

MESHULLAM

patronym given, and both cases indicate positions of leadership or influence in society. If Ezra's mission to Jerusalem is dated to 458 B.C., a possible identification with no. 13 above can be suggested. A prince of Judah might well be accorded the privilege of standing on the podium next to a reader of the Torah.

JAMES M. KENNEDY

MESHULLEMETH (PERSON) [Heb *mēšullemet*]. Mother of Amon, king of Judah (2 Kgs 21:19). Meshullemeth's name appears in the regnal formula of her son in 2 Kings, but it is missing from the parallel account in 2 Chr 33:21. She is the daughter of Haruz of Jotbah and the first of five queen mothers for whom both the father's name and place of origin are given (cf. also JEDIDAH, HAMUTAL, ZEBIDAH, and NEHUSHTA).

The site of Meshullemeth's hometown, Jotbah, is uncertain. Usually identified as either *at-Taba* (M.R. 139878) N of Aqaba or Yodefath (M.R. 176248) in Galilee, its location is often interpreted as being politically significant. If Meshullemeth came from Galilee, then her marriage may reflect an attempt by Judah to secure N support (Cogan and Tadmor, *2 Kings* AB, 275). If Meshullemeth came from the far S, it is possible she was of Arab or Edomite origin (Montgomery, *Kings* ICC, 521; Gray, *1-2 Kings* OTL, 711). Her marriage might represent a strengthening of diplomatic ties between Judah and Arabia or Edom. In either case, Meshullemeth would be of non-Judean origin and her marriage diplomatically important. But who arranged her marriage, Hezekiah or Manasseh? Traditionally, it is assumed that Meshullemeth's marriage to Manasseh was part of Hezekiah's international policies. This assumption is challenged by Wilcoxon. Translating the term "son" as "grandson," Wildoxen suggests that Amon was the *grandson* of Manasseh. Meshullemeth would then be Manasseh's daughter-in-law instead of his wife (Wilcoxon 1977: 155-56). If this is so, then Meshullemeth's marriage (possibly to the son Manasseh sacrificed) was arranged by Manasseh and represents an intriguing glimpse into his diplomatic activities. See also QUEEN.

Bibliography

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LINDA S. SCHEARING

MESOPOTAMIA (PLACE). A Greek word which means "(land) in the midst of the river(s)" and in modern times has come to be interpreted as "the (land) between the (two) rivers," the two rivers being the Tigris and the Euphrates. In the English versions of the Bible the word "Mesopotamia" is used as a translation of words which are clearly different in meaning from the modern understanding of the word "Mesopotamia."

The word "Mesopotamia" in the English versions of the OT renders the Hebrew word *ʾāram nahārayim*, while in the NT passages it is the same word in Greek—Mesopotamia. The English renditions for the OT are based on the LXX

translation, which also uses the Greek word Mesopotamia for the Hebrew. The Aramaic Targums, however, use the expression *Di al perat*, which literally means "that which is upon the Euphrates." Thus, the Targumic versions suggest a geographical location in the region of the Upper Euphrates.

The biblical passages where the English versions use the word "Mesopotamia" seem to confirm this geographical location. In Genesis 24, it is narrated that a servant of Abraham went to the city of Nahor in Mesopotamia to find a wife for Isaac. In Deut 23:5—Eng 23:4, there is reference to Balaam of Mesopotamia. In Judg 3:7-11, we read that the Lord delivered the Children of Israel into servitude under CUSHAN-RISHATHAIM, king of Mesopotamia. In 1 Chr 19:6-9, we are told that the Ammonites hired chariots from Aram-Maacah and from Zobah of Mesopotamia in their war with King David. The term Mesopotamia occurs twice in the book of Acts. In Acts 2, "residents of Mesopotamia" are included in the list of peoples of various lands who "were all filled with the Holy Spirit and began to speak in other tongues." Finally, in Acts 7:2, Stephen declares that God appeared to Abraham in Mesopotamia. From most of the above references it is clear that the geographical location of "Mesopotamia" was not the entire region between the Tigris and the Euphrates but only the area of the Upper Euphrates river in Syria.

There has been considerable debate among modern scholars as to the exact meaning of the Heb *ʾāram nahārayim*. The first element (*ʾāram*) designates what we call Syria and etymologically is related to the ethnic term Aramean. The meaning of the second element (*nahārayim*) is more difficult to determine, but it has been argued by many scholars that this is not a dual meaning, "two rivers," but rather a locative meaning, "riverine land"; that is, "land within the bend of the (Euphrates) river."

