 BC onwards)				

including neighbouring dynasties, such as the 'Sumerian King List' and the Assyro-Babylonian 'Synchronistic King List'.

If we had all these chronological texts today, we would be able to reconstruct a complete chronology of the Near East that included all the eras that had been used, and their sequence or overlap. Unfortunately, the lists that have arrived to us are incomplete, fragmentary and with considerable mistakes (especially in terms of numbers). The latter only appear when more lists or copies of the same list are available, but otherwise remain unknown to us. Mesopotamian lists often contain deliberate mistakes: for instance, the omission of certain kings or dynasties for political reasons; the listing as a sequence of dynasties which were instead completely, or in part, contemporary to each other; and the inclusion (at the beginning of the Sumerian King List) of mythical and legendary data. Despite these difficulties, through these sources it has been possible to broadly reconstruct the chronology of Mesopotamia from the mid-third millennium BC (any time before that has to be reconstructed through archaeological evidence) all the way to the Greek and Persian chronology of the first millennium BC.

This chronology is relatively precise and quite established between 1500 and 500 BC, while for the first millennium BC there is additional evidence from chronicles (especially Babylonian) and annals (mostly Assyrian). In the mid-second millennium BC, some gaps in the Assyrian King List (which is the longest unbroken sequence available) and some overlaps between Babylonian dynasties have caused a more or less long hiatus. In fact, there are differences by decennia in the period between 2500 and 1500 BC, gradually increasing in the phases preceding 2500 BC, due to the many uncertainties and gaps in our evidence. While it has been previously believed that it was possible to measure the length of the hiatus through several allusions to astronomical phenomena recorded in Old Babylonian texts (from the reign of Ammi-saduqa), we now know that these allusions are uncertain (since different astronomers have interpreted them in different ways) and not entirely reliable. In fact, these astronomical references pertain to cyclical phenomena with various possible dates, all equally valid from an astronomical point of view.

As mentioned above, the dates of the reign of Hammurabi can be 1848–1806 BC, according to the so-called long chronology, 1792–1750 BC using the middle chronology, and 1728–1696 BC with the short chronology. These dates are the result of a different choice of astronomical cycle, and have to be understood as conventions rather than actual dates. In this volume, the chosen chronology is the middle one, which has long been the most widely accepted and which fits the archaeological and radiocarbon chronology best. The recent tendency of implementing the short chronology clashes, in my opinion, against unacceptable shortenings of the Hittite and Syrian chronologies, and should be considered a (hopefully) passing trend. The most pressing matter in terms of chronology, however, is the establishment of a coherent relation between the scientific absolute chronology and the historical one. This is a difficult problem, due to the degree of conventionality and the variety of options available for both systems.

Nonetheless, the overall chronological reconstruction of the Near East is more or less adequate for the sources it refers to, and from which it has been developed. For periods and regions with more evidence (and thus requiring a more precise chronology) it is possible to establish a relatively detailed chronology, while for periods and areas with fewer sources, the chronology remains approximate. There are also strictly cultural factors hindering a chronological reconstruction. For instance, in Late Bronze Age Syria and Hittite Anatolia legal documents are (so to speak) dated through formulae such as 'from today onwards' and 'forever', thus indicating that the validity of the text is closely linked to the physical survival of the tablet. These kinds of documents did not need to have a chronological reference and are testaments to a culture that composed undated administrative texts. Consequently, it is not surprising that the scribes belonging to these cultures did not provide any form of chronological list (since they did not need it), a fact that has resulted in our own difficulty in reconstructing their dynastic sequence and the length of each reign. Generally speaking, Mesopotamia provides us (due to the abundance of sources and the precision of its scribes) with the most detailed and reliable chronology, while the surrounding areas can be reconstructed through synchronisms. These synchronisms increase in number as new documents are discovered and published.

For the study of particular concentrations of sources (such as archives), there is prosopography (the study of specific individuals and their connections), which can also be of aid for a chronological reconstruction. It is here that more detail is needed, bringing about the study of calendric systems (if the texts provide the month and the day). In archives of cuneiform tablets (just like later archives), texts were either stored because of their importance, or were destroyed. For this reason, legal texts (real-estate transactions, adoptions and loans, for example) had to be stored over a long period of time, at least as long as they were valid. Bookkeeping records were often stored for shorter periods, but their data was kept in summaries (covering a year or even longer periods), meant to be stored for longer.

In this volume, the chronology used for prehistoric periods is the one derived from calibrated radiocarbon dating. The conventional middle chronology is used for the analysis of Mesopotamian history from the beginning of the third millennium all the way to the mid-second millennium BC, and to which all the chronologies from the surrounding regions are connected. After the mid-second millennium, the differences between chronologies are virtually irrelevant. All dates are BC, unless otherwise specified.