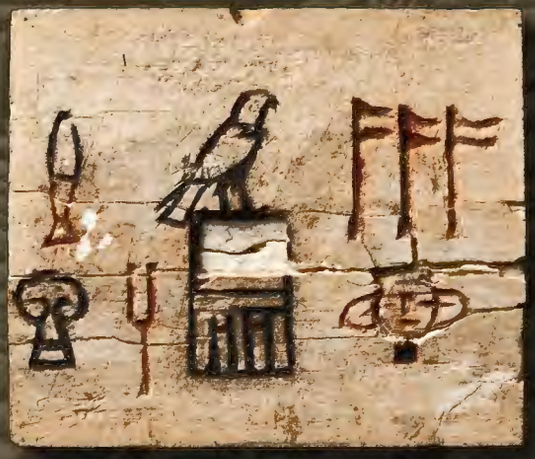

Visible Language

Inventions of Writing in the Ancient Middle East and Beyond

Edited by
Christopher Woods
with
Emily Teeter
Geoff Emberling

VISIBLE LANGUAGE

Ornamental peg with trilingual text (Old Persian, Babylonian, Elamite).
Persepolis, Iran. Achaemenid period. OIM A29808B (Catalog No. 61)

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edited by

CHRISTOPHER WOODS

with the assistance of

GEOFF EMBERLING & EMILY TEETER

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FOREWORD

GIL J. STEIN
DIRECTOR, ORIENTAL INSTITUTE

Writing is one of the most important inventions ever made by humans. By putting spoken language into visible, material form, people could for the first time store information and transmit it across time and across space. It meant that a person's words could be recorded and read by others — decades, or even centuries later. It meant that people could send letters, instructions, or treaties to other people thousands of kilometers away. Writing was the world's first true information technology, and it was revolutionary. The very ubiquity of writing in our civilization has made it seem like a natural, unquestioned part of our cultural landscape. Yet it was not always this way. Although anatomically modern humans have existed for about one hundred thousand years, writing is a relatively recent invention — just over five thousand years old. How and why did writing first appear?

One of the most important aspects of writing brought out in this book and exhibit is the fact that it was invented independently at least four times in different places in the Old World and Americas — in Mesopotamia, Egypt, China, and Mesoamerica. The specifics of writing varied from place to place, just as did the apparent motivation to invent writing. It is clear that in Mesopotamia, and perhaps to a lesser degree in Egypt, writing only came into existence with the emergence of state societies or civilizations. The earliest written texts from Mesopotamia, from the site of Uruk, are economic records, indicating that the early state needed to keep records of the people who worked for it, the food rations it disbursed, and the taxes it collected. Writing allowed the bureaucracy to have an institutional memory that extended beyond the lifetime of any single priest or scribe. Writing continues to fill those exact same needs of the state, five thousand years later.

Once it was thought that writing, regardless of where it was invented, was related to the bureaucratic needs of the newly emerged complex states. Our exhibit draws upon the most current scholarship to take a more nuanced view. For example, the earliest writing in Egypt, although related to state concerns, seems to be more about ceremonial display, while writing in China is first attested in divination rituals, and the hieroglyphic writing of Mesoamerica was motivated by religious beliefs.

In much of today's world, literacy — the ability to use the marvelous invention of writing — is largely taken for granted. Yet in the earliest states, we estimate that literacy was limited to less than 1 percent of the population so that it was rare for even kings to know how to read and write. In this context, it is hardly surprising that the earliest writing and the written word itself would have seemed mysterious, powerful, and even inspired by the gods.

Exhibit curator Christopher Woods has done a remarkable job in bringing together the world's earliest known examples of true writing, while showing us the contexts in which the first visible language was used. This is the first time that the 5,300-year-old clay tablets from Uruk — the earliest writing we know of so far — can be seen in the United States. Visitors to our exhibit and readers of this catalog will be able to see and compare the parallel pathways by which writing came into being and was used by the earliest kingdoms of Mesopotamia, Egypt, China, and the Maya world. Seeing these four examples of the earliest writing together in one place, one cannot fail to be impressed by the wonder of human creativity in these independent inventions that fundamentally transformed the very nature of civilization.

I want to thank Christopher Woods, along with Chief Curator Geoff Emberling and Special Exhibits Coordinator Emily Teeter, for envisioning and creating an exhibit that not only educates us, but helps us to see this fundamental and unquestioned part of our life and civilization in an entirely new light.

PREFACE

GEOFF EMBERLING
CHIEF CURATOR, ORIENTAL INSTITUTE MUSEUM

Given the fundamental importance of writing to the rise of civilizations, it will come as no surprise that a major challenge for this exhibit and catalog has been to limit our scope. We do not discuss every script used in the ancient Middle East (to say nothing of the rest of the world), we do not enumerate every use to which writing was put, or discuss in detail the many changes that writing enabled and imposed, from facilitating the ability of bureaucracies to control their subjects to fundamentally changing the nature of literature. Curator Christopher Woods has maintained an admirably clear focus on inventions of writing — on the early writing systems themselves. The result is a careful look at a subject that is fundamental to understanding past societies.

Exhibits are vast collaborative efforts, especially ones that include more than twenty authors and loans from five different museums. It is a great pleasure to thank the many people and institutions who made this project possible. Thanks to our colleagues at lending museums: James Cuno, Richard Townsend, Elinor Pearlstein, and Angie Morrow at the Art Institute of Chicago; Anthony Hirschel, Richard Born, and Angela Steinmetz at the Smart Museum of Art; Lawrence Stager, Joseph Greene, and Adam Aja at the Harvard Semitic Museum; Ulla Kasten, Amy Dowe, and Carl Kaufman at the Yale Art Gallery; and Beate Salje, Joachim Marzahn, Ramona Föllmer, and Olaf M. Teßmer at the Vorderasiatisches Museum, Berlin.

Here at the Oriental Institute, we thank our staff: Registrars Helen McDonald and Susan Allison, who did so much to organize and facilitate the loans; our conservators, Alison Whyte and Laura D'Alessandro, for preparing the objects for exhibit; and in our Photo Department, Anna Ressman assisted by Kevin Duong, Colin Halverson, and Kathryn Weber for the splendid new photography. Thomas James, Assistant Curator of Digital Collections, designed interactives for the exhibit and Web site, assisted by Allison Drtina. Our Publications Department, Thomas Urban and Leslie Schramer, demonstrated their usual good cheer and efficiency designing, editing, and producing this catalog. The exhibit team, Erik Lindahl and Brian Zimerle, were responsible for the overall design and installation of the show. Robert Wagner kindly provided translations of the catalog entries from the Vorderasiatisches Museum. Head of Public Education Carole Krucoff and intern Melanna Kallionakis Smith provided valuable recommendations on exhibit design and writing. Dianne Hanau-Strain of Hanau-Strain Associates designed the elegant cover and gave good advice. We also thank Oriental Institute Director Gil Stein and Executive Director Steve Camp for their consistent and generous support of the exhibit program.

Assisting Christopher Woods on the curatorial front, Emily Teeter, Special Exhibits Coordinator, kept the catalog and exhibit on track. Curatorial Assistants Oya Topçuoğlu and Elise MacArthur undertook a range of duties, from object selection to case layouts and authoring object entries; Andrew Dix, Tablet Assistant for the Oriental Institute's Tablet Collection, supplied information about some of the tablets. Dr. Michael Vannier of the University of Chicago Medical Center, aided by Monica Witczak, led the CT examination of the Mesopotamian token balls. We thank Matthew Stolper for allowing the museum to use the Persepolis Tablet Project's PTM photography set up for some of the exhibit materials. We appreciate the generosity of the Egypt Exploration Society and Günter Dreyer, respectively, for permitting us to reproduce images from their publications. Robert K. Englund prepared the diagrams of the early cuneiform tablets, and Hans Nissen provided a crucial photograph. We also thank the anonymous reviewer of the exhibit catalog for helpful comments made under pressure of time.

Our Community Focus Group (Angela Adams, Randy Adamsick, Christine Carrino, Dianne Hanau-Strain, Nathan Mason, Patty McNamara, Cesário Moreno, and Molly Woulfe) has once again provided valuable advice in the planning stages of the exhibit and associated programs.

A number of companies and individuals showed their support for this exhibit. The Women's Board of the University of Chicago generously underwrote the exhibit catalog as well as a portion of the exhibit costs. We also thank Exelon for their ongoing support of our special-exhibits program. We also appreciate the support of T. Kimball Brooker, David and Judy Harris, Julius Lewis and the Rhoades Foundation, Catherine Moore, Mary and Charles Shea, Toni Smith, and Anna White for their enthusiasm for the project. It is with a tinge of sadness that we also thank the Rita Picken Memorial Fund. Rita, a long-time volunteer at the Oriental Institute, and a sharp-witted and warm-hearted supporter, would have enjoyed this show.

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TIME LINE OF WRITING

All dates approximate

BC

8500	Simple tokens in the Middle East
3500	Complex tokens and clay envelopes
3400	Numerical tablets
3300–3200	Earliest writing in Mesopotamia and Egypt
3200–3000	Egyptian hieratic script
3100	Proto-Elamite script
2500	Adaptation of cuneiform to write Semitic languages in Mesopotamia and Syria
1850	Proto-Sinaitic alphabetic texts
1650	Hittite cuneiform
1600	Earliest Proto-Canaanite alphabetic inscription
1400–700	Anatolian hieroglyphic script in use
1250	Ugaritic alphabet
1200	Oracle-bone inscriptions, China
1200–600	Development of Olmec writing
1000	Phoenician alphabet
900–600	Old Aramaic inscriptions
800	First Greek inscriptions
800	South Arabian script
650	Egyptian Demotic script
600–200	Zapotec writing at Monte Alban
400–200	Earliest Maya writing
250–	Jewish square script, used for Hebrew and Aramaic
100	Spread of Maya writing

AD

75	Last dated Assyro-Babylonian cuneiform text
200–300	Coptic script appears
394	Last dated hieroglyphic inscription
452	Last dated Egyptian Demotic graffito
600–800	Late Classic Maya writing

INTRODUCTION
VISIBLE LANGUAGE: THE EARLIEST WRITING SYSTEMS

CHRISTOPHER WOODS
ASSOCIATE PROFESSOR OF SUMEROLOGY, ORIENTAL INSTITUTE

> "The invention of writing and of a convenient system of records on paper has had a greater influence in uplifting the human race than any other intellectual achievement in the career of man. It was more important than all the battles ever fought and all the constitutions ever devised."
>
> — J. H. Breasted,
> *The Conquest of Civilization*, pp. 53–54

The ability to represent language graphically, to make language visible, stands as one of humanity's greatest intellectual and cultural achievements. It is an often-quoted sentiment that speech is to being human, what writing is to civilization, or, in the words of the anthropologist Jack Goody, "Cognitively as well as sociologically, writing underpins 'civilization,' the culture of cities" (1987, p. 300). While many of us would quibble with the grandness of this claim and its implications for non-literate societies, it would be difficult to dismiss the contention that writing — the boundary between history and prehistory — transformed civilization more than any other invention. Books, letters, records, computers — all the ways in which we record ideas, facts, opinions, and sentiments — are inconceivable without writing. Speech is temporally fleeting and spatially anchored. Writing frees speech of these constraints, giving it permanence and allowing it to be transmitted over space far beyond the place of discourse. Writing also enhances capacity, enabling the recording of information well beyond the capabilities of human memory.

Our exhibit, Visible Language: Inventions of Writing in the Ancient Middle East and Beyond, explores mankind's earliest attempts to graphically represent language. In Mesopotamia and Egypt this took place toward the end of the fourth millennium BC. But no less significant developments took place in China at the end of the second millennium BC, and in Mesoamerica by the middle of the first millennium BC. The Middle Eastern inventions of writing, the primary focus of our exhibit, together with the inventions in China and Mesoamerica, comprise the four "pristine" writing systems. These are the four instances in human history when writing was invented *ex nihilo* "out of nothing" — that is, from scratch — with no previous exposure to, or knowledge of, writing. It appears quite likely that all other writing systems either derive from, or were inspired by, these four. Future research may, of course, force us to augment, or even decrease, this number. For instance, we do not currently include among these the undeciphered Harappan script of the Indus valley civilization (mid-third millennium BC), for its status as a writing system and the influence of Mesopotamian cuneiform remain uncertain. But at our present state of knowledge, Mesopotamia, Egypt, China, and Mesoamerica represent the best candidates for the independent inventions of writing.

In addition to investigating the four pristine writing systems, the exhibit addresses the forerunners to writing in Mesopotamia and Egypt as well as the evolution of these scripts. Of particular interest, with regard to the latter, is how in Egypt several derivative scripts developed to write the same language, whereas in Mesopotamia one script, cuneiform, which was invented to express Sumerian (unrelated to any known language), was adapted to write several unrelated languages, including Akkadian (belonging to the Semitic language family) and Hittite (Indo-European). The exhibit also explores a lesser-known writing system, Anatolian hieroglyphs, as well as the invention of one of the most influential and widely disseminated writing systems, the alphabet.

Visible Language opens at a time of renewed interest in written language generally and early writing systems in particular. Once banished to the fringes of linguistics, considered the poor cousin of speech, writing has gradually come to be acknowledged as an inherently interesting linguistic and cultural phenomenon in its own right — a mode of human communication parallel to speech and not necessarily subservient to it (Sampson 1985, p. 11). Not surprisingly, this newfound interest in the written word has reinvigorated discussion about the world's first writing systems, an area of study that until recently was the restricted purview of a few specialists working with the individual languages. And with recent finds from Abydos in Upper Egypt — which may very well not only challenge the primacy of writing in Mesopotamia, but undermine common assumptions about the origins and evolution of writing — this topic promises to continue to draw the interest of scholars and the public alike. Finally, if we may be permitted to boast, it is particularly fitting that the Oriental Institute present an exhibit on early writing, given our long history of study in this area. Indeed, the modern study of writing systems has its beginnings at the Oriental Institute with the publication in 1952 of Ignace J. Gelb's highly influential *A Study of Writing*.

* * *

In what follows I discuss some aspects of early writing, describing in broad strokes some of the similarities and differences between these systems, both in terms of the cultural context of each invention and, more particularly, the mechanics of each system. Much has changed in the nearly sixty years since the publication of Gelb's pioneering study. Then, monogenesis and "stimulus diffusion" were the theories of the day. These ideas are most closely associated with Gelb, although they had earlier proponents and antecedents. In its essentials, the theory is that writing originated only once, namely, in Mesopotamia with the Sumerian invention. And, from southern Iraq, the idea of writing, rather than the technology itself, spread during periods of strong cultural influence, to Egypt at the beginning of the third millennium and, by uncertain processes and mediums, eventually to China at the end of the second millennium. Writing in the New World, which was little understood at the time, Gelb discounted, claiming that it was not real writing at all.

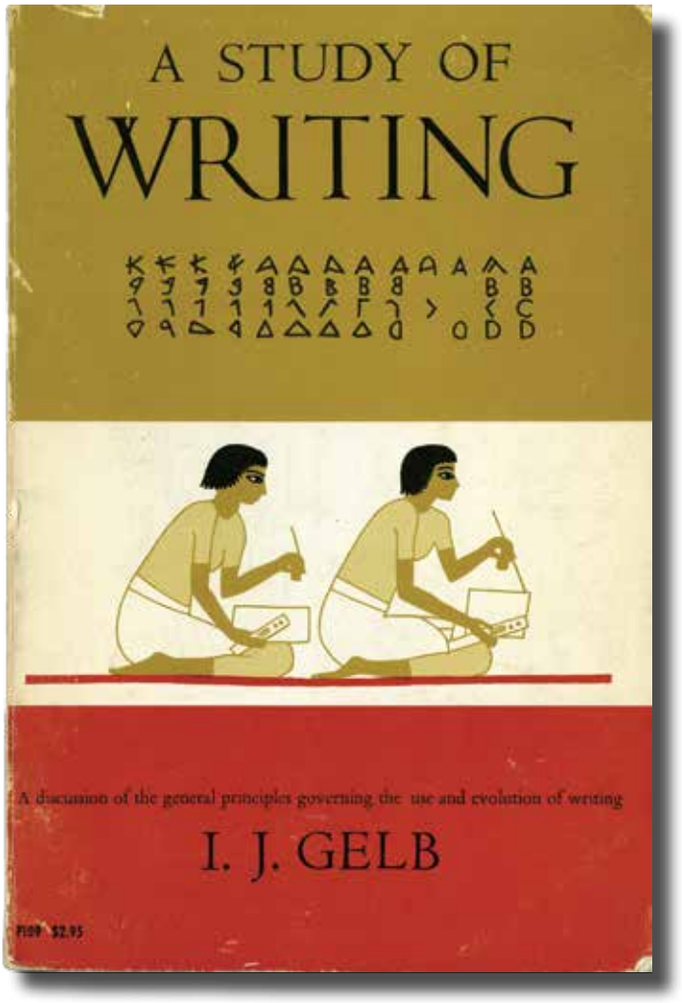


FIGURE 1. Ignace J. Gelb, *A Study of Writing* (1952)

Since Gelb's day, major strides have been made in understanding early Mesoamerican writing and today no one would seriously question the Maya script's status as true writing. And recent finds at Abydos that have pushed back the date of writing in Egypt, making it contemporaneous with the Mesopotamian invention, further undermine the old assumption that writing arose in Egypt under Sumerian influences. Finally, it is difficult to accept that Mesopotamian writing could inspire the type of system that developed in China at the end of the second millennium, the Sumero-Akkadian writing system at that time being so completely different from the one developed by the Chinese, not to mention the distances involved.

Acceptance of the independent invention of writing in these four cultures naturally raises questions

as to their similarities and differences in terms of the social context of each invention, their structure, and evolution — in short, to what degree can we speak of writing universals when we consider the pristine systems?

* * *

As for the cultural contexts of the invention, the clearest evidence is from Mesopotamia. There can be no doubt that the appearance of writing here was closely related to the sudden expansion of Mesopotamian civilization, an expansion that is particularly well attested at the city-state of Uruk — a settlement that in a short period of time became the largest in Babylonia, and the place where writing is first found and, in all likelihood, invented in Mesopotamia. Uruk writing can be convincingly connected with the dramatic increase in the sociocultural complexity that defined the city-state at the end of the fourth millennium. Given that the vast majority of the earliest cuneiform texts are administrative — detailing transactions involving property, materials, and labor — it is indeed difficult not to see the invention of writing as a solution to the practical bureaucratic problems posed by an increasingly complex economy. And the Egyptian invention may corroborate the utilitarian basis of writing. Long connected with ceremonial display, early writing in Egypt arguably now finds closer associations with bureaucratic necessity. The some two hundred small bone and ivory tags and the more than one hundred inscribed jars found at Abydos bear short inscriptions consisting of numerical notations (limited to the tags) and, what may be, personal names, place names, and the names of institutions. The tags and jars plausibly relate to the management of deliveries, documenting their places of origin. Similar to the Mesopotamian development, the invention of writing has been connected to the increase of sociopolitical complexity, which included the emergence of a vast territorial state near the end of the fourth millennium (see Baines 2004, pp. 161–62).

The nexus between administration, social complexity, and writing is more tenuous in the Chinese and Maya cases. In China, the social component is clearly in evidence as witnessed by the emergent Shang state (ca. 1200 BC), but writing is first attested primarily within the context of divination — for the purpose of recording royal divinations performed at the Shang court. Written on turtle shells and ox scapulas, these inscriptions recorded the answers to queries that were put to the gods (see *14. The Beginnings of Writing in China*, this volume). The Mesoamerican case is even more nebulous. The earliest writing in the Americas — the undeciphered Zapotec and Isthmian scripts and the first Maya writing — is essentially commemorative with a considerable theological component, many of the glyphs having a basis in long-established iconographic traditions and a calendrical system of great cultural significance (see Houston 2004b, pp. 292–308). Further, in the better-understood Maya case, the advent of sociopolitical complexity, as witnessed by monumental architecture and increased social stratification, predates the first texts by several centuries (Houston 2004b, pp. 302-03). These are contexts that may suggest religious and cultural motivations for writing, rather than administrative or economic necessities (see *15. The Development of Maya Writing*, this volume; Houston 2004b, p. 308). It has been suggested that in those cultures for which we do not have direct evidence for record keeping, utilitarian administrative necessities were nevertheless the driving force behind the invention of writing (Postgate, Wang, and Wilkinson 1995). The absence of these kinds of records in these cases, it is claimed, is to be attributed to the perishable media on which they were likely to have been kept — papyrus in Egypt, wood or bamboo slips in China, or bark or palm leaves in Mesoamerica. Although based entirely on circumstantial evidence, the hypothesis is, in many ways, compelling.

Yet, there are reasons to question the utilitarian basis of all writing, and whether we are correct in assuming that writing must have a universal basis in the first place. The aforementioned tags discovered at Abydos, for instance, were found within the context of an elite burial and were the result of a fairly labor-intensive manufacturing process, the inscriptions being incised into bone and subsequently colored with black paste (see *6. The Earliest Egyptian Writing,* this volume). The inefficiency in terms of the effort and costs involved suggests that writing in this case had a purpose beyond practical administration, though not necessarily incompatible with it. Even in the best-documented case, Mesopotamia, where writing is unquestionably bound to administration, the relationship may not be one of cause and effect — for writing emerges at the end of the Uruk period, appearing just as the sociopolitical institutions that gave rise to it collapse. Writing here, it can

be argued, did not give rise to complex bureaucracy, but was a function, or end result, of it. And if the breaks in the written record have a reality beyond the vagaries of discovery, then this new technology was not indispensable for Mesopotamian administration. The same can be said for Mesoamerican writing, which likewise makes its appearance shortly before the polities out of which it grew began to crumble (Houston 2004a, p. 10). Conversely, we may point to those complex cultures that managed quite well without writing, for instance, the civilizations of West Africa, the Incas, or the Aztecs before the Spanish conquest (Trigger 2004, p. 40). And so questions remain as to the relationship between writing and social complexity — what role does writing play in shaping civilization? Is writing a defining characteristic of civilization? And, more specifically, is all writing ultimately based in administration and record keeping? At present, it appears that we are dealing with likelihoods and general tendencies rather than universals. As Jerrold Cooper points out, writing is not "an obligatory marker for complex societies or civilizations. Rather, writing is a response, but not the only possible response, to problems raised by complexity" (2004, p. 94). Writing tends to arise as societies become more complex, and writing is often tied to bureaucracy — again as a response, not a cause — but there are, of course, exceptions. As Piotr Michalowski reminds us, "actuaries have their place in the world, but even the administrative use of writing involves complex psychological, ideological, and social issues that cannot be accounted for by purely utilitarian explanations" (1994, p. 56).

* * *

There is a more basic question that must be addressed before we can speak with confidence about the nature of the world's earliest writing systems and the roles they played in the societies that gave rise to them — namely, what is writing? It is a question that is more difficult than first appearances suggest. Broadly defined, writing represents speech. One must be able to recover the spoken word, unambiguously, from a system of visible marks in order for those marks to be considered writing. As defined in a recent survey of the world's writing systems, writing is "a system of more or less permanent marks used to represent an utterance in such a way that it can be recovered more or less exactly without the intervention of the utterer" (Daniels 1996, p. 3). The bond to the spoken word is prerequisite to any definition of writing. Those systems that meet this criterion, and so represent true writing, are labeled *glottographic*, while systems of communication that represent ideas only, without that essential bond to speech and so do not meet our definition of writing — for example, musical and mathematical notation, international road signs and the like — are labeled *semasiographic* (Sampson 1985, pp. 29–30).

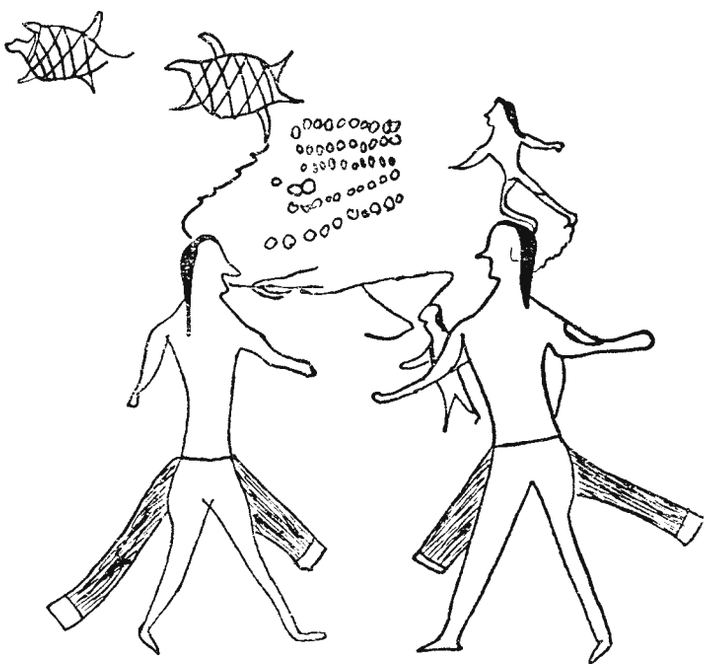


FIGURE 2. A Cheyenne semasiographic letter

An often-cited example of semasiography is the so-called Cheyenne letter (fig. 2). This nineteenth-century pictographic letter was posted by a Cheyenne father named Turtle-Following-His-Wife to his son, Little-Man, both of whom are represented by icons above the drawings of the respective figures. The letter contains a request from the father for his son to return home. The essence of this message — "Come to me" — is indicated by the "speech lines" emanating from the father's mouth and by two lines drawn from the small figure at the right shoulder of Little Man in the direction of his father. The fifty-three small circles between the two figures represent fifty-three dollars, which the father is sending Little-Man to cover expenses in connection with the trip (DeFrancis 1989, pp. 38–39; Gelb 1963, pp. 30–31). The message is quite detailed and specific, but, since it represents ideas

rather than speech directly, it is not writing — the message could be rendered in speech in various ways without affecting its essential meaning. In order for the letter to be intelligible, the father and the son presumably would have had a prior understanding of the symbols and their arrangement.

Far from representing an outdated, primitive form of communication, semasiography is being increasingly used in this era of globalization and mass media, in which it is necessary to communicate with speakers of various languages (Sampson 1985, pp. 31–32). Typically, these messages appear in limited and well-established contexts, but nevertheless may be quite sophisticated: a well-known example is unpacking and assembly instructions of the type given in figure 3 — with the exception of the word "Ikea" in the fourth case, the entirety of this relatively complex message is communicated pictographically (however, the question mark, while not representing speech, is more accurately described as an ideogram — representing the "idea" of a question).

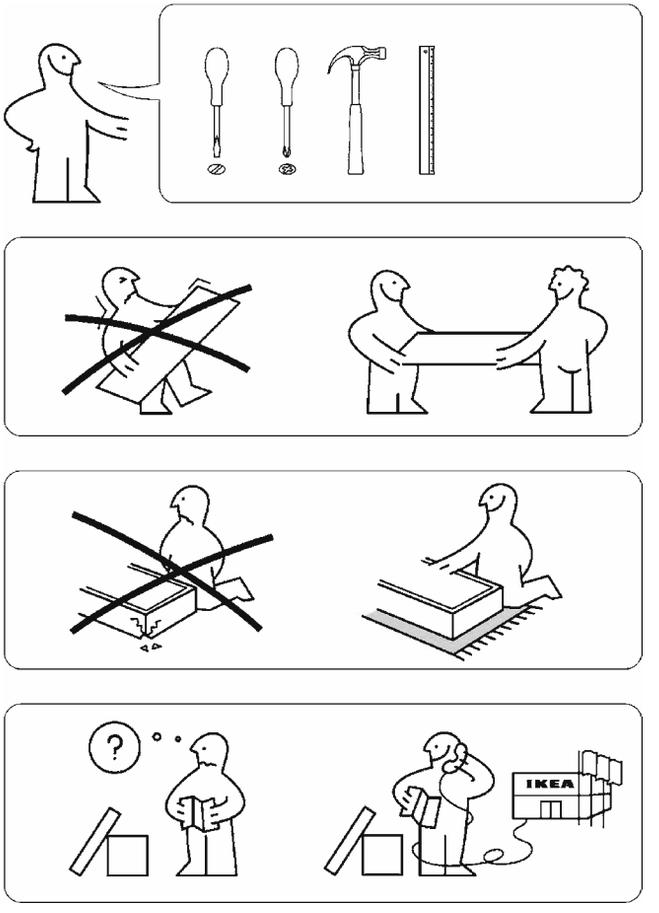


FIGURE 3. An example of contemporary semasiography — unpacking instructions from Ikea

Implicit to most discussions of writing is that the invention represents a punctual event — that there is a knife-edged division between the eras of the oral and the written, between prehistory and history. But upon closer inspection, the situation is not as sharply defined as we often assume, and there is no distinct watershed moment when full speech begins to be made visible. First, in terms of the origins of the individual signs, writing grows in part out of earlier, long-standing symbolic communicative systems that are not writing at all, that is, out of semasiography. Second, in their earliest phases, writing systems have more in common with the semasiographic systems from which they spring than the mature, full-fledged writing systems that they become.

This first point is particularly well illustrated in Mesopotamia. At the end of the Uruk period, around 3500–3300 BC, there were a number of communicative devices utilized by administration that were decidedly not writing. These included pictographic and iconographic elements known to us from the glyptic and visual arts, clay envelopes, counters of various kinds, and numerical tablets. When writing was created, it was not a simple evolutionary development since many of these same devices persevered along side it (Michalowski 1990, p. 59; idem 1994, p. 64). Rather, writing in Mesopotamia borrowed elements from these various non-linguistic structures, added many new ones, codified and integrated the whole into a system that was quite different from the ones in which the individual elements originated (Michalowski 1996, pp. 35–36). Similar developments are attested for the Egyptian, Chinese, and Maya systems as well. In all cases, early writing contains signs, or graphs, that have an ancestry — for example, as symbols, icons, emblems, or pot marks — in earlier communicative systems. There is a distinction to be drawn, however, between the origins of individual graphs and the origins of the system. The systemization of the various elements of the writing was itself a more or less punctual event. In Mesopotamia — and the same applies to Mesoamerica, Egypt, and China — writing appears full-blown, from a structural point of view (Michalowski 1994, pp. 55–56; idem 1996, pp. 35–36). The essential organizing principles are in place at the very beginning. Writing already represents a coherent system in its earliest phases, reflecting most of the features and characteristics that it would display in its later, mature phases. Certainly, each writing system would evolve further — mostly in terms of sign inventory and

the relative proportions of signs representing words and those representing syllables or consonants without meaning (see below) — but these were developments that were separated by often long periods of stability.

What is at issue, however, returning to the second point made above, is the degree to which nascent writing systems represented speech. The operative word here is degree, for early writing did not reflect spoken language, nor was it invented to do so. Each of the pristine systems was of limited dissemination and each was used to record information within restricted domains. As such, early writing systems could rely heavily on oral context and non-linguistic background information to make their abbreviated, mnemonic messages intelligible. Prior to the invention of writing, the transmission of information and knowledge was the purview of oral traditions. The invention of writing did not immediately change this. Hundreds of years would pass in most cases before writing was used to record literature, letters, historical accounts, and other genres that originally belonged to the realm of speech, but that we most closely associate with writing. Indeed, Jerrold Cooper has made the point that the domains in which early writing was used were, in fact, invented along with writing itself — "Livestock or ration accounts, land management records, lexical texts, labels identifying funerary offerings, offering lists, divination records, and commemorative stelae have no oral counterparts. Rather, they represent the extension of language use into areas where spoken language cannot do the job" (2004, p. 83).

Particularly for early Mesopotamian and Egyptian writing, the bond with the spoken word was tenuous and, as Stephen Houston has pointed out, we do not know how the ancients *read* these documents, or if it is even appropriate to speak of reading in the sense that we understand it today (2004a, p. 12). The earliest Egyptian writing displays a significantly closer relationship with speech than its Sumerian counterpart; early Chinese and Maya scripts more so, but again, here the extant materials do not necessarily represent writing in its incipient phases. Indeed, early writing in Mesopotamia and Egypt, which may be the most representative of writing in its earliest stages, is not so different from the Aztec codices that recorded ideas and that we categorize as non-writing (Trigger 2004, pp. 47–48).

* * *

What systems of communication that eventually develop into full-fledged writing do have, as opposed to their semasiographic counterparts and progenitors, is the germ of phoneticism — the rebus principal is integrated into these systems. That is, the existence of homonyms in the language is exploited in that the sound of one word, most often one with a referent that can be easily drawn, is used to write another word that is pronounced identically or similarly, just as we alphabet users might draw the picture of an eye,  , to write the first personal pronoun "I" in a game of Pictionary. The rebus principle is integral to writing, as it allows the writing of those elements of language that do not lend themselves easily to graphic representation, such as pronouns, grammatical markers, and, of particular importance for early writing, personal names and foreign words. There is an element of economy here as well. By assigning homonyms to a common sign, the system can make do with fewer signs, thus facilitating the learning of the script.

Early Mesopotamian writing, in particular, displays a remarkably limited degree of phonetization and use of the rebus principle. In this sense, in terms of reflecting full speech, the development of early writing was gradual. It was not before the first quarter of the third millennium BC that rebus writings would play a significant role, and not until the second half of the third millennium that the linear order of signs reflected sequential speech. The Mesopotamian case demonstrates that we must accept a continuum between semasiography and glottography, for the distinction between the two disappears without the representation of connected speech and confirmed rebus writings. In the case of Egyptian writing, phonetic signs apparently played a larger role in its incipient stage. Nevertheless, over five hundred years would pass before the script recorded continuous speech. The rebus principle was obviously known at an early date in both systems, and so the potential to represent speech was there from the very beginning or nearly so.

What is at issue, then, is not so much the evolution of script in terms of developing new strategies, but rather the limited application of writing and its perception within the culture. Writing was regarded as a mode of communication quite distinct from speech — and, alien to our own perceptions of writing, the earliest writing systems, as we have seen, fulfilled different communicative niches than speech. But beyond the

social perception of writing, there are also functional reasons for the divide between speech and writing in pristine systems, motivations that extend to the nature of writing itself. Although writing is born of speech, it belongs to the realm of the visual rather than the oral and aural, and so it has a different basis from speech. First, there is an intrinsic element of economy in all writing — no writing system notates all of the linguistic structure of speech. Tone, stress, and loudness, for instance, are most often omitted in writing systems that are considered to be highly phonetic. In the name of economy writing omits those elements that can be recovered from context. Given the limited and predictable domains in which early writing was applied, much of the linguistic structure, particularly with regard to grammatical markers, could be omitted.

We must also take into account the way in which language is first committed to writing. At the root of pristine writing is the logogram — graphs representing individual words — although a more accurate description would be to say that early writing is ultimately based on the morpheme. Morphemes represent the smallest meaningful units in language, and include lexemes, or words, as well as affixes that may be added to form larger words: for example, *drink* contains one morpheme, while *undrinkable* contains three (the verb *drink* and the affixes *un-* and *-able*). Morphemes have a greater psychological salience for native speakers than the phonemes, or sounds, that constitute morphemes (Sampson 1985, p. 36). People think in terms of morphemes and syllables, and they are immediately apparent to speakers without the linguistic awareness that allows for the dissection of language into units smaller than the syllable. Although not immediately apparent to those of us reared on the alphabet, dividing words into individual sounds smaller than morphemes is not intuitive, but requires a level of linguistic training, which we acquire when we learn how to read and write. Thus, it comes as no surprise that none of the pristine writing systems is alphabetic. Further, morphemes, specifically nouns, can often be represented by motivated, iconic symbols — that is, by pictures or pictographs — an option that naturally facilitates both the creation and learning of a script. On the other hand, morphemes that do not lend themselves to iconic representation can be expressed by relying upon homonymy and the rebus principle. But in many cases, these very morphemes represent the grammar. And, as we have seen, grammatical elements can often be recovered from context and so may be omitted.

* * *

That the logogram is at the root of pristine writing, while the rebus principle generates further phonetic values, accounts for similarities shared by the four pristine writing systems. As previously observed, all four have logograms, which are used to write nouns, verbs, and adjectives. And all have phonograms, signs that represent sound but not meaning, that are used to write bound morphemes, such as grammatical affixes. A phonological component is essential to a writing system for the simple reason that a system would have, quite literally, an impossibly large sign inventory — numbering into the tens of thousands, at least — if it assigned a different graph to each and every morpheme in a language, not to mention that without a phonological component the script would have no obvious bond to the language it was representing. Once again, economy is essential to writing and it is for the sake of economy that a phonological dimension and redundancy must be built into every logographic system. Consequently, there are no purely logographic writing systems. Furthermore, all the pristine writing systems have a class of semantic determinatives, although these are apparently rare in Maya writing. These are signs that belong to the realm of writing only, as they were not spoken but rather were used in reading to classify nouns and disambiguate homonyms by semantic class. In addition to the rebus strategy, which relies on homonyms, each system also exploited the existence of synonyms by assigning semantically related concepts or nouns to the same graph, and distinguishing the individual readings with phonograms or semantic determinatives.

But there are also important differences between these writing systems, some of which correspond to different language structures. As is the case with the Semitic languages, in Egyptian semantic meaning is expressed primarily through consonant variations, while grammatical meaning — which as we have seen is often retrievable from context by speakers — is expressed by vowels. It comes as no surprise then that Egyptian writing is logo-consonantal with uni-consonantal, biliteral, and triliteral consonant graphs. Sumerian and Maya, on the other hand, lacking this distinction between consonants and vowels, are logo-syllabic with the phonograms

consisting of syllables. And although Chinese writing is built on the same principles, structurally it is quite different. Here the logogram plays an even greater role, and every homonym has its own graph; in the course of the script's development, phonograms were added into the individual graphs, creating compound signs that combined phonological and semantic information, thus enhancing the script's bond with spoken language.

The relationship between language structure and writing has been pursued by Peter Daniels (1992), and recently by William Boltz (2000) in connection with Chinese. Both suggest that highly monosyllabic languages such as Sumerian and early Chinese, in which syllables are equivalent to morphemes, possess homonyms in large numbers and so more readily lend themselves, structurally, to productive rebus formations. They argue that it is more than simple coincidence that early writing tends to represent monosyllabic languages — that language structure affects writing. Critics of this idea contend that the theory of monosyllabicity stands in opposition to cultural models for the origins of writing, while, on the other hand, it appears not to be applicable to all cases (Houston 2004a, p. 7; Trigger 2004, p. 63). Maya and Egyptian do not share the same structure and degree of monosyllabicity as Chinese and Sumerian, while Inca, which was largely monosyllabic, did not develop a script. This suggests that monosyllabicity is just one among other possible motivations for writing — it likely did play a role in the commitment of Chinese and Sumerian to a visible form, yet it was not the only force at work, or, necessarily, a requisite one. Certainly, there are cultural factors involved in writing, and they may play a more critical role, but this does not exclude structural motivations. We must admit that there are correlations between the internal structure of spoken language and script type — we need only point to consonantal writing in Semitic languages to show this much.

Historically, we can also speak of broad similarities, but among them we see differences in detail. In terms of the formal development of individual graphs, we observe that pictographs — those signs that resemble their referents — may become in the course of time increasingly symbolic, that is, they become bleached of their iconicity and lose the visual similarity that they once shared with their referents. The degree to which iconicity is lost depends in part upon the medium of writing and the relationship between art and text. In Mesopotamia, where writing was done on clay, graphs became less iconic and more symbolic once they were no longer drawn with curvilinear lines but rather pressed into the clay in wedge-like strokes. But in Egypt and Mesoamerica, where the bond between art and writing was greater, in part owing to the use of the pen and the brush, iconicity was retained to a much higher degree (Cooper 2004, pp. 87–88). However, again, we must be careful not to take this as a universal development. In China, for example, where graphs were also drawn and painted, the iconic value of the graphs was lost, although the semantic basis of the logograms remained robust.

The transition to increased symbolism concerns not only the shape of the signs, but also their values in terms of phoneticism. As we have seen, historically, each pristine writing system increased its phonetic representation, becoming more closely linked to spoken language and thus better able to represent it. Each system, theoretically, could have simplified in the interests of efficiency, abandoning its logographic and semantic origins and developing into a purely phonetic system. Such a development would have greatly simplified the sign inventories of each: Sumerian, Chinese, and Maya could have conveyed language entirely with syllabic signs; and Egyptian could have done the same with its small class of uni-consonantal graphs — certainly, in all these cases there was the potential for this. That this development did not take place, that none of the pristine writing systems evolved into a purely phonographic one, speaks to overriding social pressures and the role of ideology in writing (see Cooper 2004, pp. 90–92). Writing systems are inherently conservative and once they reach their stable, mature phases they tend to persevere over long periods, resisting large-scale changes and maintaining their organizing principles. Issues of cultural identity and perpetuating long-established scribal traditions and the prestige attached to them are important contributing factors. Furthermore, in cultures of highly restricted literacy, as is the case with the four pristine systems, for the elites who control writing, there are, naturally, advantages to keeping writing complex and arcane (Gelb 1963, p. 165).

However, we must not overlook other, compelling linguistic reasons for maintaining logography. Logography tends to mask morphophonemic alternations — that is, the various pronunciations that morphemes acquire in different phonological environments. This is particularly true of Maya writing, and, although often

misunderstood, of Sumerian writing as well (Robertson 2004, pp. 32–34; Woods 2010). In short, a morpheme has one fixed spelling even though it may have multiple pronunciations depending on the context. English orthography observes this principle, for instance, in the writing of the past-tense suffix *-ed*, which has three different pronunciations, or allomorphs, but one invariant spelling: following *d* and *t*, it is pronounced *-ɨd*, where *ɨ* is a neutral vowel labeled a "schwa," for example, *added*, *visited*; after all other voiced consonants (those produced with vibration of the vocal cords) and after vowels, it is pronounced *d*, for example, *mobbed*, *booed*; following all other voiceless consonants (those produced without vibration of the vocal cords), it is pronounced *t*, for example, *mopped*, *kissed*, *nicked*.

In other words, English orthography ignores allomorphic alternation with respect to the past-tense suffix. Native speakers intuitively apply the same phonological rules that they use when speaking, and subconsciously *read* written *-ed* as *d* following voiced consonants or vowels, and as *t* following voiceless consonants. The basic principle at work here, as described by Noam Chomsky and Morris Halle, is that writing systems tend not to indicate phonetic variation "where it is predictable by general rule" (1968, p. 49). Again, economy is the motivating factor, as a single written form can represent several allomorphic realizations. But there are further advantages to this type of logography, or more accurately, morphography. It has been claimed, for instance, that one of the advantages of morphographic systems is that they provide a common orthographic foundation for various dialects and historical stages of a language. Writing systems of this type tend to represent morphemes in their most basic shapes — in other words, the written form is the most common allomorph or the one that is perceived by speakers to be, on some level, the default form. These basic allomorphs, it is argued, are often remarkably stable and resistant to secondary sound changes. Consequently, logographic writing systems that exploit basic allomorphs can provide speakers of different dialects with a mutually intelligible written language, while preserving access to older documents (Chomsky and Halle 1968, p. 49; Sampson 1985, p. 171; compare DeFrancis 1984, p. 154). In this light, there were distinct benefits to logography beyond the distinguishing of homonyms. And as Japan bears witness, heavy doses of logography, while seeming to complicate a writing system, particularly in the eyes of alphabet users, in no way diminishes literacy rates (Trigger 2004, p. 65).

The retention of logography, for both linguistic and cultural reasons, appears to be one of the most stable tendencies when comparing pristine writing systems. And, as Jerrold Cooper has recently admonished us, it is of tendencies that we must speak when we discuss the similarities in early writing (2004, pp. 93–94). In the end, as unsatisfying as it may be, we must content ourselves with the likelihood that there will never be a set of universals for pristine writing. The independence that characterizes the invention of each of the four writing systems extends to their internal structures, social contexts, and the evolutionary processes themselves — no two are identical. Yet, still there are similarities and tendencies. The study of the points of agreement, and disagreement, in early writing is in itself enlightening of the social and psycho-linguistic processes by which humans first made language visible.

REFERENCES

Bagley, Robert W.

2004 "Anyang Writing and the Origin of the Chinese Writing System." In *The First Writing: Script Invention as History and Process*, edited by Stephen D. Houston, pp. 190–249. Cambridge: Cambridge University Press.

Baines, John

2004 "The Earliest Egyptian Writing: Development, Context, and Purpose." In *The First Writing: Script Invention as History and Process*, edited by Stephen D. Houston, pp. 150–89. Cambridge: Cambridge University Press.

Boltz, William G.

2000 *Monosyllabicity and the Origin of the Chinese Script*. Preprint 143. Berlin: Max-Planck-Institut für Wissenschaftsgeschichte.

Breasted, James Henry

1926 *The Conquest of Civilization*. New York and London: Harper and Brothers.

Chomsky, Noam, and Morris Halle

1968 *The Sound Pattern of English*. Cambridge and London: MIT Press.

Cooper, Jerrold S.

2004 "Babylonian Beginnings: The Origin of the Cuneiform Writing System in Comparative Perspective." In *The First Writing: Script Invention as History and Process*, edited by Stephen D. Houston, pp. 71–99. Cambridge: Cambridge University Press.

Damerow, Peter

2006 "The Origins of Writing as a Problem of Historical Epistemology." *Cuneiform Digital Library Journal* 2006/1: 1–10.