As stated at the beginning of this article, the word "Mesopotamia" is modern usage designates the region farther east than that in the Bible and includes all of the territory between the Tigris and Euphrates rivers right down to the Persian Gulf. Formal recognition of this meaning for the word came with British military presence in the region at the time of the breakup of the Ottoman Empire. For the history of ancient Mesopotamia in this larger sense, see MESOPOTAMIA, HISTORY OF.

A. KIRK GRAYSON

MESOPOTAMIA, HISTORY OF. In part because the Tigris and Euphrates rivers were homeland to some of the greatest political and military powers in antiquity, much of Mesopotamian history is linked with that of the Bible. This entry, which consists of five separate articles, surveys the history of ancient Mesopotamia. The first article covers the chronology of ancient Mesopotamia. The following two cover the prehistory of Mesopotamia and the 3d millennium B.C. The fourth and fifth articles, respectively, treat the history and culture of Assyria and Babylonia.

MESOPOTAMIAN CHRONOLOGY

The historical reconstruction of the past revolves around a comprehensive knowledge of absolute time and the se-

quence of known events. Unlike the situation in the modern world, wherein a reasonably accurate digital watch is worn on many a wrist, and where exactly datable events or reasonably precise schedules are commonplace, past processes and events cannot be dated so concisely. As a general rule, dating becomes progressively more complex the further back in time one goes. Whereas ancient historians certainly aspired to know the approximate date that a Babylonian king died or the exact years that an Egyptian pharaoh ruled, written records seldom preserved a king's name or described some "exactly" datable occurrence such as a coronation or a decisive battle. When such information does not exist, dating can only be *relative*, never *absolute* ("exact"). Relative dates are usually based on stratified, and thus sequential, archaeological materials: stone tools, metal tools and artifacts, pottery, figurines, and so on. The premise is that material found in the lowest part of an archaeological excavation, which is sequentially earlier than material accumulated above it, is also *relatively* earlier in time.

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A. Prehistory

Relative dating is the rule for much of the prehistoric era. Throughout most of the time span that human beings have roamed the earth, they lived as migrant bands that hunted and collected food and other necessities. Their tools were made primarily of stone, less often of other perishable materials such as wood. The long period of time in which rudimentary developments may be traced in stone tool technology is known as the Paleolithic ("Old Stone") Age (about 600,000–15,000 B.C.). The basic hunting-gathering economy—occasionally supplemented by selective use of certain plants and animals—prevailed in the Near East until about 10,000 B.C., when more sustained efforts at plant domestication and animal rearing significantly altered the course of human cultural history.

Changing human needs and the beginnings of food production required a different tool kit; the era from about 9000 to 3000 B.C. has thus been termed the Neolithic ("New Stone") Age. The first permanent settlements appear in the archaeological record at almost the same time. A sedentary way of life supported chiefly by food production, together with the changes it wrought—population growth, the accumulation of goods, loss of mobility—had major consequences for subsequent cultural stages in the ANE. The people who dwelt in those early sedentary communities did not depend exclusively on agriculture, but rather on a mixed-spectrum economy that included hunting and collecting, the herding of goats and sheep, fishing, and the cultivation of wheat and barley. Some sedentary villages were established prior to any sort of successful, sustained domestication: the walled community at Jericho between about 8000 and 7000 B.C., for example,

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subsisted chiefly on hunting and the intensive gathering of wild grains.

It is difficult to speak authoritatively on the reasons for sedentarization from our remote 10,000-year perspective: archaeologists have offered climatic, environmental, demographic, and technological explanations. Investigations of sedentarization, plant and animal domestication, urbanization, and other Near Eastern cultural developments before the historical period (before the advent of writing around 3000 B.C.) depend entirely on material evidence: bones, seeds, pottery, implements, weapons, art, and architecture.

Absolute dates from certain of these prehistoric materials are based on radiocarbon determinations—precise physical measurements of the decay state of carbon isotope ratios which allow determination of when a particular carbon-containing material (charcoal, bone, shell, etc.) stopped growing (i.e., died). It is thereby possible to assign to the specific archaeological level from which the radiocarbon-analyzed material was recovered an approximate absolute date (approximate because the computation must allow for a statistical counting error—plus or minus a number of years—that can be quite high). Dendrochronological ("tree-ring") calibration of radiocarbon-derived dates suggests that they deviate increasingly from actual calendar dates: from a 200-year error around 1000 B.C. up to a 900-year error around 5000 B.C. Although calibration curves are designed to transform a radiocarbon age or measurement into an actual calendar date, the limits of these curves currently do not extend earlier than the 6th millennium B.C.

B. The Historical Era: 3d–1st Millennia B.C.

By the end of the 4th millennium B.C., certain social elements in prehistoric Mesopotamia adopted writing (cuneiform), chiefly to keep records for their burgeoning economies. In nearby N Syria, by the mid-3d millennium B.C., scribes at Ebla had also begun to use Mesopotamia's cuneiform script to keep track of their wide-ranging economic affairs. With the advent of writing, the prehistoric period of the Near East increasingly becomes elucidated by an ethnohistoric, documentary record. The use of writing prompted remarkable, sociocultural innovations in 3d-millennium B.C. Mesopotamia and Syria. The scribal profession in Mesopotamia—where writing became something of an art—assumed unique importance by the teaching of the skills of communication in the cuneiform script, which served as the medium for the transmission and preservation of economic, legal, literary, and religious information, and for the maintenance of Mesopotamian culture.

For the historical era, there exist long lists of actual year names, king lists, historical chronicles, building inscriptions, and other written records—often based on or mentioning astronomical observations—that allow *absolute* dating. Yet it must be borne in mind that, for much of Mesopotamian history, accurate dates B.C. are hard to come by; sources often seem to contradict one another. More recent dates are almost always more accurate and have a lower margin of error.

C. Sources for Mesopotamian Chronology and History

1. Overview. Named after an annually appointed official, the Assyrian *limmu* ("eponym") lists make it possible to date events quite precisely back to 910 B.C. Earlier Assyrian *limmu* lists and Babylonian king lists allow us to date particular events or more general epochs during the 2d millennium B.C. within a margin of about ten years. Attempts at absolute dating in the surrounding regions (Syria-Palestine, Anatolia, Cyprus and the Aegean, Iran) require synchronization with episodes in Mesopotamia (or Egypt), where more secure chronologies have been established.

Observations of the planetary movements of Venus, possible only once in a 56- or 64-year cycle, have been recorded on the Babylonian "Venus Tablets." Although these tablets provide astronomical dates for the period prior to 1450 B.C., unfortunately they offer a series of possible dates rather than an agreed-upon single date: scholars still dispute which of three possible cycles these "Venus Tablets" refer to. Consequently, historians of the ANE must choose between three separate chronologies for 2d-millennium B.C. Babylonia: the high (the astronomical evidence presented by Huber is compelling), the middle, or the low (the low chronology finds few supporters). Although Babylonia's internal and relative chronology has been established reasonably well on the basis of year names, relative events are difficult to pinpoint in a secure, absolute dating system. Whereas the middle chronology is the most widely accepted and frequently used, in fact it provides only a compromise solution to a very complex problem. The relative sequence of events, nonetheless, offers a useful framework for the assessment of sociohistorical and socio-cultural development and change.

Relative dating is well established from the 16th century B.C. back to the 24th century B.C. (the reign of Sargon and the Akkadian Dynasty). Two "historical" gaps of unknown duration occur during these 800 years, the earlier being about 2200 B.C., the latter about 1600 B.C. Although various cuneiform documents record the succession of kings and the length of their reigns, specific incidents and even entire eras remain unanchored in *absolute* time. Before 2400 B.C. in Mesopotamia, only approximate dates are possible: time estimations are derived from purely archaeological evidence, from paleographic data (the evolution of the cuneiform script in its earliest stages), and by all-too-few radiocarbon dates.

The chronology of Mesopotamia and that of much of the remainder of the ANE (especially Syria-Palestine) has been linked extensively to Egyptian *absolute* dating. During the historic period (post-3000 B.C.), written sources for dating in Egypt are similar to those found in Mesopotamia: king lists, royal annals, and biographic treatises. A "History of Egypt," written in Greek during the 3d century B.C. by an Egyptian priest (Manetho), was almost certainly compiled from some of the same lists that present-day historians use to reconstruct ancient Egyptian chronology. Although absolute dating in the earlier time periods, as in Mesopotamia, inspires less confidence, overall the period from about 330 B.C. back to 945 B.C. is reliably dated on the basis of astronomical observations, synchronisms, and the historically well dated reigns of certain pharaohs.