Daniels, Peter T.

1992 "The Syllabic Origin of Writing and the Segmental Origin of the Alphabet." In *The Linguistics of Literacy,* edited by Pamela Downing, Susan D. Lima, and Michael Noonan, pp. 83–110. Typological Studies in Language 21. Amsterdam and Philadelphia: John Benjamins.

1996 "The Study of Writing Systems." In *The World's Writing Systems,* edited by Peter T. Daniels and William Bright, pp. 3–17. Oxford: Oxford University Press.

Daniels, Peter T., and William Bright, editors

1996 *The World's Writing Systems*. Oxford: Oxford University Press.

DeFrancis, John

1984 *The Chinese Language: Fact and Fantasy*. Honolulu: University of Hawaii Press.

1989 *Visible Speech: The Diverse Oneness of Writing Systems*. Honolulu: University of Hawaii Press.

Englund, Robert K.

2004 "The State of Decipherment of Proto-Elamite." In *The First Writing: Script Invention as History and Process*, edited by Stephen D. Houston, pp. 100–49. Cambridge: Cambridge University Press.

Gelb, Ignace J.

1963 *A Study of Writing.* Revised 2nd edition. Chicago and London: University of Chicago Press. 1st edition 1952.

Goody, Jack

1987 *The Interface Between the Written and the Oral*. Cambridge: Cambridge University Press.

Houston, Stephen D.

2004a "Overture to *The First Writing*." In *The First Writing: Script Invention as History and Process,* edited by Stephen D. Houston, pp. 3–15. Cambridge: Cambridge University Press.

2004b "Writing in Early Mesoamerica." In *The First Writing: Script Invention as History and Process,* edited by Stephen D. Houston, pp. 274–309. Cambridge: Cambridge University Press.

Houston, Stephen D., editor

2004 *The First Writing: Script Invention as History and Process*. Cambridge: Cambridge University Press.

Keightley, David N.

1983 "The Late Shang State: When, Where, and What?" In *The Origins of Chinese Civilization*, edited by David N. Keightley, pp. 523–64. Berkeley: University of California Press.

Macri, Martha J.

1996 "Maya and Other Mesoamerican Scripts." In *The World's Writing Systems*, edited by Peter T. Daniels and William Bright, pp. 172–82. Oxford: Oxford University Press.

Mallery, Garrick

1893 *Picture Writing of the American Indians*. Washington, DC: Government Printing Office. Reprint edition, 1972. 2 volumes. New York: Dover Publications.

Michalowski, Piotr

1990 "Early Mesopotamian Communicative Systems: Art, Literature, and Writing." In *Investigating Artistic Environments in the Ancient Near East*, edited by Ann C. Gunter, pp. 53–69. Washington, DC, and Madison: Arthur M. Sackler Gallery, Smithsonian Institution.

1994 "Writing and Literacy in Early States: A Mesopotamianist Perspective." In *Literacy: Interdisciplinary Conversations*, edited by Deborah Keller-Cohen, pp. 49–70. Cresskill: Hampton.

1996 "Mesopotamian Cuneiform: Origin." In *The World's Writing Systems*, edited by Peter T. Daniels and William Bright, pp. 172–82. Oxford: Oxford University Press.

Postgate, Nicholas; Tao Wang; and Toby Wilkinson

1995 "The Evidence for Early Writing: Utilitarian or Ceremonial?" *Antiquity* 69: 459–80.

Qiu, Xigui

2000 *Chinese Writing*. Translated by Gilbert L. Mattos and Jerry Norman. Early China Special Monograph Series 4. Berkeley: The Society for the Study of Early China/The Institute of East Asian Studies, University of California, Berkeley.

Robertson, John S.

2004 "The Possibility and Actuality of Writing." In *The First Writing: Script Invention as History and Process,* edited by Stephen D. Houston, pp. 16–38. Cambridge: Cambridge University Press.

Sampson, Geoffrey

1985 *Writing Systems: A Linguistic Introduction*. Stanford: Stanford University Press.

Senner, Wayne M.

1989 *The Origins of Writing.* Lincoln: University of Nebraska Press.

Trigger, Bruce G.

2004 "Writing Systems: A Case Study in Cultural Evolution." In *The First Writing: Script Invention as History and Process,* edited by Stephen D. Houston, pp. 39–68. Cambridge: Cambridge University Press.

Woods, Christopher

2010 "The Morphographic Basis of Sumerian Writing." In *Linguistic Method and Theory and the Languages of the Ancient Near East*, edited by Andréas Stauder and Christopher Woods. Chicago: University of Chicago Press (forthcoming).


Ankara
Hattusa
Alishar Höyük
TURKEY
Altintepe
Carchemish
Alalakh/Tell Tayinat
Ebla/Tell Mardikh
Ras Shamra
Nicosia
CYPRUS
SYRIA
Assur
LEBANON
Man
Mediterranean Sea
Beirut
Damascus
IRAQ
Jerusalem
Amman
Buto
Beth Shemesh
Lachish
Bethlehem
Bubastis
ISRAEL
Cairo
JORDAN
Faiyum
Hawara
Serabit el-Khadem
EGYPT
Abydos
Dendera
Naqada
Luxor
Esna
Hierakonpolis
Elephantine
Philae
Modern Capital
Modern City
Ancient Site
0 50 100 200 miles
0 50 100 200 km

MAP SHOWING IMPORTANT PLACES IN THE HISTORY OF WRITING

1. ICONOGRAPHY OF PROTOLITERATE SEALS

OYA TOPÇUOĞLU

Beginning in the late seventh millennium BC, seals carved with sometimes elaborate designs were used to mark ownership of goods in the ancient Middle East. With the development of urban economies in the fourth millennium BC, seals were used to mark ownership, origin, authorization, acknowledgment, or obligation, as well as individual or institutional responsibility for goods. The seals were impressed on wet clay that sealed containers and storerooms, to secure the contents from unauthorized access. After the advent of writing, seals were impressed on tablets by administrative officials and witnesses to legal transactions. In addition to their undeniable value as works of art, seals provide important insights into the society, economy, and symbolic systems of the ancient Middle East. As the most important tools of the complex administrative system developed prior to the invention of writing, stamp and cylinder seals tell us about the intricate practices of record keeping, administrative hierarchy, and beliefs of ancient Mesopotamians. Cut from a variety of materials such as shell, bone, limestone, and semiprecious stones, seals also functioned as amulets, votive objects, and jewelry.

Stamp seals first appeared in the seventh millennium BC in northern Iraq and quickly spread into the neighboring regions of Syria, Anatolia, and Iran. Early stamp seals have geometric designs carved on their flat surfaces (Catalog Nos. 2–3). Early in the fourth millennium, elaborately sculpted, animal-shaped stamp seals with crude animal figures carved on their bases were introduced. Crouching rams and the heads of lions and rams were the most popular seal shapes (Catalog No. 1). The fourth millennium also gave rise to cylinder seals, a tall, cylindrical style of seal with images carved around its circumference. After a short period of co-existence, cylinder seals replaced stamp seals.

The earliest use of cylinder seals is attested on hollow clay envelopes that contained tokens of various shapes and sizes (see *2. The Earliest Mesopotamian Writing,* this volume). It is still uncertain why cylinder seals were developed, and theories about this change in form are varied. Edith Porada suggested that cylinder seals, which appeared at a time when fine stone vessels were being produced, were a by-product of the stone-carving process. She claimed that because both vessel carving and seal engraving were done with the drill, the craftsmen who were able to use this tool skillfully may have developed the cylinder seal using the cylindrical stone cores of the vessels (Porada 1977, p. 7). On the other hand, Henri Frankfort suggested that since cylinders could be rolled on wet clay in one continuous motion, they provided an unbroken frieze that covered and sealed the juncture between a vessel and its cover, leading to the abandonment of stamp seals and the emergence of cylinders, which remained in use for two thousand years (Frankfort 1939, pp. 2–3). Finally, Hans Nissen has suggested that cylinder seals emerged as a result of the need for a more effective administrative control in the complex social system of fourth-millennium Mesopotamia, since with a cylinder the entire surface of an object could be sealed and protected from tampering while the small impressions of stamp seals provided only partial protection. In addition, the wider surface of the cylinder allowed increased variability in design, which in turn provided increasingly differentiated seals for a larger number of people (Nissen 1977, p. 15).

Seals functioned as markers of ownership through their designs, which differed for each seal. After the invention of writing, an inscription often accompanied the design. Inscriptions on seals that identified seal owners by name and profession appeared in the first half of the third millennium BC. Most identifications of figures and events depicted on protoliterate seals, however, remain speculative in the absence of contemporary textual evidence. Although the imagery of protoliterate seals remains difficult for us to "read," it is clear that it was used in conjunction with writing in a complex administrative system where the visual expression complemented the textual one.

The largest and best-known group of cylinder seals and seal impressions for the protoliterate period comes from the sacred Eana precinct in the ancient city of Uruk in southern Mesopotamia. Such is the importance of this city that scholars have named the period of its dominance the Uruk period. Seals and related materials were also found at the contemporary neighboring sites of Susa and Chogha Mish in southwestern Iran. At the very end of the fourth millennium BC these sites were important centers for the development of a complex administrative system and provide a toolkit similar to that from Uruk itself. Comparisons between Mesopotamia and Iran allow us to see the extent of shared ideology, technology, and administrative practices between the two regions.

Despite difficulties of interpretation, representations on Uruk-period seals provide important insights into various aspects of Mesopotamian society such as social organization, rituals, economy, architecture, and warfare. Major themes were expressed on seals through various combinations of basic design elements to create a large variety of seal designs and to allow both individual people and institutions to have their own specific seals. Designs on protoliterate seals depict mostly rituals or ceremonies central to the functioning of the state. The most common subjects were cultic scenes, scenes depicting the priest-king, battles, animals in front of architectural facades (Catalog Nos. 4–5), animal files with rows of identical or different animals (Catalog Nos. 6–10), and animals attacking other animals (Catalog No. 11). These scenes with their lively figurative imagery constitute the beginning of narrative in Mesopotamian art. Toward the end of the Uruk period (ca. 3000 BC) abstract imagery with geometric motifs was also introduced into the cylinder seal repertoire of Mesopotamia.

One recurrent figure on the protoliterate seals is a bearded man wearing his hair gathered in a bun, a thick, rolled band around his head, and a long diaphanous skirt covered with crosshatching. He is the central figure in a variety of scenes ranging from rituals, feeding plants to animals representing his active role in preserving the fertility of crops and herds (fig. 1.1), processions toward a monumental structure, and hunting and battlefield scenes. The importance attributed to this figure and his central role in a variety of activities help us to identify him as a royal figure, who is also easily recognizable in protoliterate monuments. Initially this central figure appears as a man mastering the forces of nature (Catalog No. 12). The iconography of the figure signals the emergence of a powerful ruler at the top of the increasingly hierarchical society and complex administrative system of the Uruk period. Although the identity of this ruler is not known with certainty, he is likely to be connected with the royal figure known from later historical sources as EN (Sumerian for "lord" or "ruler"), whose office combined cultic, military, and political powers.

Cultic scenes depict humans approaching a building identified as a temple, carrying objects interpreted as offerings on their shoulders and in their hands (fig. 1.2). Another common design shows animals emerging from reed huts (fig. 1.3) accompanied by a reed bundle (Catalog No. 39) symbolizing the goddess Inana (see *2. The Earliest Mesopotamian Writing,* this volume), which indicates their sacred character. Scenes depicting animals, mostly caprids in front of elaborate architectural facades, usually referred to as the "temple and herd" motif, have also been tied to the functioning of the temple institution through their identification as temple herds (Catalog Nos. 4–6). Finally, scenes involving manufacturing activities, in particular weaving, also belong to the group of scenes related to the functioning of the state (Catalog Nos. 13–15). Textual evidence indicates that Mesopotamian temples controlled a large workforce that took care of the temple fields and herds and manufactured products in associated workshops.

FIGURE 1.1. Cylinder seal with handle in the form of a sheep; imprint of same seal showing the ruler feeding plants to animals. The scene represents the ruler's central role in preserving the fertility of the land. From Uruk, ca. 3000 BC. Seal: marble and copper. 5.4 x 4.5 cm. Vorderasiatisches Museum, Berlin, Inv. VA 10537

FIGURE 1.2. Modern impression of a cylinder seal depicting two human figures approaching a building facade. One holds a feline whose paws are cut off, the other a string of beads. Behind them barley and sheep are visible

FIGURE 1.3. Modern impression of a cylinder seal carved with a scene of cattle emerging from and standing around a reed hut with emblems of Inana

The close association between rituals and activities of production, both of which were fundamental parts of religious and economic life in ancient Mesopotamia, prove the importance of the temple institution in the economy. Based on this knowledge, scenes depicting men and women involved in activities such as weaving, threshing and storing grain, working the fields, herding animals, and carrying goods (Catalog No. 16) have been interpreted as showing the personnel in the service of temple institutions. Symbolic scenes depicting vessels, tools, or products of manufacturing arranged in rows were also popular design elements on protoliterate seals and they could also be combined with the above-mentioned scenes of manufacturing activities involving humans (Catalog Nos. 15, 37).

In the battlefield scenes, the central male figure of the ruler holding a long spear dominates the scene (fig. 1.4). He stands on the right side of the composition looking over his troops and is larger in comparison to the rest of the figures. The spear and the figure's large size are indications of his power and importance. The rest of the scene is populated by two groups of people, one victorious group standing up and holding weapons and another group on the ground with their legs bent up and hands tied behind their backs. It is clear that the scene in question is one of conquest over the fallen enemy where the priest-king and his troops are celebrating their victory. Such battlefield scenes suggest the existence of armed conflict and coercion in the protoliterate period (Catalog No. 17).

Geometric seals most commonly found in Iran and referred to as "piedmont style" seals constitute a slightly later but quite different group (Catalog Nos. 18–19). These cylinder seals are normally made of a dark stone called steatite or chlorite that was baked at a temperature high enough to cause the material to turn white and to take on a glazed appearance. Some examples are also cut in bone. What makes them different is the distinctive imagery with which they are carved, depicting either fully abstract elements or abstract elements combined with representations of trees and animals. The main geometric motifs used on piedmont seals are hatched meander, hourglass, crosses, triangles, lozenges, rosettes, and chevrons.

The lack of written documents accompanying protoliterate seals and seal impressions that explain the meaning of their designs has given rise to a very puzzling question that scholars have been trying to answer for a long time. Is there any correlation between seal imagery and administration in protoliterate Mesopotamia? Several scholars have suggested

FIGURE 1.4. Ancient impression of a cylinder seal. Battlefield scene showing part of the ruler standing on the right-hand side, bound and naked prisoners at the center, and victorious troops looking over them. From Uruk. W2303a

that there may be a link between the different categories of subjects illustrated on seals and the administrative system of the period. In addition, while in the historical periods the owner of a seal was identified primarily through an inscription on the seal that mentioned the name, profession, and/or political or religious affiliation of the individual, in the absence of inscriptions in the protoliterate period, the link between the seal and its owner may have been made through the seal imagery.

One suggestion is that the quality of craftsmanship of seals and the complexity of their designs may be related to the status of the seal owner and his standing within the administrative hierarchy. Seals with schematic designs that were hastily made with mechanical tools probably belonged to institutions in which a large number of people were authorized to use the same seal and only a low level of differentiation in design was necessary. Simple patterns such as rows of animals could not be distinguished from one another and were thus used by anonymous individuals representing an institution. On the other hand, more complex seals with elaborate figurative imagery took a long time to make, were thus more expensive, and belonged to high-ranking individuals within the administrative hierarchy. Their complex patterns made up of unique design features differentiated and identified their owners.

Another theory claims that seal imagery referred to distinct offices within the administration and each design category represented and was used by a different branch of the administration. In other words, the complex images on seals were literal depictions of activities concerning different sectors of the economy. For instance, seals depicting the priest-king in rituals, hunting, and battles may have been used to seal central storerooms located in temples in the city of Uruk, while seals with animal file designs may have been used by a section of the administration dealing with animal husbandry, and those depicting prisoners may have sealed war booty. A separate category of seals and seal impressions depicting pigtailed ladies involved in industrial activities may have been used by temple institutions involved in production activities such as spinning, weaving, and pottery making (Catalog No. 13).

On the other hand, the geometric designs on the piedmont style seals, which are most common in western Iran and appear also in central Mesopotamia, have been related to the Proto-Elamite script developed in Iran around the same time as the proto-cuneiform system in Mesopotamia. Holly Pittman, who has studied the iconography of piedmont seals and its association with writing, suggests that the imagery of piedmont seals is "a complex visual system made up of a large number of individual elements combined according to discernible rules" (Pittman 1994, p. xv). In other words, variation in the imagery of piedmont style seals was not introduced for decorative purposes, but it was meaningful within the administrative system. According to Pittman, some design elements used in the piedmont style have formal similarities to the appearance of some signs in the undeciphered Proto-Elamite writing system and thus carried meaning somehow comparable to that of signs.

A similar association between writing and seal imagery has also been made for a cylinder seal formerly belonging to the Erlenmeyer collection (fig. 2.20). As described by Christopher Woods (*2. The Earliest Mesopotamian Writing,* this volume), this seal employs symbols that bridge the boundary between art and writing, a number of the graphs of the cuneiform writing system having their origins in the protoliterate visual arts.

So far there is no scholarly agreement on the specific cultural value of seal imagery and a literal reading of protoliterate seal images will remain unattainable for us in the absence of contemporary written documents accompanying them. Nevertheless, protoliterate seals and their designs continue to play an invaluable role in our understanding of the social, political, and economic aspects of ancient Mesopotamian culture. Most important of all, protoliterate seals begin for the first time to narrate events and social relations accompanying the emergence of the state. It is clear that both seal imagery and writing were used to communicate information and as devices of social control by a newly emerging state structure in fourth-millennium Mesopotamia and its neighboring regions. In addition, the unquestionable value of seals as astonishing works of art shows the remarkable dexterity of the seal carver to narrate elaborate and detailed events and situations on such a small surface.

2. THE EARLIEST MESOPOTAMIAN WRITING

CHRISTOPHER WOODS

At some point during the second half of the fourth millennium BC Mesopotamians began to inscribe signs on wet clay in what may very well represent the world's first writing system. The script is known as cuneiform (from Latin *cuneus* "wedge") — a descriptive designation that refers to the distinctive wedge-like appearance of the signs, or graphs, which were fashioned with a reed stylus. Indeed, the native Sumerian designations, which include the words *gag*, *gu-šum*$_2$, and *sangtak*, all similarly meaning "wedge" or "nail," also reflect this visual quality. The cuneiform script was likely invented to express the Sumerian language, but was subsequently adapted to write a wide variety of unrelated languages throughout the ancient Middle East. These include Akkadian (see *3. Adaptation of Cuneiform to Write Akkadian,* this volume), Eblaite, Elamite, Hittite (see *4. The Rise and Fall of Cuneiform Script in Hittite Anatolia*, this volume), Hurrian, and Urartian. Cuneiform texts were written as late as the first century AD, more than three thousand years after the script's invention. A consequence of using durable clay as the principal medium of writing, rather than perishable material such as papyrus, is that Mesopotamia is one of the best-documented civilizations prior to the Industrial Revolution.

URUK AND THE ARCHAIC TEXT CORPUS

The earliest-known cuneiform documents were found at the sacred temple precinct Eana in the city-state of Uruk, located in southern Babylonia in present-day Iraq (figs. 2.1–2) — and there is good reason to believe that this was the birthplace of writing in Mesopotamia. The invention of writing was

FIGURE 2.1. Evening at the Uruk excavation house, 1986

tightly intertwined with the rapid development of Mesopotamian civilization, as evidenced by extraordinary changes that took place there toward the end of the fourth millennium. During the Late Uruk period (ca. 3350–3100 BC), which takes its name from the city, Uruk was characterized by rapid urbanization and population growth, swelling to a population of 20,000 to 50,000 individuals and a size of 2.5 sq. km — nearly twice the size of the next largest settlement — to become, arguably, the world's first true city. Coupled with this, Uruk experienced a dramatic increase in social, political, and economic complexity. The results were a need to maintain records of production, goods, and labor and the corresponding rise of a complex administration. Writing was invented in this context. Indeed, that the vast majority of the earliest texts are administrative in nature suggests that the invention of writing was a response to practical social pressures — simply put, writing facilitated complex bureaucracy (Michalowski 1994, p. 56). It is important to stress in this connection that literature plays no role in the origins of writing in Mesopotamia. Religious texts, historical documents, and letters are not included among the archaic text corpus either. Rather, these text genres arise relatively late, beginning in the middle of the third millennium, some seven hundred or more years after the first written evidence.

The date traditionally given for the invention of writing in Mesopotamia is 3200 BC, but this is more or less conventional. A precise date for the earliest cuneiform texts has proved elusive, as virtually all the tablets were discovered in secondary archaeological contexts, specifically, in rubbish heaps that defy accurate stratigraphic analysis. The sun-hardened clay tablets, having obviously outlived their usefulness, were used along with other waste, such as potsherds, clay sealings, and broken mudbricks, as fill in leveling the foundations of new construction — consequently, it is impossible to establish when the tablets were written and used. The charcoal remains of pine beams found in the context of some of the Uruk texts suggest a date of around 3500–3390 BC. However, this date must be used with caution given that it represents a lone sample and various problems are known to complicate radiocarbon dates acquired from the latter half of fourth millennium (Margarete van Ess, personal communication). Currently, the German Archaeological Institute is attempting to acquire new radiocarbon dates of this material, which will hopefully clarify the situation.

Despite the difficulties surrounding the dating, we can identity two distinct phases in the evolution of the archaic script — frequently referred to as *protocuneiform* — based primarily on graphic styles, technique of execution, and complexity of the documents,

MESOPOTAMIAN ACCOUNTS OF THE INVENTION OF WRITING

> "(Enmerkar's) speech was very grand; its meaning very profound. But the messenger's mouth was too heavy, and he could not repeat the message. Because the messenger's mouth was too heavy, and he could not repeat it, the Lord of Kulab (that is, Enmerkar) patted some clay and put the words on it as on a tablet. Before that day, words put on clay had never existed. But now, when the sun rose on that very day — so it was! The Lord of Kulab had put words as on a tablet — so it was!"
>
> *Enmerkar and the Lord of Aratta,* lines 500–06
> (after Vanstiphout 2003, p. 85)

The oldest and most explicit Mesopotamian account of the origins of writing comes from the Sumerian story *Enmerkar and the Lord of Aratta*, one of a cycle of narrative poems that involve the rivalry between the southern Mesopotamian city-state of Uruk and the faraway, fabled city of Aratta, considered to lie across seven mountain ranges on the Iranian plateau. The story is known primarily from early Old Babylonian sources (ca. 2000–1750 BC), but it was likely first compiled in the preceding Third Dynasty of Ur (conventionally referred to as the Ur III period, ca. 2100–2000 BC), based on older oral traditions.

Enmerkar and the Lord of Aratta, like the other poems of the cycle, takes place at a time that is nearly contemporaneous with our earliest historical sources, during the semi-mythological First Dynasty of Uruk (ca. 2800–2700 BC), which included, in addition to Enmerkar, such legendary rulers as Gilgamesh and Lugalbanda. The story involves several challenges and counter challenges of ingenuity to determine which ruler — and city — has superiority over the other. This contest required an envoy to travel back and forth between the two cities in order to relate the long and cryptic messages, which, naturally, had to be memorized. As the excerpt given above describes, Enmerkar invented writing so that his message to the Lord of Aratta could be conveyed accurately, and would not be subject to the errors of memory. The messenger's mouth is described, literally, as "heavy" (the Sumerian word is *dugud*), which may refer to his inability to memorize the lengthy message, but may also — or additionally — speak to his failure to convey the eloquence of Enmerkar's words. Upon inspecting the inscrutable marks by the light of a fire, the Lord of Aratta furrowed his brow, for "the spoken words were mere wedges!." Remarkably — and in contrast to many other indigenous accounts, for instance, the Egyptian one ("*The Conception and Development of the Egyptian Writing System*") — the invention of writing is here portrayed as a human invention, occurring without the intervention of the gods. This account, mythological though it is, also shares the notion, which we believe to be historical fact, that writing was invented in the city-state of Uruk, and invented as a response to a practical, utilitarian need — though, that need, in reality, was to facilitate bureaucracy, and letters do not appear until nearly a millennium after the first texts.

In another Sumerian story, *Inana and Enki*, which also dates to the Old Babylonian period, writing is considered to be one of the hundred or so basic elements, or "essences" — the Sumerian term is *me* — of civilization. These *me*'s reside with Enki, the god of wisdom and intelligence and Inana's father, in the ancient cult center of Eridug. Inana, coveting them, endeavors to acquire the *me*'s for her city, Uruk, by getting her father intoxicated — a common ploy in Sumerian literature — and duping him into giving them to her. Succeeding in her plot, Inana loads the *me*'s, including that of the scribe's craft (Sumerian *nam-dub-sar*), into the Boat of Heaven bound for Uruk. The story may be interpreted as an etiology, though one necessarily based on a much older oral tradition, for Uruk's ascendancy. Writing, accounting, and the scribal matters generally were in the third millennium BC the purview of the grain goddess Nisaba. In the second, and particularly in the first, millennium, the scribal arts were attributed to the god Nabû, divine scribe and patron of writing, whose symbol was a single wedge likely representing a writing stylus. Finally, we note the late account of Berossus, an early third-century BC priest of the god Marduk. The story of the creation of the world encountered in the first book of his Babyloniaca (Burstein 1978) includes the myth of Oannes. This part-fish, part-human creature emerged from the Erythrean Sea (likely here referring to the Persian Gulf), in the "first year," and revealed to humanity all that was necessary for civilization, including the knowledge of writing, the sciences, and the arts. Giving his revelation during the day, Oannes would return once again to the sea at night. His teachings were comprehensive and perfect, for from that time "nothing further has been discovered." CW

all of which are suggestive of a chronological development. These two script stages correspond, but only indirectly, to the stratigraphy of the findspots. Consequently, the script and tablets of the earlier phase are labeled Uruk IV (ca. 3200 BC), while the script and tablets from roughly one hundred years later are labeled Uruk III (also known as the Jemdet Nasr period, ca. 3100 BC) (fig. 2.3). Approximately five thousand proto-cuneiform tablets were unearthed at Uruk by the German Archaeological Institute between 1928 and 1976 (Englund 1998, pp. 18–41). But these are not the only witnesses to the archaic script. Proto-cuneiform texts corresponding to the Uruk III tablets have been found at the northern Babylonian sites of Jemdet Nasr, Khafajah, and Tell Uqair, testifying to the fact that the new technology spread quickly throughout Babylonia soon after its invention (in ancient Iran proto-cuneiform possibly inspired

FIGURE 2.2. Plan of the German excavations of the sacred precinct Eana in Uruk. The plan includes the numbers and findspots of the archaic texts

the proto-Elamite script ca. 3100 BC). Illicit excavations since the 1990s account for several hundred additional texts, which possibly originate from the ancient Babylonian cities of Umma, Adab, and Kish. These texts have the advantage of being generally in better condition than those from Uruk, which, as noted, represent discarded rubbish and thus are frequently fragmentary. To date, the proto-cuneiform corpus numbers approximately six thousand tablets and fragments.

The Uruk IV tablets, representing the earliest phase of writing, typically bear only a few graphs and are simple in format. Further, many of the graphs represent naturalistic renderings of their referents, that is, they are pictographs. While this earliest phase of cuneiform contains a few arbitrary symbols (see fig. 2.5 below; note that the graph for "sheep (and goats)" is symbolic and not pictographic), for those that do represent pictographs — the vast majority of the signs — the Uruk IV phase of writing exhibits a high degree of iconicity between graph and referent (e.g., Catalog No. 41). The curvilinear lines of these graphs were drawn — or, perhaps more accurately, approximated with multiple small strokes (Joachim Marzahn, personal communication) — with a pointed stylus. The Uruk III phase of the script, on the other hand, represents a significant development in the paleographic evolution of the script in several

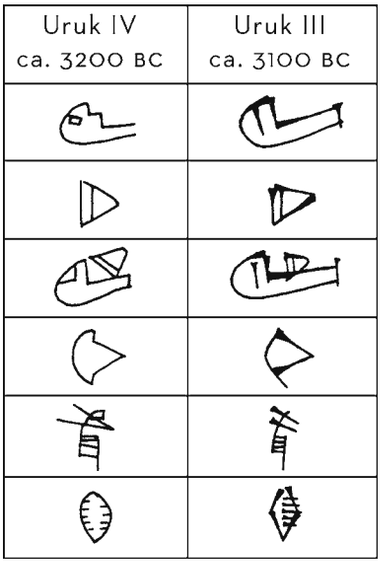
respects. The curved lines of the Uruk IV phase were straightened, while the strokes that comprise the graphs were restricted to certain orientations and were created by a stylus with a triangular cross section (fig. 2.4).

Additionally, the graphs were simplified and depicted more abstractly — for example, in the rendering of graphs consisting of animal heads, facial features, which were rendered naturalistically in the Uruk IV phase, were now omitted or depicted schematically (Green 1986, p. 465). These developments, which may have been made in the interests of efficiency as well as aesthetics, would continue well into the third millennium. As a consequence, those signs that shared a pictographic relationship with their referents gradually lost this iconic quality in the course of the evolution of the script, becoming conventionalized symbols — certainly contemporary users of the script would have regarded them as such, having no knowledge of the pictographic origins of certain graphs (fig. 2.5).

With the loss of curvilinear lines, the script assumed its distinctive cuneiform appearance as graphs were pressed into clay in short wedge-like strokes. There are two further notable developments that distinguish proto-cuneiform from the mature phases of the script. The first concerns the number of graphs employed in the system. Whereas the archaic script contained roughly nine hundred graphs, about six hundred graphs sufficed for later cuneiform. The second concerns the direction of the script. At some point, likely in the third millennium, the graphs were rotated 90 degrees counter-clockwise so that now they rested on their backs and the script was read from left to right rather than vertically (e.g.,  became  , SAG "head, person"). The reason for the change is obscure and much debated. However, it should be noted that developments of this kind are typologically quite common (Sampson 1985, p. 51).

As noted above, the majority of the archaic text corpus — about 90 percent — is administrative in nature. That is, these are economic texts that figured into a complex bookkeeping system consisting primarily of receipts and expenditures of animals and a wide range of commodities and raw materials. The tablets identify the goods, their quantities, and the individuals and institutions involved in the transactions. These were the detailed records of the business activities involving the Eana, the sacred precinct and central economic unit of Uruk.

FIGURE 2.3. Comparison of selected Uruk IV and Uruk III signs



The archaic tablets displayed in the exhibit clearly demonstrate not only the types of administrative information contained in the archaic text corpus, but also the salient differences between Uruk IV (Catalog Nos. 41–46) and Uruk III (Catalog Nos. 47–55) phases of the script. The Uruk III tablets provide a glimpse into the economic life of Uruk at the close of the fourth millennium and include accounts involving livestock, slaves, grain, and other commodities (figs. 2.6–8; Catalog Nos. 53–55).

Those graphs that were originally pictographs demonstrate a degree of abstraction, with straight lines, or wedges, having in many instances replaced the curvilinear lines of the Uruk IV script. Further, several of the longer texts represent the more complex accounts that distinguish this phase of the script from the proceeding one. Catalog No. 45 and particularly Catalog No. 44 typify the simple accounts that are diagnostic of the Uruk IV phase. But more revealing of the drawn, naturalistic quality of the Uruk IV graphs are the group of tags on display, particularly Catalog No. 41. These small pieces of clay were perforated to accommodate string so that they could be attached to baskets or vessels. The short inscriptions consist of the names of offices or officials; in some cases they possibly refer to beverages and dried fruits, commodities that would have been contained in the vessels to which the tags were attached (Englund 1998, p. 57).Interestingly, the earliest

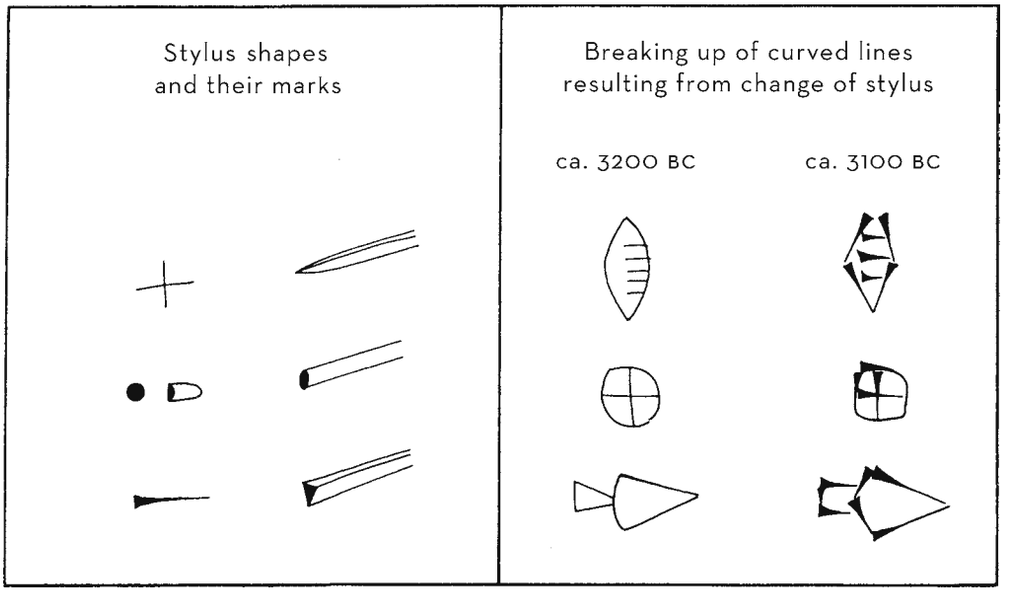


FIGURE 2.4. In the Uruk III phase incising is replaced by impressing the triangular cross-sectioned stylus into the surface of the clay tablet

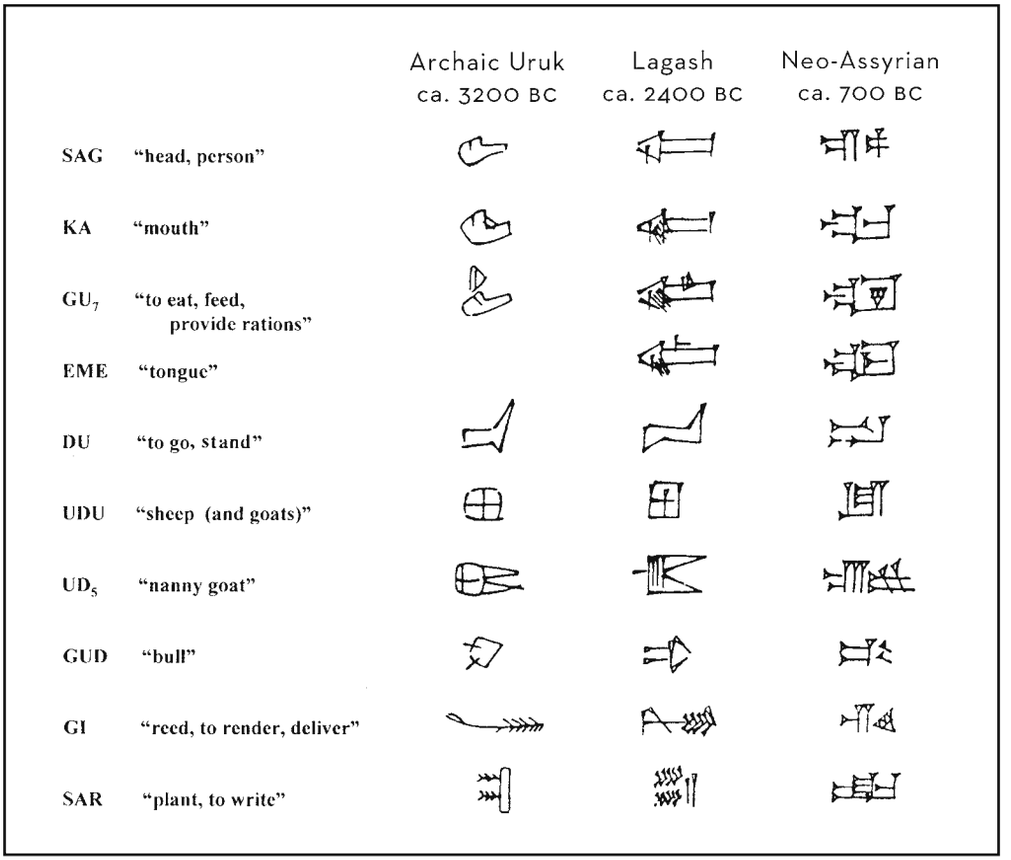


FIGURE 2.5. The evolution of cuneiform signs

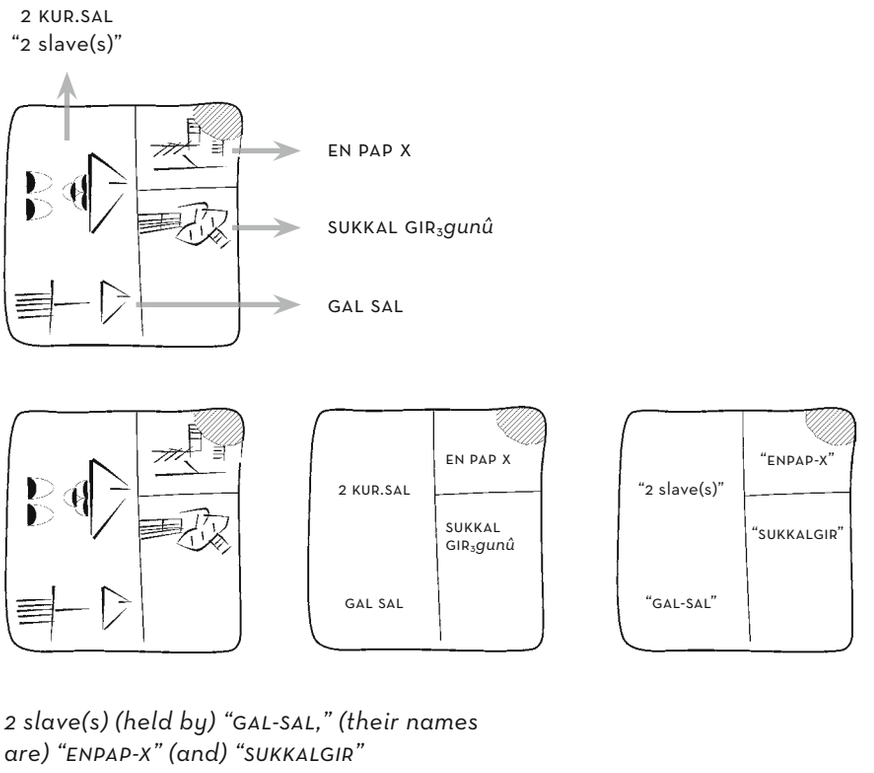


FIGURE 2.6. This text (OIM A2513; ca. 3100 BC) appears to identify two named slaves in the possession of a third individual. The sign for "slaves" in fact derives from two distinct signs, one for male (𒀀) and one for female (𒀭) slave. Typical of proto-cuneiform texts, the inscription does not include a preposition or verb, which would clarify the roles of the participants. This ambiguity is, in part, resolved by tablet format and the organization of information into cases

2 slave(s) (held by) "GAL-SAL," (their names are) "ENPAP-X" (and) "SUKKALGIR"

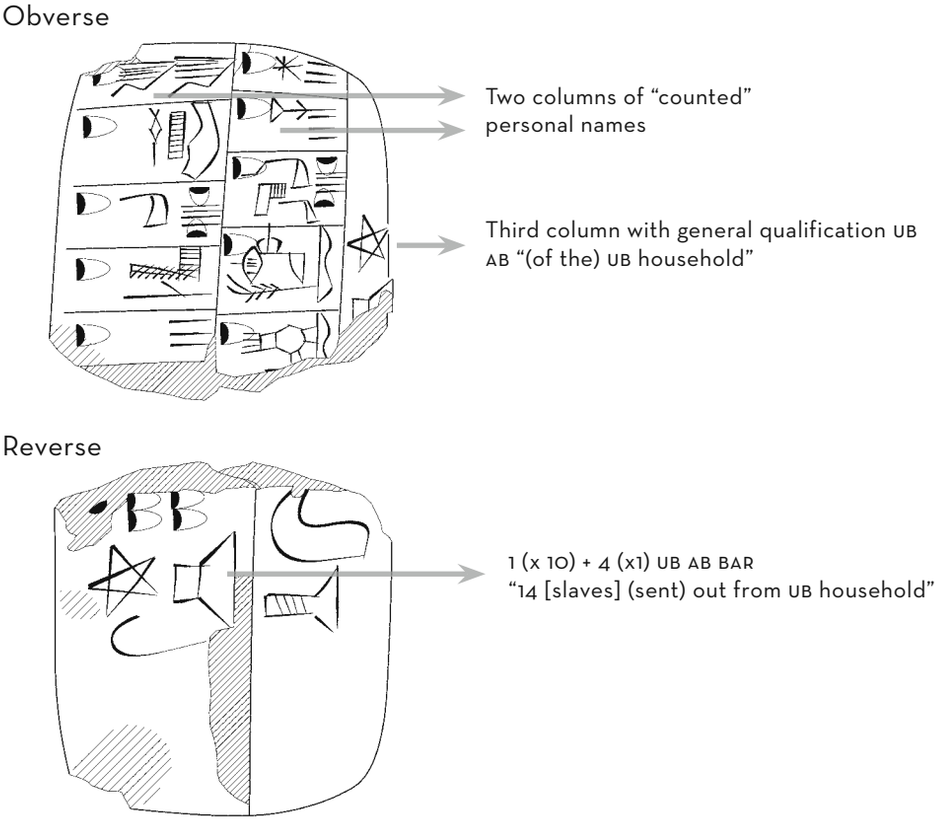


FIGURE 2.7. This fragmentary text (OIM A2514; ca. 3100 BC) concerns the transfer of fourteen individuals, possibly slaves, associated with the UB household. Although there appear to be many attestations of personal names in the archaic text corpus, they do not in general display obvious correspondences with the better-understood Sumerian names of later periods. This fact exemplifies some of the difficulties these texts pose, including ascertaining the language represented by the script. CW (modified after original provided by Robert K. Englund)

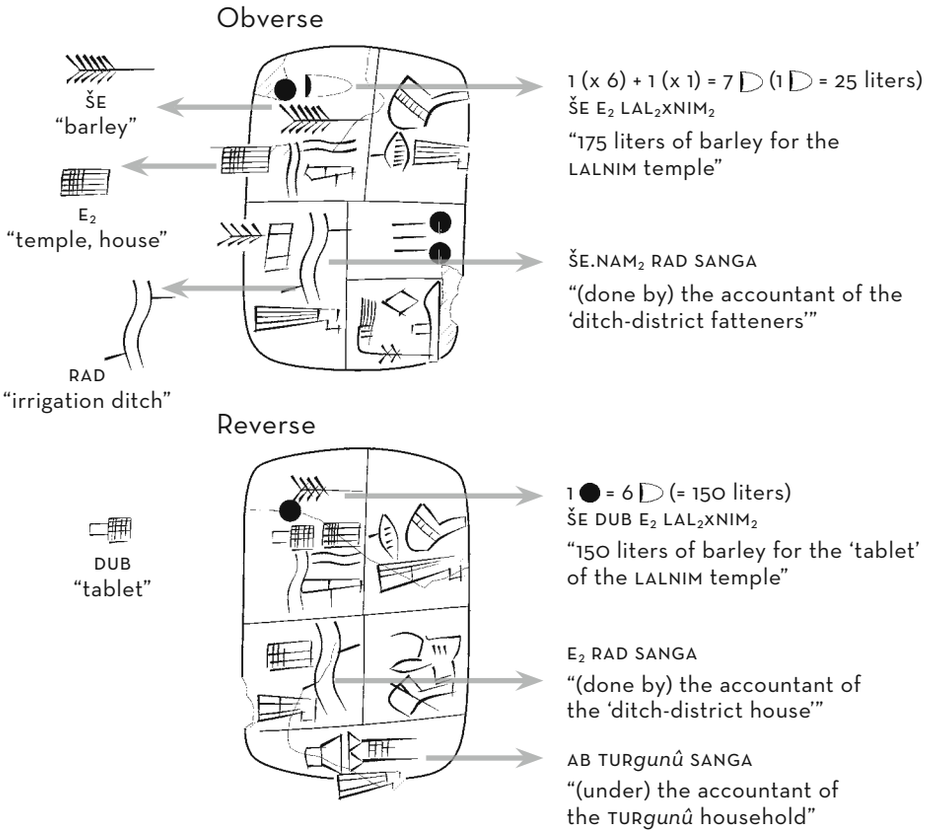


FIGURE 2.8. This text (OIM A12259; ca. 3100 BC), excavated at Tell Asmar by Oriental Institute archaeologist Henri Frankfort in 1933–34, though very difficult still contains interesting information. Grain measures of about 150–75 liters on both obverse and reverse were recorded by persons qualified as SANGA "accountant." Specialists identify this sign, , with a tallying box with compartments corresponding to bundling steps in the numerical system used by the scribes. The enclosure to the lower right would represent the box with "tokens" used in the calculations. Further, the households associated with these scribes suggest that $ŠE.NAM_2$ and E_2 RAD were part of the larger unit designated AB TURgunû. CW (modified after original provided by Robert K. Englund)

writing from Egypt consists of similar perforated tags (see *5. The Conception and Development of the Egyptian Writing System,* this volume). Like the Mesopotamian tags, the two hundred small bone and ivory tags discovered at Abydos bear short inscriptions, consisting apparently of personal names, place names, and the names of institutions.