For the period from about 1550 to 1050 B.C., both a high and a low chronology have been postulated on the basis of astronomical observations of the Sothic star (Egyptian *Sepedet*, our Sirius). Noting the precise moment that this star appeared was critically important to the ancient Egyptians because it demarcated the start of their agricultural year: the annual rise of the river Nile (from melting snows in the Ethiopian and African highlands far to the south) more or less coincided with the heliacal (predawn) rising of Sothis on the horizon. Three chronologies result from the disagreement among Egyptologists over the location where these ancient observations took place. Either it occurred in the north, near Memphis (high chronology), in the south, near Thebes (middle chronology), or even farther south, at Elephantine (low chronology). Even if this dispute could be settled, the internal dating of some pharaohs' reigns is complicated by the possibility of coregencies (and thus overlaps in different reigns). Nonetheless, the margin of error for the period 1550-1050 B.C. is only a matter of 10-30 years, much less than the 120-year discrepancy in Mesopotamia.

Sesostris III, who ruled during the 19th century B.C., has a Sothic date recorded for his reign. Working backward from Sesostris, however, dating becomes increasingly uncertain because no further "fixed" points (like a Sothic date) are available to which one could attach a well-known, relatively dated sequence of events. As in Mesopotamia, archaeology, paleography, and artistic style provide at best a broad range of possibilities. Important refinements in radiocarbon-based dates for Egypt are limited chiefly to the 3d millennium B.C.

2. The 3d Millennium B.C. Mesopotamian history is divided into periods characterized by significant changes in society, economy, politics, and culture. The course of Mesopotamian history, although characterized by a recurrent trend toward local rule, was punctuated repeatedly by political systems of great organizational complexity that aimed for extensive dominion throughout the Near East. Local rule is best exemplified by Mesopotamia's most resilient sociopolitical institution: the city-state. Political control by individual city-states typified the Sumerian dynasties of the early 3d millennium B.C.

These first recorded dynasties were ruling families in various cities that passed political power from one generation to the next. As a result, the time span from about 2900 to 2350 B.C. is known as the Early Dynastic (ED) period. The chronology of this period is based primarily on archaeological data derived from excavations in the Diyala region, which can be employed only rarely to illuminate known political events. Although writing increasingly fulfilled economic, ideological, and administrative needs, archaeological excavation has provided only a limited corpus of textual evidence, and material data therefore remain central to historical interpretation. Nonetheless, such archaeological and documentary sources as exist portray ED Mesopotamian culture more clearly than that of any prehistoric period.

The main written sources for the Early Dynastic period are the following: (1) numerous cuneiform tablets from the cities of Ur, Lagash, Kish, and Shuruppak; (2) an important collection of literary tablets from Tell Abu Salabikh; and (3) detailed royal inscriptions from Lagash. The

Sumerian King List, composed early in the 2d millennium B.C., offers an important outline of the political history of Sumer and Akkad from prehistoric times; it becomes increasingly plausible as it approaches the period of its compilation. Despite its value for reconstructing Mesopotamian history, the King List is misleading in that it treats overlapping and contemporaneous city-state dynasties as successive. The remote past was difficult to render accurately, even for the conscientious chroniclers of the Sumerian King List.

With the advent of the Akkadian and Ur III dynasties during the latter half of the 3d millennium B.C., the Mesopotamian political structure shifted from localized city-state rule to territorial, nation-state rule. Dominance by the temple or city-state gave way to national monarchy, and territorial expansion became the operative goal. The task of controlling more extensive areas required administrative innovation, and here the Akkadian achievement was considerable. The Akkadians replaced the Sumerian system of diversified, local autonomy with a centralized state focused upon the king and his court at Akkad.

Different ideological and economic traditions governed the two peoples: the Sumerians' long tradition of temple and communal ownership was replaced by both royal and private ownership of land. Yet ethnic antagonism was purposefully minimized, and the Akkadians adopted the Sumerian cuneiform script to write their own Semitic language, newly dominant in Mesopotamia. Akkadians and Sumerians were two different peoples who spoke two different languages, but the prevailing culture was neither Sumerian nor Akkadian; it was overwhelmingly Mesopotamian.

In the style of most Sumerian kings, the dynastic rulers of Akkad commemorated their exploits in dedicatory inscriptions lodged at the temple of Enlil at Nippur. Although the originals still elude us, they were copied meticulously by devoted scribes: the tablets that survive are our main source for the history of the Akkadian era. These dedicatory inscriptions are supplemented by literary texts (e.g., "The Curse of Agade") and by later written documents, including the Sumerian King List. The epic tales of Sargon and his grandson Naram-Sin—the best known rulers of the Akkadian period—were written much later and mix fact with fiction. Archaeological evidence for this period is still sparse and leaves a decisive gap in our knowledge: the location of Agade—the capital city of Sargon and his successors—is still far from certain.

According to the Sumerian King List, after the fall of Akkad the city-state of Ur established dominion over Mesopotamia for the third time; consequently, its kings are known as the Ur III dynasty. Political stability returned to Mesopotamia, and in its wake followed the revival of Sumerian art, literature, and law (the so-called Sumerian Renaissance). Primary written sources for this period are abundant. Economic documents from administrative centers like Umma (near Lagash) and Puzrish-Dagan (near Nippur) number in the tens of thousands. In contrast to the scant archaeological evidence of the Akkadian period, the extensive construction projects of the Ur III rulers may be witnessed in most major Mesopotamian cities of the late 3d millennium B.C.

Although Sumerian again became the official language

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of the land, the concept of a Sumerian versus an Akkadian cultural identity is irrelevant. Traditional Sumerian literature was preserved, and hymns glorifying the ruler in the act of addressing the gods were composed. But the grandeur of the Sargonic state had become integrated into a broader Mesopotamian worldview, and Ur III kings adopted the titles of the Akkadian kings. Ur-Nammu, founder of the Ur III dynasty, claimed the title "King of Sumer and Akkad," and thus officially acknowledged Mesopotamia's composite origins: Sumerian and Akkadian culture were fused into one Mesopotamian civilization.

3. The 2d Millennium B.C. The term Mesopotamia refers not only to the culture of the Tigris-Euphrates region but also to the geographic region demarcated by the two rivers. During the 2d millennium B.C., Mesopotamia became divided into two historically important geopolitical regions: Babylonia and Assyria. Because the city of Babylon only became a significant political force early in the 2d millennium B.C., the geographic term Babylonia should not be used to refer to earlier time periods. For the 2d and 1st millennia B.C., the N and NE sectors of "Mesopotamia" may also be referred to as Assyria, the S sector as Babylonia. The two parts are divided by the Gebel Hamrin ("Red Mountain"), a low-lying mountain ridge that extends southeastward from the Assyrian capital city of Ashur to the Diyala River basin.

Historical sources multiply greatly during the 2d millennium B.C. Thousands of cuneiform tablets have been excavated in Babylonia, N Syria, and Anatolia (Turkey). King lists from Isin, Larsa, Ashur, and Babylon, and lists of date formulae—whereupon each year of a king's reign was given a name—provide synchronisms as well as a useful chronological framework. From Babylon and Ashur in Mesopotamia, Mari and Alalakh in Syria, and Kanesh and Hattusha in Anatolia come international treaties, letters, accounts, contracts, and legal documents that illuminate the period between 1900 and 1600 B.C. like few others in ANE history. For the period of Kassite rule in Babylonia (about 1600–1200 B.C.), source materials become scarce; fewer than a thousand tablets have been published, although thousands more exist in museum collections.

The widespread, albeit insecure, political coalitions forged by Shamshi-Adad of Assyria (ca. 1813–1781) and Hammurapi of Babylonia (ca. 1792–1750) resulted in two extensive and partly contemporaneous territorial states. Emulating the Akkadian and Ur III dynasties, these two rulers sought to acquire territory and to secure the constant flow of vital raw materials into the bountiful but resource-barren alluvial plain of Mesopotamia. This reemergence of forcefully unified nation-states in Assyria and Babylonia may be attributed chiefly to the great military and administrative capabilities and the charismatic qualities of Shamshi-Adad and Hammurapi. Although both rulers failed to establish an enduring national state, the political power and cultural tradition in ancient Mesopotamia henceforth centered on these two polities. Even the later Kassites, who built their own fortress-city near Babylon, maintained the latter as their political, commercial, and religious center.