Numerical and metrological notations play a prominent role in the archaic text corpus. The numbers can be large and the numerical notation complex. Roughly sixty graphs are devoted to expressing numerals. These graphs were not incised with a pointed stylus, as was the case with the word graphs, but were impressed with a round stylus held either perpendicular or at an oblique angle to the writing surface (Nissen et al. 1993, p. 25). At least five different counting systems are attested for the archaic texts, including the sexagesimal (i.e., with units 1, 10, 60, 600, 3,600) and bisexagesimal (i.e., with units 1, 10, 60, 120, 1,200, 7,200) systems. Remarkably, the numerical system used depended on what was being counted. For instance, all animals and humans, animal products, dried fish, fruits, tools, stones, and pots were quantified using the sexagesimal system, while all grain products, cheeses, and, seemingly, fresh fish, were quantified using the bisexagesimal system (Englund, 1998, p. 120). The sexagesimal system survived the archaic period and the Sumerians and was used by the Babylonians down to the end of cuneiform civilization at the turn of the current era. Indeed, our division of the circle into 360 degrees, the hour into 60 minutes, and the minute into 60 seconds goes back, ultimately, to the Sumerians and their sexagesimal numerical system, having come to us through the Babylonians and the Greeks (fig. 2.9).

The roughly 10 percent of the archaic text corpus that is not concerned with administrative matters are critically important for understanding early Mesopotamian intellectual life and the means by which the new technology of writing was passed from one generation to the next. These texts, referred to as lexical lists, represent one of the most distinctive and

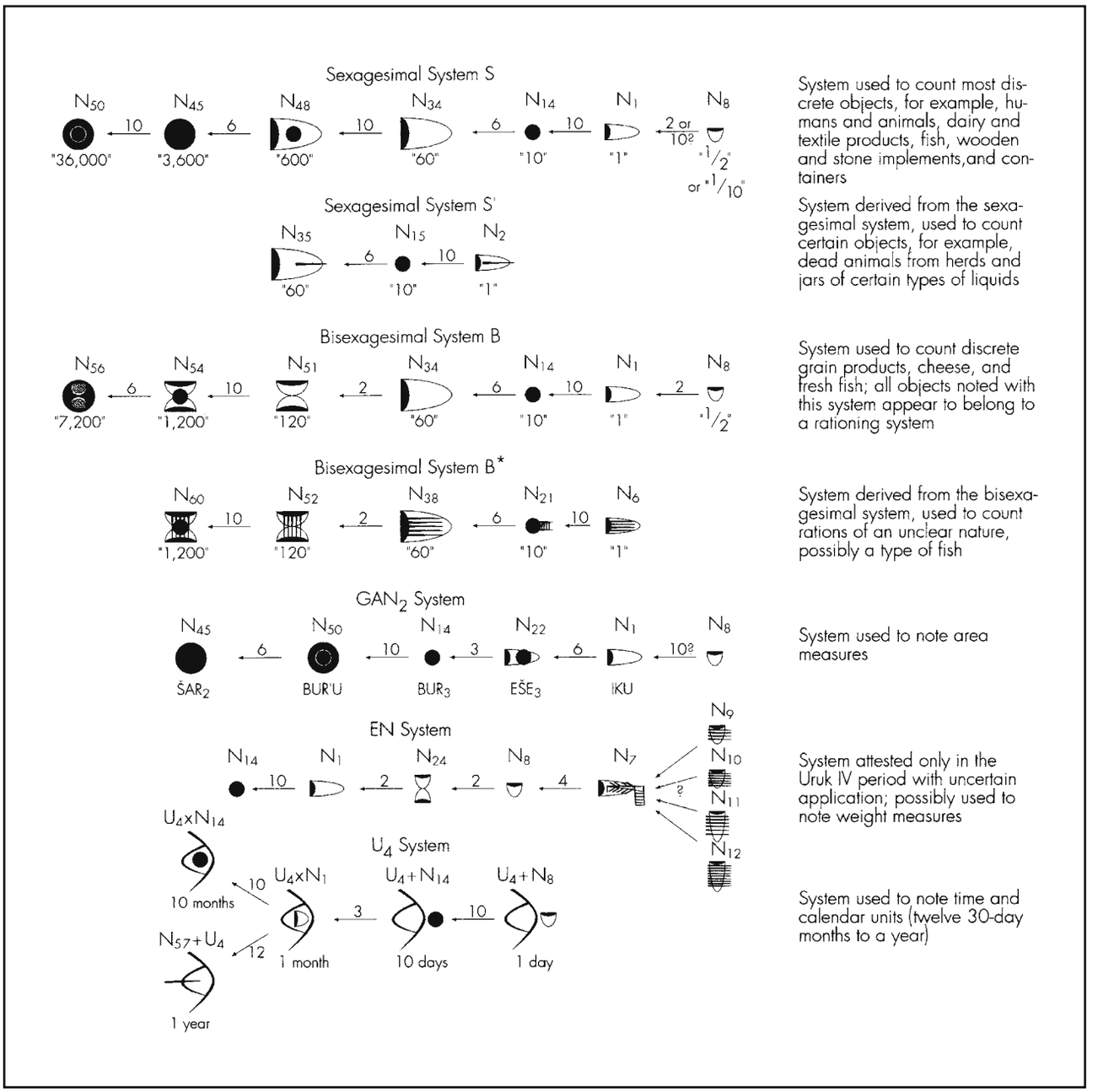


FIGURE 2.9. Numerical systems used in proto-cuneiform

prevailing signatures of Mesopotamian civilization. Essentially long lists of thematically organized words — ancient dictionaries, of a sort — lexical lists constituted the native lexicographical tradition. These texts were the primary paradigm for the scholarly organization and presentation of information, and served, moreover, as a means for teaching professional vocabulary and the intricacies of cuneiform writing. Copying a complex text of this kind would certainly have been assigned to a more advanced scribal student. A more elementary exercise is represented by VAT 16741 (fig. 2.10), in which a student has practiced inscribing various signs. This crudely formed lump of clay anticipates the elementary school exercises known from later periods, which were typically inscribed on round, bun-shaped tablets (Catalog No. 47).

Lexical lists were copied and recopied by scribal students down to the end of cuneiform culture. Catalog No. 46 represents the oldest, most important, and most copied lexical list known — the Standard Professions List, a hierarchically organized inventory

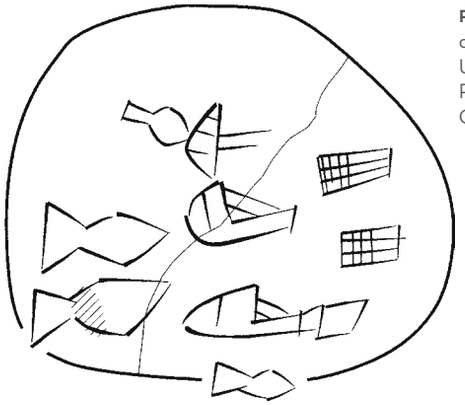


FIGURE 2.10. Line drawing of VAT 16741, an Uruk III scribal exercise. For photograph, see Catalog No. 47

of Uruk officials and occupations (Englund 1998, pp. 103–06); other lexical texts from the archaic period include lists of plants, animals, wooden implements, jars, and cities. The Standard Professions List contains some 140 entries and begins with the title *namešda*, which a later, second-millennium text equates with Akkadian *šarru* "king." In the archaic period, *namešda* may have simply represented the highest-ranking official in the Uruk administration (Englund 1998, p. 103). The titles of several high officials included in the Standard Professions List also appear as recipients of disbursements in Catalog No. 52, an Uruk III administrative text, demonstrating that titles included in the lexical list had a real-world basis. The Standard Professions List is thus crucially important for reconstructing Uruk society at the end of the fourth millennium. Remarkably this list was copied with little change throughout the third millennium, a span of nearly a thousand years — an astonishing fact indeed. From the succeeding Uruk III phase alone we have some 185 tablets and fragments (Englund 1998, p. 103), while the first complete exemplars — the archaic lexical lists typically represent extracts of longer texts — stem from the mid-third millennium (ca. 2600 BC), from the site of Fara (fig. 2.11).

Naturally, the existence of word-for-word duplicates from later periods, in which the script and the language are more comprehensible, facilitates enormously the decipherment of the archaic script. It is important to point out that faithful adherence to tradition with regard to the repeated copying of what was already an ancient text by the third millennium meant that scribes were reproducing sign forms and vocabulary, like the aforementioned *namešda*, that had become obsolete long before. Conversely, the titles of professions from the contemporaneous language necessarily could not be incorporated. This suggests that the lexical lists had a value beyond their use as simply lexicographic and instructional tools (Civil 1969, p. 4). Likely, their prestige stems in part from their cultural value as symbols of the scribal profession, the tradition of their scrupulous transmission from one generation to the next being intimately bound up with scribal identity.

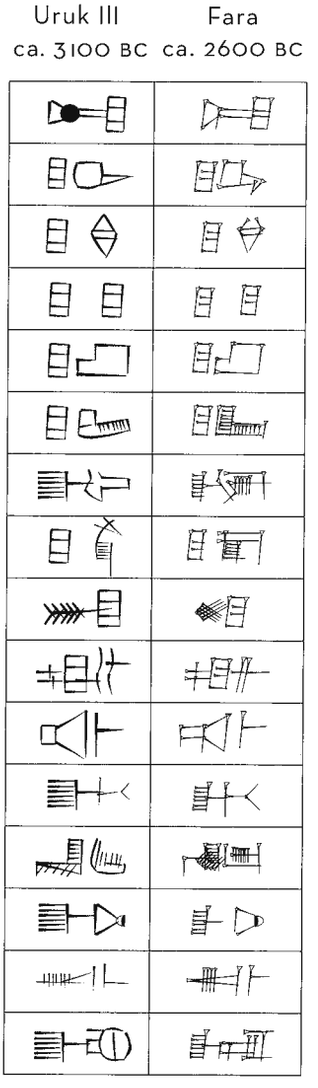
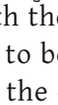


FIGURE 2.11. Comparison of the first lines of the Late Uruk- and Fara-period versions of the Standard Professions List

THE WRITING SYSTEM AND ITS RELATIONSHIP TO SPEECH

At the root of the cuneiform writing system, as originally conceived, is the logogram, or word sign, which represents a single word or group of semantically related words (see fig. 2.5). Assigning semantically related words to a common graph was done in the interest of economy, as it limited the number of signs the writing system required and facilitated the learning of the script. For instance, the sign DU, originally a pictograph of a foot,  , expressed the verbs *gen* "to go," *gub* "to stand," and *de*$_6$ "to carry," all of which share a transparent semantic relationship. Taken in isolation, one would be tempted to describe DU, and similar signs, as ideograms — signs that represent ideas or concepts — but in actuality all cuneiform signs represented specific words in a given context, and so functioned as logograms.

As Sumerian words tend to consist of (but are not exclusively) single syllables, logograms had both a semantic meaning, as representing words, as well as a phonetic value, expressing the syllabic pronunciations of those words. For example, the logogram represented by the graph KU$_6$ (the subscripted number is a modern convention for distinguishing homophonous signs),  , has the meaning "fish" as well as the syllabic value *ku*, which is the pronunciation of the word for "fish" in Sumerian. As described above, many of these logograms had a clear pictographic relationship to their referents; other examples include the picture of a reed,  (GI$_4$), for the Sumerian word for "reed," that is, *gi*, or the graph for "mountain,"  (KUR), for the word for "mountain," *kur*. A much smaller group of logograms, however, had an arbitrary relationship to their referents, such as the sign for "sheep and goats" which consisted of a cross inscribed within a circle,  (e.g., Catalog No. 28). Through the use of the rebus principle, whereby a sign for one word could be used to express a homonym, a second class of signs arose — phonograms — which possessed sound but not meaning. That is, the phonetic value associated with one word, most often something with a ready iconic representation, could be used to write another word that was identical or nearly so in pronunciation. The rebus principle is integral to writing, as it allows for the representation of those elements of language that are not easily represented graphically, for instance, grammatical affixes, prepositions, and — of considerable importance to the historical development of cuneiform — the phonetic rendering of personal names and foreign words. The high frequency of monosyllabic words and homonyms in Sumerian clearly facilitated this development. For instance, in later cuneiform the sign for *sar* "garden" (originally a pictograph of a garden bed, ) could be used to write the homophonous but more abstract verb *sar* "to write"; similarly, the sign originally representing "water,"  , *a* in Sumerian, was used for the syllable *a*, which among other things was the phonetic shape of the locative case in Sumerian. Finally, there is a third, smaller set of signs that are referred to as determinatives. These signs were not read, but merely served as aides in reading by indicating the semantic class to which certain words belonged; trees and wooden objects, for instance, were often preceded by the logogram, *giš*, for "wood," cities by *uru* "city," gods by *dingir* "god," and so on.

In its original conception, however, Sumerian writing relied almost exclusively on the logogram. Phonetic writings generated via the rebus principle played a remarkably minor role in proto-cuneiform. More certain examples of phonetic writings include: the writing of the name of the moon god, Nanna, which is written URI$_3$+NA,  , where NA,  , is phonetic complement with the value *na* indicating that the graph URI$_3$,  , is to be pronounced *nanna*; PIRIG+NUNUZ,  , where the complement NUNUZ,  , has the value *za*, indicating that the composite graph has the phonetic value *az*(*a*); the aforementioned sign designating a reed,  (GI$_4$), pronounced *gi*, is used to express the homophonous verb *gi* "to return"; and the syllabic, that is phonetic, spellings of the city names *Ša*$_3$*-bu* and *Gir*$_2$*-su* (Englund 2009, pp. 9–10; Krebernik 2007, p. 43). Relatively rare attestations of this kind notwithstanding, phonetic writings do not constitute an important organizing feature of the proto-cuneiform writing system. Only in the first quarter of the third millennium did phonograms, generated via the rebus principle, begin to play a significant and increasing role.

The scarcity of phonetic writings creates a number of problems connected with identifying the language of the script and determining whether proto-cuneiform can be defined as "true" writing.

As described in *Visible Language: The Earliest Writing Systems* (Introduction, this volume), writing is typically defined as the unambiguous visible representation of speech — forms of communication that convey ideas directly and are unhinged from spoken utterances do not qualify as writing according to this definition. A purely logographic system, without any phonetic signs (no such writing system actually exists) would pose certain problems in terms of determining the underlying language. For instance, we may intuitively know that the pictograph  means "head," but taken in isolation the graph gives us no indication of its pronunciation and hence what language it represents. We would have to consider how grammatical elements are rendered and how syntax, that is, word order, is handled to make this determination. If this information is not indicated in the script, it would be theoretically impossible to determine the underlying language, for the division between writing and other forms of visual representation would be blurred in the absence of an explicit link between script and speech.

This difficult situation is essentially what we face with the proto-cuneiform script. More than any other writing system known, Sumerian writing, in its original conception particularly, held economy as its topmost priority. There was a considerable gap between the natural, spoken language and what is represented by the early Uruk script. Most of the morphological information of speech, such as pronouns, adverbial markers, and other elements that convey grammatical meaning, is simply not recorded. The script, in this sense, is quite incomplete (fig. 2.12).

In Sumer, writing, as we have seen, was invented for a very restricted application, namely, for bookkeeping purposes. Much of the omitted grammatical information was either unimportant to the purpose at hand or was predictable from context, rendering its inclusion redundant. The proto-cuneiform texts were in a sense mnemonic devices — the decoder or reader of these texts had to rely heavily on the broader context in order to recover their full messages. As this context is forever lost, these documents pose enormous problems of decipherment and interpretation for the modern scholar. This was a writing system that was modeled on speech but did not mimic speech. Consequently, it is more appropriate to speak of "interpreting" texts rather than of "reading" them. Indeed, the breach between writing and speech extends to syntax. The order of graphs is fluid in early texts and words were not written in the order in which they were spoken. Tablet format, to a limited degree, compensated for this, as the organization of text into boxes, or cases (e.g., see figs. 2.6–8), played an important role in organizing information. Not until the second half of the third millennium did the sequence of graphs within individual cases reflect the sequential order of speech.

In sum, the evidence that the language represented by the proto-cuneiform script is, in fact, Sumerian is quite slim, being based on perhaps fifteen instances of phonetic writings, of varying degrees of certitude that have been discovered to date. However, the circumstantial evidence provided by the cultural continuity between the late fourth and the mid-third millennium, at which time there is no doubt the language represented is Sumerian, bolsters this

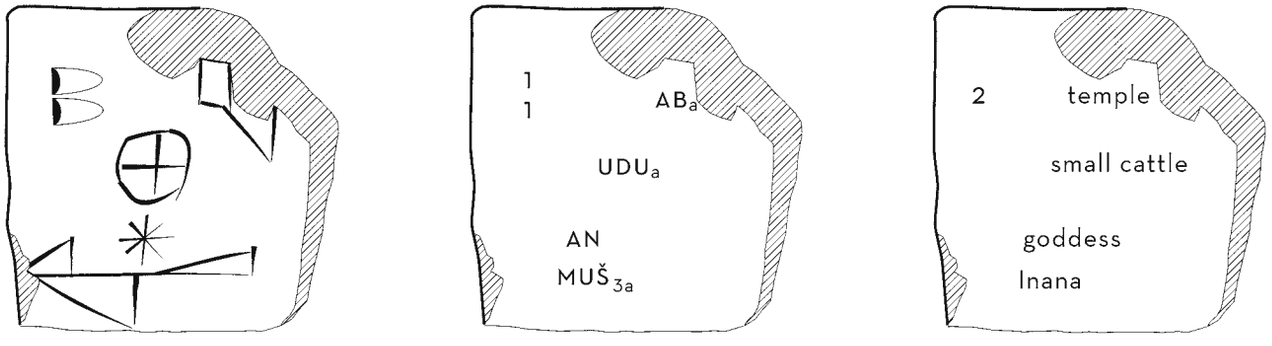


FIGURE 2.12. Line drawing, transliteration, and "translation" of an Uruk III text, illustrating the incomplete nature of the script and resulting ambiguities

argument. Most scholars today assume that Sumerian underlies the earliest texts from Mesopotamia. As for proto-cuneiform script representing writing in the sense defined above, we must accept that there is no sharp division between what we know to be true phonological writing and more symbolic modes of communication — pristine writing systems, in general, appear to occupy the ambiguous gray area between the two. Phonetic writings were present at the beginning, or so it appears, but they were of little importance to the organization and structure of the proto-cuneiform system. Indeed, the proliferation of phonetic writings, in terms of the development of a syllabary, was not precipitated by a desire to better express Sumerian, but rather by the necessity to write foreign words and the adaptation of the script to write the Akkadian language. That Sumerian writing became more closely bound to speech was a secondary consequence of these developments.

Sumerian writing became more explicit in its expression of morphology, so that by the end of the third millennium the grammatical elements of speech were, for the most part, reflected in writing. Yet economy of expression always remained a basic feature of Sumerian writing and it was always possible to omit information that was deemed to be retrievable from the broader context. A striking example of this is the existence of what may be referred to as "morphograms," an extension of the logography that was the basis of the writing system (Woods 2010). Morphograms are signs that represent a conceptually basic or default form of a morpheme, the smallest unit of meaning in a language. An example of a morphogram in English would be the writing of the plural marker in the words *cats* and *dogs*. The plural in both cases is written *-s*, even though in the case of *dogs* the plural is pronounced *z*. In other words, English orthography ignores the fact that the plural has the pronunciation *z* following a voiced consonant. English speakers unconsciously apply the same rules they use in generating speech and "read" the *-s* in *dogs* as a *z* (for a discussion of this phenomenon more generally and the English past-tense suffix *-ed*, see *Visible Language: The Earliest Writing Systems*, Introduction, this volume). In Sumerian writing this phenomenon is much more pervasive. A scribe could exploit the logographic, or more accurately morphographic, basis of Sumerian writing and write a basic or primary form of a morpheme regardless of the allomorphic shape — that is, the pronunciation — dictated by the context. The burden of supplying the appropriate "surface" or phonetic form of the morpheme was left to readers, who did so by relying on their native competence with the language. One had to know the language in order to render what was written into intelligible speech. For example, the verbal form pronounced *hanašumu* "he should give (it) to him" could be written *he-na-šum$_2$-e* (in addition to the more phonetic *ha-na-šum$_2$-mu*), a writing that preserves the basic or underlying form of the individual morphemes contained in the verb but obscures the phonetic changes owing to the assimilations that take place in speech. In the interests of economy, phonetic variation could be omitted in the writing where it was predictable from the context. While writings that more faithfully represent pronunciation increasingly dominate over time, it was always possible for a scribe to employ the morphograms that were the basic building blocks of the early script. One potential advantage in doing so was that fewer signs needed to be memorized and used, so that messages could be written more succinctly. But the overriding interest appears to be in the continuity of tradition and the prestige associated with the old orthography.

PRECURSORS TO WRITING

Mesopotamia boasts not only what may be the earliest writing system invented, but also some of the clearest evidence for the non-linguistic communicative systems that were precursors to writing. The first writing, which we may define as the unambiguous representation of speech, borrowed symbols from pre-existing administrative devices and artistic traditions, added many new elements, and codified and integrated the whole into a system that was fundamentally different from the communicative systems that preceded it (Michalowski 1994, p. 54; idem 1996, pp. 35–36).

The invention of writing represented a more comprehensive solution to a number of administrative and bookkeeping problems posed by an increasingly complex bureaucracy, problems that were addressed individually, and only in part, by earlier devices (Nissen 1986, pp. 323–26). These earlier,

prehistoric administrative devices, which were likewise products of the Late Uruk period, include cylinder seals, numerical tablets, and clay counters and their accompanying "envelopes" (see *1. Iconography of Protoliterate Seals,* this volume). As writing would more effectively do, each served as a means to control and monitor the flow of materials, commodities, and labor.

The hollow, baseball-sized clay balls referred to as envelopes and their associated counters, or "tokens" (Catalog Nos. 20–28 and 32–36), have received the most attention, having been made famous by Denise Schmandt-Besserat and her theory of the origins of writing (1992). These artifacts have been excavated in Iran, Syria, and Mesopotamia and make their first appearance in the archaeological record shortly before the Uruk IV tablets. The clay envelopes bear the impressions of one to three seals, but most importantly they contain clay tokens (Catalog Nos. 32–33 and 35–36); some envelopes, in fact, bear marks that indicate that the tokens were impressed upon their outer surface before being sealed within. The idea that these envelopes represented precursors to writing was first suggested by the French archaeologist Pierre Amiet in the 1960s. Studying a group of envelopes found at Susa in southwest Iran, Amiet (1966) observed that in some cases — the emphasis being on some — the markings on the envelopes matched those on the enclosed tokens. It was Amiet's idea that the tokens were numerical counters, and that each envelope was the record of a transaction — a type of primitive accounting system in which it was necessary to impress the tokens onto the outer surface of the envelope so that it would not have to be broken to inspect its contents. The very act of impressing tokens onto envelopes to represent numbers could have led to the creation of writing.

Amiet's understanding of the function of the envelopes was seemingly corroborated by a much later, second-millennium artifact found at Nuzi. This object, the so-called egg-shaped tablet (fig. 2.13), was first discussed in 1959 by A. Leo Oppenheim of the Oriental Institute.

This object is a type of envelope, but, again, much later in date than those discussed by Amiet. At the time of discovery, it contained forty-nine small pebbles. What is remarkable about this object, and what distinguishes it from the archaic envelopes, is that

FIGURE 2.13. The "egg-shaped tablet" from Nuzi (SMN 1854 = HSS 16:499)

it bears an inscription written in Akkadian. The inscription on the envelope makes reference to forty-nine sheep, and so matches the number of pebbles enclosed, identifying the pebbles as "the stones of the sheep" (Abusch 1981, pp. 3, 6). A receipt tablet, which clearly concerns the same transaction, was found together with the envelope, and also makes mention of the forty-nine sheep. The tablet provides the additional information that the sheep in question were placed in the care of a shepherd, Ziqarru, by a sheep owner, Puhišenni. So there can be no question that this particular envelope represents a simple accounting device for a specific transaction. And, although it postdates the protoliterate envelopes by some two thousand years, it seems reasonable to suggest that those earlier artifacts served a similar function (Lieberman 1980, pp. 340, 352). As to why such a primitive device would remain in use at Nuzi, where writing was well known, and why this transaction would be recorded in two different media, it might be suggested that the exchange of sheep involved an illiterate shepherd (Abusch 1981, pp. 7–8; compare Oppenheim 1959, pp. 123–24). Because the shepherd could not verify the accuracy of the written document, it was necessary to draft a second parallel receipt that would be comprehensible to him, this one consisting of the pebbles within the sealed envelope (Steinkeller 1984, p. 6).

Returning to our fourth-millennium envelopes, Amiet stopped short of equating specific token-shapes with specific cuneiform signs. This is the critical point at which Schmandt-Besserat's theory of the origins of writing departs from that of Amiet.

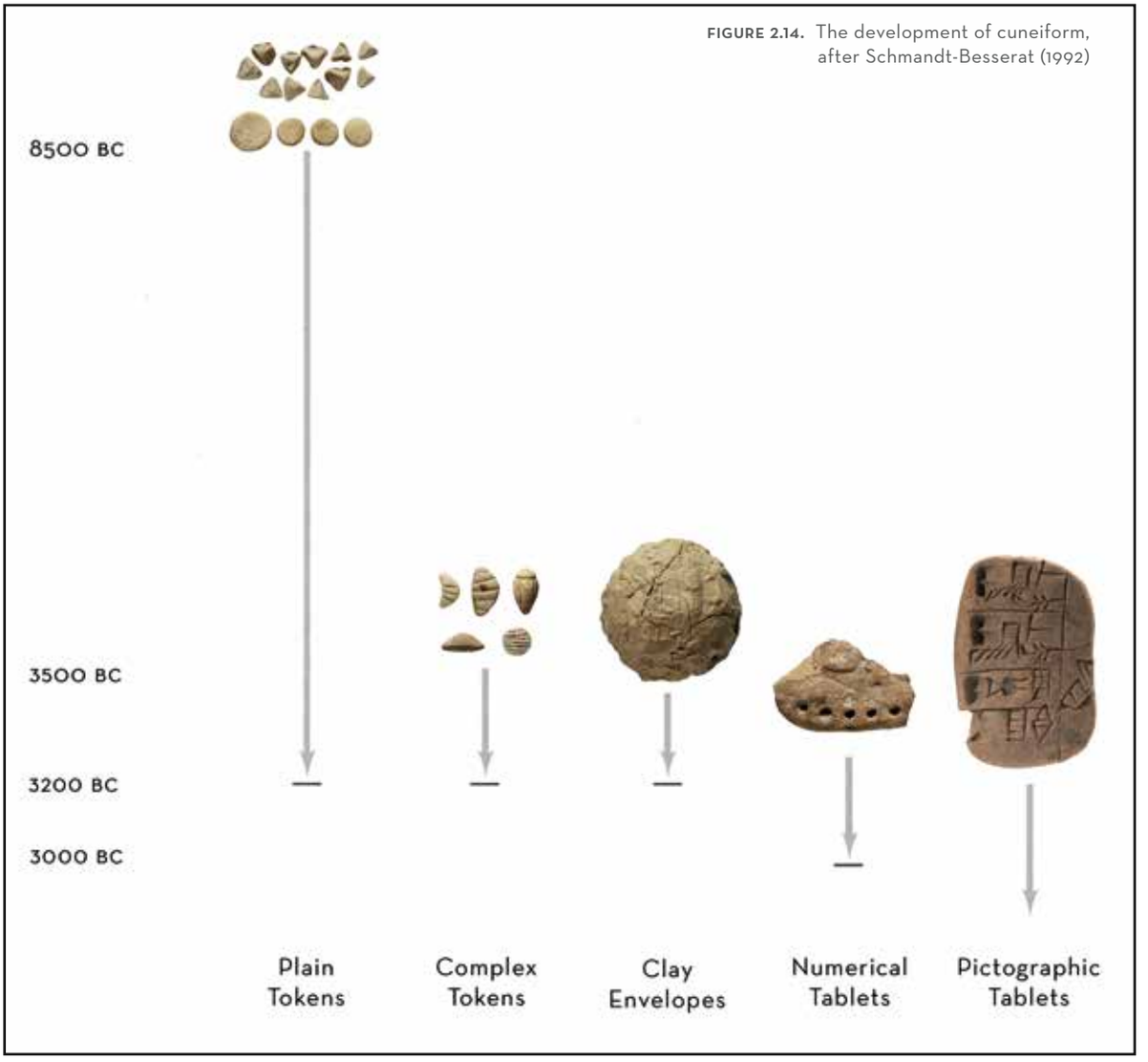


FIGURE 2.14. The development of cuneiform, after Schmandt-Besserat (1992)

In Schmandt-Besserat's view, both the numerical and logographic signs of cuneiform evolved directly out of the earlier token system. This theory is based on the visual similarities between the elements of the token and writing systems (fig. 2.15). According to Schmandt-Besserat, the simple, undecorated tokens, which first make their appearance with the beginnings of agriculture in the ninth millennium, developed into the numerical graphs (Catalog Nos. 20–21). The so-called complex tokens, those that have various markings and incisions and are regarded as a hallmark of the burgeoning urban societies of the fourth millennium, became the logograms of cuneiform (Catalog Nos. 22–28). They represented, she argues, the new commodities and bureaucratic needs of the complex societies that were emerging at the end of the fourth millennium. In Uruk and Susa, early bureaucrats organized them by threading them on strings and, of course, sealing them within clay envelopes after impressing them on the surface. From this point it is supposedly a simple and logical step to the development of writing. Early accountants soon realized that the process of enclosing tokens within envelopes was entirely unnecessary, since their two-dimensional impressions on the surface conveyed the same information with far less effort. So the envelopes were replaced by tablets. The cones and spheres of the complex token system were now translated to two-dimensional pictographs and were drawn with a stylus on clay tablets. By comparing the geometric shapes and designs of the tokens with those of the early cuneiform signs, Schmandt-Besserat assigned meanings to fifty complex tokens.

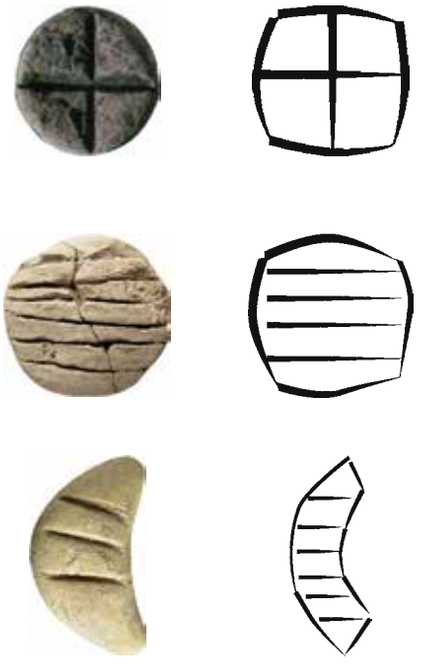


FIGURE 2.15. Comparison of complex tokens with the respective cuneiform graphs (from top to bottom) for sheep and goats, wool, and silver

Although there is an elegant simplicity to much of this argument, and Schmandt-Besserat is certainly to be praised for reigniting the debate over the origins of writing, the theory is problematic. It is difficult to accept, for instance, that tokens found over such a vast time period and over such a vast geographical range — from the Mediterranean to Iran, from the ninth to the end of the fourth millennium BC — comprised a uniform accounting system, as Schmandt-Besserat argues. For many of the objects, the archeological context is vague if not completely unknown. Notably, most of the tokens that are claimed to be the evolutionary precursors to cuneiform signs are not even found in connection with envelopes. However, it should be pointed out that perhaps only five envelopes have been opened, as doing so would necessarily destroy these artifacts; eighty of the some 130 excavated clay envelopes remain intact (Englund 1998, p. 49; Schmandt-Besserat 1992, p. 117). But recent technological advances in CT scanning and three-dimensional imaging now allow us to inspect the contents of sealed envelopes with a level of detail impossible just a few years ago. Currently, the Oriental Institute is working jointly with the University of Chicago Hospitals to scan the fifteen envelopes in the Oriental Institute's collections that were excavated from Chogha Mish in southwest Iran. The results promise to significantly enhance our understanding of the nature of the transactions or agreements represented by the tokens and clay envelopes (fig. 2.16).

The lynchpin of Schmandt-Besserat's theory — that tokens look like cuneiform signs — is, of course, subjective, and many of her identifications linking complex tokens to cuneiform signs are simply not plausible. Moreover, the assumption that a symbol present in two distinct systems — in this case the tokens of a prehistoric accounting system and proto-cuneiform — must necessarily have the same value is a well-known methodological pitfall in decipherment efforts, for it is entirely possible that the shared symbol has different values, or meanings, in the respective systems. Also damning in this regard is that the distribution of tokens, if we accept Schmandt-Besserat's identifications, is at odds with our understanding of early Mesopotamian economy and society. As the archaeologist Paul Zimansky has

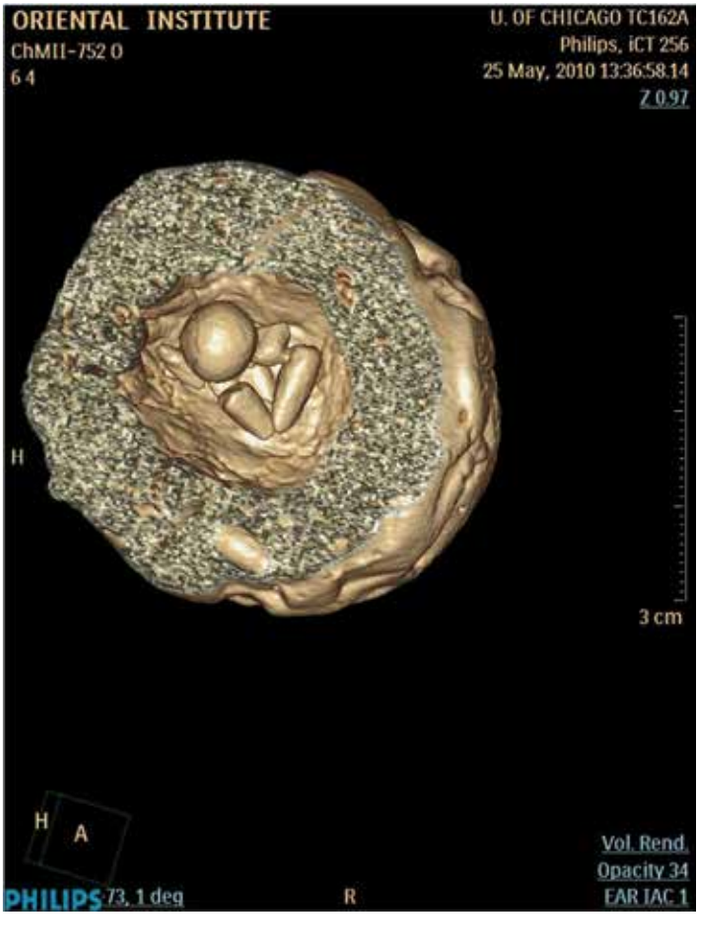


FIGURE 2.16. Three-dimensional CT scan of the contents of a clay envelope from the site Chogha Mish in southwest Iran

pointed out, the alleged sheep token, perhaps her most compelling piece of evidence on visual grounds, occurs only fifteen times over seven thousand years (Zimansky 1993, p. 516). This is indeed troubling, given all we know about the importance of livestock in the ancient Middle East. Conversely, the most common tokens are those that supposedly signify "nails" and "work days," prompting Zimansky to ask, "is it really credible that early villagers would leave more evidence of keeping accounts of nails than of livestock?" (Zimansky 1993, p. 516).

At this point, all we can say with any degree of certainty — as Amiet pointed out over forty years ago — is that there is a relationship between the impressions on the envelopes and the numerical graphs of the cuneiform system and that these two systems, and only these two, appear to be related. Indeed, the existence of numerical tablets (see Catalog Nos. 29–31) — stemming from the period immediately preceding the invention of writing with numerals but without graphs representing words — bridges the gap between the accounting systems represented by the tokens and the numeral graphs of proto-cuneiform, as numeral signs appear to have been made, in some instances, by impressing the tokens into the wet clay. In a final development before the inception of proto-cuneiform proper, these simple numerical accounts were supplemented with graphs (one or two at most) representing the commodities concerned (Englund 1998, pp. 52–56).

As for the origins of the word signs, or logograms, of proto-cuneiform, most of these were no doubt invented with the writing system itself. Others, however, were borrowed from various pre-existing communicative devices that were decidedly not writing (Michalowski 1990, p. 59; idem 1994, p. 54; idem 1996, pp. 35–36). The symbol that would become the graph for "sheep and goats,"  , for instance, obviously belonged originally to the accounting system represented by the complex tokens. When the script was invented, this symbol was borrowed from the older accounting system and assigned the meaning "sheep (and goats)." The graphic symbol was borrowed — people used and re-used the shapes known to them — but in all likelihood, based on its distribution in the token system, the meaning, or perhaps better, meanings, it had in that earlier system was not (Zimansky 1993, pp. 516–17). An example of this

FIGURE 2.17. Beveled-rim bowl. Nippur. 7.4 x 19.6 cm. OIM A31656

type of adoption from the material culture is the ubiquitous beveled-rim bowl, a diagnostic feature of the Late Uruk period (fig. 2.17). These crude, mold-made bowls were mass produced, and were likely used to disperse standardized rations to workers. The distinctive shape of the bowl was incorporated into the writing system to represent "a ration of food"; when combined with the graph SAG "head," the composite graph GU_7 denoted "disbursement" as well as the verb "to eat" (fig. 2.18)

In other cases, the inventors of the script borrowed long-established pictographic and iconographic elements from the visual arts of the proto-literate period. In particular, a number of standards and emblems connected with deities and their cult centers, which possessed powerful symbolic value, were drafted into the script (Szarzyńska 1989, 1996)

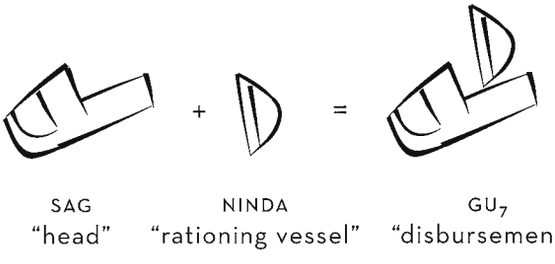


FIGURE 2.18. Composite sign GU_7 "disbursement" consisting of the graph for "head," SAG, and the graph for "rationing vessel," NINDA, likely the depiction of a beveled-rim bowl of the Uruk period

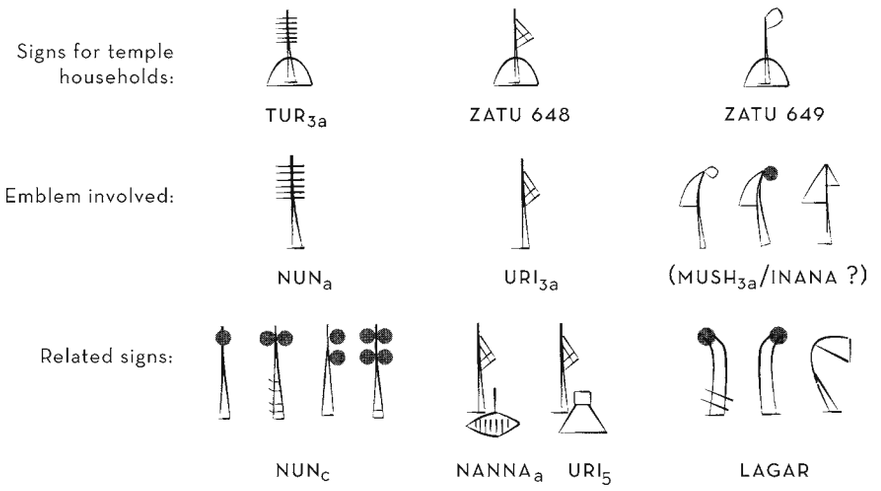


FIGURE 2.19. Pictographic signs representing temple households

(fig. 2.19). The exhibit includes an illustrative example in a fired clay symbol of Inana, the patron goddess of Uruk (Catalog No. 39). The object was found at Uruk in 1929 by the German Archaeological Institute and served as part of a wall frieze in the Eana complex. Often described as a reed bundle, this volute-like symbol may have represented a stylized scarf or headband (Steinkeller 1998, p. 95). Interestingly, the impressed circular designs on the staff mimic the clay-cone mosaics that decorated building facades, a characteristic feature of the architecture of the Eana precinct. This cultic symbol was borrowed and integrated into the writing system as the graph representing the name of the goddess,  . As a cultic symbol it may not have survived the fourth millennium, but as a cuneiform graph it persevered down to the end of cuneiform civilization (Steinkeller 1998, pp. 87–88).

In the protoliterate period the boundary that would later separate writing from artistic, symbolic representations was quite porous, and the two systems mixed more freely than they would in later periods. A unique Uruk-period seal demonstrates the point (Glassner 2003, pp. 175–76; Nissen, Damerow, and Englund 1993, pp. 17–18) (fig. 2.20). The image includes the symbol of the goddess Inana discussed above, and, to the left, a star representing the divine determinative, the pictograph UD — the sun rising between two mountains — and the mirror image of the latter, SIG, designating the setting sun. Also included, to the right of the Inana symbol, is the sign EZEN "festival" (the pictograph depicts a drum). The group together can be "read" as "the festival of the rising and setting star," that is, the planet Venus, a manifestation of the goddess Inana.

It should be emphasized that while some graphs can be demonstrated to have roots in other, earlier symbolic systems, the vast majority of the pictographs likely came into being with writing itself. And here we must be careful to distinguish between the history of the individual graphs and the writing system as a whole (Michalowski 1994, p. 55). When writing was invented it represented a completely new mode of communication, quite different from anything that preceded it and quite different from any of the systems in which individual graphs may have originated. The present evidence leads us to believe that although it would evolve and undergo enormous changes in the course of its history, writing, as a system, came into existence suddenly as an integrated whole (Michalowski 1996, pp. 35–36). For the restricted applications for which it was invented, as a bookkeeping device, it no doubt served its users well. While the potential to do so was there from the outset, accurately tracking speech was beyond this initial purpose, and the bond between the incipient script and the spoken word was tenuous. In this sense, at least, the earliest writing from Mesopotamia had more in common with the administrative devices it replaced than with the flexible visual representation of speech that it would become.

FIGURE 2.20. Impression of an Uruk-period cylinder seal from the former Erlenmeyer collection, Berlin

OBJECT DESCRIPTIONS: CATALOG NOS. 1–58

Stamp Seals

From their earliest appearance in the late seventh millennium BC, stamp seals were used to mark property through their impressions into clay that sealed doors, jars, or other packages. Stamp seals continued in use into the Late Uruk period (3350–3100 BC), when they were largely replaced by cylinder seals, perhaps because more varied and complex scenes could be carved into their surface, and perhaps because being rolled, they could cover a larger area of sealing clay. GE

1. STAMP SEAL IN THE ABSTRACT FORM OF AN ANIMAL WITH ANIMALS INCISED ON BASE

Indurated limestone
Uruk period, ca. 3700–3100 BC
Iraq, acquired in Iran ca. 1965;
Gift to the Oriental Institute, 1995
4.8 x 3.4 x 2.1 cm
OIM A55048

1

1, bottom *1, modern impression*

2. STAMP SEAL WITH GEOMETRIC MOTIF

Baked clay
Uruk period, ca. 3700–3100 BC
Iran, Chogha Mish
2.9 x 2.5 x 2.6 cm
OIM A32353

2

3

3. STAMP SEAL WITH GEOMETRIC MOTIF

Baked clay
Uruk period, 3700–3100 BC
Iran, Chogha Mish
3.8 x 2.7 x 2.4 cm
OIM A32537

Temple Herds

These seals depict horned animals (sheep or goats) next to elaborate building facades that represent temples or symbols of a deity. Temples were centers of ritual as well as major economic institutions, and the temple herds represented on these seals reflect both roles — the herds were a concentration of movable wealth that could be used to feed priests as well as offered to the statue of the deity itself. GE

4. CYLINDER SEAL WITH HORNED ANIMAL AND TEMPLE FACADE

Marble
Late Uruk period, 3350–3100 BC
Iraq, Khafajah, Sin Temple IV
3.3 x 2.3 cm
OIM A17754

PUBLISHED

Frankfort 1955, no. 202.

4 *4, modern impression*

5 *5, modern impression*

5. CYLINDER SEAL WITH TWO HORNED ANIMALS AND TEMPLE FACADE

Marble
Late Uruk period, 3350–3100 BC
Iraq, Khafajah, Sin Temple III
3.3 x 2.9 cm
OIM A21370

PUBLISHED

Frankfort 1955, no. 42.