Historical and cultural developments in neighboring Syria-Palestine between 2000 and 1500 B.C. have been reconstructed largely through reference to Babylonian or

Egyptian documentary sources; cuneiform texts from Mari, Ugarit, or Alalakh illuminate events chiefly in N Syria. During these centuries, Amorite influence and domination expanded throughout the Levant and extended into the Egyptian Delta. Although other political crosscurrents dashed hopes of overall unity, individual Levantine city-states prospered as international trading contacts blossomed. The coastal position and port cities of the Levant (e.g., Ugarit, Byblos, Tyre) helped to make that area the commercial crossroads of the ANE by about 1500 B.C. Although the area also became a military battleground for its more powerful neighbors, local political control in Syria-Palestine was enriched by lucrative international trade. The most important cultural contribution of the area in the mid-2d millennium B.C. was the creation of an alphabet—a writing system that would replace the more complex and unwieldy Mesopotamian cuneiform and Egyptian hieroglyphic systems, and eventually be adopted the world over.

The fluctuating political fortunes of myriad Near Eastern states between about 1500 and 1200 B.C. can only be understood in an international context. Cuneiform letters found at Amarna in Egypt are international diplomatic documents, and similar texts sprang up at sites all over ancient W Asia. For the first time, and with lasting consequences, Egypt shared this international stage with the powerful states of Babylonia and Assyria and the Hittite kingdom in Anatolia. Whereas Cyprus and the Bronze Age cultures of the Aegean (the Minoans and Mycenaeans) played key roles in international trade within the E Mediterranean system, the scarcity of detailed and comprehensive written sources from those quarters means that their political and economic relationship to Near Eastern states can only be established archaeologically.

The complex interaction and shifting balance of power among all of these LB Age states and kingdoms impinged significantly upon the Levant. The positive impact of international trade and politics on the Levantine city-states, however, was balanced and ultimately offset by internal social change and population dynamics. These international and local events are highlighted by the above-mentioned Amarna Letters, one of the most significant finds of cuneiform tablets ever made. Discovered in 1887 at Akhenaten's capital in Middle Egypt, the Amarna Letters provide unparalleled insight into international diplomacy and commercial contact during the 14th century B.C. With few exceptions, the tablets may be dated to the reigns of Amenophis III or IV (Akhenaten). Forty-two of the approximately 380 tablets retrieved were letters exchanged between the pharaoh and the kings of Babylonia, Assyria, Mitanni (the Hurrians), Hittite Anatolia, Arzawa (a small state in Anatolia), and Cyprus.

Several Amarna documents list lavish gifts exchanged between royal courts. Envoys were entrusted with delicate political and diplomatic missions as well as the safe conduct of great riches. The immense variety and quantity of goods, and the frequency of such exchanges, suggest that what is described was not just the exchange of royal gifts but the basic mechanism of trade between Egypt and its neighbors: messengers were merchants as well as ambassadors. Despite strong foreign influence in the Levant at this time, the Amarna Letters and other cuneiform sources

convey the impression that local dynasts effectively governed most Syro-Palestinian city-states. The Amarna Letters—the single most important source for interpreting internal politics during the mid-2d millennium B.C.—imply that the Syrian state of Amurru formed a successful, independent political movement based on popular support.

The Amarna archives also describe an omnipresent, socially restive group of people who spread throughout the Near East during the 2d millennium B.C.: the *Hapiru*. The fact that one could “become a *Hapiru*”—as the Amarna Letters state frequently—implies a lack of kinship or political ties; indeed, the *Hapiru* seem to include groups of differing ethnic composition, expatriate fugitives from various city-states and tribal communities. Some *Hapiru* served as mercenaries; others formed independent communal or semitribal organizations on the borders of settled areas, often in the hill and forest country of Syria-Palestine. Subject to no legal authority, the *Hapiru* endured on the outskirts of urban centers, where they maintained a fragile independence. The historical relationship between the social term *Hapiru* and the ethnic term “Hebrew” finds several defenders. Although the *Hapiru* were too broad and mixed a social group to be considered direct ancestors of the Hebrews, it is not improbable that some Hebrews were to be found among the *Hapiru*. Both were people without a homeland, members of an inferior class often feared and held in contempt by sedentary populations.

By the end of the LB Age (13th–12th centuries B.C.), a sequence of population movements, invasions, and destructions altered forever the essentially cooperative international relations that had been enjoyed by major and minor political states alike throughout much of the 2d millennium B.C. A combination of demographic, economic, climatic, and military factors accounts for the subsequent disorder throughout the Mediterranean.

4. The 1st Millennium B.C. Under the Assyrian kings of the first millennium B.C. and their Persian successors, the Mesopotamian trend toward organizational complexity and territorial expansion reached its peak. Local rule by city-states or more extensive rule by territorial states gave way to a highly centralized direct rule by empire. Starting around 1300 B.C. in Mesopotamia, the annals of the Assyrian kings—often regarded as proper historiographic documents—record basic geographic and tactical information about military campaigns. These annals also assign and criticize motives, appraise political events and individuals, and generalize about foreign peoples and lands.

Source materials for the 1st millennium B.C. are extensive; the annals of the Assyrian rulers and other royal inscriptions (Assyrian and Babylonian); hymns and paeans of praise (archives from Nineveh, Ashur, Kalhu, and Babylon); the *limmu* lists (already mentioned), which identify the regnal years of most Neo-Assyrian kings and occasionally refer to a campaign or a disaster that occurred during a particular year; dedicatory inscriptions of both Assyrian and Babylonian potentates, which praise the deeds and achievements of kings and gods alike; Babylonian chronicles that detail episodes (battles, treaties, deaths in the royal family) in a variation on the annalistic theme. Several Old Persian (cuneiform) inscriptions (some monumental in form) document selected events from the reigns of

several Achaemenid rulers in Persia. The (mostly unpublished) astronomical diaries of Babylonia record—on a daily basis—death, plagues, and other calamities, exclusively as an appendix to the observation of planetary movements.

During the reign of the early Chaldean (“Neo-Babylonian”) king Nabonassar (747–734 B.C.), certain events began to be recorded precisely and astronomical observations were noted accurately. The Greeks would later recognize Nabonassar’s rule as pivotal in the development of science: the Gk word *Chaldean* came to mean “astronomer.” An astronomical series of omens (entitled MUL.APIN—dated about 700 B.C. but based on earlier material) records the movements of the moon and planets. Although this series and other early efforts of Babylonian astronomy were somewhat superficial, after about 700 B.C. systematic stellar observations generated data that were calculated accurately enough to predict solstices, equinoxes, eclipses, and other planetary phenomena.

Chaldean astronomers also sorted out an elaborate, mathematical time-keeping system based on the number 60 (sexagesimal); ultimately this led to the division of hours and minutes still in use today. Because each Babylonian month began with the sighting of the new (crescent) moon, astronomers had to be able to predict this event accurately. Astronomers in the 3d and 2d centuries B.C., therefore, composed ephemerides that calculated and predicted new moons, eclipses, and other planetary and lunar movements. The rules for such calculations were outlined in accompanying documents called “procedure texts.” Modern astronomers rank the methods developed by their Babylonian precursors to calculate the movements of the moon among the highest achievements of ancient science. It must be added that religious motives were predominant in Babylonian astronomy: the heavens were mapped and the ephemerides composed in order to elicit divine intentions.

The appearances of astrological omens based on astronomical observations date from the very beginning of the 2d millennium B.C., and were later grouped in series (e.g., *Enūma Anu Enlil*). The earliest-known systematic astronomical observations (of the planet Venus) date from the Old Babylonian (OB) period (18th–17th centuries B.C.). Intended to serve as a basis for omens, these “Venus Tablets” (discussed earlier) were not highly accurate but maintain a significant role in determining the chronology of the 2d millennium B.C. By the 7th century B.C., more accurate astronomical observations led to the development of a fairly precise calendar. Because the Babylonian month was lunar, each year comprised only 354 days; approximately every third year an extra month had to be inserted to bring the lunar calendar into line with the solar year. By the reign of the Chaldean king Nabu-Naşir (757 B.C.), a regular, mathematically derived intercalation of seven months every nineteen years had been established. Known as the Metonic Cycle, this calendar served as the basis of the later Jewish and Christian religious calendars.

While the aims of the astronomers were religious, their methods were genuinely scientific, and their computations became instrumental in the invention of horoscopic astrology and the zodiac. At first, astrological omens were interpreted only with reference to the future of the country

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and its ruler. Horoscopic astrology, however, necessitated some technique whereby celestial phenomena could be related to individuals; that technique was the zodiac. By the 5th century B.C., the zodiacal belt had been divided into twelve zodiacal signs of 30 degrees each, a reformulation inspired by the schematic division of the year into twelve 30-day months (used in the 7th-century B.C. MUL.APIN text). Although Hellenistic Greeks were once credited with developing horoscopic astrology, the earliest-known Greek horoscope is dated 62 B.C.; the first-known Babylonian example was cast for a child born 29 April, 410 B.C., and at least four other examples are known from the 3d century B.C.