6. CYLINDER SEAL WITH ANIMALS AND THE "REED BUNDLE" SYMBOL OF THE GODDESS INANA

Calcite
Late Uruk period, 3350–3100 BC
Iraq
3.4 x 3.5 cm
Purchased, 1920
OIM A3648

6 *6, modern impression*

Animals

Interest in the natural world was also expressed in the Uruk period through rows or patterns of animals incised on cylinder seals, sometimes threatened by predators, and protected or dominated by a human figure. GE

7. CYLINDER SEAL WITH THREE HORNED ANIMALS

Limestone
Late Uruk period, 3350–3100 BC
Iraq, Khafajah, Sin Temple IV
3.3 x 2.8 cm
OIM A17129

PUBLISHED

Frankfort 1955, no. 214.

7 *7, modern impression*

8 *8, modern impression*

8. CYLINDER SEAL WITH THREE HORNED ANIMALS

Calcite
Late Uruk period, 3350–3100 BC
Iraq, Tell Agrab
2.1 x 1.6 cm
OIM A21761

PUBLISHED

Frankfort 1955, no. 891.

9. CYLINDER SEAL DEPICTING FISH

Green calcite
Late Uruk period, 3350–3100 BC
Iraq
2.5 x 1.8 cm
Purchased, 1947
OIM A27906

9 *9, modern impression*

10. ANCIENT SEAL IMPRESSION DEPICTING GOAT AND PLANT

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
5.2 x 4.1 x 2.7 cm
OIM A32442

10

11

11, modern impression

11. CYLINDER SEAL SHOWING A LION ATTACKING A BULL

Black chlorite
Late Uruk period, 3350–3100 BC
Iraq?
2.6 x 3.5 cm
Purchased, 1935
OIM A17641

This seal design and other images like it express the danger that threatened herds of sheep and goats. GE

12. ANCIENT SEAL IMPRESSION WITH A "MASTER OF ANIMALS" OR HERDING SCENE

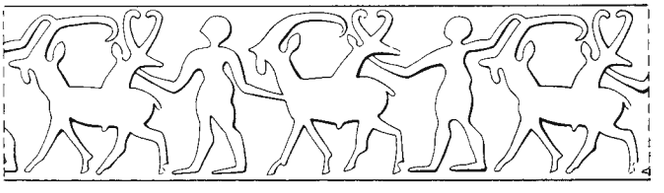
Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
6.5 x 5.2 x 4.1 cm
OIM A32553

The "master of animals" depicts a human figure holding an animal on either side in a symmetrical scene that represents human mastery over the natural world. First introduced during the Uruk period, this motif undoubtedly reflects increasing concern with managing the production of animals in the new urban economies. GE

PUBLISHED

Delougaz and Kantor 1996, p. 141, pl. 145:C.

12



Craft Production

Many cylinder seals and impressions of the Late Uruk period depict workers, particularly seated women engaged in making textiles. The seals suggest the changes taking place in the new cities of the Uruk period, with specialization of labor and a widening gap between the elite and a class of laborers, some of whom would have been slaves. GE

13. ANCIENT SEAL IMPRESSION WITH SEATED TEXTILE WORKERS AND ANIMALS

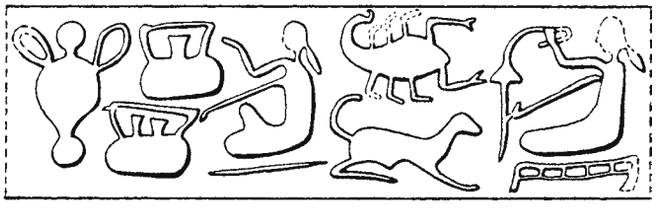
Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
7.0 x 5.4 x 3.5 cm
OIM A32441

The design on this sealing, which probably sealed a bale of goods, depicts two squatting women spinning wool and churning milk. GE

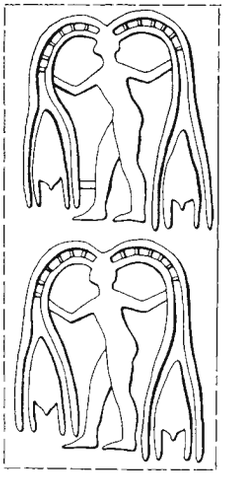
PUBLISHED

Delougaz and Kantor 1996, pl. 146:E.

13



14



14. ANCIENT SEAL IMPRESSION SHOWING FIGURES CARRYING TEXTILES THAT ARC DOWN FROM THEIR HEADS

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
5.7 x 4.6 x 2.4 cm
ChM III-804

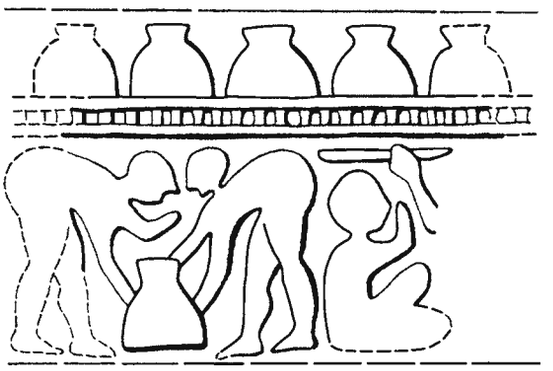
PUBLISHED

Delougaz and Kantor 1996, p. 438, pl. 153:A.

15. ANCIENT SEAL IMPRESSION WITH WORKERS IN FRONT OF A GRANARY

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
3.4 x 5.4 cm
ChM III-870

15



This is a small fragment of a conical sealing with the impressions from two seals. The first, which is badly preserved, depicts animals. The second depicts a small upper register with several conical granaries or perhaps bags. Below, a pair of men bend over what might be a bag. To the right of these men is a second group, of which only a squatting figure and an arm holding a stick are preserved. GE

PUBLISHED

Delougaz and Kantor 1996, p. 401, pls. 44:E, 149:B.

16

16, modern impression

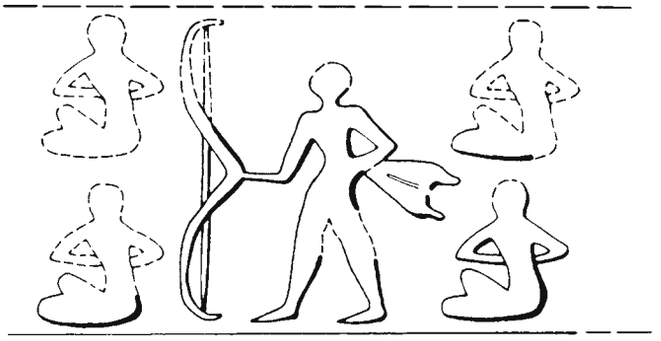
16. CYLINDER SEAL WITH SCRIBE, PRIESTS, AND PART OF A BOAT

Indurated limestone
Late Uruk period, 3350–3100 BC
Iraq; Purchased, 1920
3.9 x 3.0 x 1.8 cm
OIM A3616

This broken seal preserves elements of a scene involving early administration. The male figures are marked as being associated with the temple by their clean-shaven heads. The two standing figures are carrying jars, perhaps unloaded from the boat whose curving bow is preserved at right. The figure at left holds small rods in each hand and kneels in front of a stack of three flat objects. Pittman (1994b) has argued that this scene represents a scribe holding a stylus (in this case, two) and that the flat objects are tablets. GE

Other Scene

17



17. ANCIENT SEAL IMPRESSION WITH ARCHER AND CAPTIVES WITH ARMS BOUND

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
5.1 x 3.8 x 1.9 cm
ChM III-859

PUBLISHED

Delougaz and Kantor 1996, p. 451, pls. 45:D, 151:A.

Piedmont Style Seals

These seals with geometric designs were used in the Zagros Mountains and their western foothills in an area where clay tablets were written in Proto-Elamite script. Like Proto-Elamite script, which has not yet been fully deciphered, piedmont style seals were used in an administrative system. It has been argued (Pittman 1994a) that the various designs represented different administrative units among the societies along the margins of the Mesopotamian plain. GE

18 *18, modern impression*

18. CYLINDER SEAL WITH TRIANGLE AND DOT DESIGN

Bone
Jemdet Nasr period, 3100–2900 BC
Iraq, Khafajah, Houses 1
5.0 x 1.0 cm
OIM A11471

PUBLISHED

Frankfort 1955, no. 349.

19. CYLINDER SEAL WITH ARCADE DESIGN

Glazed steatite
Jemdet Nasr period, 3100–2900 BC
Iraq, Khafajah, Sin Temple IV
5.5 x 1.3 cm
OIM A17861

PUBLISHED

Frankfort 1955, no. 134.

19 *19, modern impression*

Tokens and Envelopes

One information storage technology developed in the century before the first written tablets in Mesopotamia was a system of hollow clay envelopes (also sometimes called "token balls" or "bullae") and tokens that could be sealed inside them. Part of the growing array of administrative devices used by Mesopotamian officials during the Uruk period, tokens were among the precursors to writing. GE

20

20. DISK-SHAPED TOKENS

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
OIM A33070A–E

A: 1.7 x 0.6 cm
B: 1.4 x 0.7 cm
C: 1.2 x 0.6 cm
D: 1.3 x 1.9 cm
E: 1.2 x 0.4 cm

21

21. PYRAMIDAL TOKENS

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
Average: 1.8 x 1.6 x 1.5 cm
OIM A34819

22

22. SPHERICAL TOKEN WITH IMPRESSIONS

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
Diameter: 2.2 cm
OIM A33044

23

24

25

26

23 JAR-SHAPED TOKEN

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
2.3 x 1.3 cm
OIM A64623

PUBLISHED

Delougaz and Kantor 1996, pl. 134:G.

24. CRESCENT-SHAPED TOKEN WITH INCISED LINES

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
2.3 x 1.1 x 0.8 cm
OIM A32507

PUBLISHED

Delougaz and Kantor 1996, pl. 134:F1.

25. CRESCENT-SHAPED TOKEN WITH INCISED LINES

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
2.3 x 1.2 x 0.7 cm
OIM A64619

PUBLISHED

Delougaz and Kantor 1996, pl. 134:F4.

26. CRESCENT-SHAPED TOKEN WITH INCISED LINES

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
3.3 x 1.5 x 1.6 cm
OIM A64625

PUBLISHED

Delougaz and Kantor 1996, pl. 134:F5.

27, C

27, B

27, A

27. DISK-SHAPED TOKENS WITH HORIZONTAL LINES

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
ChM IV-443A–C

A: 4.3 x 4.3 x 1.2 cm
B: 3.9 x 3.8 x 1.7 cm
C: 4.0 x 3.7 x 1.1 cm

PUBLISHED

Delougaz and Kantor 1996, pl. 134:E5.

28

28. BROKEN DISK WITH PAINTED CROSS

Clay
Late Fars phase, 4500–4100 BC
Iran, Tall-e Bakun A, Level III
2.7 x 0.5 cm
OIM A19841

This very early complex token has a painted cross that is similar to the proto-cuneiform sign 𒌓 UDU, indicating sheep or goat. It was part of an extraordinary assemblage of tokens and seal impressions at the early site of Tall-e Bakun in southern Iran. Because it is centuries earlier (and more than 500 km distant) from the administrative innovations of the Late Uruk period in southern Mesopotamia, the link between this early experiment and later development of writing is not yet clear. GE

PUBLISHED

Alizadeh 2006, p. 84 (type 8A) and fig. 72:J (compare fig. 72:M–N).

29

29. CLAY LUMP WITH DOTS POSSIBLY REPRESENTING NUMERALS

Baked clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
2.2 x 2.1 x 1.7 cm
OIM A32595

30. DISK-SHAPED TOKEN WITH SIX DOTS POSSIBLY REPRESENTING NUMERALS

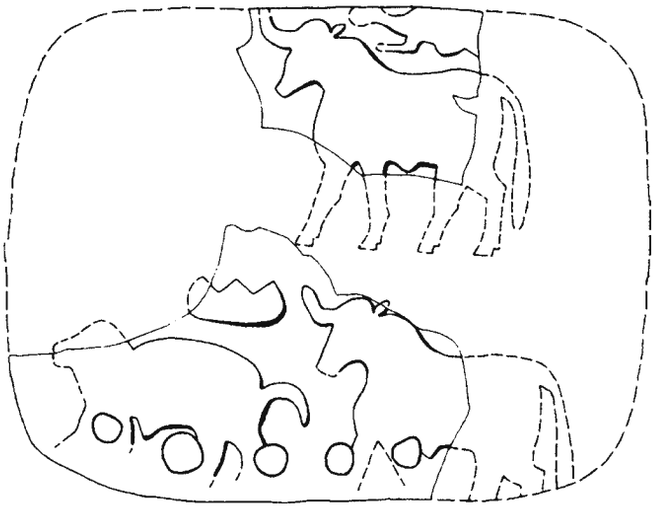
30

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
4.2 x 4.1 x 1.1 cm
OIM A64622

PUBLISHED

Delougaz and Kantor 1996, pls. 40:C, 134:E6.

31



31. SEALED NUMERICAL TABLET FRAGMENT

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
4.8 x 3.2 x 2.0 cm
ChM III-937a

This tablet showing five numeral signs was sealed with several rollings of a seal depicting animals including a bull. GE

PUBLISHED

Delougaz and Kantor 1996, pl. 137:A.

32. BROKEN CLAY ENVELOPE WITH TOKENS INSIDE

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
Envelope: 7.8 x 7.2 cm;
Diameter of tokens: 1.6 cm
OIM A64678

PUBLISHED

Delougaz and Kantor 1996, pls. 38:A–B, 40:A, 147:F.

32

33

33. BROKEN CLAY ENVELOPE WITH TOKENS INSIDE

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
Envelope: 5.3 x 3.7 cm;
Diameter of tokens: 1.1 cm
ChM III-925A

PUBLISHED

Delougaz and Kantor 1996, pl. 40:D.

34. CONICAL TOKEN WITH CONVEX TOP

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
2.1 x 2.5 cm
ChM V-120

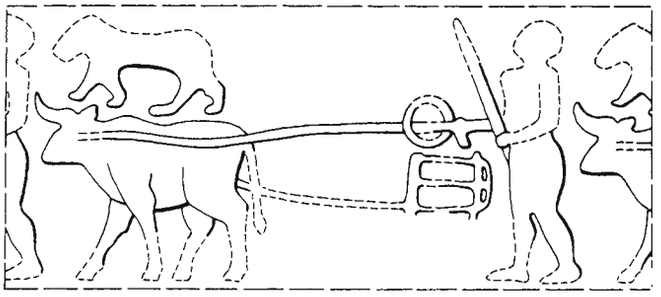
PUBLISHED

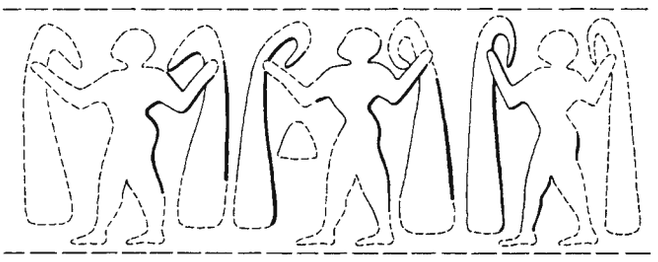
Delougaz and Kantor 1996, pl. 40:1.

34, top

34, side

35





35. INTACT CLAY ENVELOPE WITH SEAL IMPRESSIONS

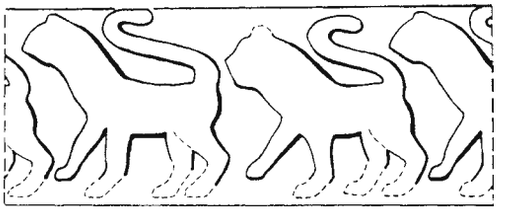
Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
5.6 x 5.6 x 5.1 cm
OIM A32474

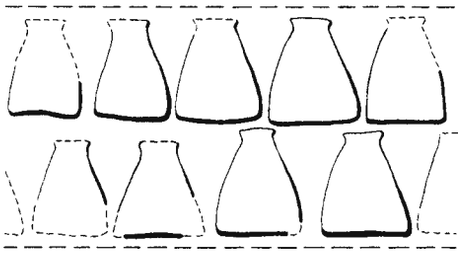
This envelope is sealed with two different seals. On the seal visible in the photo, a man drives a plow. The second seal shows men carrying textiles. GE

PUBLISHED

Delougaz and Kantor 1996, pl. 34:I–K, 146:B, 153:D.

36





36. INTACT CLAY ENVELOPE WITH SEAL IMPRESSIONS

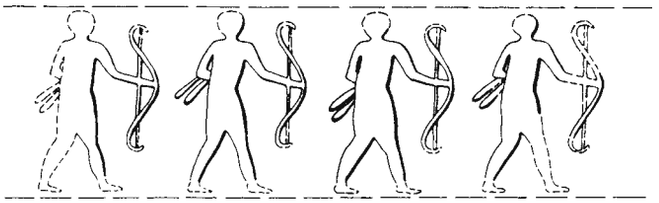
Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
Diameter: 5.2 cm
ChM III-755

This envelope was sealed by two different seals. The seal visible in the photo shows a procession of lions; the other shows the top of a granary. GE

PUBLISHED

Delougaz and Kantor 1996, pls. 35:A–B, 136:B, 149:C.

37



37. BULLA WITH SEAL IMPRESSIONS

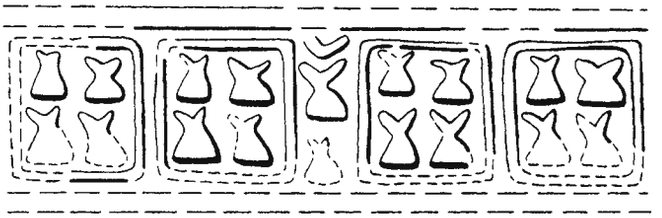
Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
6.8 x 3.7 x 3.7 cm
OIM A64679

Ovoid clay objects like this one (called a bulla) were normally molded around a string that may have enclosed a container. This bulla is unusual in not having a visible string impression. A seal showing a design of an archer was impressed on each of its five surfaces. GE

PUBLISHED

Delougaz and Kantor 1996, pl. 33:H, 150:A.

38



38. SEALING

Clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
3.5 x 3.1 x 2.1 cm
ChM III-811

This tablet-shaped sealing was impressed on three sides with a seal depicting objects shaped like bags. Its form is unusual and further illustrates the range of functions that sealed clay served in the administrative systems of the Late Uruk period. GE

PUBLISHED

Delougaz and Kantor 1996, pl. 155:B.

39. INANA SYMBOL

Baked clay
Uruk IV period, ca. 3200 BC
Iraq, Uruk, Eana District
19.3 x 12.5 x 2.7 cm
VAT 14540

39, front

This object represents a stylized bundle of reeds that is rolled into a volute at the top. It is a symbol of the goddess Inana and was also the basis for the cuneiform writing of her name. It was found in 1929 along with four other fragments of clay inlays (similar pieces and a fragment of a bull figure) that served as parts of a wall frieze at a building in the southern part of Eana, the temple complex of Inana.

The form of the Inana symbol is derived from bundles that originally served as entry posts to reed huts, a common type of dwelling in the marshlands of southern Iraq. The drawing of the bundle had been partly done with a simple writing stylus. The circular impressions represent contemporary mosaics of clay cones found at other buildings at the same site. JM, translated by RW

39, back

PUBLISHED

Jordan 1931, no. W 4999,b, pp. 33–40, fig. 24; Dolce 1978, pp. 34–49, pl. 1:W4.

40. FIGURINE OF BULL OR CALF

Baked clay
Late Uruk period, 3350–3100 BC
Iran, Chogha Mish
6.2 x 4.9 x 3.1 cm
OIM A32491

40

Many of the cuneiform graphs derive from, or where inspired by, the proto-literate visual arts. This typical Late Uruk figurine shows special attention to the head of the bovid, detailing the eyes, mouth, and horns. In the proto-cuneiform system, graphs representing various bovids and equids were generally pictographs that only represented the head of the animal (cf. Catalog No. 41). This phenomenon, known as metonymy or *pars pro toto* — part for the whole — whereby an entity is represented or named by an easily perceived or particularly salient part, played an important role in the graphic origins of the cuneiform writing system. CW

Uruk IV Texts

The earliest Mesopotamian texts, conventionally dated to about 3200 BC, belong to the Uruk IV phase. They are simple in format, most consisting of only a few signs, and the signs are more pictographic, or representational, than later signs.

Among the earliest written tablets were small, rectangular tablets, or tags, that could be attached to goods by means of a hole running lengthwise through the tag. Unlike most tablets, tags are inscribed on one side only. Tags may have served to record deliveries.

41. PERFORATED TAG

Baked clay
Uruk IV period, ca. 3200 BC
Iraq, Uruk, outside the Eana precinct
2.5 x 2.0 x 1.3 cm
VAT 16749

This tag contains the name of an administrator. JM, translated by RW

PUBLISHED

Englund and Nissen 2005, text no. W 15658, p. 55, pl. 60.

41, obverse

41, reverse

42. PERFORATED TAG

Baked clay
Uruk IV period, ca. 3200 BC
Iraq, Uruk
2.3 x 1.9 x 1.3 cm
VAT 16750

This text refers to grain. JM, translated by RW

PUBLISHED

Englund and Nissen 2005, text no. W 14758, p. 53, pl. 55.

42, obverse

42, reverse

43, obverse

43, reverse

43. PERFORATED TAG

Baked clay
Uruk IV period, ca. 3200 BC
Iraq, Uruk
2.4 x 1.8 x 1.5 cm
VAT 21307

This text records fish. JM, translated by RW

PUBLISHED

Englund and Nissen 2005, text no. W 15662, p. 55, pl. 60.

44. ARCHAIC TABLET WITH NUMERICAL SIGNS AND WRITING

Clay
Uruk IV period, ca. 3200 BC
Iraq, Uruk, Eana District
3.7 x 2.7 x 1.4 cm
VAT 14682

This tablet is typical of early short administrative accounts. It is inscribed on only one side with texts and numbers that refer to quantities of milk. Although the signs appear to be drawn (also frequently connected with the term "pictogram"), they are actually made by repeated impressions of a straight reed stylus. JM, translated by RW

44, obverse

44, reverse

PUBLISHED

Englund and Nissen 1994, text no. W 9123,c, p. 74, pl. 35; Englund 1998, pp. 154–55.

45, obverse

45, reverse

45. ARCHAIC ADMINISTRATIVE TEXT

Clay
Uruk IV period, ca. 3200 BC
Iraq, Uruk, Eana District
5.6 x 4.3 x 2.1 cm
VAT 14942

The text on the obverse of this tablet is divided into several columns and lines that record various products (including possibly copper) and a reference to a storehouse. They are described with signs that were used only in the Uruk period. The reverse of the tablet contains a summary of the individual quantities enumerated on the obverse. JM, translated by RW

PUBLISHED

Englund and Nissen 1994, text no. W 6710,a, p. 66, pl. 13.

46, obverse

46, reverse

46. ARCHAIC LIST OF OCCUPATIONS

Clay
Uruk IV period, ca. 3200 BC
Iraq, Uruk, Eana District
8.7 x 6.1 x 1.8 cm
VAT 15003

This tablet is the oldest-known version of a list of titles and occupations, known as the Standard Professions List. Such lists, known as "lexical lists," were used to train scribes and also served to organize knowledge. This scribal exercise from the early Uruk IV writing stage represents what was apparently a favorite version of such compilations. Its content was copied many times in the subsequent Uruk III period (about 180 fragments of it are preserved), and it was the model for numerous modified and expanded forms of such lists. The

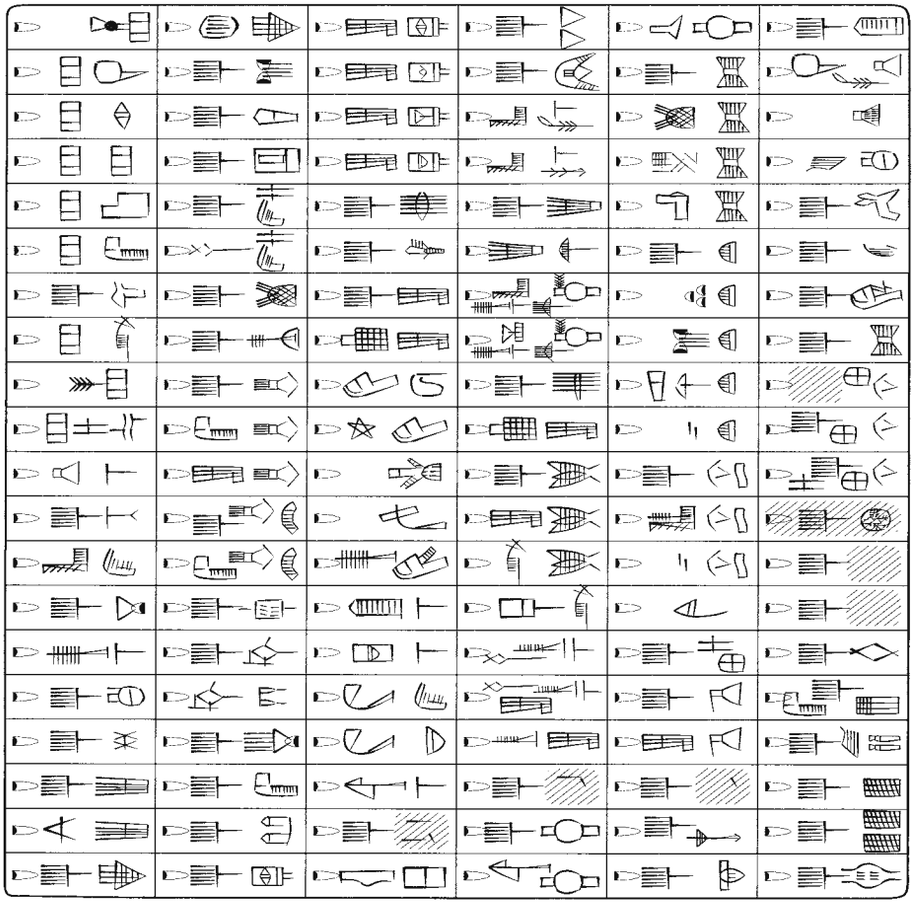


Figure. Composite drawing of the archaic lexical list Lu_2 A

popularity of such standardized lists is indicated by the fact that they were repeatedly copied and recopied down through the Akkadian dynasty (twenty-third century BC), nearly a millennium after their creation. JM, translated by RW

PUBLISHED

Nissen, Damerow, and Englund 1990, pp. 153–57; Englund and Nissen 1993, text no. W 9656,h, p. 153, pl. 23; Englund 1998, p. 104, fig. 32 (composite lexical list).

Uruk III Texts

The next stage of cuneiform writing is called Uruk III, conventionally dated to about 3100 BC. Texts from this stage are more complex in format, representing more elaborate transactions. Although the texts of this period are still considered archaic, the signs have begun to lose their pictographic quality and assume more symbolic, abstract shapes, a process that would continue through the third millennium. Features of tablets incised with Uruk III texts already exhibit the characteristics of later cuneiform. The first column contains numbers. Different numbering systems were used for different goods, so the goods they are used to count can be identified even if the product itself is not explicitly named. Contents of the obverse are noted in sums on the reverse.

47, obverse

47, reverse

47. ARCHAIC WRITING EXERCISE

Clay
Uruk III period, ca. 3100 BC
Iraq, Uruk
4.3 x 5.1 x 1.9 cm
VAT 16741

The small tablet, hastily shaped by hand (perhaps in fact a lump of clay), has two short lines of repeated signs in a loose sequence on one side, including a sign for "vessels" (also documented in this form in lists of metals), as well as the signs for "head" and "house." Because no numbers are included, this account can be identified as a brief exercise from a scribal school. As such, it may be considered a very brief lexical list. JM, translated by RW

PUBLISHED

Nissen 1993, text no. W 13982, p. 42, pl. 82.

48. ARCHAIC ADMINISTRATIVE TEXT (LIST OF LIVESTOCK)

Clay
Uruk III period, ca. 3100 BC
Purchased in Baghdad. Originally from Uqair?
7.9 x 4.7 x 1.4 cm
VAT 5294

48, obverse

48, reverse

This tablet was acquired on the Baghdad art market twenty-five years before the excavations in Uruk began in 1928, and so its origin cannot be determined with certainty. Texts like these attracted attention only after 1936, when Adam Falkenstein published the first volume of *Archaische Texte aus Uruk* (Archaic Texts from Uruk). Although initially assigned a provenance of Jemdet Nasr, these tablets can now be assigned with some degree of certainty to Uqair (in northern Sumer, not far from Jemdet Nasr) owing to similarities of certain sign combinations. This text deals with transactions regarding sheep and is an example of the more complex documents from the later Uruk III writing stage. JM, translated by RW

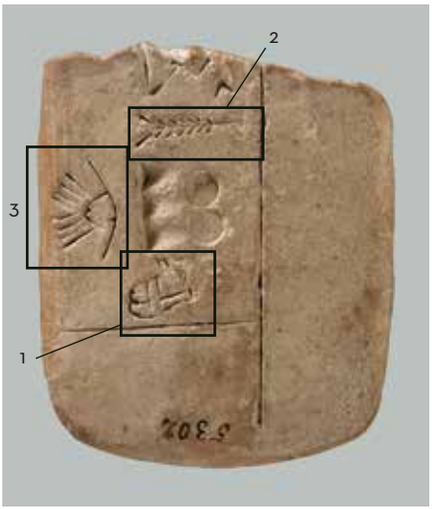
PUBLISHED

Englund 1996, p. 34, pl. 4:8.

49. ARCHAIC ADMINISTRATIVE TEXT (GRAIN TRANSACTIONS)

Clay
Uruk III period, ca. 3100 BC
Purchased. Originally from Uqair?
8.1 x 7.1 x 2.0 cm
VAT 5302

49, obverse



49, reverse

This tablet records a large grain transaction. The entries on the obverse were totaled on the reverse. The pictograph highlighted in box 1 on the reverse, GU_7, depicting a head in combination with a rationing vessel (see fig. 2.18), indicates that the quantity of grain, ŠE (in box 2), represented by the numerical graphs, was disbursed. The graph in box 3 on the reverse — a pictograph of the sun rising between two mountains with eight rays emanating from it — indicates that the account covers an eight year period (see fig. 2.9). Consequently, the entries on the obverse in all likelihood represent amounts for the individual years. CW

PUBLISHED

Englund 1996, p. 33, pl. 1:1.

50, obverse

50, reverse

50. ARCHAIC ADMINISTRATIVE TEXT (THEORETICAL CALCULATION OF GRAIN)

Clay
Uruk III period, ca. 3100 BC
Iraq, Uruk, Eana District
6.2 x 3.9 x 1.6 cm
VAT 15245

PUBLISHED

Englund and Nissen 1994, text no. W 5233,a, pp. 22, 61, pl. 1.

51, obverse

51, reverse

51. ARCHAIC ADMINISTRATIVE TEXT (THEORETICAL CALCULATION OF GRAIN)

Clay
Uruk III period, ca. 3100 BC
Iraq, Uruk, Eana District
6.3 x 4.2 x 1.5 cm
VAT 15246

PUBLISHED

Englund and Nissen 1994, text no. W 5233,b, p. 61, pl. 2.

52. ARCHAIC ADMINISTRATIVE TEXT (LIST OF RATIONS)

Clay
Uruk III period, ca. 3100 BC
Iraq, Uruk
5.7 x 3.8 x 1.6 cm
VAT 16744

52, obverse

52, reverse

Features of tablets incised with Uruk III texts already exhibit the characteristics of later cuneiform. The first column contains numbers. Different numbering systems were used for different goods, so the goods they are used to count can be identified even if the product itself is not explicitly named. Here, too, contents of the obverse are noted in sums on the reverse. Catalog No. 50 and No. 51 record theoretical calculations of grain needed to produce various grain products. Catalog No. 52 records grain disbursed to, or consumed as rations by, various high-ranking officials, who also occur on the archaic list of occupations (no. 46). The transaction formula is written separately (, "disbursement"). CW

PUBLISHED

Englund and Nissen 2005, text no. W 15897,c8, p. 66, pl. 81.

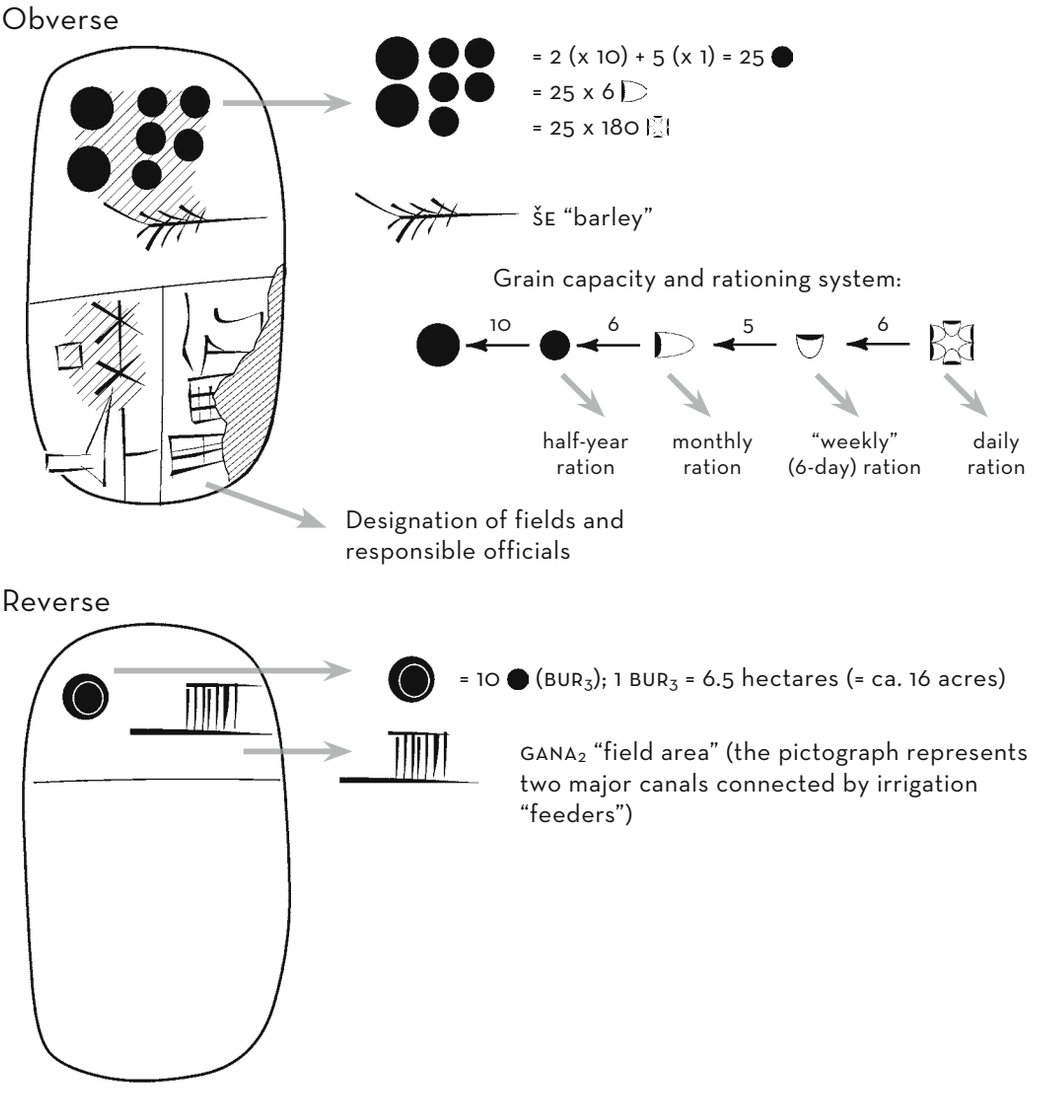
53. ARCHAIC ADMINISTRATIVE TEXT (AMOUNT OF BARLEY NEEDED FOR A GIVEN FIELD AREA)

Clay
Uruk III period, ca. 3100 BC
Iraq, Jemdet Nasr? (purchased in Paris by J. H. Breasted)
5.9 x 3.4 x 1.6 cm
OIM A2515

53, obverse

53, reverse

This text describes the amount of barley, approximately 25 × 6 = 150 (“bushels”), needed for a field of 10 bur_3 (1 bur_3 = 6.5 hectares = ca. 16 acres). That is, cultivators of the archaic period calculated needing fifteen “bushels” of grain to sow an area of roughly sixteen acres. Knowing this ratio has allowed scholars to calculate the size of late fourth-millennium grain measures as = 25 liters and therefore the daily ration of dependent laborers (represented by the sign) as ca. 0.8 liters of barley. CW (modified after original provided by Robert K. Englund)



PUBLISHED

Englund and Grégoire 1991, no. 10.
See also: Englund 1998, p. 205, fig. 81; Friberg 1997/98, p. 38; Nissen, Damerow, and Englund 1993, p. 59, fig. 51; Scheil 1929, p. 15 no. 2.

54. ARCHAIC ADMINISTRATIVE TEXT (TRANSFER OF SLAVES)

Clay
Uruk III period, ca. 3100 BC
Iraq, Larsa?
7.4 x 4.4 x 1.5 cm
NBC 5921

This text likely describes the transfer of twelve named slaves in two groups of six each. Note the close correspondence in format between this text and OIM A2513 (fig. 2.6), in which two subcases without numbers follow a case with a numerical notation that corresponds to the number of subcases. CW (modified after original provided by Robert K. Englund)

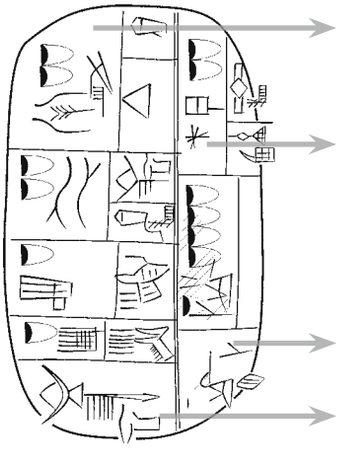
54, obverse

54, reverse

PUBLISHED

Englund 1996, no. 58; Hackman 1958, no. 3.
See also: Friberg 1978, pp. 7–8; Friberg 1979, pp. 17–23.

Obverse



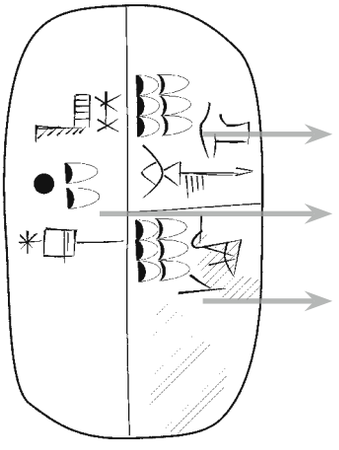
2 $ŠAM_2$ APIN / NIM_2 / ZATU659
2 (slaves) sold? to the cultivators, (their names): "NIM_2" and ...

2 MAR AN / ZATU751? EN / $BU+DU_6$.GUL
2 (slaves) (sold? to) "MARAN" (their names): "...EN" and "$BU+DU_6$.GUL"

PAP MUD?
(via?) PAPMUD

ADAB ŠUBUR
(via?) the pigherder of Adab

Reverse



(Subtotal:) 6 (slaves) (via?) the pigherder of Adab.

(Total:) 12 (slaves) for "MARAN" and "ENTE."

(Subtotal:) 6 (slaves) (via?) PAPMUD.

55. ARCHAIC ADMINISTRATIVE TEXT (TRANSFER OF GOATS)

Clay
Uruk III period, ca. 3100 BC
Unknown provenance
3.8 x 3.7 x 2.8 cm
YBC 7056

55, obverse

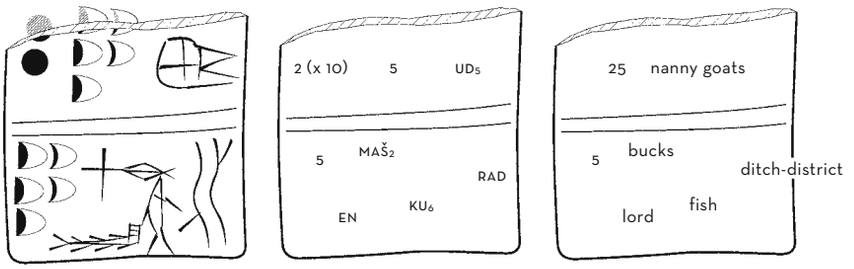
55, reverse

This text appears to describe the transfer of twenty-five nanny goats and five male goats from a named official. This and similar texts were important in identifying word classes such as "small cattle" (the sign UDU = 𒌋) that qualifies both sheep and goats in the archaic records. CW (modified after original provided by Robert K. Englund)

PUBLISHED

Englund 1996, no. 61; Hackman 1958, no. 9.
See also: Friberg 1978, pp. 8–9; Friberg 1979, pp. 23–24.

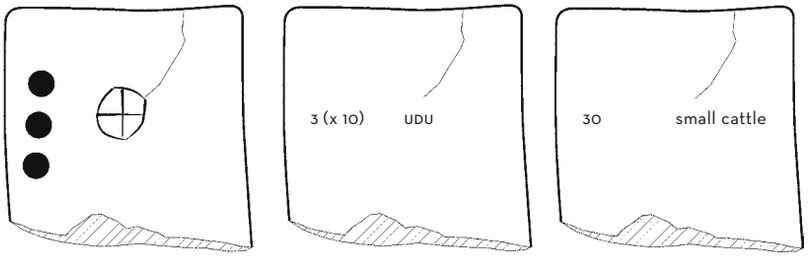
Obverse



2 (x 10) + 5 UD_5
25 nanny goats (and)

5 $MAŠ_2$ EN KU_6 RAD
5 bucks (from?) the lord of "fish ditch-district"

Reverse



3 (x 10) UDU
(Total:) 30 small cattle

56. EARLY DYNASTIC III LEXICAL LIST

Clay
Early Dynastic IIIb period,
ca. 2500 BC
Iraq, Tello?
9.3 x 10.0 x 3.2 cm
OIM A3670

This lexical list includes the names of various objects made out of metal and metal alloys, including knives, vessels, and tools. Organized by sign form and theme, this list has parallels in somewhat earlier lists from the site of Fara (ca. 2600 BC) as well among the fourth-millennium lexical corpus. Lexical lists, essentially ancient dictionaries, were the primary scholarly means of organizing and presenting information. This text illustrates the physical characteristics the script had assumed by the middle of the third millennium. CW

56

57

57. GUDEA VOTIVE INSCRIPTION

Clay
Ur III period, ca. 2100 BC
Unknown provenance
10.3 x (diameter at head) 4.5 cm
OIM A1447

This inscribed cone written in Sumerian commemorates the restoration of the god Ningirsu's temple, Eninnu, by Gudea, the independent ruler of the city-state of Lagash, who was likely a contemporary of Ur-Namma, the founder of the Ur III state (see Catalog No. 58). This Sumerian text illustrates the types of objects that bore inscriptions as well as the physical characteristics of the script at the end of the third millennium. By this time the script recorded most, if not all, of the elements of the spoken language. CW

PUBLISHED

Edzard 1997, pp. 135–36, no. 37.

58. UR III ADMINISTRATIVE TEXT (RECEIPT FOR ONE DEAD LAMB)

Clay
Ur III period, ca. 2100 BC
Iraq, Drehem
2.25 x 2.15 x 1.25 cm
OIM A3275

58

This small administrative tablet, a receipt for one dead lamb, dates to the height of the Third Dynasty of Ur (conventionally labeled the Ur III period, ca. 2100–2000 BC), specifically, the 46th regnal year of Shulgi, the second king of the Ur III dynasty. Shulgi is considered the architect of the short-lived Ur III empire, which is known for its highly centralized, state-run economy and its unparalleled documentation. An estimated 100,000 administrative texts survive from this brief period of Mesopotamian history, making it perhaps the most documented era prior to the invention of the printing press. This particular text originates from Puzrish-Dagan (modern Drehem), the central government's main redistribution center for livestock, which was founded by Shulgi. CW

PUBLISHED

Hilgert 1998, p. 115, no. 400.

3. ADAPTATION OF CUNEIFORM TO WRITE AKKADIAN*

ANDREA SERI

gag-am$_3$

"It is wedges!"

Enmerkar and the Lord of Aratta

The Sumerian literary text *Enmerkar and the Lord of Aratta* recounts that the legendary king Enmerkar of Uruk invented writing for the purpose of recording a very long letter addressed to his rival dwelling in the distant land of Aratta. When the Lord of Aratta received the first missive ever inscribed on a clay tablet he exclaimed with surprise and disbelief "It is wedges!" as he saw pegs instead of words (Vanstiphout 1989). By inventing writing, Enmerkar not only showed intellectual superiority over his contender, but he also implicitly instituted cuneiform as a Mesopotamian creation that outsiders would need to learn and adopt. The narrative expresses the way certain scribe(s) imagined the invention of a system of wedge-shaped signs to convey a message in a graphic, non-oral manner. The Lord of Aratta's prompt identification of those markings on a piece of dried clay with wedges or nails (Sumerian gag) correlates with the Akkadian words *sikkatu* "peg, nail," *miḫiṣtu* "stroke, cuneiform wedge" (Sumerian gu-šum$_2$), and *santakku* "triangle, wedge" (Sumerian santak), and with the expression *tikip santakki* "cuneiform sign." Likewise, in modern times, scholars have dubbed the writing system "cuneiform," similarly alluding to the shape of the characters (Latin *cuneus* "wedge," plus *forma* "form").

The story *Enmerkar and the Lord of Aratta* offers an intriguing blend of fiction and reality in a text coming from the beginning of the second millennium BC. The motif of envoys going back and forth between Uruk and Aratta with messages involving difficult tasks and riddles that the kings had to solve is undoubtedly charming for a mythological piece, but the connection between the invention of writing and the creation of an epistolary clay tablet to record oral communication failed scholarly scrutiny. Writing systems were not initially conceived to reproduce speech (Michalowski 1998, p. 43; Cooper 1999, p. 72), and, judging from the available evidence, letters are a comparatively late development that first appeared around 2400 BC (Cooper 2004, p. 84). Similarly, the earliest signs used for writing, that is, proto-cuneiform (ca. 3200 BC), did not look like wedges, but they were rather realistic and, occasionally, symbolic representations of words (Gelb 1952, p. 62). It was only after the archaic period (Uruk IV–III/Jemdet Nasr; see table 3.1) that cuneiform signs acquired an abstract appearance that disguised any traces of their pictographic forerunners. The earliest signs were pictographic in the sense that they represented physical objects, but they were subsequently simplified. In the final step of this development, during the Neo-Assyrian period (ca. 1000–600 BC), each sign has a specific number of wedges and every wedge is important, but in previous periods the number of wedges per sign can vary and only the general form of the character was significant (Civil 1992).

Although an aetiological myth, *Enmerkar and the Lord of Aratta* also contains information that agrees with archaeological and philological discoveries. For instance, the oldest tablets currently available were indeed found in Enmerkar's capital, the city of Uruk (biblical Erech, modern Warka) in southern Mesopotamia (see Nissen, Damerow, and Englund 1993). A ruler by the name of Enmerkar is mentioned in a later text, the Sumerian King List (ca. 2100/2000 BC), as the second monarch of the dynasty of Uruk after the Flood, succeeding his father Mes-kiag-gašer. Most modern historians date Enmerkar's rule to the Early Dynastic II period (ca. 2700 BC), that is, several hundred years after the invention of writing (e.g., Nissen 1966); whereas it has also been suggested that the title "Lord of Aratta" might be attested in the colophon of an Uruk tablet from the archaic period (Green 1980, p. 17). Of course references to Enmerkar and to the title Lord of Aratta do not directly prove

the identification of this name and title with the characters of the Sumerian literary composition, but they do place them within the framework of Mesopotamian tradition. On a safer note, as undisputable as the existence of archaic Uruk tablets is the adoption of cuneiform writing by polities outside Uruk, as implied in our myth. Indeed, after its invention by Sumerian speakers, cuneiform script was employed during a period of about 3,300 years (from ca. 3200 BC to ca. AD 100) to write a variety of languages such as Sumerian, Akkadian, Eblaite, Elamite, Old Persian, Hurrian, Hittite, Palaic, Luvian, Urartian, and Ugaritic (e.g., Civil 1992; Michalowski 1996; Gragg 1996) in a vast geographical area including modern Iraq, Iran, Turkey, the Levant, and even Egypt. Scholarly efforts to understand the way in which cuneiform was adapted to write Akkadian are still ongoing and they are subject to and at the same time limited by philological and archaeological discoveries. In the following section I discuss some of these issues.

INTELLECTUAL AND HISTORICAL BACKGROUND FOR THE ADOPTION OF CUNEIFORM WRITING

The adoption of cuneiform to write Akkadian as well as other Semitic languages is still poorly understood. This is the case in part because for such a reconstruction scholars depend on the chance of discovery, on the archaeological sites that have been excavated, and on philological progress. For several decades after the official decipherment of cuneiform in 1857, the way in which cuneiform was employed to write Akkadian seemed to have been relatively transparent. During that time, Assyriologists reconstructed the following scenario: Sumerian, a linguistic isolate, was the written language of Mesopotamia until King Sargon (ca. 2334–2279 BC) established his capital in the city of Akkad and built an unprecedented empire. In this newly created regime, official documents were now mostly written in a Semitic language known today as Old Akkadian, named after Sargon's capital, and for Old Akkadian (ca. 2350–2110 BC) scribes used the same cuneiform script as Sumerian. After the decline and fall of the Sargonic empire, a new order appeared under the kings of the Third Dynasty of Ur (ca. 2100–2003 BC), and Sumerian became once again the language of the administration. After this so-called "Neo-Sumerian" period, Akkadian once again became the official language, and Sumerian was relegated to literary texts and to other genres of the scholarly tradition. According to this theory, it was then assumed that cuneiform was originally adopted and adapted from Sumerian for Old Akkadian. As is usually the case, however, things turned out to be more complicated than originally thought.

Three factors contributed significantly to the challenging of previous explanations and to our current understanding of the process of adaptation, namely, the chronological placement of early tablets, the identification of Semitic names in texts written in Sumerian, and the discovery of tablets outside Babylonia dating to the Early Dynastic period (ca. 2500/2400 BC). It was Adam Falkenstein (1936) who, based on the documents from southern Mesopotamia available in the 1930s, first proposed a chronological arrangement of those tablets which is still considered generally valid. According to his classification, the most ancient group consists of tablets dating to the fourth stratigraphic level of Uruk (Uruk IV). They are followed by texts with similar ductus from Jemdet Nasr and Uruk III. After a chronological hiatus follow the archaic tablets from Ur, and after a second hiatus come those from Fara (ancient Shuruppak), which are slightly older than those from Tello (ancient Lagash). To this sequence one can now add tablets found at Tell Uqair, Tell Asmar, and Khafajeh (see Nissen 1998, p. 22), as well as archaic and pre-Sargonic tablets found at Mari (e.g., Charpin 1987 and 1998; Bonechi and Durand 1992), and those from Kish, Adab, and Abu Salabikh, among others.

Once tablets were properly classified, a major turning point toward the understanding of the adoption of cuneiform to write Semitic languages occurred when Robert Biggs (1967) demonstrated that Early Dynastic tablets from Abu Salabikh contain numerous Semitic personal names. This realization was most important because those personal names represent the first attestation of Semitic words written with cuneiform signs. After those two major achievements, two archaeological discoveries in Syria again changed the picture: the archives of Ebla (modern Tell Mardikh) and Nabada (modern Tell Beydar). So impressive was the discovery of Ebla, that one scholar

declared it to be the great surprise of ancient Middle Eastern history (Edzard 1994). Although excavations at Ebla began in 1964, tablets and fragments from the third millennium (ca. 2400–2350 BC) first appeared in 1975–1976. This discovery allowed the identification of Eblaite as an East Semitic language which, like Akkadian, also used cuneiform writing. The new evidence furthered studies on the adoption of cuneiform and on the connections between literary and lexical traditions from Babylonia (e.g., Civil 1984; Milano 1998; Archi 1992; Pettinato 2003). Similar undertakings were also possible thanks to the discovery of the cuneiform texts from Nabada in 1993 (Ismail et al. 1996), considered to be the first pre-Sargonic documents (ca. 2400 BC) from the Syrian Djezirah (see Sallaberger 1998). One important conclusion drawn from these studies is that Akkadian and other Semitic languages were already written in cuneiform before the Sargonic period and before the adoption of a predominantly syllabic writing.

The attestation of Semitic names in Early Dynastic tablets and the discovery of tablets from sites in northern Babylonia and in Syria led to the question whether those records were written in Sumerian, Akkadian, or some other language. Clues that could establish the language in which a text was written include: provenance (because a document from the south was more likely to be in Sumerian, whereas a text from the north or from Syria was more likely to be Akkadian), the presence of Akkadian

TABLE 3.1. Overview of the periods mentioned in this section

Approximate Dates	*Period*		*Political Events*	*Developments in the History of Writing and Adaptation*
3200 BC	Archaic	Late Uruk / Uruk IV Uruk III / Jemdet Nasr		Invention of writing Uruk III: attested in Uruk, possibly Larsa, Jemdet Nasr, Uqair, and Tell Asmar • ca. 2800 archaic texts from Ur
	Early Dynastic			After the archaic period cuneiform signs take a completely abstract appearance
2900 BC		Early Dynastic I	Kish regional center	
2700 BC		Early Dynastic II		ca. 2700 first royal inscriptions appear
2600 BC		Early Dynastic III	King Mebaragesi of Kish	Early Dynastic IIIa (ca. 2600/2500) • Cuneiform transformed from a record-keeping technology into a mode of linguistic expression • Literary texts appear • Tablets from Shuruppak (Fara) • Tablets from Tell Abu Salabikh: earliest tablets written in Semitic (personal names) • Tablets from Nippur and Adab
2500 BC			King Mesalim of Kish (Adab, Umma, and Lagash under his control)	• By 2500 cuneiform was adapted to write Semitic languages in Mesopotamia and Syria.
2400 BC				Early Dynastic IIIb (ca. 2400): late pre-Sargonic • Ebla texts (texts written in Eblaite, a West Semitic language, close linguistic relative of Akkadian) • Mari tablets • Tell Beydar texts • Tell Brak tablets • First Sumerian letters appear

morphemes such as the preposition *in* and certain suffixes (e.g., *-šu*, *-ka*, etc.), or the employ of logograms and syllables exclusively used in Akkadian or Semitic texts. Miguel Civil (1984, pp. 75–76), however, has argued that this approach was far too simplistic, especially when a text is mostly written in logograms, or word signs. Based on a comparison with the adaptation of the Chinese script to Japanese literature, Civil concluded that in the case of ancient Mesopotamia, an Akkadian or Semitic speaker could have handled Sumerian in four different ways: 1) reading Sumerian as Sumerian, 2) reading Sumerian as Akkadian, 3) writing Sumerian as Sumerian, and 4) writing Akkadian as Sumerian. A few years later, Piotr Michalowski (1998, p. 45) argued similarly when he stated that there are pre-Sargonic texts written in Akkadian even if they are written mainly with Sumerian characters used as word signs or logograms. According to him, in theory a cuneiform text could be: 1) written and read in Sumerian, 2) written and read in Akkadian, 3) written in Sumerian and read in Akkadian, and 4) written in Akkadian and read in Sumerian.

CUNEIFORM WRITING, SUMERIAN, AKKADIAN, AND THE ADAPTATION OF CUNEIFORM TO WRITE AKKADIAN

A brief description of cuneiform writing and of the Sumerian and Akkadian languages is necessary in order to discuss how cuneiform worked for Sumerian and how it was adapted to write Akkadian.

a) Cuneiform Writing

The cuneiform writing system invented around 3200 BC underwent multiple changes throughout the approximately 3,300 years in which it was used. In archaic tablets, for example, signs did not necessarily appear in the order they were intended to be read. At that stage, writing was something of a mnemonic device in which readers were supposed to supply those elements of the language that were not written down, or were redundant. In the later periods, cuneiform signs consist of simple wedges or of the combination of five basic wedges:  . Modern sign lists (e.g., Labat 1995; Borger 2004) arrange individual signs following the shape and orientation of those five wedges in the sequence shown above. Impressions of signs were made with a reed stylus on wet clay, and they were also inscribed on other media such as stone, waxed wooden boards, and metal. Although the earliest script is essentially logographic (i.e., a sign represents a word), certain Uruk IV–III signs can already be employed syllabically as phonetic indicators (Krispijn 1991–92; Krebernik 1994; Steinkeller 1995) for the reading of certain signs. This phenomenon, however, was very limited. In later periods, the phonetic use of signs for syllables increased and an individual character could then have three main functions: it could represent a whole word, a determinative or classifier, or a syllable. In a little more detail:

1. When a sign represents a whole word is called a logogram. Such signs can be read in any language, for example,  gud (Sumerian), *alpum* (Akkadian) "ox."
2. When a logogram functions as a determinative or a classifier, it precedes or follows a word: diĝir+utu → ^{d}utu (the sun god Shamash), where the logogram diĝir ("god") indicates that the following word is a divine name; or  ka$_2$+diĝir+ra+ki → *Bābilu*^{ki} (the city of Babylon), where ki ("land, district") shows that the preceding term is a geographic name. Determinatives were graphic devices and were not pronounced.
3. When a sign represents the sound of a syllable, it is called a syllabogram or a phonogram. In cuneiform there are four types of syllables: V (vowel only), CV (consonant+vowel, e.g., *ba*), VC (vowel+consonant, e.g., *ab*), and CVC (consonant+vowel+consonant, e.g., *šar*). Syllabograms can be used to write a word phonetically, e.g., *ka-al-bu-um* "dog," or they can be used as phonetic complements to disambiguate the reading of a logogram. For instance, the logogram  can be read in Akkadian as *ilum* "god" (Sumerian diĝir), as *Anum*, a divine name (an in Sumerian), or as *šamû* "heaven" (also an in Sumerian). The writing an-*e* (an-noun + *e*-phonetic complement) shows then that in this case the logogram should have an Akkadian ending /e/ and thus must be *šamê*

(i.e., *šamû* in the form of the genitive/accusative plural). A similar case of disambiguation is the use of syllabic signs to specify the grammatical ending of a word. Thus in the Old Babylonian period, the logogram a-šag$_4$ "field" can be written a-šag$_4$-*lum*, a-šag$_4$-*lim*, a-šag$_4$-*lam* to be read in Akkadian *eqlum*, *eqlim*, *eqlam* in the nominative, genitive, and accusative cases respectively (Reiner 1966, p. 26). Syllabograms can be polyphonous. For instance, the sign  has many different readings, including *ud*, *ut*, *uṭ*, *tam*, *tu*$_2$, *par*, *pir*, *laḫ*, *liḫ*, and *ḫiš*. Conversely, several different signs can have homophonous readings. For example, the syllable /u/ can be written:  (*u*),  (*u*$_2$),  (*u*$_3$), or  (*u*$_4$). Note that in Assyriological transliteration, signs with homophonous readings are differentiated by subscript numbers (e.g., *u*$_2$, *u*$_3$, *u*$_4$) or by accents (e.g., *ú* and *ù*). The choice of signs to represent a particular syllable is not completely arbitrary but follows certain rules which vary depending on geographic and diachronic conventions. Ambiguities can furthermore be reduced by the use of classifiers and phonetic indicators.

Occasionally a single sign can be used in all three functions. Consider, for instance,  , which can be read ĝeš logographically, meaning "tree"; it can function as a determinative preceding the names of trees or wooden objects, and it may also represent the syllables *iṣ*, *is*, and *iz*.

b) Sumerian and Akkadian

Sumerian is a linguistic isolate because — like, for example, Etruscan or Basque — it is not related to any other known language. It is an agglutinative language, in which words are inflected by stringing identifiable morphemes one after another before or after a given root that is in itself invariable. Thus for instance, in the sentence ereš-e in-tud-en "The queen bore me," the verbal root tud is preceded by the morphemes /i/ and /n/ and followed by the morpheme /en/ (Michalowski 1980, p. 91). Because Sumerian roots are mostly monosyllabic and internally unalterable, and because of the agglutinative character of the language, a primarily logographic writing system was quite suitable for Sumerian.

Akkadian, unlike Sumerian, is related to other languages, such as Hebrew and Arabic. It is actually the earliest Semitic language attested and it was employed until the first century AD. Akkadian was the language of ancient Babylonians and Assyrians, and it includes both the Assyrian and Babylonian dialects (table 3.2).

Like other Semitic languages, the Akkadian verbal root usually has three radicals that can be modified by consonantal reduplication. It further has an internal vowel pattern, and other additions such as prefixes, infixes and suffixes. Another feature, which actually became crucial in the way the Sumerian writing system was adapted to write Akkadian, is that this language has a simple but strict rule that does not allow clusters of more than two consonants which, if they occur, will always be separated by a syllable boundary. In other words, Akkadian has no syllables that start or end with more than one consonant. For example, the verb *aštanapparakkim* (root *š-p-r*) "I (will) keep writing to you," has the syllables *aš=ta=nap=pa=rak=kim.* Its morphological analysis, on the other hand, is as follows: *a-* (1st-person common singular conjugational prefix), *-š-* (1st radical), *-tana-* (infix with iterative force, i.e., it expresses a repeated, habitual or continuous action), *-pp-* (doubled 2nd radical that indicates present/future), *-a-* (theme vowel that indicates present/future), *-r-* (third radical), *-ak-* (directional morpheme *-am* with the *-m* assimilated to the following consonant, *-k*), and *-kim* (dative pronominal suffix, 2nd-person feminine singular). The morphological pattern is therefore:

a	**š**	**tana**	**pp**	**a**	**r**	**ak**	**kim**
prefix	radical	infix	radical	theme vowel	radical	suffix	suffix

Thus, whereas the Sumerian verbal root was monosyllabic and could not be internally altered, scribes writing Akkadian needed an essentially phonetic syllabic system in order to convey the semantically important structural characteristics of the language. The transition from logograms to syllabograms, therefore, played an important role in the adaptation of cuneiform to write Akkadian, even if a number of syllabic values of certain signs were already available in the earliest stages of writing Sumerian, especially for the prefixal and suffixal morphemes. As a result,

an Old Babylonian scribe, for instance, had a number of options to write *aštanapparakkim* syllabically. One choice is *aš-ta-na-ap-pa-ra-ak-ki-im*, that is, using only signs with values CV and VC, without including syllabograms of the CVC type.

The brief description of the two languages presented above is obviously simplified for the sake of convenience. One cannot emphasize enough, though, that since the third millennium — and in later periods in scribal circles at least — Sumerian and Akkadian were in very close contact, and Civil (1984, p. 76) is right to remind us that "languages do not exist in a chemically pure, isolated form." In addition, because of the history of decipherment, our understanding of Sumerian is significantly influenced by our knowledge of Akkadian, which led certain scholars to maintain that we read Sumerian through an Akkadian looking glass (e.g., Edzard 1998, p. 35). Many gaps in our reconstruction of the process of adaptation still remain, but a huge amount of progress has been made when one compares the current knowledge with that of four or five decades ago, before the time when, for instance, documents from Ebla and Tell Beydar were discovered.

c) Adaptation of Cuneiform to Write Akkadian

The two basic yet fundamental issues related to the process of adapting cuneiform to write Akkadian are: when and how did it happen? Both questions are problematic because of the nature and the fragmentary character of the evidence, and also because of chronological gaps. Judging from the extant evidence, it is almost certain that the adaptation of cuneiform to write Akkadian originated in northern Babylonia. Even though it is impossible to provide an exact date,

TABLE 3.1. The Akkadian language throughout history

Approximate Dates	*Period*	*Political Events*	*Developments in the History of Languages and Dialects*
2350 BC	Old Akkadian	King Sargon of Akkad	Old Akkadian dialect: earliest attestation of the Akkadian language
2100 BC	Ur III	Third Dynasty of Ur	Predominant use of Sumerian for bureaucracy, although small archives in the north (e.g., Ishan Mizyad) used Akkadian as well
2000–1500 BC	Old Assyrian	Assyrian colonies in Anatolia	Old Assyrian Akkadian (letters and legal and economic documents from Kanesh, royal inscriptions of rulers of Assur, a few magical texts)
	Old Babylonian	Isin/Larsa dynasties Hammurabi dynasty	Old Babylonian Akkadian (a diverse variety of genres preserved: e.g., letters, economic and legal documents, royal inscriptions, scholarly texts, omens, literary texts)
1500–1100 BC	Middle Assyrian	Middle Assyrian kingdom	Middle Assyrian Akkadian is sparsely attested (letters, legal and economic documents, royal inscriptions, harem decrees, Middle Assyrian laws from Assur)
	Middle Babylonian	Kassite dynasty	Middle Babylonian Akkadian is sparsely attested (letters and economic documents, a few royal inscriptions and boundary stones or kudurrus)
1000–600 BC	Neo-Assyrian	Neo-Assyrian empire	Neo-Assyrian Akkadian (many letters, economic documents, royal inscriptions, scholarly writings, including literary texts)
	Neo-Babylonian	Neo-Babylonian empire	Neo-Babylonian Akkadian (letters, economic and legal documents, royal inscriptions)
600 BC–AD 100	Late Babylonian	Mesopotamia under foreign rule	Late Babylonian Akkadian (letters, economic and legal documents, royal inscriptions)
Late second and first millennium			Standard Babylonian Akkadian used to write Babylonian and Assyrian royal inscriptions and literary texts

it is now known that cuneiform was already being adapted to write Semitic languages in Mesopotamia and Syria by about 2500 BC (Cooper 1996, p. 37), but the process seems to have started even before that. In the Early Dynastic IIIa (ca. 2600 BC) tablets from Fara and from Abu Salabikh, Semitic names were already written syllabically. Political history, however, lets us suspect that perhaps the beginning of the adaptation occurred still earlier than that. This is the case because during the Early Dynastic I period (ca. 2900 BC) the city of Kish had become a regional center for northern Babylonia, at times influencing also the south. This political predominance has led scholars to hypothesize that the process of adaptation must also have already been taking place in the Kish area at this early time (Cooper 1999, p. 64), although unfortunately we do not yet have any textual information from there proving this point.

The question pertaining to how cuneiform was adapted is equally hypothetical and I now present the clues that are available to understand the adaptation. The discovery of the potential of the syllabic values of logograms possibly had already happened during the Uruk IV period because there are a few combined cuneiform signs in which one of the elements functions as a phonetic complement for the reading of that sign (see *2. The Earliest Mesopotamian Writing*, this volume). But the syllabic potential of signs was not fully exploited until later. The first attestations of Semitic personal names written syllabically in texts from Fara and Abu Salabikh seem to indicate that scribes had realized by then that the sound of signs could also be used as syllabic values of cuneiform signs. This discovery must have given them flexibility to express linguistic subtleties by means of a phonetic rendering of words. One important thing to notice from the writing of these personal names is that they already combine VC, CV, and CVC signs and logograms. Consider, for example, the following patterns of names from Abu Salabikh (Biggs 1967, p. 62):

iš-lul-il	=	VC-CVC-VC
i$_3$*-lum-ma-lik*	=	V-CVC-CV-CVC
uš-mi-il	=	VC-CV-VC
puzur$_4$*-il*	=	logogram-VC
i$_3$*-lum-*gar$_3$	=	V-CVC-logogram

The fact that personal names were the first attested words written syllabically may have been related to the need to identify people properly. This was perhaps a way of preventing ambiguities that may have created some confusion. For instance, the name *i*$_3$*-lum-*gar$_3$ could have been written simply diĝir-gar$_3$ all in Sumerian logograms, but the scribe was possibly making the statement that his name was Semitic and not Sumerian. By providing one of the elements of his name in Semitic, he was also indicating that the following logogram should be read in Semitic. This was done at the expense of writing quite a few more wedges (in this period the sign diĝir had simply four).

Yet a further step in the adaptation process is the splitting of CVC signs into CV-VC, where the phonetic spelling CV-VC expresses a CVC syllable. Evidence for this important development in syllabification comes from Ebla texts. The following CVC signs are all attested in the Uruk IV period (Green and Nissen 1987). Examples include:

CVC	→	CV-VC
lum	→	*lu-um*
sa-na-ru$_x$*-**lum*** (MEE 3* 218, r iii: 2)	vs.	*u*$_3$*-**lu-um*** (MEE 3 199, 99 A)
šum / *šum*$_2$	→	*šu-um*
*su-**šum*** (MEE 3 196, 5 B) *nu-ri*$_2$*-šum*$_2$ (MEE 3 192, vi: 4)	vs.	*la-ḫa-**šu-um*** (MEE 3 193: vi: 12)
ban	→	*ba-an*
***ban**-ga*^{ki} (MEE 3 231, 42 A)	vs.	*sa-la-**ba-an***^{ki} (MEE 3 230, 16 a)
gal	→	*ga-al*
[*hu*]*l-gal-**gal***^{ki} (MEE 3 237, 208 S)	vs.	*ḫul-gal-**ga-al***^{ki} (MEE 3 237, 208 a)
mud	→	*mu-ud*
⌜*ad-**mud***⌝^{ki} (MEE 3 237, 210 N)	vs.	*ad-mu-ud*^{ki} (MEE 3 237, 210 a)

*MEE 3 = Pettinato 1981

Thus, unlike the instances from the personal names from Abu Salabikh, where the writing CV-VC is separated by a word/morpheme boundary (e.g., the compound name *uš-mi-il* = *ušmi*-word1+*il*-word2), in the examples from Ebla, the sequence CV-VC represents the phonetic spelling of a CVC sign. The phenomenon is structurally relevant for the adaptation

of cuneiform and becomes more prominent in the Sumerian texts of the ruler Gudea of Lagash (ca. 2100 BC) and later.

Another fundamental piece of information to understand the importance of syllabification and therefore the adaptation of cuneiform originates also from Ebla. From this site in Syria come Early Dynastic lexical lists that go back to the Uruk period (Pettinato 1981). Some of these lexical lists include Sumerian words with their Semitic translations (most likely in the Eblaite language) and others were versions written in syllabic Sumerian. These lists are important because they "represent the first instance of the systematic use of cuneiform signs for the syllabic representation of both Semitic and Sumerian" (Civil 1982, p. 22). One could speculate that the phonetic rendering of Sumerian in Ebla was done because in Syria Sumerian was a foreign language that scribes had to learn in order to adopt the writing system for which it was created. Perhaps simultaneously or slightly later scribes also provided the Semitic translation of Sumerian words. It is not unlikely that scribes from Babylonian cities had already discovered those advantages of syllabification and made use of the pedagogical potential of syllables, because syllables allowed them to assign phonological values to logograms and to convey the inflexions of Semitic languages. Inflexions, as we have seen, are best represented by the full writing of verbal forms. The employment of syllabic values explains the development of syllabaries or lists of signs and their values, which were used mainly for scribal training. One of the earliest extant syllabaries also comes precisely from Ebla and can be dated to around 2500 BC (Pettinato 1981, pp. 187–205; Michalowski 2008).

All this implies that by the time of Sargon of Akkad the adaptation of cuneiform was very advanced but by no means over. The adaptation of all the necessary syllables from the Sumerian system to write Akkadian may have caused certain challenges because, since Akkadian is Semitic and Sumerian is an isolate, each language had a different phonemic inventory and adjustments were necessary to convey more accurate phonemic information. For instance, the phoneme /ṣ/ is part of the Akkadian inventory, but it did not exist in Sumerian. This problem was solved by assigning new values to existing cuneiform signs by applying the rebus principle phonetically. For example, the Sumerogram ĝeš ("wood") means *iṣum* in Akkadian. The base of the Akkadian noun, *iṣ*, was therefore adopted as one of the syllabic values of the sign ĝeš to write the syllables *iṣ*, *iz*, *is*. It is unknown exactly when this happened, but it is clear that the process was not completed by the Sargonic period because in the Old Akkadian syllabary, for instance, voiced, voiceless, and emphatic phonemes were not yet distinguished (Cooper 1996, p. 46). The fact that during the Old Akkadian period the writing system was still in a process of adaptation makes it difficult to analyze Sargonic orthography (Hasselbach 2005, p. 35). Only in the Old Babylonian period did this process reach a level where basically all phonological and morphological features of Akkadian could be written in an almost unambiguous way. Akkadian had then reached the level of "full writing." Not coincidentally, this also seems to have been the only time in the history of Akkadian cuneiform script that an effort was made to establish a normative "orthography," a phenomenon known as "the scribal reform of Hammurabi's chancellery." But even after this, the adaptation of cuneiform was still ongoing in later periods when, for instance, a new sign with the value V^{3} (vowel+aleph) and ^{3}V (aleph+vowel) is attested only from the Middle Babylonian period (ca. 1500–1100 BC) on; whereas in the Old Babylonian period (ca. 2000–1595 BC) such phonemes were written with signs containing ḪV (khet+vowel) or the VḪ (vowel+khet) sign. Regarding the reconstruction of phonemic adaptations, however, it is important to remember that any knowledge of Akkadian and Sumerian was lost for about two thousand years. The sounds of Akkadian were therefore reconstructed from other Semitic languages and, because of that, Akkadian phonology remains an educated guess. This is so in part because, even though Akkadian phonemics is well known, there is in practice no real Akkadian phonetics (Buccellati 1996, p. 16).

The available evidence allows us to present only an artificial reconstruction of the process of adaptation because of the qualitative and quantitative character of the extant records and their distribution. One could very well suspect that the process of adaptation had different avenues in different geographic areas and periods. Therefore experimentations on the adaptation could have been multifarious, encompassing successful trials and others that

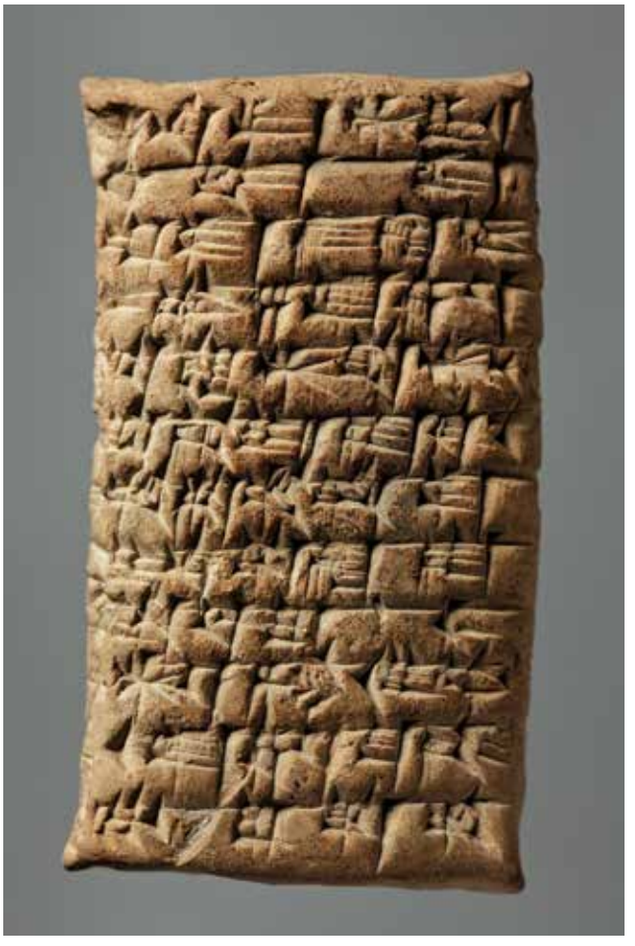
were discarded. Although the syllabic component of the adaptation was very important, the implementation of syllabic writing does not mean that suddenly all verbs and other words were written syllabically throughout ancient Syro-Mesopotamia. In Ebla, for example, scribes tended to use syllabic writing for proper names and for linguistic elements but not for nouns and verbs, even though they could have done so, and they eventually did (Cooper 1999, p. 67). This persistence in the use of logograms might have been related to the fact that, when writing was adopted by non-Sumerian speakers/writers, scribes learned the system by copying Sumerian texts and by learning Sumerian lexical lists (e.g., Krecher 1992). As a result, a number of conventions may have become frozen in certain areas far away from Babylonia. Generalizations, however, tend to be misleading, because in places such as Mari, writing was occasionally modified to keep up with Babylonian conventions (see Durand 1985 and 1992; Michalowski 1987). Although it may seem that syllabification implied a big step toward the simplification of the writing system, logographic writing was never abandoned. What is more, Akkadian kept employing a mixed logo-syllabic system throughout its written history. The potential for simplification is obvious when one considers that Uruk IV shows a repertoire of about 1,200 signs, a number that was reduced significantly in later periods, and by the mid-third millennium it was possible to write Akkadian and Sumerian with about 150 signs (Cooper 1996; Michalowski 1998). But a number of factors may have influenced the adoption and maintaining of a logo-syllabic system. When looking at them with a Mesopotamian frame of mind, both syllabograms and logograms have pros and cons.

Resorting to syllables undoubtedly simplifies the sign repertoire if one so desires, but the use of logograms makes it easy to skim through a text. Ignace Gelb (1952, p. 69, 251) argued that the use of logograms responded to a "principle of economy" because fewer signs are employed (e.g., "dog" written u r in Sumerian vs. *ka-al-bu-um* in Akkadian), but as other scholars have shown, the economy principle does not work in all cases (Cooper 2004). The persistence in the use of logograms may have depended on scribal preferences and on the writing of specific genres. For example, in the Old Babylonian period (Catalog No. 59), we can find economic documents written mostly with logograms alongside letters written mostly syllabically. Similarly, in the late first millennium when Sumerian had been a dead language for a long time, Akkadian divinatory and astronomical texts can be 85 percent logograms (Civil 1973, p. 26); whereas literary texts are almost entirely syllabic (there is less redundancy since the phonetic realization is important). One feature that one should keep in mind for the persistent use of logograms is what Jerrold Cooper (1999, p. 73) has described as "a symptom of the perverse pleasure that academics can take in their most arcane and recondite creations." His comment was meant to explain the very difficult allographic UD.GAL.NUN orthography of early Sumerian literary texts. Perhaps the same reasoning can be applied to the use of convoluted logograms and exegetical commentaries of first-millennium texts. After all, scholars have always been proud of their intellectual sophistication. This brings us back to Enmerkar's pride in defeating the Lord of Aratta by inventing a writing system. He undoubtedly would have been proud to know that his combination of wedges was still conveying messages thousands of years later until the very beginning of the Common Era.

NOTE

* I wish to thank Walter Farber, Doris Fraker, and Annalisa Azzoni for reading the paper and offering suggestions. Thanks are also due Nadine Moeller, Tytus Mikołajczak, and Lori Calabria for technical help with electronic drawings.

OBJECT DESCRIPTIONS: CATALOG NOS. 59–62



59, obverse

59, reverse

59. LETTER

Clay
Old Babylonian period, 2000–1600 BC
Iraq, Ishchali
7.3 x 4.1 x 1.7 cm
OIM A22003

This Old Babylonian letter details a request for money to buy a slave girl; it also includes an ingratiating inquiry into the well-being of the recipient. Personal letters of this kind are common in the Old Babylonian period and first make their appearance in the written record in the second half of the third millennium. The tablet also exemplifies the physical characteristics of the script in the first half of the second millennium. CW

PUBLISHED

Greengus 1979, no. 21.

60. SYLLABARY

Clay
First millennium BC
Unknown provenance
20.8 x 14.5 x 4.0 cm
OIM A2480

60

This famous lexical list, known as the "Chicago Syllabary," dates to the first millennium BC, although the content was probably compiled earlier in the second millennium. The text gives the Sumerian and Akkadian pronunciations of various cuneiform signs along with their names. As such, the text provides unique insights into how the ancients understood and analyzed their languages and the cuneiform script. The list is organized by sign shape. The tablet consists of two halves, with each half divided into four columns. The first column gives the pronunciation of a given sign and the second column gives the corresponding graph. The third column gives the name of the sign as given by the Babylonian compilers (in some cases a descriptive designation that blends Sumerian and Akkadian), while the fourth column gives the corresponding Akkadian pronunciation. In addition to the importance of its content, the text exemplifies the development of the cuneiform script in the first millennium BC. CW

PUBLISHED

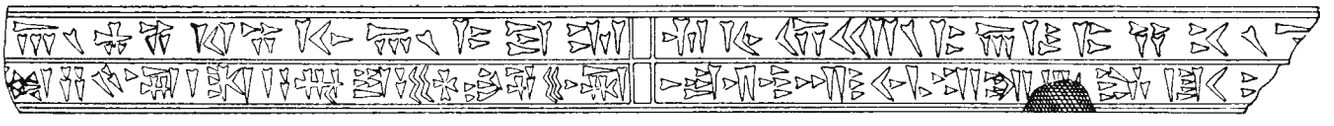
Hallock 1940; Luckenbill 1917.

61. ORNAMENTAL PEG WITH TRILINGUAL TEXT

Blue frit
Achaemenid period, reign of Darius I, 522–486 BC
Iran, Persepolis, Southeast Palace
7.9 x 12.4 cm
OIM A29808B

61

Old Persian



Babylonian *Elamite*

This ornamental peg of blue frit is one of four excavated in the Southeast Palace, often called the Harem of Xerxes, at Persepolis, the complex of palaces built by the Achaemenid kings in the Persian heartland of their empire.

This peg and two others have inscriptions of Darius I (522–486 BC), the founder of Persepolis: "Knobbed peg of precious stone (or lapis lazuli) made in the house of Darius the King." The fourth peg has a similar inscription in the name of his son and successor Xerxes (486–465 BC).

In a striking departure from the practices of other ancient Middle Eastern rulers, the Achaemenid Persian kings usually displayed their inscriptions, whether on palace walls, on column bases and doorframes, on ornamental or precious items, on stelae, or on cliff faces, in three unrelated languages: Old Persian (an Indo-European language), Akkadian (a Semitic language), and Elamite (a linguistic isolate, indigenous to ancient western Iran). Inscriptions set up in Egypt or carved on objects brought from Egypt often add a fourth version, in Egyptian, written with hieroglyphs.

Where the versions are displayed together, the language of the rulers, Old Persian, is normally on top or in the middle. Here, the upper line is in Old Persian, in Old Persian writing; the lower line has the Babylonian and Elamite versions, in two variants of Mesopotamian cuneiform writing.

The Old Persian characters are composed of wedges, but they are not drawn from Mesopotamian cuneiform characters, and Old Persian writing is systematically different from Mesopotamian cuneiform. Old Persian writing has only thirty-six syllabic signs: three vowels (*a*, *i*, *u*), four of the type C(onsonant)+i (e.g., *di*, *mi*, *vi*), seven of the type C+u (e.g., *du*, *mu*, *ru*), and twenty-two of the kind C+a, also representing consonant alone (e.g., *ka* or *k*, *ta* or *t*, *pa* or *p*). It has seven signs representing words (e.g., "king"); a word-divider (here, the single slanting wedge 𐏐); and numerals. Almost all the characters have five or fewer strokes, and the strokes never cross, making the script especially appropriate for carving in stone or metal. Many scholars believe that Old Persian writing was invented at the command of Darius I. It is used for no other language.

The Akkadian and Elamite versions are written in two variants of the same Mesopotamian cuneiform script used for Sumerian, Eblaite, Hittite, Hurrian, and Urartian. Its hundreds of characters were of several types: syllabograms, representing syllables of several kinds (C[onsonant]+V[owel], V+C, C+V+C, and V+C+V); logograms, representing words (nouns, verbs, adjectives, and prepositions); determinatives, unpronounced characters indicating semantic categories (e.g., identifying a noun as the name of a bird, of a wooden thing, of a place name); and numerals. Many characters belong to more than one of these types. Many have more than one syllabic value (polyphony), and many syllabic values are represented by more than one sign (homophony).

From about 2100 BC on, Elamite texts were written with cuneiform signs that were similar in form to contemporary Mesopotamian signs, but after about 650 BC the forms of many Elamite characters diverged. To a modern eye (and perhaps to an ancient eye) the forms are perhaps as distinctive as German *Fraktur* forms of European alphabetic characters.

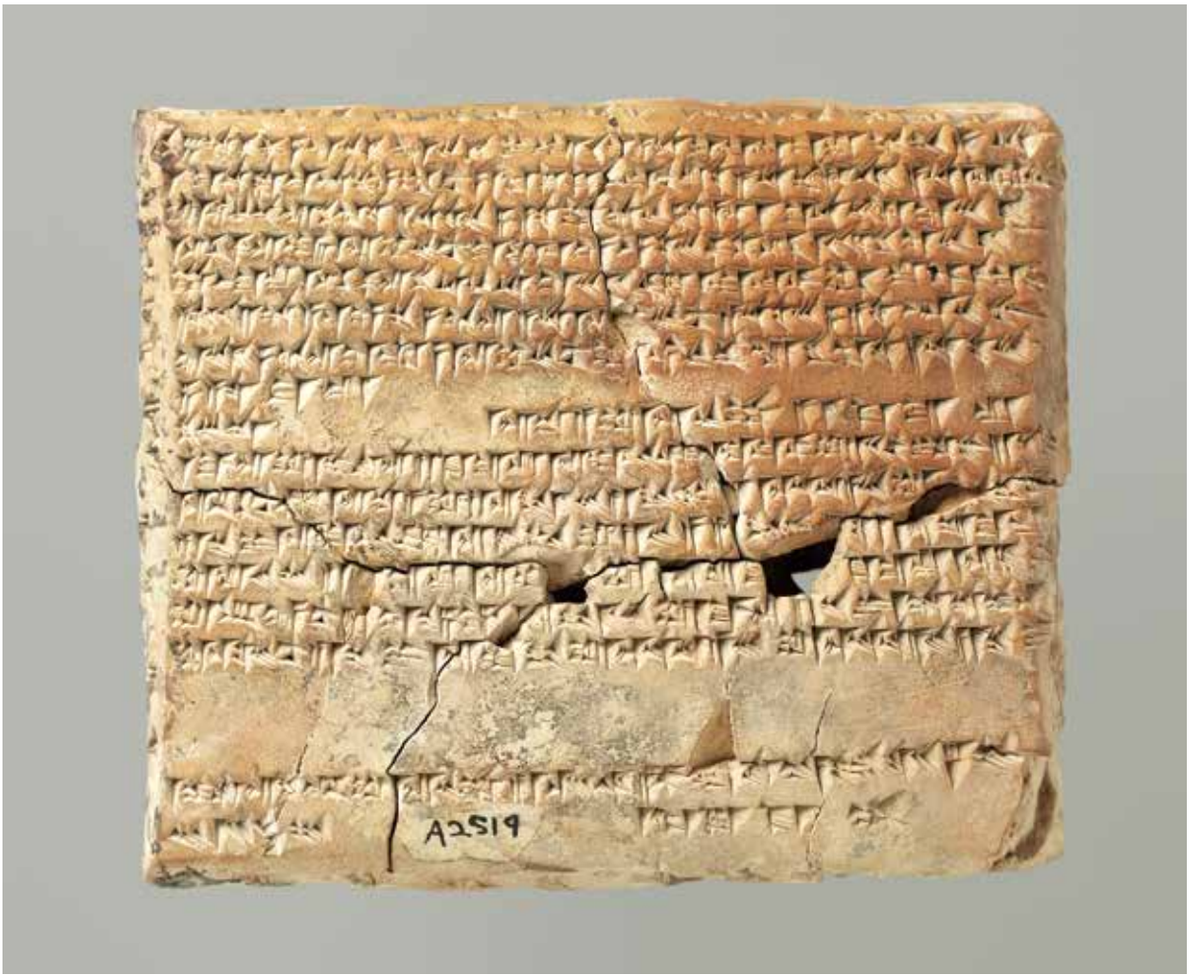
Elamite scribes did not use the rich array of graphic options that Mesopotamian cuneiform allowed. They introduced some syllabic and determinative values specific to Elamite, but most of their adaptations were in the direction of graphic economy. In any period, they used only about 100–140 characters, using logograms only to represent nouns, and they made very sparing use of homophony and polyphony, almost eliminating them entirely by the time the Achaemenid Persians wrote inscriptions and kept records in Elamite.

The results of this economy, and of the structural difference between the Mesopotamian/Elamite and the Old Persian systems, can be seen when the three versions of Achaemenid inscriptions are displayed side by side: the Old Persian needs more characters and more space than the other versions, as it does here; the Elamite often needs more characters and more space than the Akkadian.

In the late eighteenth and early nineteenth centuries AD, the trilingual inscriptions of the Achaemenid Persian kings, copied from the palaces of Persepolis and Susa, were the basis for the first steps in the decipherment of the cuneiform scripts. Old Persian, combining a small sign inventory, little polyphony, and no homophony, with consistent writing rules to represent a language from a family that was familiar to the decipherers, was the first to yield, affording a basis for interpreting the far more complicated Akkadian cuneiform and then its sparer Elamite variant. MWS

PUBLISHED

Schmidt 1939, p. 62, fig. 42; Schmidt 1957, p. 50.



62

62. SELEUCID LEGAL TEXT (SALE OF A HOUSE PLOT)

Clay
Seleucid period, July 10, 223 BC
Iraq, Uruk
11.7 x 10.0 x 3.4 cm
OIM A2519

This Akkadian legal text from the Seleucid period demonstrates the development of the cuneiform script at the end of script's life at the end of the first millennium BC. This deed records the sale of several "built-on house-plots," property of the god Anu in the Innin-Gate district of Uruk for the price of 1 mina of silver. CW

PUBLISHED

Weisberg 1991, p. 19.
See also: Baker 2004, no. 94.

4. THE RISE AND FALL OF CUNEIFORM SCRIPT IN HITTITE ANATOLIA

THEO VAN DEN HOUT

Why, when, and how does a society start to write? And when they do, from where do they get their script? In many cases these early steps toward literacy are shrouded in darkness, because when our earliest sources begin to flow, writing is already there and usually societies were not interested in recording for us the why, where, and how. The interesting thing about Anatolia is that we may be able to answer some of the above questions.