The division of the hour into minutes originated in Babylonia, but the division of the day into hours reflects both Babylonian and Egyptian influences. The Egyptians divided the period from sunrise to sunset into twelve parts, unequal because the length of the “hours” depended on the season of the year. Babylonian days consisted of twelve “double hours,” each of which contained sixty “double minutes.” Babylonian astronomers ultimately divided the entire day and night into six parts of equal and constant length for computational and observational purposes. Hellenistic astronomers adopted this subdivision of day and night into equal parts, and further divided the twelve double hours into twenty-four units. This division was comparable to that of the Egyptians, except that each unit now had equal length; and so the twenty-four-hour day came into being.

D. Conclusion

The science of astronomy directly influenced astrology, certain mathematical computations, and even the subdivision of the hour and day. Astronomy is Babylonia’s most direct legacy and the only branch of ancient science to have survived the collapse of the Roman Empire.

The people of ancient Mesopotamia exhibited little sense of history as it is understood today. Royal annals and king lists served to glorify rulers or to legitimize their rule; year-dates were bureaucratic records, nothing more. Only by linking such “historical” records to more “neutral” events—e.g., the observance and registry of certain planetary events—is it possible to provide absolute B.C. calendar dates.

The attempt to synchronize specific happenings in diverse areas—especially in Syria-Palestine or Cyprus where finds of written records are quite limited—is a complex and arduous task that demands a high level of competence in diverse fields (archaeology, Assyriology, and astronomy, to mention but a few). Given such a situation, historians of the ANE can only offer what seems to be a plausible reconstruction of events, founded on detailed research into a variety of cultural materials. The resultant historical scenarios are tentative and will have to be readjusted and rewritten as more archaeological and documentary evidence accumulates.

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A. BERNARD KNAPP

PREHISTORY OF MESOPOTAMIA

Southwest Asia must necessarily have been traversed by early people moving between Africa, Europe, and the Far East. To date, the earliest archaeological site with evidence of economic and social organization is that at 'Ubeidiyah in the valley of the Jordan river. When the site was occupied (about 800,000 years ago), the region was a humid steppe with a range of large herbivores. In the successive levels of this site were found varying proportions of chipped stone tools such as scrapers, utilized flakes, choppers, and rough bifaces, perhaps indicating variations in foraging activities (Bar-Yosef 1989). Occasional surface finds of such tools in the Tigris-Euphrates region indicate that such sites must also exist there (Smith 1986).

- A. The First Mesopotamians: The Paleolithic Foragers
- B. The First Villagers and the First Steps Toward Animal Domestication
- C. Developed Village Societies of the 8th Millennium B.C.
- D. The Impact of Irrigation on the Tigris-Euphrates Floodplain
- E. The First Hierarchical Societies of the Early 6th Millennium B.C.
- F. Developed Hierarchical Societies of the 5th Millennium B.C.
- G. The First States of the 4th Millennium B.C.

A. The First Mesopotamians: The Paleolithic Foragers

It is only for the last glacial age, less than 100,000 years ago, that there is even a fragmentary archaeological record for foraging peoples in the valleys of the Zagros mountains bordering the Mesopotamian lowlands. The Middle Paleolithic Mousterian technologies, used until about 40,000 years ago, were based on amorphous stone flakes and produced expedient tools whose shape was apparently dictated by relatively simple handles and repeated re-sharpening. The people who used these technologies successfully hunted wild goats, cattle, and red deer (Hole and Flannery 1967).

Though the succeeding Upper Paleolithic peoples used a technology based on prismatic blades struck from carefully prepared cores and produced a range of standardized tools, there is no evidence that Upper Paleolithic peoples were more successful as hunters. Though we have bone tools from the earlier Baradostian assemblages (dating about 40,000 to 20,000 years ago) and both these and grinding stones from the later Zarzian assemblages (dating about 20,000 to 11,000 years ago), the Zagros sites have yielded no direct evidence of the more elaborated clothing or increased use of plant foods reported from other areas. Similarly, there is little evidence of social or ritual organization. This dearth is surely a result of the lack of recent fieldwork on Paleolithic sites in Mesopotamia (Smith 1986).