ANATOLIA: THE EARLY YEARS

When written sources begin to flow in Anatolia early in the second millennium BC, at first its society becomes visible only indirectly through the lens of a network of merchants from Assur. This commercial network consisted of several trading posts and hubs spread throughout central Anatolia and extended along some major routes all the way to their hometown in Assyria. With few interruptions this network lasted from about 2000 into the 1730s. The most important center was the city of Kanes (also known as Nesa). In their dealings with the local population and in contacts with their firms back home, these traders used their own Assyrian language written in a simple form of cuneiform script. It used few word-signs and comprised just over 100 signs with a syllabic value (e.g., *a*, *i*, *ku*, *id*, *tup*). The tablets have a very characteristic look with their rulings and the right slant of the signs (fig. 4.1). Over twenty thousand records have been found thus far.

The Assyrians lived in close proximity with the local Anatolians, they mingled and married, and there is even evidence for some level of bilingualism in the local population. Certain mistakes made in the Assyrian documents betray how sometimes local Anatolians would use the Semitic language and its script. They themselves mostly spoke the Indo-European languages Hittite and Luwian, others the non-Indo-European and non-Semitic Hattian. Yet when the network came to an end and the merchants returned home for good, they took the language and the script with them, never to return. There is no evidence that the Anatolians ever felt the urge to use the script systematically for their own purposes, let alone to record their own languages.

One of the reasons the Anatolians do not seem to have been ready for a script of their own may be that in this period Anatolia formed no political unity. The area was a conglomeration of small independent and probably largely self-sufficient city-states in a mountainous landscape that favored geographical isolation. With small local economies and no international relations to speak of, there was little need for long

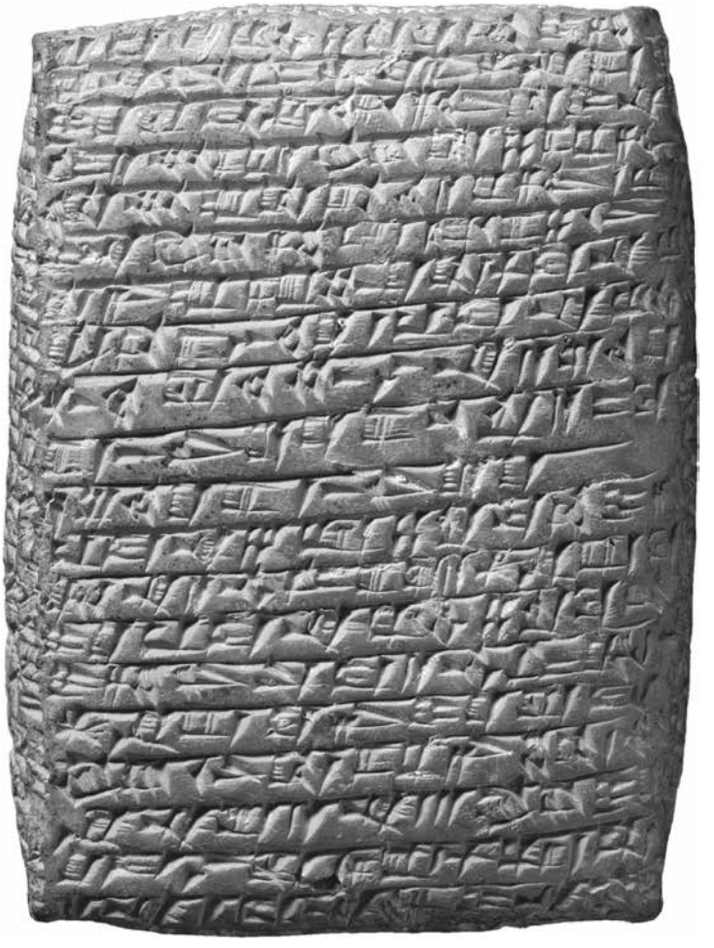
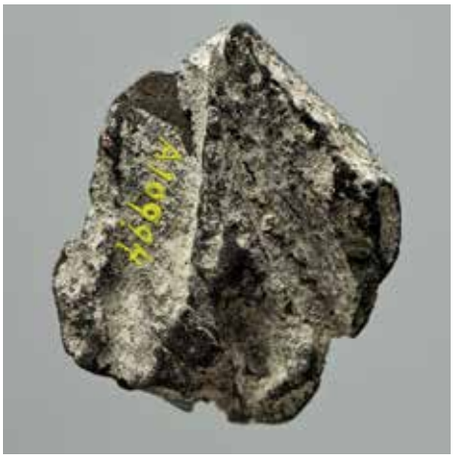


FIGURE 4.1. Old Assyrian clay tablet. Kanes, Turkey. 19th–18th century BC. OIM A2531

a



b

FIGURE 4.2. (*a*) Bulla with abstract shapes and (*b*) reverse suggesting it was used to seal a leather(?) bag. Clay. Alishar Höyük. 4.0 x 3.0 x 1.5 cm. OIM A10994

lines of communication. For their local administration they had developed a system of symbols that did not represent speech, but which could be used for surprisingly detailed and efficient bookkeeping. In this system a symbol, that is, an animal or a piece of vegetation, a ceramic shape, a geometric pattern, or other abstract looking design (fig. 4.2), probably stood for a person or a group of individuals, just as we might recognize an elephant or a donkey symbolizing a political party or just as we immediately associate an illegible scribble as the signature of a person we know.

The impression of that symbol on a lump of clay attached to a container with goods showed who had been responsible for filling the container or for taking goods out and closing it again most recently. This is best illustrated by the seal impressions found at the fourth-millennium BC site of Arslantepe near Malatya. It shows how all withdrawals from a storeroom over what may have been the equivalent of a fiscal year or period could be followed in great detail, including who made them. Clay lumps or *bullae* with such symbols impressed in them have been found in many places in Anatolia, among them in Kanes and the later Hittite capital Hattusa. The later hieroglyphic script used in Anatolia stands in the same tradition in that it draws on the same material surroundings for the inspiration of its symbols (see *13. Anatolian Hieroglyphic Writing*, this volume). Such systems probably sufficed for the internal administration of most of the cities and towns in Anatolia.

The first-known effort to unite many of the hitherto independent settlements into a kingdom of sorts was made by Anitta, king of Kanes around 1750, just before the end of the Assyrian presence in Anatolia. It may be no surprise then that he is the first local ruler we know of, who put up an inscription. Although the original has not been preserved, we have later copies in Hittite, but there is uncertainty as to whether it was originally written in that language or in Assyrian. Doubt is in order, because of a spearhead with the Assyrian inscription "Palace of Anitta, Great Prince." Was this a first step toward some form of internal administration, using Assyrian cuneiform and language? A small clay document, likewise in Assyrian, with his name points in the same direction (fig. 4.3). It lists a number of dignitaries, the first among whom is "Anita, Prince," who have appended their seal to some unnamed object.

This makes it likely that the publicly displayed inscription just mentioned likewise used the same medium. If this was indeed the beginning of using the Old Assyrian cuneiform by the local Anatolian government for internal purposes, it was nipped in the bud: in the time of Anitta the Assyrian network was already on the wane and when it came to its end, Anitta's short-lived kingdom and Anatolia reverted to their illiterate and oral ways. We have to assume

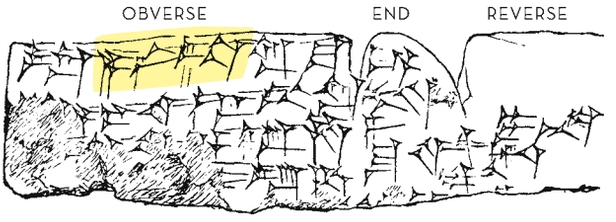


FIGURE 4.3. Anitta's name (yellow) on a small tablet from Alishar Höyük. Field no. b1600. Scale 1:1

that all those centuries since the Assyrians had started their trading the Anatolians observed them using the cuneiform script but felt little to no need to adopt it systematically for themselves. Their own administrative system fully satisfied their needs and the collapse of Anitta's kingdom put an end to what may have been a first attempt at implementing the script.

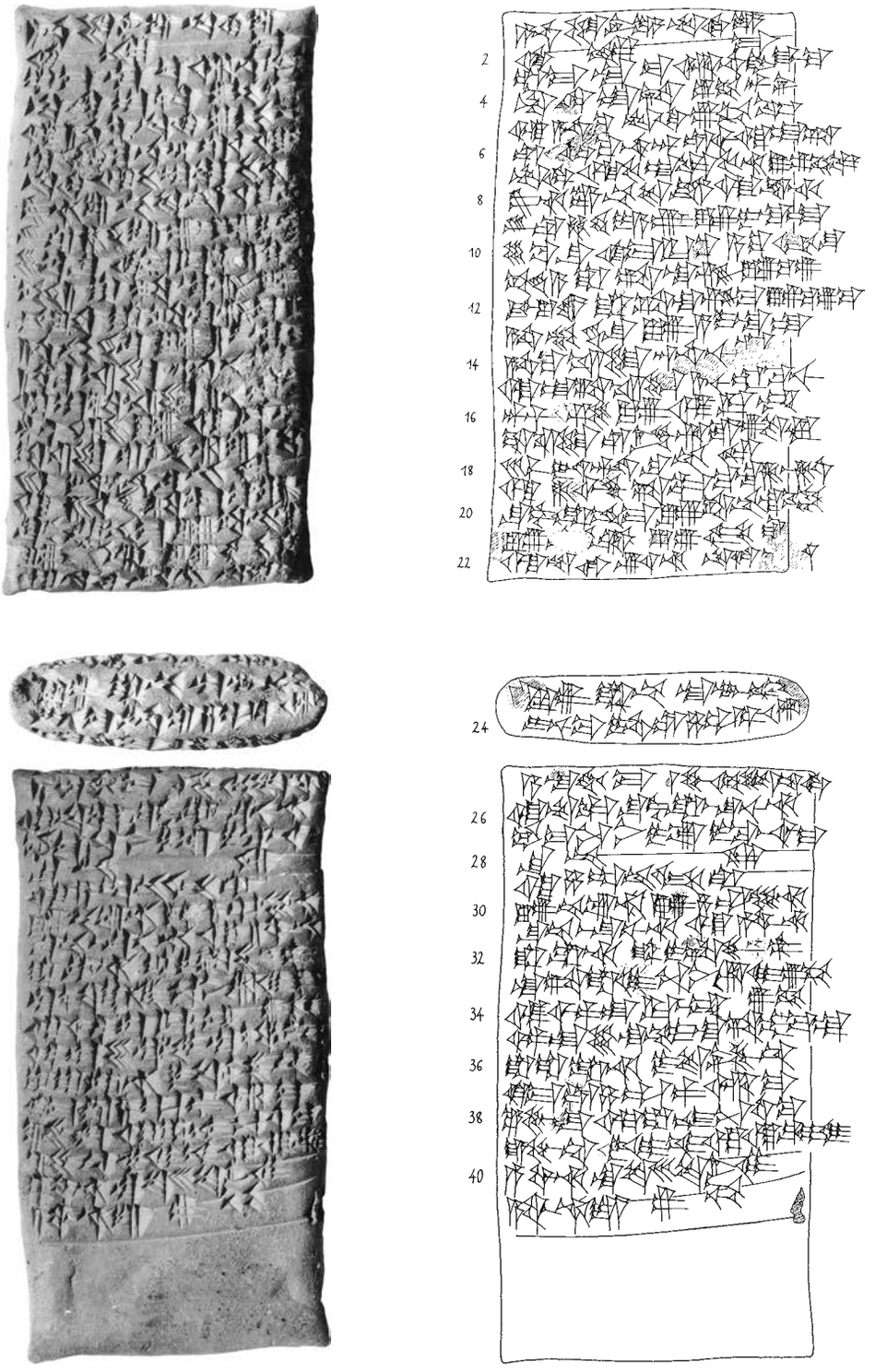


FIGURE 4.4. Letter in Syrian cuneiform script from the Hittite ruler Hattusili I to the Syrian ruler Tunip-tessub. Scale 1:1

THE BEGINNINGS OF A HITTITE STATE

Less than a century later the political landscape of Anatolia had thoroughly changed. Around 1650 Hattusa had become the capital of the young Hittite state under Hattusili I. With central Anatolia already in his power he focused his attention on northern Syria. Here lay the powerful kingdom of Yamhad with its capital Aleppo. A variant of (Semitic) Akkadian was spoken there and a different kind of cuneiform writing than the Old Assyrian one was used for state business. Upon entering the world of international diplomacy, Hattusili had to rely on foreign scribes if he wanted to correspond with his peers in Syria: a letter sent by him to a local Syrian ruler by the name of Tunip-tessub uses the local Syrian variant of Old Babylonian cuneiform *and* language and has come to down to us in almost pristine condition (fig. 4.4).

We also know he erected in Hattusa a gold statue — probably of himself — inscribed with his "manly deeds" over a period of five years. The statue has not been preserved but we do have a late copy of the text in both an Akkadian and a Hittite version. The entry for his second year runs as follows:

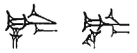
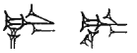
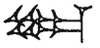
> In the following year I went to (the city of) Alalakh and destroyed it. Thereafter I went to (the city of) Warsuwa, and from Warsuwa I went to (the city of) Ikakali. From Ikakali I went to (the city of) Tashiniya. I destroyed these lands, but I took their goods and filled my palace with goods. (Güterbock and Otten 1960, no. 2 i 15–21)

It so happens that the site of Alalakh, that is, the archaeological level (Level VII) that Hattusili claims to have destroyed, has yielded over 300 tablets. Hattusili's statement about his campaign and the proven use by him of the Syrian script and dialect supports the traditional view that it was he who re-introduced cuneiform in Anatolia. But it may not have been one campaign of a single king that achieved this. Not only Hattusili but also his grandson and immediate successor Mursili I extensively campaigned there. Likewise, it may also have been Aleppo or some other site in the Syrian area that formed the inspiration for the later typical Hittite variant of cuneiform. However, Alalakh is practically the only site where cuneiform tablets from this area and period have come to light and its script is very similar to the later Hittite one.

The Syrian cuneiform for which Alalakh is representative ultimately came from Babylon and shows the typical traits of a peripheral area that is no longer subject to the standardizing pressures of the center. Syrian scribes developed certain variant sign forms that were distinctly non-Babylonian. As table 4.1 below shows, the new shapes even became the most popular: the newer variants appear on average in 75 percent of the cases.

Judging by the extant evidence, cuneiform writing in the days of Hattusili I and Mursili I was a relatively rare phenomenon, perhaps reserved for special occasions. We already saw Hattusili's diplomatic correspondence with a local Syrian king and the

TABLE 4.1. Comparison of Babylonian standard and Syrian (Alalakh) less and most frequent sign forms

Sign Value	*Babylonian Standard*	*Alalakh*	
		Babylonian Standard Forms (ca. 25%)	*New Syrian Sign Forms (ca. 75%)*
AL			
AZ/UK			
IK			
LI			
QA			
SAR			

propagandistic inscription on his own statue. Besides these we have in a late thirteenth-century copy his so-called Testament in both Akkadian and Hittite. In it he instructed his entourage to obey and support his grandson Mursili and toward the end of the text he stipulated:

> My words, too, I have given you and let them read this [tabl]et out loud to you every month so that you will instill my [wor]ds and my wisdom in (your) heart! (Weber 1921, no. 16 iii 56–58)

This shows how he was already aware of the long-term use of script: by having his advice written down, his words were sure to outlast him and his wisdom would be preserved for ever. As said, only the letter to Tunip-tessub (in Akkadian) is a contemporary document, the inscription on the statue and the Testament we have only in late copies in both Akkadian and Hittite. Some rare instances of writing from their successors are also preserved in late copies only. Why do we see so much Akkadian in these early sources?

Comparisons with societies that adopt scripts from others with a different language show that writing initially is done in the language of the other society. This is due to the fact that the "imported" scribes usually are not versed in the language of their host society and teach the first local generation in their own language. Only gradually do they start experimenting to write in the local language and the transition can last one or more generations. One of the oldest contemporary documents from the days of Hattusili or Mursili written in the Syrian script and in the Akkadian language already contains a sentence in Hittite and a few isolated Hittite words inserted in the text.

The difficulty of adapting a foreign script used to write a foreign language to one's own is not to be underestimated. Some of the oldest texts in Hittite betray through uncommon and irregular spellings of words the struggle of early scribes to express the sounds of their mother tongue by means of the foreign script. Where the two languages, Akkadian and Hittite, sounded alike, there was no problem: the same cuneiform signs could be used. But where there were real differences, creative solutions had to be found. Akkadian, for instance, distinguished between voiced and voiceless consonants, like the difference between (voiced) *b* and (voiceless) *p* in English *bet* vs. *pet*. Hittite, on the other hand, did not: most probably it had within a word an opposition between so-called "short" and "long" consonants. A long *t*, for instance, is a *t* where the tongue is held against the upper teeth just a little longer before it is released than in a short one. English does not have this, but one can hear such a long *t* in Italian *otto* "eight." Using the Syrian cuneiform, Hittite scribes eventually decided to simply ignore the voiced/voiceless contrast that came with the script, but spelled short consonants single and long ones double: compare *p* vs. *pp* in Hittite *apa-* "that one" vs. *appa* "back, behind."

Despite its relatively modest volume, the writing activity in the century between Hattusili and

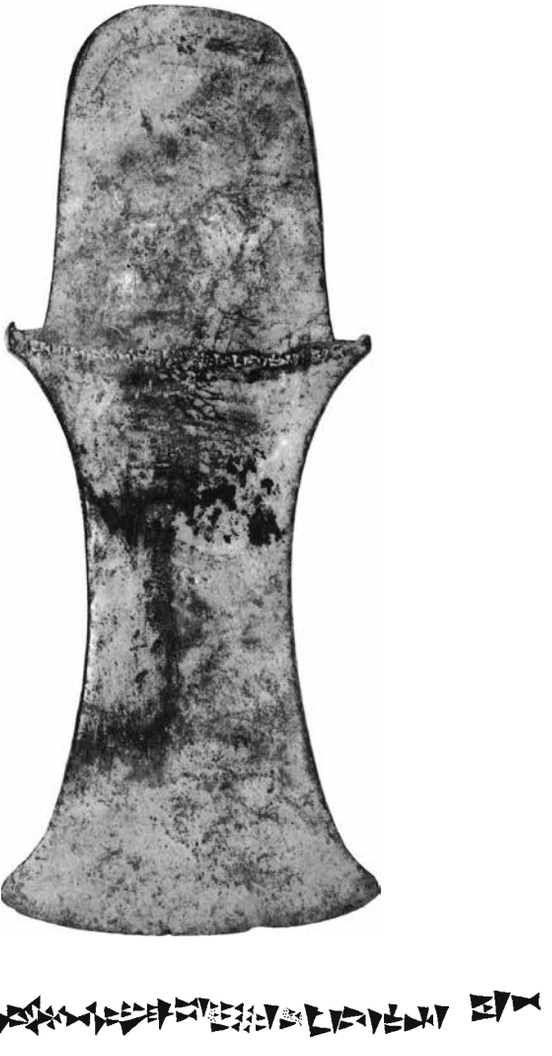


FIGURE 4.5. Bronze ax bearing a graffito of King Ammuna. The inscription is in Akkadian using Hittite sign forms. Scale of photograph 1:2

Mursili (ca. 1650/1600 BC) and king Telipinu (late sixteenth century) was enough to sustain a development from the originally Syrian variant of the cuneiform script known from Alalakh to what eventually became the typical Hittite cuneiform variant. In this new Hittite script, the 75 percent to 25 percent ratio between the new peripheral Syrian variants vis-à-vis the traditional Old Babylonian shapes (see table 4.1, above) that we know from Alalakh became even more pronounced: the peripheral variants became the typical Hittite ones to the virtual extinction of the Babylonian forms, although they may never have been given up completely. This development is understandable from the point of view of the new local generations. Their Syrian teachers brought in the mix of standard and newly developed forms, but having to learn already a few hundred cuneiform signs, the local students were probably not keen to memorize more than one shape per sign.

The end of this development may already have been reached by around 1550 BC. We have a graffito on a bronze ax of king Ammuna from that period (fig. 4.5). It is still in Akkadian but the inscription already shows the familiar Hittite sign forms. The slightly later reign of king Telipinu toward the end of the sixteenth century probably served as a real catalyst. He issued an unprecedented range of official documents, from land grants, the first diplomatic treaty, a new "constitution" to a fiscal reform. It is very well possible that also the first codification of Hittite Laws into two series was written down at his behest. Again, most of these documents were still written in Akkadian, but the law collection was in the Hittite language only.

FROM AKKADIAN TO HITTITE

After this, Akkadian was used less and less and the fifteenth century was the last one to see internal records written in that language. By the time Tudhaliya I ascended the throne around 1420, Akkadian was restricted to international diplomatic documents and all internal record keeping was done in Hittite exclusively (fig. 4.6).

By this time, too, a professional chancellery must have emerged and the growing number of records both produced in the capital and received from the

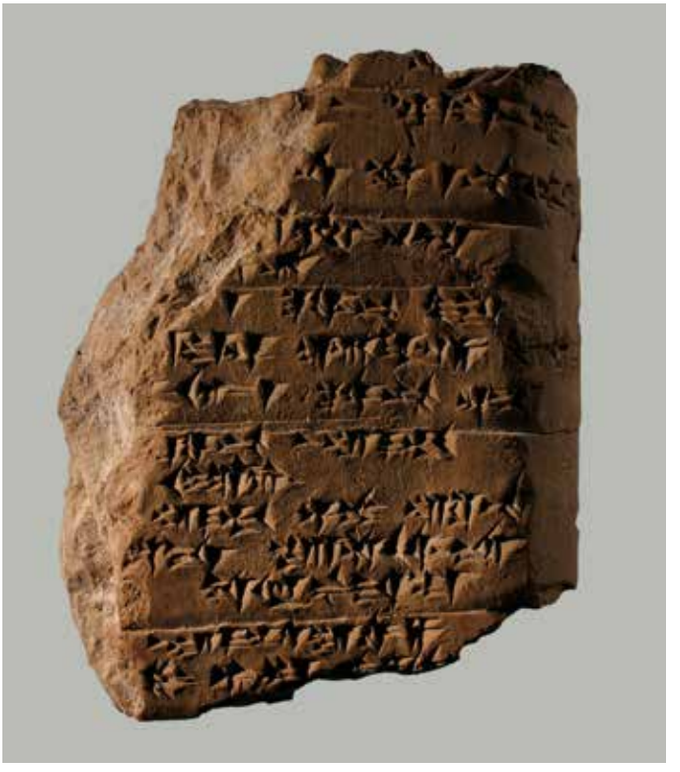


FIGURE 4.6. Fragment of a Hittite tablet. Hattusa. Scale 1:1. OIM A6004

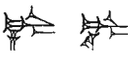
far corners of what had become the Hittite "Empire" prompted an efficient organization of those records. A lot of tablets concerning daily administration of incoming and outgoing goods and services to the state were discarded regularly and after a brief period. Others had a more long-term relevance and some, especially those of a legal nature, were stored indefinitely. Tablets that got damaged were copied as were certain compositions of which more than one copy was deemed necessary. Initially, in the time when writing was still something special, tablets may have been kept in temples and were stored alongside other "treasures" as was the practice in church treasuries in early medieval Western Europe. But with the increasing production of records a system developed with a so-called record center atop the royal acropolis (Turkish *Büyükkale*) for all documents considered of longer-term importance, and at least two scribal centers in the lower city near some of the gates and the endless storerooms where all goods received were packed in chests and baskets or poured into huge pithoi and underground silos (fig. 4.7).

The further development of the Hittite cuneiform scripts illustrates the vicissitudes of the empire that

FIGURE 4.7. Storage pithoi at Hattusa near Temple 1

around 1400 had grown out of the former kingdom. The script used in the fifteenth century had evolved in relative isolation and had weeded out most "unnecessary" variants of the Syrian cuneiform it had adopted. But now that the empire had taken its rightful place alongside the other major powers of Egypt, Babylon, Assyria, and Mittani, it became increasingly drawn into the international diplomatic world where the Babylonian language and script were the standard. It may have been through these increased contacts that the standard Babylonian forms gained new prominence in Hittite society. What had once been the "new" forms from the peripheral Syrian scribal milieu now became the "old" forms in the Hittite system, and the original old Babylonian standard shapes once again became fashionable (table 4.2).

TABLE 4.2. Sign values for "old" and "new" shapes in Hittite cuneiform

Sign Value	*Hittite "Old" Shapes*	*Hittite "New" Shapes*
AL		
AZ/UK		
IK		
LI		
QA		
SAR		

By the late thirteenth century toward the end of the empire the "new" shapes all but eclipsed the "old" ones. Judged by the fact that, for instance, "old" LI was used in certain texts in a royal name only, shows how they could be felt as old fashioned, that is, hearkening back to older, long-established scribal traditions, and therefore also festive or solemn.

THE END

The Hittite language and the cuneiform script were the official medium of the empire's internal record keeping, but the Hittite language's dominant status did not necessarily match the linguistic make-up of the country. Because of its huge mountain ranges and rugged terrain, Anatolia was riddled with isolated areas, each with its own dialect or language. The most important of these was Luwian, a sister language of Hittite. Over the centuries the parts of the population that spoke Luwian probably increased, to the extent that by the thirteenth century most of the population spoke Luwian and Hittite may no longer even have been anybody's mother tongue. Anatolian Hieroglyphs had reached the full status of a script by 1400 BC and they became the preferred medium for the Luwian language. Hittite kings employed the hieroglyphic script and Luwian language for ever lengthier and mostly propagandistic inscriptions meant for the population at large. Meanwhile, the scribes in the empire's offices continued to compose annals, prayers, depositions, oracle reports, cultic scenarios, and the like in Hittite and cuneiform. This meant, however, that once the empire's power structure broke down around 1200, the support for both the Hittite language and its cuneiform script fell away and they disappeared without a trace.

CONCLUSIONS

Coming back to the questions posed at the beginning, why, when, and how a society starts to write, we can say that the rise of the Hittite cuneiform script depended on the need the ruling class perceived and

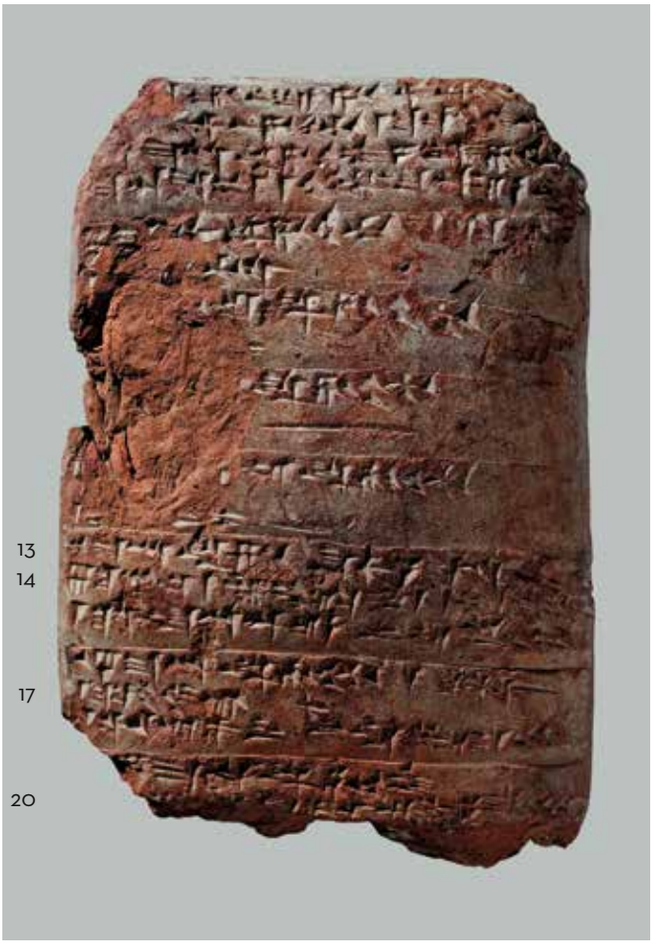
on the availability of a script. Initially, at least, there was little internal administrative need and their "choice" of a script was not motivated by efficiency or pedagogical principles. For a period of about two centuries they lived in close proximity and daily interaction with the Assyrian merchants who used writing intensively. Even though some Anatolians mastered both their language and the script, when the Assyrians left, nothing happened. The Assyrian writing system, despite its relative simplicity, was not adopted. About a century later, around 1650 BC, the Hittites settled for the much more complex Syrian variant of cuneiform. It was the need that came with a state that grew too big for purely oral communication and for its eagerness for international prestige that compelled them to adopt a script of their own. In keeping with other societies the Hittites started writing in the language that came with the script they adopted and only gradually started experimenting with their own language.

The fall of the Hittite cuneiform script was a question of political sustainability. The cuneiform script and the Hittite language had become the official medium for all internal and external communication of the Hittite state and its ruling elite. The use of the Akkadian language was restricted to diplomatic purposes. However, due to political developments the linguistic make-up of Anatolia changed and Hittite became an increasingly artificial language that ultimately was nobody's mother tongue. The consequence of this was that when around 1200 BC the state disintegrated, the bottom fell out from under the system that had supported the Hittite language with its cuneiform script: with the language the cuneiform script vanished for ever from Anatolia.

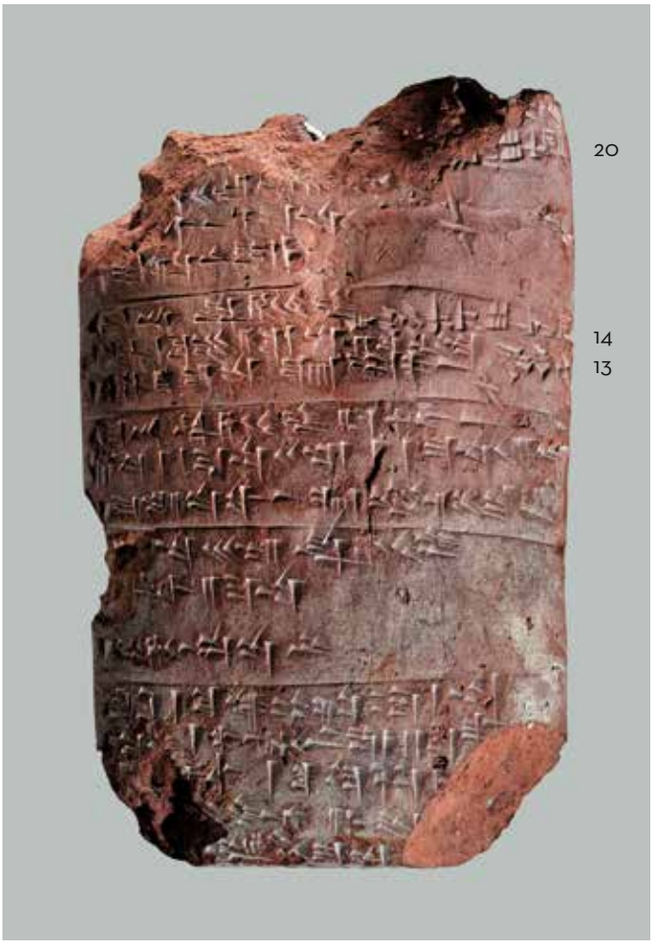
* * * * *

For the symbols used at Arslantepe, see Frangipane 2007. For an extended version of the history of Hittite cuneiform, see van den Hout forthcoming. For further reading, see Bryce 2002 and 2005.

OBJECT DESCRIPTION: CATALOG NO. 63



63, obverse



63, reverse

63. HITTITE INVENTORY OF WOOL AND WOOLEN GARMENTS

Clay
Thirteenth century BC
Turkey, Hattusa
11.0 x 7.0 x 3.2 cm
NBC 3842

This tablet contains a list of tax payments by twelve individuals to the Hittite state. The text dates to the thirteenth century BC. All payments are made in dyed wool and ready-made textiles. Divided into twelve sections or paragraphs by horizontal lines, each paragraph lists the specific payments of a single person. The last line of each paragraph gives the name of the taxpayer preceded by the vertical wedge 𒹻 marking male names. Sometimes the name is followed by a city name for further identification.

On the obverse (compare lines 13–14, 20) the scribe sometimes uses the right edge to finish the last word of a line. In obverse line 14, however, although already on the right edge, he squeezes in an entire extra tax item and ends up writing on the reverse. It is unclear whether he was reluctant to devote a whole extra line to this one payment before the name of the tax payer or if he had forgotten it initially and was forced to add it afterwards. Since elsewhere in the text (compare obverse line 17, reverse line 13) he does give the

63, top

63, side

last tax item its own line, the latter may be the case.

The final paragraph gives the total of all payments listed on the tablet and continues on to the lower edge of the reverse. TvdH

PUBLISHED

Beckman and Hoffner 1985, Finkelstein 1956.

BIBLIOGRAPHY FOR CUNEIFORM ESSAYS

Abusch, Tzvi

1981 "Notes on a Pair of Matching Texts: A Shepherd's Bulla and an Owner's Receipt." In *In Honor of Ernest R. Lacheman on His Seventy-fifth Birthday, April 29, 1981*, edited by M. A. Morrison and D. I. Owen, pp. 1–9. Studies on the Civilization and Culture of Nuzi and the Hurrians 1. Winona Lake: Eisenbrauns.

Algaze, Guillermo

1989 "The Uruk Expansion: Cross-cultural Exchange in Early Mesopotamian Civilization." *Current Anthropology* 30: 571–608.

1993 *The Uruk World System: The Dynamics of Expansion of Early Mesopotamian Civilization*. Chicago: University of Chicago Press.

Alizadeh, Abbas

2006 *The Origins of State Organizations in Prehistoric Highland Fars, Southern Iran: Excavations at at Tall-e Bakun*. Oriental Institute Publications 128. Chicago: The Oriental Institute.

Amiet, Pierre

1966 "Il y a 5000 ans, les Elamites inventaient l'écriture." *Archeologia* 12: 16–23.

Archi, Alfonso

1992 "Transmission of the Mesopotamian Lexical and Literary Texts from Ebla." In *Literature and Literary Language at Ebla*, edited by P. Fronzaroli, pp. 1–40. Florence: Dipartimento di Linguistica Università di Firenze.

Baker, Heather D.

2004 "OIP 122 12: Some Remarks." *Nouvelles Assyriologiques Brèves et Utilitaires* 2004/4, no. 90.

Beckman, Gary, and Harry A. Hoffner, Jr.

1985 "Hittite Fragments in American Collections." *Journal of Cuneiform Studies* 37/1: 1–60.

Biggs, Robert D.

1967 "Semitic Names in the Fara Period." *Orientalia* 36: 55–66.

Bonechi, Marco, and Jean-Marie Durand

1992 "Oniromancie et magie à Mari à l'époque d'Ébla." In *Literature and Literary Language at Ebla*, edited by P. Fronzaroli, pp. 151–62. Florence: Dipartimento di Linguistica Università di Firenze.

Borger, Rykle

2004 *Mesopotamisches Zeichenlexikon*. Münster: Ugarit-Verlag.

Bryce, Trevor

2002 *Life and Society in the Hittite World*. New York: Oxford University Press.

2005 *Kingdom of the Hittites*. Oxford: Oxford University Press.

Buccellati, Giorgio

1981 "The Origin of Writing and the Beginning of History." In *The Shape of the Past: Studies in Honor of Franklin D. Murphy*, edited by Giorgio Buccellati and Charles Speroni, pp. 3–13. Los Angeles: University of California Press.

1996 *A Structural Grammar of Babylonian*. Wiesbaden: Harrassowitz.

Burnstein, Stanley M.

1978 *The Babyloniaca of Berossus*. Sources and Monographs on the Ancient Near East 1. Malibu: Undena.

Charpin, Dominique

1987 "Tablettes présargoniques de Mari." *Mari, annales de recherches interdisciplinaires* 5: 65–127.

1998 "Les textes cunéiformes de Mari à l'époque proto-dynastique." In *En Syrie: aux origines de l'écriture*, edited by P. Talon and K. Van Lerberghe, pp. 53–56. Leuven: Brepols.

Civil, Miguel

1969 *The Series* lú = *ša and Related Texts*. Materials for the Sumerian Lexicon 12. Rome: Pontificium Institutum Biblicum.

1973 "The Sumerian Writing System: Some Problems." *Orientalia* 42: 21–34.

1982 "Studies on Early Dynastic Lexicography 1." *Oriens Antiquus* 21: 1–26.

1984 "Bilingualism in Logographic Written Languages: Sumerian in Ebla." In *Il bilinguismo a Ebla*, edited by L. Cagni, pp. 75–97. Naples: Istituto Universitario Orientale.

1992 "Cuneiform." In *International Encyclopedia of Linguistics*, Volume 1, edited by W. Bright, pp. 322–25. New York and Oxford: Oxford University Press.

Collon, Dominique

2005 *First Impressions: Cylinder Seals in the Ancient Near East*. London: British Museum Press.

Cooper, Jerrold

1973 "Sumerian and Akkadian in Sumer and Akkad." *Orientalia* NS 42: 239–46.

1996 "Mesopotamian Cuneiform: Sumerian and Akkadian." In *The World's Writing Systems*, edited by P. T. Daniels and W. Bright, pp. 37–57. New York and Oxford: Oxford University Press.

1997 "Sumerian and Akkadian." In *The World's Writing Systems*, edited by P. T. Daniels and W. Bright, pp. 37–59. New York and Oxford: Oxford University Press.

1999 "Sumerian and Semitic Writing in Most Ancient Syrio-Mesopotamia." In *Languages and Cultures in Contact: At the Crossroads of Civilizations in the Syro-Mesopotamian Realm*, edited by K. Van Lerberghe and G. Voet, pp. 61–77. Proceedings of the 42nd Rencontre Assyriologique Internationale. Leuven: Uitgeverij Peeters en Departement Oosterse Studies.

2004 "Babylonian Beginnings: The Origin of the Cuneiform Writing System in Comparative Perspective." In *The First Writing: Script Invention as History and Process*, edited by S. D. Houston, pp. 71–99. Cambridge: Cambridge University Press.

Delougaz, Pinhas, and Helene J. Kantor

1996 *Chogha Mish*, Volume 1: *The First Five Seasons of Excavations, 1961–1971*, edited by Abbas Alizadeh. Oriental Institute Publications 101. Chicago: The Oriental Institute.

Dolce, Rita

1978 *Gli intarsi Mesopotamici dell'epoca protodinastica*. Serie Archeologica 23. Rome: Istituto di Studi del Vicino Oriente.

Durand, Jean-Marie

1985 "La situation historique des *šakkanakku*: Nouvelle approche." *Mari, annales de recherches interdisciplinaires* 4: 147–72.

1992 "Unité et diversité au Proche-Orient à l'époque amorrite." In *La circulation des biens, des personnes et des idées dans le Proche-Orient ancien*, edited by D. Charpin and F. Joannès, pp. 97–128. Paris: Éditions Recherches sur les Civilisations.

Edzard, Dietz Otto

1994 "Ebla ou la grande surprise de l'histoire du Proche-Orient ancien." *Akkadica* 88: 18–29.

1997 *Gudea and His Dynasty*. The Royal Inscriptions of Mesopotamia, Early Periods 3/1. Toronto: University of Toronto Press.

1998 "Le développement de l'écriture cunéiforme: le fonctionnement de l'écriture sumérienne." In *En Syrie: aux origines de l'écriture*, edited by P. Talon and K. Van Lerberghe, pp. 33–39. Leuven: Brepols.

Englund, Robert K.

1993 Review of *Before Writing*, Volume 1: *From Counting to Cuneiform*, by D. Schmandt-Besserat. *Science* 260: 1670–71.

1996 *Proto-Cuneiform Texts from Diverse Collections*. Materialien zu den frühen Schriftzeugnissen des Vorderen Orients 4. Berlin: Gebr. Mann.

1998 "Texts from the Late Uruk Period." In *Mesopotamien: Späturuk-Zeit und Frühdynastische Zeit*, edited by J. Bauer, R. K. Englund, and M. Krebernik, pp. 15–233. Orbis Biblicus et Orientalis 160/1. Freiburg: Universitätsverlag; Göttingen: Vandenhoeck and Ruprecht.

2004 "The State of Decipherment of Proto-Elamite." In *The First Writing: Script Invention as History and Process*, edited by S. D. Houston, pp. 100–49. Cambridge: Cambridge University Press.

2009 "The Smell of the Cage." *Cuneiform Digital Library Journal* 2009/4: 1–27.

Englund, Robert K., and Jean-Pierre Grégoire

1991 *The Proto-Cuneiform Texts from Jemdet Nasr*. Materialien zu den frühen Schriftzeugnissen des Vorderen Orients 1. Berlin: Gebr. Mann.

Englund, Robert K., and Hans J. Nissen

1993 *Die lexikalischen Listen der archaischen Texte aus Uruk*. Ausgrabungen der Deutschen Forschungsgemeinschaft in Uruk-Warka 13. Berlin: Gebr. Mann.

1994 *Archaic Administrative Texts from Uruk: The Early Campaigns*. Archaische Texte aus Uruk 5. Ausgrabungen der Deutschen Forschungsgemeinschaft in Uruk-Warka 15. Berlin: Gebr. Mann.

2005 *Archaische Verwaltungstexte aus Uruk: Vorderasiatisches Museum II*. Archaische Texte aus Uruk 6. Ausgrabungen der Deutschen Forschungsgemeinschaft in Uruk-Warka 16. Berlin: Gebr. Mann.

Falkenstein, Adam

1936 *Archaische Texte aus Uruk*, Volume 1. Leipzig: Otto Harrassowitz.

Finet, André

1979 "Bilan provisoire des fouilles belges du Tell Kannas." In *Archaeological Reports from the Tabqa Dam Project, Euphrates Valley Syria*, edited by D. N. Freedman, pp. 79–96. Annual of the American Schools of Oriental Research 44. New Haven: American Schools of Oriental Research.

Finkelstein, J. J.

1956 "A Hittite *mandattu*-Text." *Journal of Cuneiform Studies* 10/3: 101–05.

Frangipane, Marcella, et al., editors

2007 *Arslantepe – Cretulae: An Early Centralised Administrative System before Writing*. Rome: Università di Roma "La Sapienza."

Frankfort, Henri

1939 *Cylinder Seals: A Documentary Essay on the Art and Religion of the Ancient Near East*. London: MacMillan.

1955 *Stratified Cylinder Seals from the Diyala Region*. Oriental Institute Publications 72. Chicago: University of Chicago Press.

Friberg, Jöran

1978 *The Early Roots of Babylonian Mathematics*, Volume 1. Göteborg: Göteborg University.

1979 *The Early Roots of Babylonian Mathematics*, Volume 2. Göteborg: Göteborg University.

1997/98 "Round and Almost Round Numbers in Proto-literate Metro-mathematical Field Texts." *Archiv für Orientforschung* 44/45: 1–58.

Gelb, Ignace J.

1952 *A Study of Writing: The Foundations of Grammatology*. Chicago: University of Chicago Press.

Glassner, Jean-Jacques

2003 *The Invention of Cuneiform: Writing in Sumer*, translated by Z. Bahrani and M. Van De Mieroop. Baltimore: Johns Hopkins University Press.

Gragg, Gene B.

1996 "Mesopotamian Cuneiform, Other Languages." In *The World's Writing Systems*, edited by P. T. Daniels and W. Bright, pp. 58–72. New York and Oxford: Oxford University Press.

Green, Margaret W.

1980 "Animal Husbandry at Uruk in the Archaic Period." *Journal of Near Eastern Studies* 39: 1–35.

1981 "The Construction and Implementation of the Cuneiform Writing System." *Visible Language* 15: 345–72.

1986 "Archaic Uruk Cuneiform." *American Journal of Archaeology* 90: 464–66.

Green, Margaret W., and Hans J. Nissen

1987 *Zeichenliste der archaischen Texte aus Uruk*. Ausgrabungen der Deutschen Forschungsgemeinschaft in Uruk-Warka 11. Berlin: Gebr. Mann.

Greengus, Samuel

1979 *Old Babylonian Tablets from Ishchali and Vicinity*. Publications de l'Institut historique-archéologique néerlandais de Stamboul 44. Istanbul: Nederlands Historisch-Archaeologisch Instituut.

Güterbock, Hans G., and Heinrich Otten

1960 *Keilschrifttexte aus Boghazköi*, Volume 10. Berlin: Gebr. Mann.

Haayer, G.

1986 "Languages in Contact: The Case of Akkadian and Sumerian." In *Scripta Signa Vocis: Studies about Scripts, Scriptures, Scribes and Languages in the Near East Presented to J. H. Hospers by His Pupils, Colleagues and Friends*, edited by H. L. J. Vanstiphout et al., pp. 77–84. Groningen: Egbert Forsten.

Hackman, George G.

1958 *Sumerian and Akkadian Administrative Texts.* Babylonian Inscriptions in the Collection of James B. Nies 8. New Haven: Yale University Press.

Hallock, Richard T.

1940 *The Chicago Syllabary and the Louvre Syllabary AO 7661*. Assyriological Studies 7. Chicago: University of Chicago Press.

Hasselbach, Rebecca

2005 *Sargonic Akkadian: A Historical and Comparative Study of the Syllabic Texts.* Wiesbaden: Harrassowitz.

Hilgert, Markus

1998 *Cuneiform Texts from the Ur III Period in the Oriental Institute*, Volume 1: *Drehem Administrative Documents from the Reign of šulgi*. Oriental Institute Publications 115. Chicago: The Oriental Institute.

Huehnergard, John

1997 "Akkadian." In *The Oxford Encyclopedia of Archaeology in the Near East*, edited by E. Meyers, pp. 44–49. New York and Oxford: Oxford University Press.

Ismail, Farouk; Walther Sallaberger; Phillippe Talon; and Karel Van Lerberghe

1996 *Administrative Documents from Tell Beydar (Seasons 1993–1995)*. Subartu 2. Brussels: Brepols.

Johnson, G.

1988–89 "Late Uruk in Greater Mesopotamia: Expansion or Collapse?" *Origini* 14: 595–613.

Jordan, Julius

1931 *Zweiter vorläufiger Bericht über die von der Notgemeinschaft der Deutschen Wissenschaft in Uruk unternommenen Ausgrabungen*. Philologisch-historische Klasse 4. Berlin: Akademie der Wissenschaften.

Krebernik, Manfred

1994 Review of *Zeichenliste der archaischen Texte aus Uruk*, by M. Green and H. Nissen. *Orientalistische Literaturzeitung* 89: 380–86.

2007 "Zur Entwicklung des Sprachbewusstseins im Alten Orient." In *Das geistige Erfassen der Welt im Alten Orient: Sprache, Religion, Kultur und Gesellschaft*, edited by C. Wilcke, pp. 39–61. Wiesbaden: Harrassowitz.

Krecher, Joachim

1992 "UD.GAL.NUN versus 'Normal' Sumerian: Two Literatures or One?" In *Literature and Literary Language at Ebla*, edited by P. Fronzaroli, pp. 285–304. Florence: Dipartimento di Linguistica Università di Firenze.

Krispijn, Theo

1991–92 "The Early Mesopotamian Lexical Lists and the Dawn of Linguistics." *Jaarbericht "Ex Oriente Lux"* 32: 12–22.

Labat, René

1995 *Manuel d'épigraphie akkadienne (signes, syllabaire, idéogrammes)*. Paris: Paul Geuthner. 1st edition 1948.

Lieberman, Stephen J.

1980 "Of Clay Pebbles, Hollow Clay Balls, and Writing: A Sumerian View." *American Journal of Archaeology* 84: 339–58.

Liverani, Mario

2006 *Uruk: The First City*, edited and translated by Z. Bahrani and M. Van De Mieroop. London: Equinox.

Luckenbill, Daniel D.

1917 "The Chicago Syllabary." *American Journal of Semitic Languages and Literatures* 33: 169–99.

Michalowski, Piotr

1980 "Sumerian as an Ergative Language," *Journal of Cuneiform Studies* 32: 86–103.

1987 "Language, Literature and Writing at Ebla." In *Ebla 1975–1985: Dieci anni di studi linguistici e filologici*, edited by L. Cagni, pp. 165–75. Dipartimento di Studi Asiatici, Series Minor 27. Naples: Istituto Universitario Orientale.

1990 "Early Mesopotamian Communicative Systems: Art, Literature, and Writing." In *Investigating Artistic Environments in the Ancient Near East*, edited by A. C. Gunter, pp. 53–69. Washington, DC, and Madison: Arthur M. Sackler Gallery, Smithsonian Institution.

1994 "Writing and Literacy in Early States: A Mesopotamianist Perspective." In *Literacy: Interdisciplinary Conversations*, edited by D. Keller-Cohen, pp. 49–70. Cresskill: Hampton.

1996 "Mesopotamian Cuneiform: Origin." In *The World's Writing Systems*, edited by P. T. Daniels and W. Bright, pp. 33–36. New York and Oxford: Oxford University Press.

1998 "L'adaptation de l'écriture cunéiforme à l'akkadien." In *En Syrie: Aux origines de l'écriture*, edited by P. Talon and K. Van Lerberghe, pp. 41–47. Leuven: Brepols.

2008 "Sumerian." In *The Ancient Languages of Mesopotamia, Egypt, and Aksum*, edited by R. Woodard, pp. 6–46. Cambridge: Cambridge University Press.

Milano, Lucio

1998 "La diffusion de l'écriture en Syrie: Ebla." In *En Syrie: Aux origines de l'écriture*, edited by P. Talon and K. Van Lerberghe, pp. 57–59. Leuven: Brepols.

Nissen, Hans J.

1966 *Zur Datierung des Königsfriedhofes von Ur: Unter besonderer Berücksichtigung der Stratigraphie der Privatgräber*. Bonn: Rudolf Habelt.

1977 "Aspects of the Development of Early Cylinder Seals." In *Seals and Sealing in the Ancient Near East*, edited by M. Gibson and R. Biggs, pp. 15–24. Bibliotheca Mesopotamica 6. Malibu: Undena Publications.

1986 "The Archaic Texts from Uruk." *World Archaeology* 17: 317–34.

1988 *The Early History of the Ancient Near East 9000–2000 B.C.*, translated by E. Lutzeier with K. J. Northcott. Chicago: University of Chicago Press.

1993 *Die lexikalischen Listen der archaischen Texte aus Uruk*. Archaische Texte aus Uruk 3.

Ausgrabungen der Deutschen Forschungsgemeinschaft in Uruk-Warka 13. Berlin: Gebr. Mann.

1998 "L'invention de l'écriture cunéiforme: Les tablettes archaïques d'Uruk." In *En Syrie: Aux origines de l'écriture*, edited by P. Talon and K. Van Lerberghe, pp. 21–31. Leuven: Brepols.

2001 "Cultural and Political Networks in the Ancient Near East in the Fourth and Third Millennia BC." In *Uruk Mesopotamia and Its Neighbors: Cross-cultural Interactions in the Era of State Formation*, edited by M. Rothman, pp. 149–80. Santa Fe: School of American Research Press.

Nissen, Hans J.; Peter Damerow; and Robert K. Englund

1990 *Frühe Schrift und Techniken der Wirtschaftsverwaltung im alten Vorderen Orient: Informationsspeicherung und -verarbeitung vor 5000 Jahren*. Franzbecker: Braunschweig.

1993 *Archaic Bookkeeping: Early Writing and Techniques of the Economic Administration in the Ancient Near East.* Chicago: University of Chicago Press. Translation of Nissen, Damerow, and Englund 1990.

Oppenheim, A. Leo

1959 "On an Operational Device in Mesopotamian Bureaucracy." *Journal of Near Eastern Studies* 18: 121–28.

Pettinato, Giovanni

1981 *Testi lessicali monolingui della biblioteca L. 2769.* Materiali epigrafici di Ebla 3. Naples: Istituto Universitario Orientali di Napoli.

2003 "Le lingue semitiche di Ebla, Mari e Tell Beydar nel panorama linguistico del Vicino Oriente Antico del III millennio a.C." In *Semitic and Assyriological Studies Presented to Pelio Fronzaroli by Pupils and Colleagues*, edited by A. Catagnoti and C. Picchi, pp. 520–31. Wiesbaden: Harrassowitz.

Pittman, Holly

1994a *The Glazed Steatite Glyptic Style: The Structure and Function of an Image System in the Administration of Protoliterate Mesopotamia*. Berliner Beitrage zum Vorderen Orient 16. Berlin: Dietrich Reimer.

1994b "Towards an Understanding of the Role of Glyptic Imagery in the Administrative Systems of Proto-literate Greater Mesopotamia." In *Archives Before Writing* (Proceedings of the International Colloquium, Oriolo Romano, October 23–25, 1991), edited by P. Ferioli, E. Fiandra, G. G. Fissore, M. Frangipane, pp. 177–206. Turin: Ministero per i Beni Culturali e Ambientali Ufficio Centrale per i Beni Archivisti.

Pollock, Susan

1999 *Ancient Mesopotamia: The Eden that Never Was.* Cambridge: Cambridge University Press.

Porada, Edith

1977 "Of Professional Seal Cutters and Nonprofessionally Made Seals." In *Seals and Sealing in the Ancient Near East*, edited by M. Gibson and R. Biggs, pp. 7–14. Bibliotheca Mesopotamica 6. Malibu: Undena Publications.

Reiner, Erica

1966 *A Linguistic Analysis of Akkadian*. Janua Linguarum, Series Practica 21. The Hague: Mouton.

Sachs, Abraham

1976 "The Latest Datable Cuneiform Tablets." In *Kramer Anniversary Volume: Cuneiform Studies in Honor of Samuel Noah Kramer*, pp. 376–98, edited by B. Eichler. Alter Orient und Altes Testament 25. Neukirchen-Vluyn: Neukirchen.

Sallaberger, Walther

1998 "L'écriture cunéiforme à Tell Beydar: Liens culturels et expression locale." In *En Syrie: aux origines de l'écriture*, edited by P. Talon and K. Van Lerberghe, pp. 49–52. Leuven: Brepols.

Salvini, Mirjo

1993 "Un documento del re ittita Ammuna." *Studi micenei ed egeo-anatolici* 32: 85–89.

1994 "Una lettera di Hattusili 1 relativa alla spedizione contro Haḫḫum." *Studi micenei ed egeo-anatolici* 34: 61–80.

Sampson, Geoffrey

1985 *Writing Systems: A Linguistic Introduction*. Stanford: Stanford University Press.

Scheil, Vincent

1929 "Tablettes pictographiques." *Revue d'Assyriologie et d'Archéologie Orientale* 26: 15–17.

Schmandt-Besserat, Denise

1992 *Before Writing*, Volume 1: *From Counting to Cuneiform*. Austin: University of Texas Press.

Schmidt, Erich F.

1932 *Researches in Anatolia*, Volume 4: *The Alishar Hüyük Seasons of 1928 and 1929*, Part 1. Oriental Institute Publications 19. Chicago: University of Chicago Press.

1939 *The Treasury of Persepolis and other Discoveries in the Homeland of the Achaemenians*. Oriental Institute Communications 21. Chicago: University of Chicago Press.

1957 *Persepolis 2. Contents of the Treasury and other Discoveries*. Oriental Institute Publications 69. Chicago: University of Chicago Press.

Soden, Wolfram von

1995 *Grundriss der akkadischen Grammatik.* Rome: Editrice Pontificio Istituto Biblico.

Stein, Gil J., and Adnan Mısır

1994 "Mesopotamian-Anatolian Interaction at Hacinebi, Turkey: Preliminary Report on the 1992 Excavations." *Anatolica* 20: 145–89.

Steinkeller, Piotr

1984 "Observations on the Function and Use of the Uruk Clay Bullae and Numerical Tablets." Paper Read at the 194th Meeting of the American Oriental Society.

1995 Review of *Zeichenliste der Archaischen Texte aus Uruk*, by M. Green and H. Nissen. *Bibliotheca Orientalis* 52: 689–713.

1998 "Inana's Archaic Symbol." In *Written on Clay and Stone: Ancient Near Eastern Studies Presented to Krystyna Szarzyńska on the Occasion of Her 80th Birthday*, edited by J. Braun et al., pp. 87–100. Warsaw: Agade.

Strommenger, Eva

1980 *Habuba Kabira: Eine Stadt vor 5000 Jahren; Ausgrabungen der Deutschen Orient-Gesellschaft am Euphrat in Habuba Kabira, Syrien*. Mainz am Rhein: Philipp von Zabern.

Studevent-Hickman, Benjamin

2007 "The Ninety-degree Rotation of the Cuneiform Script." In *Studies in Honor of Irene J. Winter by Her Students*, edited by J. Cheng and M. H. Feldman, pp. 485–513. Culture and History of the Ancient Near East 26. Leiden and Boston: Brill.

Szarzyńska, Krystyna

1987–88 "Some of the Oldest Cult Symbols in Archaic Uruk." *Jaarbericht van het Vooraziatisch-Egyptisch-Genootschap* 30: 3–21.

1996 "Archaic Sumerian Standards." *Journal of Cuneiform Studies* 48: 1–15.

van den Hout, Theo

Forthcoming "The Ductus of the Alalakh VII Texts and the Origin of the Hittite Cuneiform." In *Proceedings of the Leiden 2009 Conference on Paleography*, edited by Elena Devecchi et al.

Vanstiphout, Herman L. J.

1989 "Enmerkar's Invention of Writing Revisited. In *DUMU-E_2-DUB-BA-A*." In *Studies in Honor of Åke W. Sjöberg*, edited by H. Behrens, D. Loding, and M. T. Roth, pp. 515–24. Occasional Publications of the Samuel Noah Kramer Fund 11. Philadephia: The University Museum.

2003 *Epics of Sumerian Kings: The Matter of Aratta*. Writings from the Ancient World 20. Atlanta: Society of Biblical Literature.

von der Osten, Hans Henning

1934 *Ancient Oriental Seals in the Collection of Mr. Edward T. Newell*. Oriental Institute Publications 22. Chicago: University of Chicago Press.

Walker, C. B. F.

1987 "Cuneiform." In *Reading the Past: Ancient Writing from Cuneiform to the Alphabet*, introduced by J. T. Hooker, pp. 15–70. Berkeley: University of California Press.

von der Way, Thomas

1987 "Tell el-Faraʿin-Buto, 2." *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 43: 241–60.

Weber, Otto

1921 *Keilschrifturkunden aus Boghazköi*, Volume 1. Berlin: Staatliche Museen.

Weisberg, David B.

1991 *The Late Babylonian Texts of the Oriental Institute Collection*. Bibliotheca Mesopotamica 24. Malibu: Undena Publications.

Woods, Christopher E.

2010 "The Morphographic Basis of Sumerian Writing." In *Linguistic Method and Theory and the Languages of the Ancient Near East*, edited by A. Stauder and C. Woods. Chicago: University of Chicago Press (forthcoming).

Yoffee, Norman

2005 *Myths of the Archaic State: Evolution of the Earliest Cities, States, and Civilizations*. Cambridge: Cambridge University Press.

Zimansky, Paul

1993 Review of *Before Writing*, Volume 1: *From Counting to Cuneiform*, by D. Schmandt-Besserat. *Journal of Field Archaeology* 20: 513–17.

5. THE CONCEPTION AND DEVELOPMENT OF THE EGYPTIAN WRITING SYSTEM

ELISE V. MACARTHUR

Echoing the sentiments of many scholars regarding the origins of Egyptian hieroglyphs, the moment of conception of the Egyptian writing system is inaccessible (e.g., Baines 2004, p. 172). Such sentiments have a long history, as even Egyptian mythological tradition maintains *only* that the god Thoth invented hieroglyphic writing (Watterson 1984, p. 180; see text box below). Although much is known about early Egyptians, very little is known about the origins of their written language. Indeed, millennia later, Egyptologists are still searching the sands for clues about the earliest Egyptian writing.

Writing is defined as a conventionalized system of visual communication representing language. Early Egyptian writing, in particular, has been especially problematic for scholars. These difficulties are due to the fact that texts from the developing Egyptian writing system were (from the point of view of the modern scholar) essentially incomplete; the intended, ancient reader knew the greater context and could thus understand the information being communicated.

PRECURSORS TO WRITING

Beginning in the fourth millennium BC, with the onset of the Naqada period of Egyptian history, an iconographic revolution began to take place, which

EGYPTIAN MYTH OF THE CREATION OF WRITING

> Socrates: I heard, then, that at Naucratis, in Egypt, was one of the ancient gods of that country, the one whose sacred bird is called the ibis, and the name of the god himself was Thoth. He it was who invented numbers and arithmetic and geometry and astronomy, also draughts and dice, and, most important of all, letters. Now the king of all Egypt at that time was the god Amun, who lived in the great city of the upper region, which the Greeks call the Egyptian Thebes, and they call the god himself Amun. To him came Thoth to show his inventions, saying that they ought to be imparted to the other Egyptians. But Amun asked what use there was in each, and as Thoth enumerated their uses, expressed praise or blame, according as he approved or disapproved. The story goes that Amun said many things to Thoth in praise or blame of the various arts, which it would take too long to repeat; but when they came to the letters, "This invention, O king," said Thoth, "will make the Egyptians wiser and will improve their memories; for it is an elixir of memory and wisdom that I have discovered." But Amun replied, "Most ingenious Thoth, one man has the ability to beget arts, but the ability to judge of their usefulness or harmfulness to their users belongs to another; and now you, who are the father of letters, have been led by your affection to ascribe to them a power the opposite of that which they really possess. For this invention will produce forgetfulness in the minds of those who learn to use it, because they will not practice their memory. Their trust in writing, produced by external characters which are no part of themselves, will discourage the use of their own memory within them. You have invented an elixir not of memory, but of reminding; and you offer your pupils the appearance of wisdom, not true wisdom, for they will read many things without instruction and will therefore seem to know many things, when they are for the most part ignorant and hard to get along with, since they are not wise, but only appear wise."
>
> — Plato, *Phaedrus* 274c–275b. Written ca. 370 BC

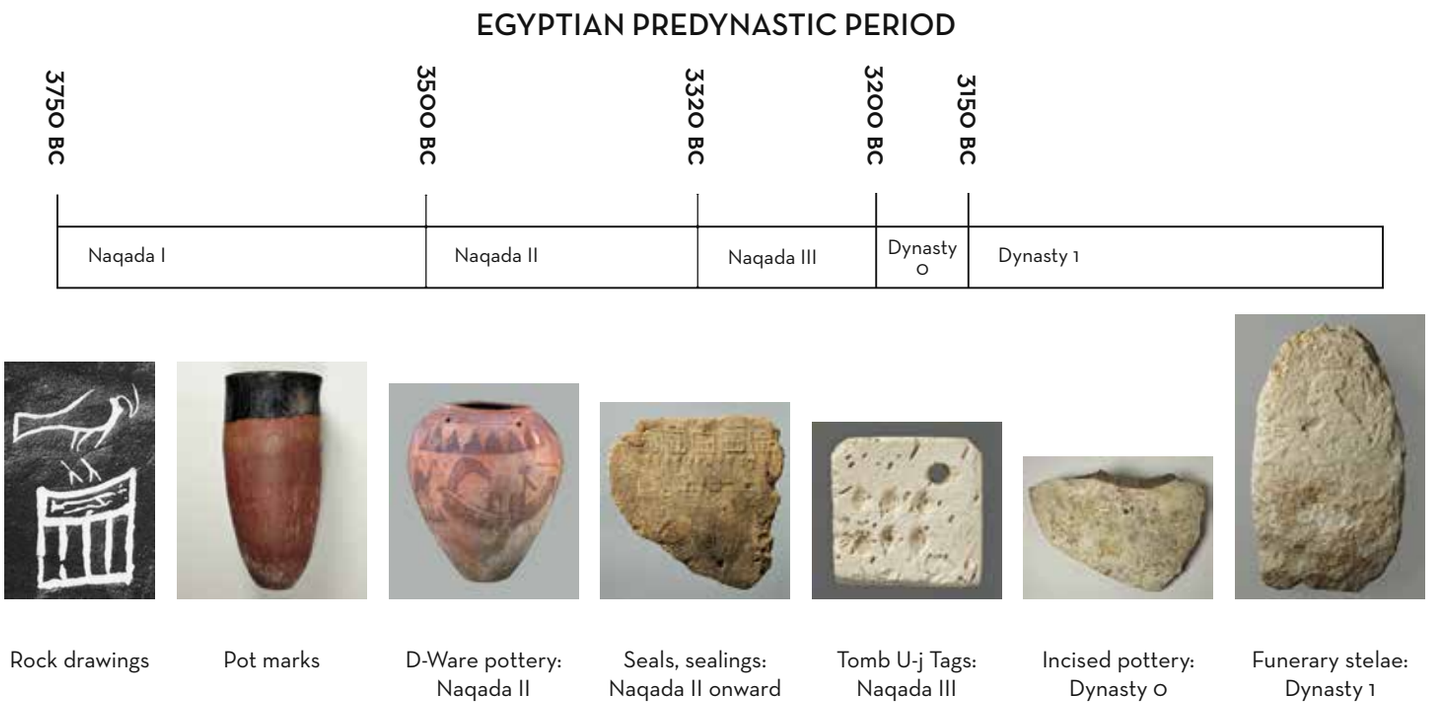


FIGURE 5.1. Chronological development of early writing in Egypt

would set the stage for the emergence of writing at the end of the Predynastic period (fig. 5.1). It is in these precursors that many scholars have sought the origins of Egyptian writing: pot marks, rock drawings, decorated pottery, cylinder seals, and decorated ceremonial objects.

Rock drawings constitute the earliest of the precursors to writing in Egypt. Drawings date from the earliest habitation of the Nile valley to the Islamic period, but the most salient early examples date to the Naqada I period (ca. 3750–3500 BC). They are located in the Eastern Desert along principle routes to the Red Sea (e.g., the Wadi Hammamat), and in the Western Desert along important land routes (e.g., the Theban Desert Road). Among the more popular motifs displayed are boats, animals, and humanoid figures with feathers (fig. 5.2). Their composition is seemingly narrative, but their meaning is difficult to ascertain.

There are rare examples of rock art of the late Predynastic period that can be interpreted. The 1936–1938 expeditions of Hans Winkler yielded a *serekh* (a rectangular enclosure with the king's Horus name and a niched facade, surmounted by a falcon) of King Narmer (before ca. 3150 BC) at the site of Wadi el-Qash, in the Eastern Desert (fig. 5.3). This inscription is composed of an abbreviated version of King Narmer's name (only the *nar*-catfish is written; the *mr*-chisel has been left out)[1] within a *serekh*, and constitutes the only definite example of writing from this corpus at such an early date in Egyptian history.

In general, during the Predynastic period the distinction between purely pictorial rock drawings and

FIGURE 5.2. Example of early rock art in the region of Aswan, now in the Nubian Museum

FIGURE 5.3. Rock art with the *serekh* of King Narmer. Dynasty 0, before ca. 3150 BC. 18.7 x 11.3 cm

hieroglyphic writing is very hard to make. Although the motifs foreshadow those of subsequent periods of Egyptian history, aside from the example at Wadi el-Qash there are no clear attempts at writing during the Predynastic period presently known to scholars. Instead, these spectacular scenes, carved into living rock, remain frustratingly ambiguous.

The assemblage of Predynastic pottery — C-Ware (White Crossed-Lined) and D-Ware (Decorated) pottery — is particularly renowned because of its captivating designs, which are reminiscent of rock drawings. Chronologically, C-Ware was an innovation of the Naqada I period, and was replaced by D-Ware during the Naqada II period (ca. 3500–3320 BC) (Hawass, Hassan, and Gautier 1988, p. 38). The geographic distribution of D-Ware was quite widespread: examples have been found throughout Egypt as well as in Nubia and the southern Levant.

The images depicted on these vessels — animals, humanoid figures, boats, and landscapes — seem to evoke greater narrative contexts, the messages of which are not entirely clear to the modern observer (fig. 5.4). Although, like rock drawings, their repertoire of images is similar to that of later hieroglyphs, these images do not represent known words and cannot be considered writing.

Pot marks are defined as incised signs or marks on the exterior of a vessel (van den Brink 1992, p. 265). Although these incisions are systematically applied to specific types of pottery vessels, their function is still a matter of great debate. They are attested in Egypt as early as the Neolithic period (ca. 4800–4400 BC) (Hassan 1985, p. 95). From their first appearance through the end of the Predynastic period (ca. 3150 BC), there are about two thousand known pot marks, most resulting from Petrie's excavations at Abydos (Catalog Nos. 64–67).

Pot marks represent a more perplexing class of objects than rock drawings and decorated pottery, as they do not match neatly with many later-known hieroglyphic signs. Additionally, despite the fact that some of the signs that occur were later incorporated into the hieroglyphic system, there is no clear evolutionary relationship between certain pot marks and later, corresponding hieroglyphic signs. Although they probably denote a pottery workshop — just as insignia on modern pottery represent specific name brands — like rock drawings and decorated vessels, pot marks do not contain discernible words and cannot be reliably translated.

However, during Dynasty 0 (ca. 3200–3150 BC) and the subsequent First Dynasty (ca. 3150–2890 BC) some pot marks occur in conjunction with *serekh*s (Catalog No. 65), and even royal economic institutions for the production of goods, called "domains" (Catalog No. 67). Although the pot marks still cannot be securely read, the accompanying signs can be translated.

In contrast to Mesopotamia,[2] Egyptian cylinder seals are rare within the Predynastic archaeological record: only about eighteen are documented (Catalog

FIGURE 5.4. D-Ware vessel, Naqada II period, ca. 3500–3320 BC. OIM E10758

No. 73). Rather, impressions made by cylinder seals (the majority of which were not recovered) in mud and clay — called "sealings" — are far better represented (Catalog Nos. 74–77). They are first attested in the Naqada II period and have been found as far from Egypt as the southern Levant and Nubia. Cylinder seals were used in administrative contexts, and many of their impressions were found with trade items.

In their earliest forms, seals and sealings bear motifs that are known from the other classes of objects mentioned above, but only a few of these closely resemble later hieroglyphic signs. The first evidence of writing in Egypt, from Tomb U-j at Abydos (see below) and dating to around 3320 BC, is contemporaneous with the use of cylinder seals, impressions of which were also recovered from this tomb. Early, indecipherable signs appear on seals into the First Dynasty (Catalog No. 75). Beginning in Dynasty 0 — specifically with the reign of King Iry-Hor (ca. 3200 BC) — the signs that appear on sealings can be translated with some certainty (Catalog No. 74).

By the end of the Predynastic period, other decorated ceremonial objects, including knife handles, plaques, and combs also bear recognizable hieroglyphs. Some of the best examples of early Egyptian inscriptions appear on decorated cosmetic palettes and mace-heads.

Cosmetic palettes are quite common within the funerary assemblages of the Predynastic period. Large, ceremonial palettes evolved from earlier, more functional forms, and were often elaborately decorated. Ceremonial palettes first appear during the Naqada I period in zoomorphic form, with scenes of men and animals roughly incised on the palettes' surface. In the subsequent Naqada II period, the palette shape is simplified, and the supplementary scenes are carved into the palette in raised or sunken relief. Finally, in the Naqada III period (ca. 3320–3200 BC), the shape of the palette seamlessly complements its accompanying relief, itself a narrative composition. This narrative is sometimes more explicit: certain Naqada III palettes bear writing that ranges in complexity from suspiciously recognizable signs, as on the standards on the Hunters, Battlefield, and Bull palettes, to unidentifiable *serekh*s, such as those that appear on the Metropolitan Museum Palette, to speech writing in the town names on the Bull and Town palettes, and finally to captioned scenes as on the Narmer Palette, from the reign of King Narmer, (Dynasty 0, before ca. 3150 BC; fig. 5.5).

Mace-heads, another salient example of decorated ceremonial objects, are first attested in the Naqada I period as disk-shaped objects. In the Naqada II period, however, they were replaced by pear-shaped mace-heads. Like palettes, mace-heads were also reproduced on a larger, more ceremonial scale than their functional counterparts. Two well-known examples are the Scorpion and Narmer mace-heads, recovered along with the Narmer Palette from the Main Deposit at Hierakonpolis (all three examples date to Dynasty 0, ca. 3200–3150 BC). Both mace-heads are adorned with both pictorial scenes and hieroglyphic texts.

Ceremonial objects have been the focus of much debate since their discovery at the turn of the twentieth century. Many dramatic interpretations have been offered: the scenes have been interpreted as historical documents recording the unification of Egypt, or the royal marriage of King Narmer to Neith-hetep (more correctly read "Hetep-Neith"),[3] who was buried in the elite cemetery at Naqada. The texts upon these objects, however, can be read as no more than "King Narmer," or "*ṯ*(*ꜣ*)*t*(*y*)," for example. Decorated ceremonial objects are also important because they can be used to explore the relationship between image and text in the nascent stages of both mediums. On the mace-heads of King Scorpion and King Narmer, as well as on the Narmer Palette, the hieroglyphic signs functioned as captions of the greater scenes depicted on these objects. Thus, this class of objects demonstrates the intimate connection that existed in Egypt between image and text, which continued to be a characteristic of Egyptian writing throughout ancient Egyptian history.

THE EARLIEST EGYPTIAN WRITING

The earliest-known Egyptian writing was discovered in Tomb U-j of Umm el-Qa'ab, the necropolis of the Predynastic and Early Dynastic kings at the site of Abydos in Upper Egypt. Umm el-Qa'ab (Arabic for "Mother of Pots") had previously been explored in 1896 by Émile Amélineau, where he is believed to have dug in the vicinity of the burial chamber of Tomb U-j. Thereafter, W. M. Flinders Petrie began excavations at

FIGURE 5.5. The Narmer Palette, recto and verso, reign of King Narmer, Dynasty 0, before ca. 3150 BC. OIM C209

Abydos, where he discovered and published several tags and labels from the area immediately surrounding the tomb (Catalog No. 68). Since the 1970s, Günter Dreyer of the German Archaeological Institute has re-excavated the site with new and very important results (Dreyer, Hartung, and Pumpenmeier 1998, p. 14).

Tomb U-j, which dates to ca. 3320 BC,[4] is a rectangular, mudbrick tomb with twelve interconnected chambers, mud-plastered walls, acacia wood beams, and mat roofing (fig. 5.6). Some scholars hypothesize that the tomb was modeled after a Predynastic palace, with a central room surrounded by connecting chambers; however, no palaces of this date have survived. Among the spectacular objects recovered from the tomb were an ivory scepter, fragments of a shell cosmetic container, and an obsidian blade.

Tomb U-j is best known for three distinctive forms of administrative record keeping, in the form of ink-inscribed vessels, sealings, and tags. The size of the tomb, its contents, and the amount of labor its construction and assemblage would have required has led many scholars to propose that this tomb belonged to a proto-ruler who reigned over a sizable territory by the Naqada III period.

In several chambers of the tomb, excavators found Egyptian pottery sherds, believed to belong to some 800 vessels. On some of these vessels, 125 ink inscriptions were preserved. Scholars divide the signs represented on these vessels into two groups: "main signs" (e.g., scorpions, Red Sea shells, fish, falcons,

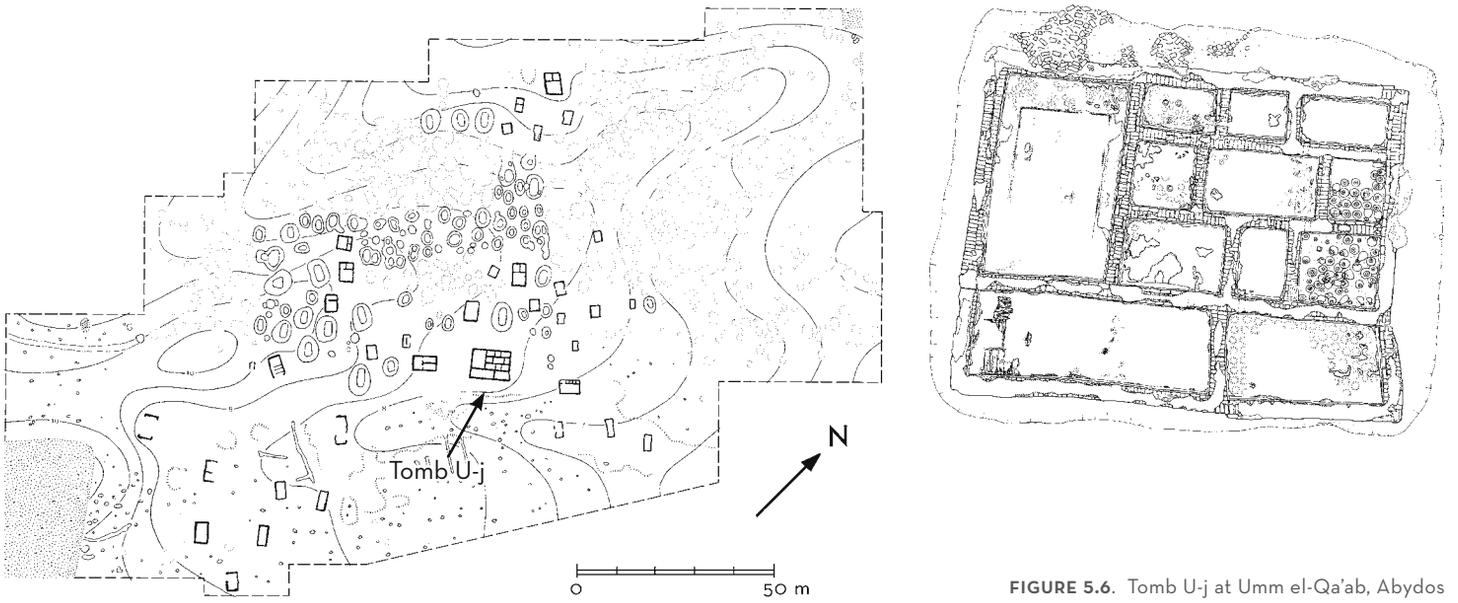


FIGURE 5.6. Tomb U-j at Umm el-Qa'ab, Abydos

and ships) and "secondary signs" (e.g., trees, reeds, horizontal and vertical strokes).

In other chambers of the tomb, distinct from those with Egyptian ceramics, some 700 imported vessels were discovered. Although they are the topic of some debate, they are believed to have derived from the southern Levant and to have contained resinated wine infused with figs.[5] The vessels were covered with cloth or leather, bound with string, and sealed with Egyptian clay, upon which cylinder seals were rolled. About 250 sealing fragments were also recovered. The sealings all bear a central design embedded in a frame with geometric patterns.

The final group of administrative record keeping found in Tomb U-j was tags. Of the nearly 200 tags recovered, most were made of bone or ivory (only a few of stone) incised with signs and perforated. A majority of the tags have representations of people and animals of various sorts; about a quarter of the tags have numbers on them, believed to indicate lengths of cloth (Catalog No. 68). Excavators recovered cedar boxes with bolts of cloth and ivory games. It is believed that the tags were originally attached to these commodities.

The written evidence from Tomb U-j, in particular the tags, probably denotes quantities of goods, and localities in Egypt and beyond. The Egyptian writing system had already undergone a number of important developments by the time of Tomb U-j, which have not yet been recovered, or have not survived to modern times. Linguistic terminology makes it possible to identify the various units of language that helped to transform communication in early Egypt from merely pictorial expression to speech writing, which is important in identifying the nature of early graphic material:[6]

1) Logograms: symbols representing specific words
2) Phonograms: symbols representing specific sounds
3) Determinatives: symbols used for classifying words

Moreover, writing on the tags shows that the Egyptian writing system had adopted the rebus principle, which broadened the meaning of symbols to include their homophones — words with the same sound but different definitions. For example, several tags from Tomb U-j bear the image of an elephant on top of a mountain:  *ꜣbw*, Elephantine (after Dreyer, Hartung, and Pumpenmeier 1998, p. 119, fig. 76, no. 55). This sign combination demonstrates compelling parallels to later attestations. Using the rebus principle, the place indicated by the signs is not "Elephant (*ꜣbw*) + Mountain/Highlands/Mound (*ḫꜣs.t*)," but rather the city Elephantine (*ꜣbw*).[7] As demonstrated in table 5.1, the determinative qualifies the logogram, signifying that the sign combination is a place name, for example, a city or village.

TABLE 5.1. Example of the rebus principle from Tomb U-j

Logogram +	*Determinative =*	*Place Name*
ꜣbw  (after Gardiner 1957, p. 461 [E26])	 (after Gardiner 1957, p. 488 [N25])	*ꜣbw*, Elephantine  (after Kahl 2002, p. 1)

EGYPTIAN WRITING: FROM TOMB U-J TO THE EARLY DYNASTIC PERIOD

Over five hundred inscriptions from Tomb U-j date from around 3320 BC to the end of the Predynastic period at around 3150 BC (Kahl 2001, p. 102). Although the earliest inscriptions seem to function as captions of larger images and scenes, stringing together nouns in short phrases, slightly later textual material provides compelling evidence for grammar and may even demonstrate the first uses in Egypt of modified verb forms (e.g., *ḥtp-Ḫnmw* "may Chnum be satisfied," a personal name dating to the reign of King Narmer, before ca. 3150 BC).[8]

The Egyptian writing system appears to be well developed by the reign of Den (ca. 3110–3020 BC), when the hieroglyphic repertoire is more or less complete. The first definite example of a conjugated verb dates to the reign of King Peribsen (before ca. 2686 BC) — a past tense use of the verb, and reads *d(m)ḏ.n=f* ("he has united").[9]

Inscriptional evidence from the late Predynastic period (and even into the Early Dynastic period, 3150–2868 BC) (Shaw 2000, p. 481) often makes references to "provisions," "taxes," and "income." Other objects, especially decorated ceremonial objects, express the power of the ruler through his close relationship with certain gods. Thus, the use of the script at this early stage of Egyptian history was intricately tied to the burgeoning state, functioning in administrative and ideological capacities (e.g., royal and elite status markings).

In the Early Dynastic period, Egyptian hieroglyphs are used on a variety of media: labels (Catalog Nos. 69–70), sealings (Catalog Nos. 76–77), pot marks (Catalog Nos. 66–67), various funerary objects (Catalog Nos. 78–79), and other miscellaneous objects (Catalog Nos. 71–72) which bear the names and titles of kings, royal family members, and private individuals, as well as commodities with which some of these objects were associated. Using certain components of Old Egyptian grammar (derived from inscriptions of the Old Kingdom, 2868–2160 BC) (Shaw 2000, p. 482), as well as more recent studies of Early Egyptian (Kahl 1994; idem 2001), the inscriptions on these Early Dynastic objects can be translated with some certainty.

NOTES

[1] For more information on the various ways that King Narmer's name was written, see Kahl 2001, p. 112.

[2] Cylinder seals are attested first in Mesopotamia in the mid-fourth millennium BC and enter the Egyptian archaeological record thereafter (ca. 3500–3300 BC); see Honoré 2007, pp. 31–33.

[3] The name of the god or goddess is usually moved forward in personal names, so although it is spelled *Nit-ḥtp*, it should be read *ḥtp-Nit*. This phenomenon is referred to as "honorific transposition." Note, however, that most literature refers to this individual as Neith-hetep.

[4] The findings at Tomb U-j are summarized in two volumes: Dreyer 1998 and Hartung 2001. The dating of Tomb U-j is determined using calibrated radiocarbon dating; see Boehmer, Dreyer, and Kromer 1993, pp. 63–68. These dates, however, have been called into question (Hendrickx 2006, p. 91). Regardless, they will be used alongside the favored, relative dates (e.g., Naqada periods) to provide a rough date with which scholars outside of Egyptology can work.

[5] There has been some debate about the origins of these vessels. For instance, McGovern (2001, pp. 107–16) suggests that the inked vessels were imported from the southern Levant and processed in the Nile delta, while Porat and Goren (2002, pp. 252–70) argue that they were manufactured in Egypt. McGovern, however, has demonstrated a much stronger case for a southern Levantine origin for these vessels.

[6] For the phases in the development of writing, see Senner 1989, p. 5; or Kahl 2001, pp. 116–24.

[7] Although Dreyer originally read these signs as *ꜣbḏw* (Abydos), they have since been correctly re-read as *ꜣbw* (Elephantine) by scholars such as: Kahl 2001, p. 118; Breyer 2002, pp. 56–58; Jiménez-Serrano 2004; and Kuhlmann 2008.

[8] Although some scholars believe that such names are important because they seem to be composed of grammatical features such as modified verbs, many others note that the inflection is not represented and thus the grammatical value of this inscription is limited. As a result, the potential contribution of Predynastic and Early Dynastic personal names has not yet been fully explored. The inscription mentioned in the text appears on the underside of a baboon statuette, published by Schott (1969, p. 81, fig. 5) and has been re-read here by EVM.

[9] Kahl (1994, p. 84) convincingly rejects Kaplony's (1963a, pp. 387, 395) reading of *dḏ.n=f* (he has compiled/interpreted) in favor of *d(m)ḏ.n=f*.

OBJECT DESCRIPTIONS: CATALOG NOS. 64–79

64

64. VESSEL WITH POT MARK

Ceramic
Naqada I, ca. 3750–3500 BC
Egypt, Naqada, Cemetery T, Tomb 1426
Gift of the Egypt Exploration Fund, 1895
23.4 x 11.0 cm
OIM E1814

This vessel is an example of black-topped red ware, typical of the Naqada I period. It was found by Petrie at the site of Naqada in Tomb T 1426. Many other black-topped red ware vessels were also recovered from this tomb, some of which have pot marks. Seven of these vessels bear a similar mark, which closely resembles the number "ten." This inverted U-shaped sign is very common among Naqada I pottery, and although such pot marks are considered to be among the precursors to writing, it cannot be securely translated. The pot mark on this vessel was incised into the baked clay with a sharp point (perhaps a flint blade). EVM

PUBLISHED (SELECTED)

Petrie and Quibell 1896, pp. 43–44, pl. 55.387.

65

66

65. SHERD WITH POT MARKS

Ceramic
Dynasty 0, reign of Ka, ca. 3200 BC
Egypt, Abydos, Umm el-Qa'ab, Tomb B7 = Tomb of Ka
Gift of the Egypt Exploration Fund, 1902
17.4 x 27.5 x 1.1 cm
OIM E5883

This sherd, a fragment of a vessel with pink fabric and a pale cream slip, bears incised signs made in the moist clay before the vessel was baked. The *serekh* of King Ka, his name written with outstretched human arms, is easily identifiable.[a] The sign next to the *serekh* is a pot mark. Although the sign cannot be securely translated, it is attested at the royal cemetery of Abydos well into the First Dynasty. EVM

PUBLISHED (SELECTED)

Midant-Reynes 2000, p. 233, fig. 15, no. 27; Petrie 1902, p. 4, pl. 3.37; Spencer 1980, p. 51, pl. 22 and 44, no. 347; Weill 1961a, p. 290, fig. 1.

NOTE

[a] The line-drawing was originally published upsidedown (Petrie 1902, pl. 3.37). The photograph is correctly oriented.

66. SHERD WITH POT MARKS

Ceramic
Dynasty 1, reign of Den, ca. 3110–3020 BC
Egypt, Abydos, Umm el-Qa'ab, Grave T = Tomb of Den
Gift of the Egypt Exploration Fund, 1902
9.5 x 10.2 x 1.2 cm
OIM E5882

This sherd was broken from a larger vessel. The pot marks were incised upon the moist clay before the vessel was baked. The incised pot marks resemble the *nṯr*-sign ("god") and the phonetic sign *ḫ*. This sign combination is attested at least six other times on vessels from the same tomb, connecting these specific markings with the tomb of Den — perhaps denoting a particular workshop that supplied vessels for the king's interment. Although by the reign of King Den the hieroglyphic repertoire was well established, pot marks such as these remain enigmatic. EVM

PUBLISHED (SELECTED)

Petrie 1900, p. 29, pl. 50.491.

67. SHERD WITH POT MARKS

Ceramic
Dynasty 1, reign of Qa'a, before ca. 2890 BC
Egypt, Abydos, Umm el-Qa'ab, Tomb Q = Tomb of Qa'a
Gift of the Egypt Exploration Fund, 1902
7.9 x 13.7 x 1.2 cm
OIM E5899

67

This sherd was once part of a larger vessel. It bears incised marks made in the clay while it was still moist. The hieroglyphic signs represent a royal economic domain belonging to King Semerkhet: the wavy frame denotes an economic domain (an institution for the production of goods) and the *serekh* bears the name of Semerkhet (although fragmentary on this sherd, the king can be identified by means of parallel inscriptions; cf. fig. a). King Semerkhet was succeeded to the throne by Qaʾa, in whose tomb the sherd was found. The former's economic domain, still functioning at the time of Qaʾa's death, occurs on many vessels throughout the royal cemetery at Abydos, perhaps because it was supplying the contents of such vessels. The other signs are pot marks and cannot be securely translated, though the top sign resembles the *kꜣ* or *sḫn* open-armed hieroglyphs. EVM

Figure a. *Serekh* bearing the name of Semerkhet from royal cemetery of Abydos (Petrie 1901, pl. 44.20)

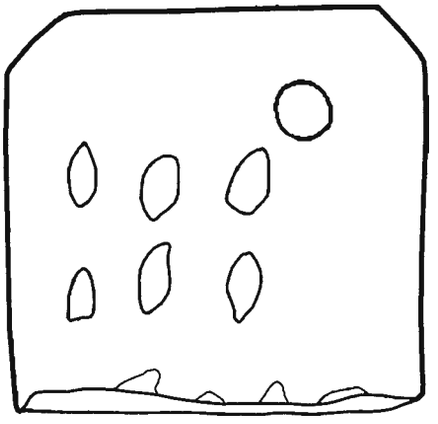
PUBLISHED (SELECTED)

Petrie 1900, pp. 29–30, pl. 46.103.

68. NUMERICAL TAG

Ivory
Naqada III, ca. 3320 BC
Egypt, Abydos, Umm el-Qa'ab
Gift of the Egypt Exploration Fund, 1902
H: 1.2 x W: 1.2 x T: 0.2 cm
OIM E5932

68

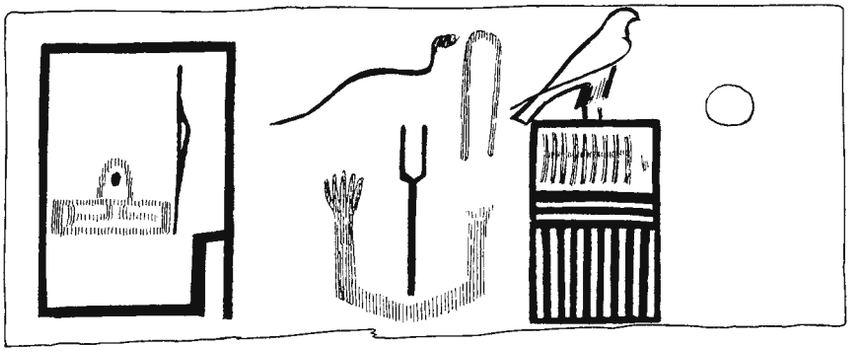


This small, square-shaped tag made of ivory, with six incised marks and a small hole drilled into the upper right corner, was found by Petrie during his excavations at the turn of the nineteenth century. Petrie attributed this object, and other tags he recovered, to the reign of Aha (ca. 3150 BC), the first king of the First Dynasty, because he found them in the vicinity of tombs dating to this time period. More recently, however, Dreyer has demonstrated that the tag probably derived from Tomb U-j (ca. 3320 BC), based on striking parallels he discovered in this tomb. The number "six," among the earliest definite example of numbers, probably indicated a quantity of linen, which was stored in cedar boxes, to which the tags had been attached. EVM

PUBLISHED (SELECTED)

Dreyer, Hartung, and Pumpenmeier 1998, p. 134, fig. 82, pl. 35, no. X180; Petrie 1901, p. 20, pl. 3.14.

69



69. LABEL

Wood, ink
Dynasty 1, reign of Djer, after ca. 3150 BC
Egypt, Abydos, Umm el-Qa'ab, Tomb O = Tomb of Djer
Gift of the Egypt Exploration Fund, 1902
2.5 x 6.3 x 0.6 cm
OIM E6095

At the turn of the nineteenth century, Petrie recovered this wooden label, inscribed in red and black ink. It is darkened, perhaps by oil or smoke. The label was perforated in the upper right corner. This object demonstrates how the use of tags and labels changed from Tomb U-j to the First Dynasty. The earlier ones bore numbers and place names, while the later ones have kings' names, titles, and economic information.

The inscription consists of the *serekh* of the king Djer (on the right) and the name of an economic domain (or, *ḥw.t*) "*ḳd-ḥtp*" (on the left). The other hieroglyphic signs (in the center of the label) have been the focus of much scholarly debate. They represent either a title and a personal name, or simply a personal name (*sḏ-sḫm-kꜣ* or *swḏ-kꜣ*). The individual named on this label is known to be a high official, probably an administrator of the aforementioned economic domain, who was buried at Saqqara in Tomb S 3504. EVM

PUBLISHED (SELECTED)

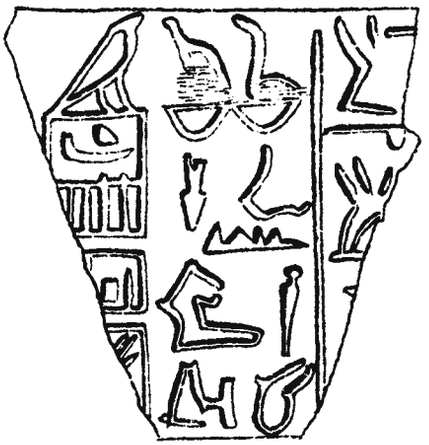
Helck 1987, pp. 169, 237–38; Kaplony 1963a, pp. 634–36; Petrie 1901, pp. 28–29, pl. 12.3; Vikentiev 1953–1954, pp. 303–04, fig. 6.

70. TAG

Ivory
Dynasty 1, reign of Qa'a, ca. 2890 BC
Egypt, Abydos, Umm el-Qa'ab, rubbish heap
Gift of the Egypt Exploration Fund, 1902
2.5 x 2.3 x 0.3 cm
OIM E6192

70, obverse

70, reverse



OBVERSE

text is written top to bottom, right to left		
Left	Middle	Right
Qᶜ ḥw.t P-[Ḥr-msn] *ḥ[w.t-]i[t ...]*	*Sn-nb.ty(?)* *sṯi-ᶜḥ3 tpy-ḥ3.t*	[...] *m3ᶾ mḏḥ[.wy]* *bi[ty]*

... acacia wood by the two carpenters of the King of Lower Egypt (= name of the year)

Nebty(?), or "Two Ladies," name of Qa'a, the type of oil (the fighter scent), and the quality of the oil (fine)

Qa'a, the economic domains, of *p-ḥr-msn* and *it* ...

REVERSE

text is read top to bottom, left to right

mrḥ.w 3pd.w

bird fat (the source of the oil)

This weathered, double-sided ivory tag was found by Petrie's workmen in the loose rubbish heap that had been removed from the tombs. The tag was once square shaped and probably had a hole perforating the upper right corner. The text is an "annals inscription," which recorded special ceremonies or occurrences during a specific year of a king's reign. It further demonstrates the evolving use of tags and labels, which at this point in time record more complex information.

The obverse has three registers; the reverse further distinguishes the product to which this tag was once attached. The full text is reconstructed from parallel examples, following Kaplony 1963c, fig. 847B. EVM

PUBLISHED (SELECTED)

Dreyer 1996 et al., p. 74, fig. 27; Kahl 1994, p. 57; Kaplony 1963a, pp. 298–301, 312; Kaplony 1963b, p. 1195, fig. 847B; Kaplony 1963c, pl. 145, fig. 847B, Qa'a a,1–2; Legge 1907, p. 249, pl. 2, no. 15; Newberry 1912, p. 285, pl. 32, no. 9; Petrie 1901, p. 26, pl. 8.2; Petrie 1902, p. 7, pl. 11.11; Weill 1961a, p. 102, fig. 125; Weill 1961b, p. 101, fig. c, p. 134.

71. CYLINDRICAL VESSEL

Ivory
Dynasty 1, reign of Djer, after ca. 3150 BC
Egypt, Abydos, Umm el-Qa'ab,
Tomb O.2 = Tomb of Djer, subsidiary grave no. 2
Gift of the Egypt Exploration Fund, 1902
5.4 x 3.6 cm
OIM E5954

71

This miniature, cylindrical vessel, which imitates larger examples with a wavy band below its lip, was found in one of the subsidiary tombs surrounding the tomb of Djer. It is made of ivory and bears the name of *ḥtp-Nit* (which can be translated as "May Neith be satisfied"). The name Hetep-Neith is often erroneously translated Neith-hotep, because the hieroglyphic sign(s) for the name of a god/goddess is typically moved before the other signs (called "honorific transposition"). The goddess Neith is not uncommon in personal names at this time; in fact, the specific name Hetep-Neith is relatively well attested in the royal cemetery of Abydos. Moreover, a Hetep-Neith buried at Naqada is believed to be the queen of Narmer and the mother of Aha. Indeed, Neith was a popular component of First Dynasty female names, especially royal family members (e.g., Meryt-Neith, the mother of Den). Although some scholars believe that such names (i.e., those pertaining to the name of a god or goddess) are important because they seem to be composed of grammatical features such as modified verbs, others note that inflection is not represented (as is the case with this object), and thus, that the grammatical value of such an inscription is limited. However, the potential contribution of such person names to the study of early Egyptian writing still needs to be explored. EVM

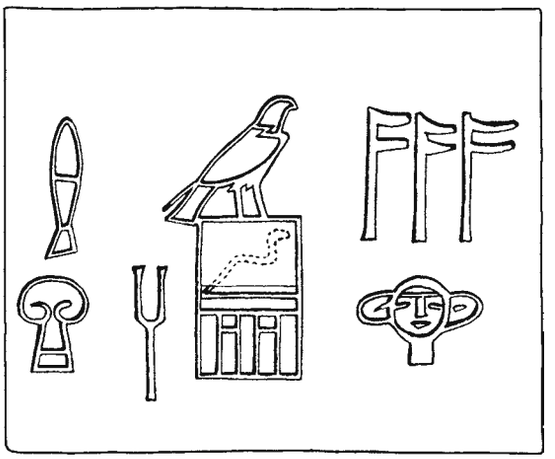
PUBLISHED (SELECTED)

Kaplony 1963a, p. 589, no. 11; Petrie 1901, p. 20, pl. 2.12.

72. INLAY FOR SMALL COSMETIC BOX

Ivory
Dynasty 1, reign of Djet,
ca. 3100 BC
Egypt, Abydos, Umm el-Qa'ab, Tomb Z = Tomb of Djet
Gift of the Egypt Exploration Fund, 1902
3.1 x 3.6 x 0.6 cm
OIM E6105

72



This piece of an ivory box was incised and the signs filled with black and red paste. The inlay has grooves and holes on the back to join it with a side of the box. Petrie found the inlay already badly damaged in the tomb of Djet. The inscription is composed of three components (right to left):

Right:
ḥry-nṯr.w
Hery-netcheru (personal name)

Middle:
Ḏt (or read? *Wꜣḏy*)
Djet (king's name, in *serekh*)

Left:
ḫrp ḥm(*.w*) *dwꜣ*
chief of the servant(s) of royal beard

This object was certainly a personal possession and demonstrates the utility of writing beyond seals, pottery, and labels, as a further medium for inscriptions. EVM

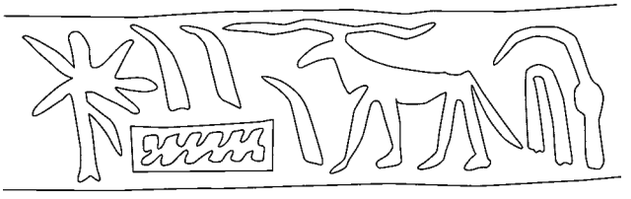
PUBLISHED (SELECTED)

Petrie 1900, pp. 21, 40, pl. 10.9 and 13.2; Vandier 1952, p. 850, fig. 567, no. 2; Weill 1961a, p. 119.

73. CYLINDER SEAL

Stone
Dynasty 1, ca. 3150–2890 BC
Provenance unknown
Purchased in Cairo, 1920
1.5 x 1.3 cm
OIM E10592

73



73, modern impression

This object is a gray stone cylinder seal belonging to a private individual. The signs, from left to right, resemble the early emblem of the goddess Neith (), uncertain signs that may simply be decorative, a ram (possibly representing the god Chnum), and the word *šms*(*.w*) "follower(s)." The signs between the ram and the Neith emblem are probably just decorative, thus precluding a secure translation. The cylinder is perforated through the center. Although cylinder seal impressions, called "sealings" are commonly recovered from late Predynastic and Early Dynastic excavations, cylinder seals themselves, such as this object, are far more rare. EVM

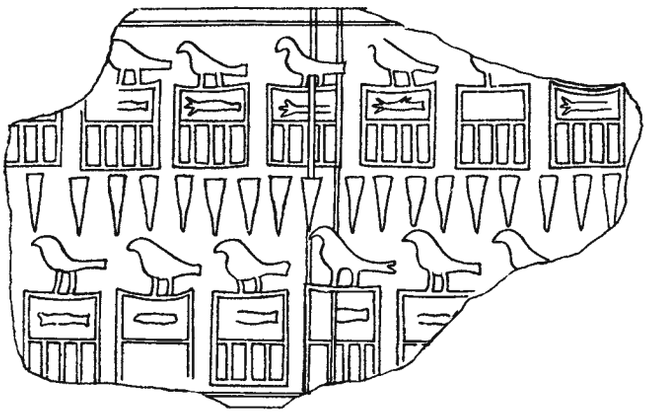
PUBLISHED (SELECTED)

Kaplony 1963b, pp. 1181, fig. 714; Kaplony 1963, vol. 3, pl. 119, fig. 714.

74. SEALING

Clay
Dynasty 0, reign of Narmer, before ca. 3150 BC
Egypt, Abydos, Umm el-Qa'ab, Cemetery B
Gift of the Egypt Exploration Fund, 1902
11.4 x 11.0 x 3.8 cm
OIM E6718

74



Multiple impressions made by this cylinder seal have been recovered at the royal cemetery of Abydos. This particular sealing was found in the vicinity of tombs B.9 (Ka) and B.17 (Narmer). It bears the name of Narmer, the last ruler of Dynasty 0, who was succeeded by Aha, the first king of the First Dynasty. On the sealing, the catfish (the *nʿr*-sign) appears in the *serekh* and the triangular *mr*-chisel lies below. The name is repeated over and over again. King Narmer's name has been written in different ways (e.g., sometimes, only the *nʿr*-sign is used) and thus demonstrates that scribes were still experimenting with different layouts of hieroglyphic signs at this early period of Egyptian history. EVM

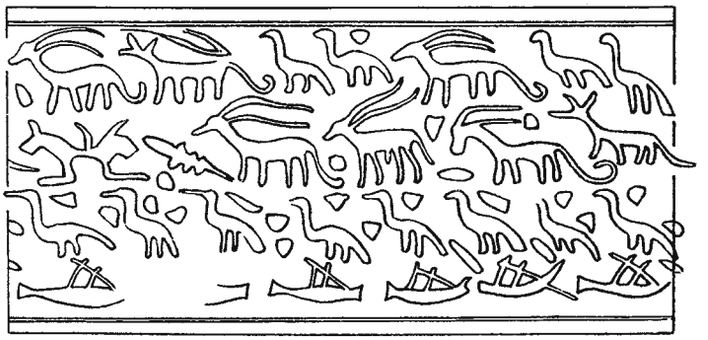
PUBLISHED (SELECTED)

Hall 1913, p. 286, no. 2750; Kaplony 1963a, p. 60; Kaplony 1963b, p. 1094, fig. 26A; Kaplony 1963c, pl. 9, fig. 26A; Petrie 1901, pp. 30, 51, pl. 13.91; Scharff 1929, p. 182, fig. 71a, no. 457; Spencer 1980, p. 53, pl. 27, no. 360; Weill 1961b, p. 115, fig. a.

75. SEALING

Clay
Dynasty 1, reign of Aha, ca. 3150 BC
Egypt, Abydos, Umm el-Qa'ab, Cemetery B
Gift of the Egypt Exploration Fund, 1902
9.2 x 13.4 x 3.3 cm
OIM E6714

75



This sealing was recovered by Petrie in the tomb of Aha in the royal cemetery of Abydos, although examples are also attested at Naqada and Saqqara. The impression bears the "wild animals" motif that was especially popular during the reign of Aha. Such seals have rows or dispersed arrangements of wild animals, typically caprids (e.g., antelopes or goats), and objects interpreted as hunting equipment (e.g., throwing sticks, arrows, and traps). The god known as Aker (a double-headed feline god) seems to appear also on this sealing. In contrast to Catalog No. 74, which has discernible writing, seal impressions of the early First Dynasty still sometimes bore signs that cannot be securely translated. EVM

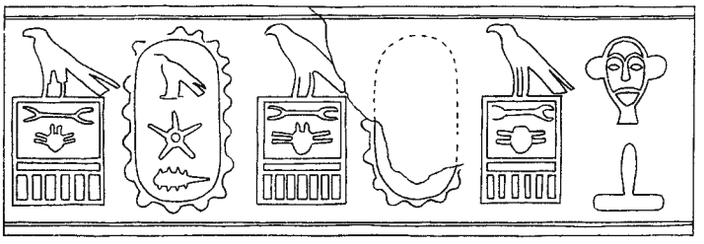
PUBLISHED (SELECTED)

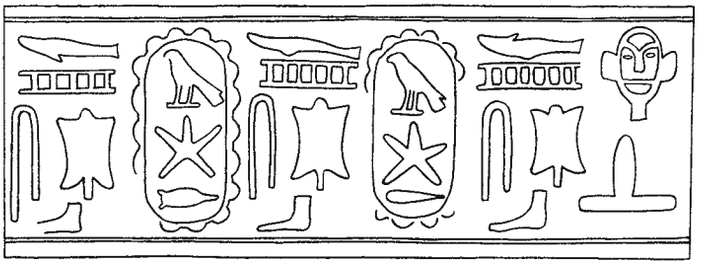
Emery 1939, p. 31, fig. 33; Hartung 1998, pp. 209-10, fig. 2i; Kaplony 1963b, pp. 1101, fig. 56; Kaplony, 1963c, pl. 25, fig. 56; de Morgan 1897, p. 169, fig. 560; Petrie 1901, p. 30, pl. 14.104; Scharff 1929, p. 182, fig. 71a, no. 468; Vandier 1952, p. 862, fig. 574.

76. JAR SEALING

Clay
Dynasty 1, reign of Anedjib,
before ca. 2890 BC
Egypt, Abydos, Umm el-Qa'ab,
Grave X = Tomb of Anedjib
Gift of the Egypt Exploration Fund,
1902
26.8 x 24.2 x 11.5 cm
OIM E6703

76





This well-preserved conical jar sealing is still attached to a ceramic jar stopper. The sealing bears rough score marks from fingers and distinct impressions of two cylinder seals impressions, each indicating the personal name, titles, and institution associated with this individual. The impressions bear the names of Sab, an administrator (*ʿḏ-mr*) and supervisor of the magazine (*ḥry wḏꜣ*) of the economic domain *Ḥr-sbꜣ-ḫt*. Sab was buried at Saqqara in Tomb S 3111. As Anedjib ruled near the end of the First Dynasty, these impressions, like the tags and labels, show the increasing complexity of information that inscriptions began to bear. EVM

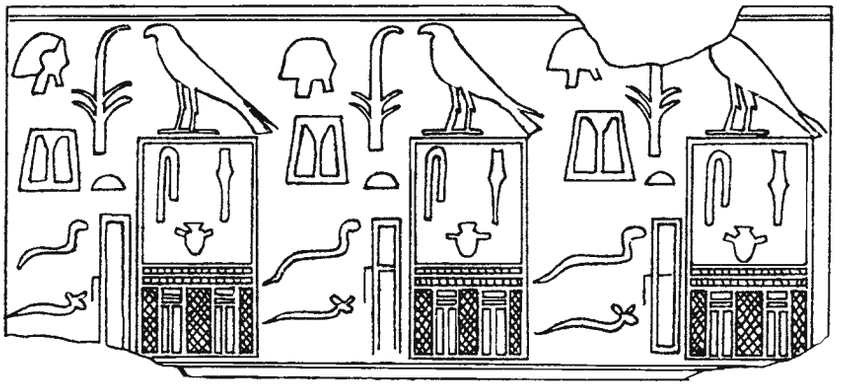
PUBLISHED (SELECTED)

Emery 1949, p. 95, fig. 55; Helck 1987, p. 192, no. 10; Kaplony 1963a, p. 141; Kaplony 1963b, p. 821, n. 814; p. 1130, fig. 278; p. 1133, fig. 300A; Kaplony 1963c, pl. 75, fig. 278; pl. 79, fig. 300A; de Morgan 1897, p. 235, fig. 786; p. 236, fig. 787; pl. 1, right; Petrie 1900, p. 24, pl. 26.63, pl. 27.64; Quibell 1904–1905, pl. 4, no. 63–64; Spencer 1980, p. 55, pl. 33, no. 385.

77. SEALING

Clay
Dynasty 2, reign of Sekhemib, before ca. 2686 BC
Egypt, Abydos, Umm el-Qa'ab, Grave P = Tomb of Peribsen
Gift of the Egypt Exploration Fund, 1902
5.1 x 5.1 x 2.2 cm
OIM E6252

77



Found in the grave of Peribsen, this clay sealing was impressed by the official cylinder seal of the royal overlord of the place of provisioning (*ḥry-tp ny-sw.t iz-ḏfꜣ*). The king's name on the sealing is Sekhemib, a poorly attested king of the Second Dynasty, who may be the same person as Peribsen or a contemporaneous ruler. This object demonstrates the increasing complexity of information contained on seals, as well as the finely carved execution of hieroglyphic signs. EVM

PUBLISHED (SELECTED)

Emery 1949, p. 95, fig. 55 Helck 1987, p. 200; Kaplony 1963b, p. 1128, fig. 267; Kaplony 1963c, pl. 72, fig. 267; Naville 1914, p. 49, pl. 9; Petrie 1901, p. 31, pl. 21.165; Quibell 1904–1905, pl. 8, no. 165.

78

78. FUNERARY STELA

Limestone
Dynasty 1, reign of Djer, after ca. 3150 BC
Egypt, Abydos, Umm el-Qa'ab, Tomb O = Tomb of Djer
Gift of the Egypt Exploration Fund, 1902
38.9 x 22.0 x 10.3 cm
OIM E5865

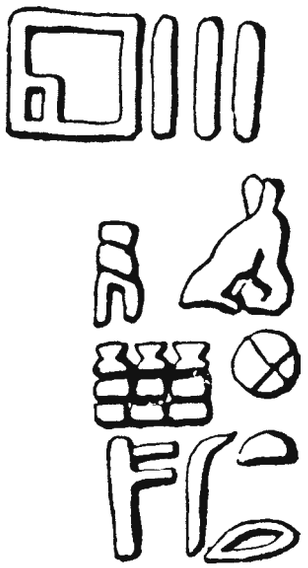
Petrie recovered numerous funerary stelae surrounding the graves of Djer and other kings of the First Dynasty at Abydos. The stelae from the subsidiary tombs within the tomb complex of Djer bear only the names of the individuals interred there. In contrast, in the reign of the next king, Djet, stelae found around his tomb bear both names *and* titles. This particular funerary stela has a triliteral sign (*ḥtp*) and the determinative of a seated woman, whose name was *ḥtp*(*.t*), Hetepet. Like Hetep-Neith, this personal name can contribute greatly to our understanding of early Egyptian writing, as it is composed of a modified verb form. The stela, like many others Petrie found, is badly weathered. EVM

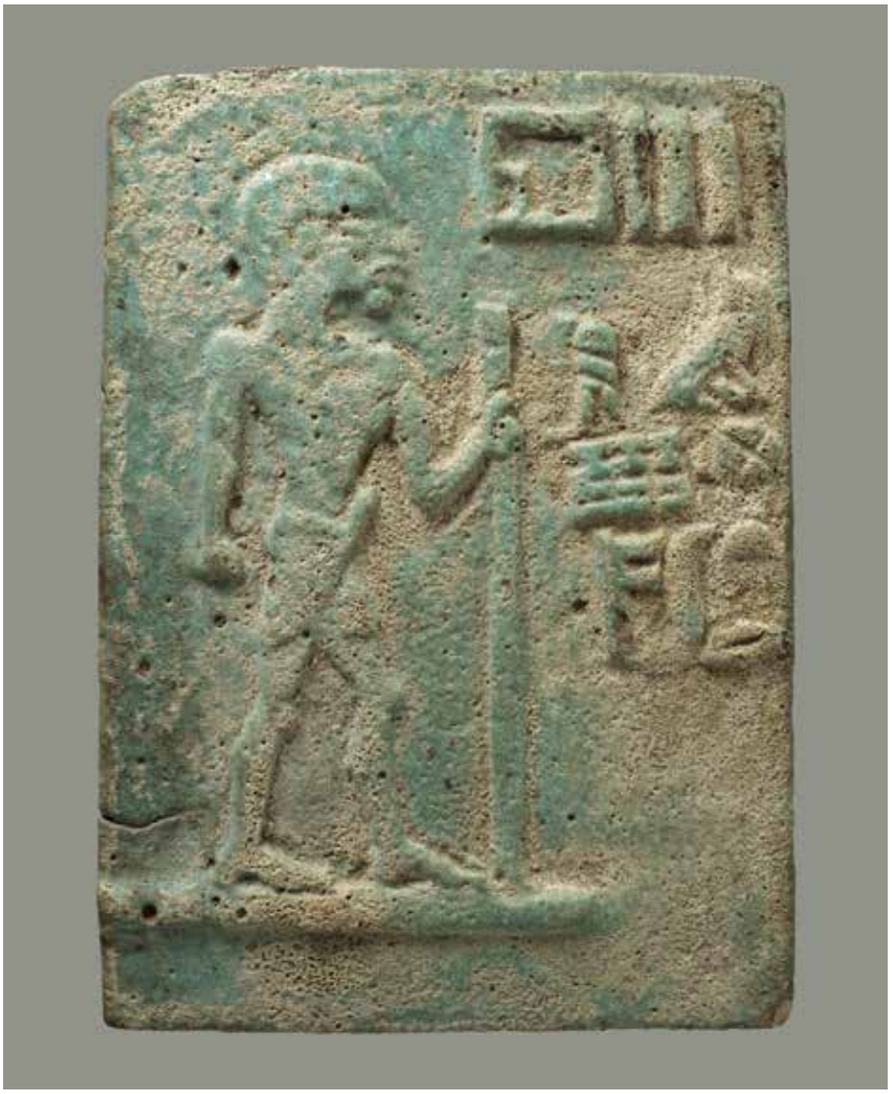
PUBLISHED (SELECTED)

Kaplony 1963a, p. 586; Klasens 1956, pp. 26, 28, fig. 7, no. 86; Petrie 1901, pp. 32–33, pls. 26.86, 29B.86.

79. VOTIVE PLAQUE

Faience
Dynasty 1, ca. 3150–2890 BC
Egypt, Abydos, Osiris Temple, Deposit M69
Gift of the Egypt Exploration Fund, 1903
13.4 x 9.7 x 1.7 cm
OIM E7911





79

The decoration of this plaque is composed of a large figure of a man in profile with a staff in his hand. The text opposite him functions as a caption, giving his title and name, the exact translation of which is a matter of dispute. The name of the individual written in the bottom line of hieroglyphs reads *Tri-nṯr* (Terinetcher "One who worships god"). Above these signs is his title, which seems to indicate that he is an important person, perhaps a director, of a domain perhaps named *nḫn.w*, in a town called *Mnḥ*(*.t*). This faience plaque was recovered from the Osiris Temple, in a deposit of votive offerings, and demonstrates a further medium for Egyptian writing: a votive offering. EVM

PUBLISHED (SELECTED)

Kaplony 1963a, p. 553; Klasens 1956, pp. 26, 32, no. 136; Petrie 1903, p. 25, pls. 1, 5.33; Teeter 2003, pp. 11–12; Weill 1961a, pp. 145–46.

6. THE EARLIEST EGYPTIAN WRITING

ANDRÉAS STAUDER

Writing is classically defined as a conventionalized system of visual communication representing speech. At first sight, such a definition seems to imply a clear-cut divide between writing and other systems of visual communication that convey messages without reference to speech. In practice however, the distinction may be more complex, particularly when it comes to the earliest stages of the emergence of writing. In this essay I examine aspects of the earliest Egyptian writing concentrating on its gradually increasing representation of language and speech.[1]

In proposing a developmental sequence for the earliest Egyptian writing, I further question the functional contexts in which the Egyptian developments take place in contrast to the roughly simultaneous, but largely different, evolutions in southern Mesopotamia. In particular, I focus on the inscribed material from the recently excavated "proto-royal" Tomb U-j which produced the as yet earliest evidence of writing in Egypt.

BEFORE AND BESIDE WRITING: EARLY CULTURAL CODES OF VISUAL COMMUNICATION AND NON-LINGUISTIC MARKING SYSTEMS

Prior to the emergence of writing proper, fourth-millennium Egypt witnessed a rich development of various, increasingly complex, types of visual communication. These included representational art (ceremonial objects, rock art, an elaborate painted tableau in an elite tomb), decorated pottery, and motifs on seals. The repertoire of graphic forms and their combining into broader compositions displays elements of conventionalization. Interpretation relied on specific cultural codes which, although largely unrecoverable to the present, would have been available to the original audiences (e.g., Graff 2009). Yet, such forms of visual communication differ from writing on multiple levels. Crucially, they were not indexed to language: to be sure, a visual representation could always be paraphrased linguistically but such possible paraphrases were necessarily multiple ones, rather than corresponding to a single string of speech. The messages conveyed were generic ones, rather than related to any particular time, place, person, event. Visual forms were arranged according to the logic of pictorial composition, rather than following the later formal conventions of writing, such as orientation and adjustment of relative sizes of signs (see below).

So-called "pot marks,"[2] found in increasing numbers from the late fourth millennium onward (Catalog Nos. 64–67), stand closer to writing as far as formal aspects are concerned. They display defined, although variable, repertoires of graphic forms, combined according to specific rules. Moreover, the disposition of graphic forms defines a space of its own, different from pictorial composition. Yet, pot marks are not indexed on language either. Individual forms shared with simultaneously developing writing were associated with different values within the respective systems. Pot marks had specific identifying and marking functions and continued existing in historical times alongside fully developed writing as well as various other functionally specific non-linguistic marking systems (Andrássy, Budka, and Kammerzell 2009).

Some of these visual codes, as well as a few seals immediately pre-dating Tomb U-j, feature graphic forms later found as signs of writing. It is only natural — and well documented elsewhere — that a developing script would draw on pre-existing repertoires of visual forms within a given culture.[3] Such visual forms become signs of writing only when they are associated with each other and integrated into a broader system that conventionally and unequivocally relates them to a linguistic meaning on a stable, context-independent basis. The above visual codes do not qualify as "proto-writing." Rather, they are part of a general background of multiple semiotic explorations on which writing proper would draw.

THE INSCRIBED MATERIAL FROM TOMB U-J

The first forms of emerging writing were found in the "proto-royal" Tomb U-j in the Umm el-Qaʾab cemetery, in the vicinity of This/Abydos in Upper Egypt, in the late fourth millennium.[4] The period witnessed the emergence of competing regional political entities along the Nile Valley extending to Lower Nubia (e.g., Kemp 2006, pp. 60–110). Ongoing excavations in Hierakonpolis document early developments in sacred architecture, urbanism, craft specialization, and modes of elite display. The extent of the domain over which the ruler buried in Tomb U-j held sway remains difficult to assess. Long-distance trade connections are evidenced by huge quantities of a Palestinian export ware found in the tomb.[5] It has been proposed that some inscriptions in the tomb may refer to remote places such as Elephantine in the far south on the one hand, possibly a sanctuary close to Buto and Bubastis in the Delta on the other. Provided the inscriptions have been correctly interpreted, such far-reaching ties to important places and sanctuaries would have been essential in establishing the regional prestige and authority of the ruler buried in Tomb U-j. Political integration of Egypt occurred only in the course of the centuries to follow.

The inscribed material from Tomb U-j comprises two, perhaps three, different types of visual codes. The association with three different surfaces and modes of inscription points to different functions. Iconographic imagery on sealings elaborates upon previous traditions. Possible writing is found both in large painted forms on vessels (henceforth referred to as "dipinti";[6] figs. 6.1–2, 7), and on small incised bone tags (figs. 6.3–6). The tags have a small hole and were originally attached to goods, probably bundles of cloth as can be inferred from the particular type of numerical notations found on some of them. Inscriptions consist in short sequences of one or two signs (dipinti), or of one to four, generally two, signs (tags).

Among possible writing, the inscriptions on the dipinti and on the tags have been interpreted as two different formal realizations of the same underlying system. These have been further analogized with the hieratic (cursive) and hieroglyphic (non-cursive) varieties of later Egyptian writing and it has been proposed that they would reflect a similar functional complementariness (e.g., Baines 2004, pp. 160–61). However, the evidence, both systemic and formal, may suggest otherwise (Regulski 2008a, 2009). The overlap in signs featured in both the dipinti and on the tags is relatively limited. Only the tags may display occasional cases of phonetic representation and semantic classification (see below). Moreover, the size of the dipinti is very large and fitted to the body of the vessels on which they were painted. Their execution is detailed with at times extraordinarily elaborate realizations of internal parts of signs (fig. 6.1). The dipinti thus hardly qualify as cursive. As a result, the relation between the two types of inscriptions found in Tomb U-j differs from the relation later to obtain between hieratic and hieroglyphic varieties, and remains unclear.

An interpretation of the Tomb U-j inscribed material[7] builds on the contextual appreciation of the find as a whole, combined with an internal analysis of the inscriptions themselves (sign repertoires, combinations of signs). Several signs and sign combinations on the tags have been plausibly interpreted as place names, possibly the origins of the goods to which the tags were attached. The interpretation of the smaller sized corpus of the dipinti — which may

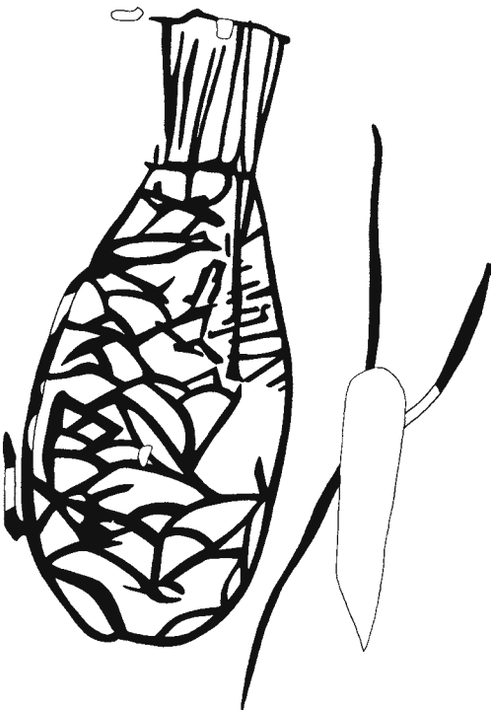


FIGURE 6.1. Dipinto with fish and tree from Tomb U-j. Height 33.1 cm. Note the extraordinarily elaborate internal details of the fish sign

reflect a different system — remains tentative. Based on a recurring combination of a tree sign with various other signs, it has been suggested that some of the dipinti could refer to domains associated with the production or distribution of funerary goods. Based on its high relative frequency, a scorpion sign has been interpreted as standing for the ruler buried in the tomb (fig. 6.2). Overall, many signs and sign combinations remain unclear in interpretation.

Actual "readings" (a few examples below) rely on the application of general principles and values of individual signs as known from later stages of writing. Only some signs, however, can be readily identified with later ones, and the whole enterprise may involve some danger of back-projection. Further difficulties arise from the small size of the corpus and its relative isolation. Moreover, the very concept of "decipherment," while historically at the heart of the philological disciplines devoted to the study of the written record of the ancient Middle East, may be partly misleading when it comes to the earliest forms of writing. These were only incipiently adapted to (or "oriented on") representing language, let alone speech (Baines 2004, pp. 184–85; Wengrow 2008).

THE TOMB U-J MATERIAL AS AN INCIPIENT FORM OF WRITING

It is difficult to assess the status of the Tomb U-j inscribed material as writing — that is, as a visual code aimed at representing language — due to persistent difficulties in interpreting, let alone "reading," the inscriptions. It is thus advisable to begin with issues of form (Vernus 2001). Intuitively, the Tomb U-j inscriptions, particularly the tags, "look" like writing. Signs shared with later stages of Egyptian writing, while not many within the overall repertoire, suggest some continuity of development. Asymmetrical signs tend to be oriented in the same direction on a given tag, as in the later script. More significantly yet, signs are calibrated to each other, irrespective of the relative sizes of their referents: for instance, a bird sign has the same size as an elephant sign (fig. 6.3).

The Tomb U-j visual code(s) may display emergent representation of language. According to the generally accepted interpretation of the material, this seems limited to names and designations, of places (sanctuaries/towns, estates) and prestigious beings (divine entities, ruler[s]). Provided the readings that have been proposed are correct, very few common words may also be found, embedded in place designations. One inscription may thus read "Mountain of Darkness" or "Western Mountain" (*ḏw*

FIGURE 6.2. Dipinto from Tomb U-j depicting scorpion and tree signs. Perhaps to be interpreted as "Plantation of King Scorpion." Scale 1:2

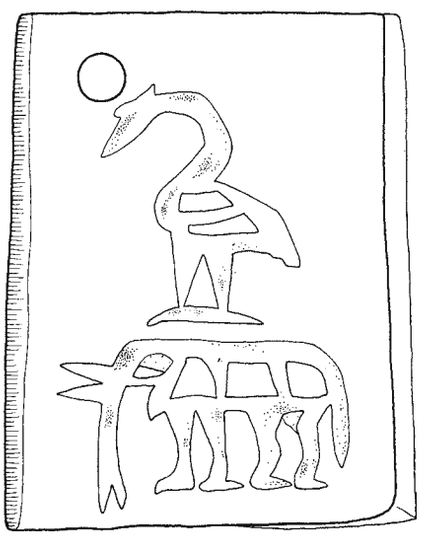


FIGURE 6.3. Tag from Tomb U-j. Note the calibration of the size of signs to each other. Scale 2:1

grḥ: fig. 6.4). It remains unclear whether the latter type of place designations are proper names themselves or not. Although names have a particular status in language, different from common words, their visual rendition similarly relates them to a unique segment of speech. By strongly focusing on names, the Tomb U-j visual code(s) thus differ from other forms of visual communication which lend themselves to multiple paraphrases in speech.

An emergent adaptation to (or "orientation on") language may further be found in the very ways names and designations are notated. The Tomb U-j visual code(s) display clear elements of principled rules for combining signs. Per se, combinations of signs need not be grounded linguistically: non-linguistic combination of signs is characteristic of pot marks, for instance. Within Tomb U-j, similar modes of non-linguistic juxtaposition underlie the combination of a tree sign with various other signs (figs. 6.1–2, 5). The sequence can be interpreted — if this is correct — quite literally as "Plantation/Domain of X," without reference to any particular language. In other cases however, on the tags only, two signs seem to notate a single name or designation. Such combinations may then be playing directly — even if limitedly — on the two articulations specific to language, the semantic (meaning) and the phonetic (sound). The following is based on a series of readings that have been proposed, the hypothetical nature of which cannot be over-emphasized.[8]

Names and designations were overwhelmingly notated through single signs, that is, through signs which, for more mature stages of writing, would be described as "logograms" ("word-signs"). In rare cases however, it seems that the interpretation of an individual sign could be further specified — and thus disambiguated — by another sign that offered some additional phonetic or semantic information. An often quoted instance of possible phonetic specification would be in the combination of a snake with a hill sign (fig. 6.4). If the proposed interpretation is correct, the snake sign would stand for its later value, a sound conventionally transcribed as *ḏ*, derived via the rebus principle from *ḏ*(*wwt*), a word for a snake. The presence of the snake sign would suggest a reading *ḏw* "mountain" for the group, as opposed to other values the hill sign may have had in other contexts. It remains unclear whether wholly phonetic notation is documented in Tomb U-j. A case in point may be a group for which a reading *bꜣst* "Bubastis" has been both advocated and criticized (fig. 6.6). If the reading is correct, this would be a case of reciprocal specification of two signs: their combined occurrence would indicate that neither of them is to be read according to values they had when used in other contexts. Elsewhere, specification may work on the semantic (meaning) level, in a manner akin to "determinative" signs of later periods. This may be the case in a group of an elephant and a hill sign (fig. 6.5), if to be read as *ꜣbw* "Elephantine." The hill sign would make it clear that the place name is

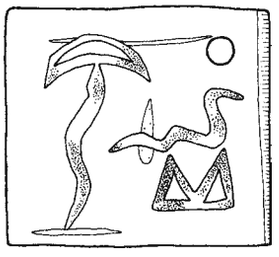


FIGURE 6.4. Tag from Tomb U-j, perhaps reading *ḏw grḥ* "Mountain of Darkness," or "Western Mountain." Scale 2:1

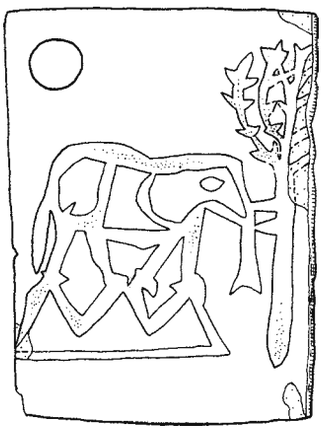


FIGURE 6.5. Tag from Tomb U-j, perhaps reading *ꜣbw* "Elephantine." Scale 2:1

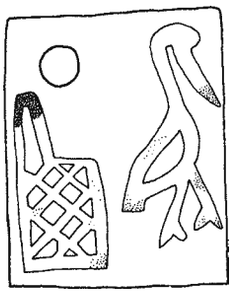


FIGURE 6.6. Tag from Tomb U-j, perhaps reading *bꜣst* "Bubastis" (?). Scale 2:1

meant, rather than the animal, the iconic referent of the sign. Among the above "readings," only the one proposed for "Elephantine" is supported by spellings known from historical times, while the others are not. This does not exclude them, given that historically attested spellings might have developed only later. Other interpretations, including ones based on less linguistically oriented "readings," constitute a strong possibility.

Even in a maximalistic perspective that would accept all the above readings, phonetically interpreted signs and semantically specifying ones play a very limited role only. Notation remains predominantly logographic (i.e., based on single signs). The balance between components, and thus the functional workings of the whole system, differ significantly from more mature stages of Egyptian writing. Moreover, the recourse marginally made to phonetic or semantic disambiguation — if indeed the case — may well reflect ad hoc strategies, rather than systemically entrenched "values" of these signs. Such strategies, as well as the rebus principle, pre-exist to any attempts to represent language and need not be part of a principled system. Suffice it to think of similar semiotic experimentations in contemporary text-messaging writing or in advertisements (e.g., "4U" as a rebus writing for "for you"). To be sure, it is precisely on the basis of such ad hoc explorations of the rebus principle, phoneticism, and semantic complementation that the later writing would develop, extending and systematizing their potential. In the stage witnessed by Tomb U-j however, there is no evidence that they constituted more than gradually emerging, still largely opportunistic, disambiguating strategies.

The Tomb U-j inscribed material thus markedly differs from more mature stages of Egyptian writing. No connected speech was notated, and the scope of writing may have been limited to names, common words probably featuring only as components of such. These names were partly represented by emblems drawn from pre-existing modes of visual communication (fig. 6.7).[9] Emblems are paralleled elsewhere as an early way of representing culturally salient names and may be integrated as a distinct subsystem into later, fully developed writing.[10] While the evidence remains contingent upon archaeological findings, it seems plausible on internal grounds that the stage of development witnessed by Tomb U-j involved only a limited inventory of signs, in accordance with the restricted functional scope just outlined. This repertoire may have been not much larger than the few dozens of signs actually attested in the extant inscriptions (Baines 2004, pp. 157–58). Other repertoires of — not necessarily linguistically oriented — signs might have been used in other functional contexts. If so, this would strongly contrast with the much higher number of signs found within a single repertoire in proto-cuneiform and reflect the very different functions of the two writings in their respective earliest attested forms.

In sum, the visual codes in the Tomb U-j tags — as opposed to the dipinti whose status remains unclear — represent a very early developmental stage of writing. Both types of inscriptions, tags and dipinti, can be characterized as functionally restricted marking systems (Kammerzell 2009, p. 304). The inscriptions on the tags additionally show formal features typical of writing (Vernus 2001) and emerging orientation to language. The potential for later developments may possibly be given by exploratory phonetic and semantic disambiguation strategies.

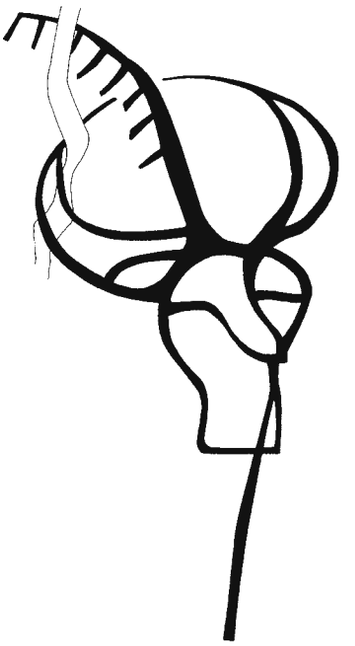


FIGURE 6.7. Dipinto from Tomb, U-j; emblem. Scale 1:2

EGYPTIAN WRITING AS A LOCAL DEVELOPMENT

Prior to the proper scientific excavation of Tomb U-j and its publication in 1998, the earliest clear instances of Egyptian writing dated back to the late Dynasty 0 (ca. 3200–3100 BC), a few centuries later than in southern Mesopotamia. It had long been known that later fourth-millennium Egypt witnessed sustained cultural contact with southern Mesopotamia and Susiana, tokens of which are found in elements of foreign iconography on Egyptian prestige objects, the adoption of the cylinder seal, and niched brick architecture. This led to the — always controversial — hypothesis that Egyptian writing may have originated as a result of cultural influence from Mesopotamia, whether through general awareness that writing was present elsewhere, or possibly through some actual knowledge of the workings of the Mesopotamian system. The distinctively indigenous nature of the Egyptian repertoire of signs was interpreted as a case of cultural adaptation of a foreign technology to local purposes. The hypothesis of a Mesopotamian influence on the emergence of Egyptian writing was at times embedded into a broader frame arguing that the original invention of writing, conceived of as a dramatic cultural achievement, would have occurred only once in human history, subsequently to spread elsewhere.[11]

As to the latter issue, the decipherment of Mayan glyphs and other New World scripts, and the realization that these represent actual writing rather than pictography, now proves otherwise (e.g., Houston 2004b). Simultaneously, a more refined understanding of the working of early writing in general demonstrates that writing may develop gradually, rather than dramatically, a good case in point being, precisely, the stage witnessed by Tomb U-j.

The discovery of the Tomb U-j inscribed material, predating late Dynasty 0 evidence by a century, has further recast the debate. The earliest Egyptian evidence for writing, dated by the excavator to ca. 3320 BC,[12] has now moved significantly closer to the Mesopotamian one. The crucial point, however, lies elsewhere. As argued above, the Tomb U-j inscriptions represent a typologically very early developmental stage of writing, restricted in its inventory of signs and in its scope. The focus on names is remarkable and strongly contrasts with early Mesopotamian writing which overwhelmingly notates goods and institutions of various sorts. As further suggested by the sign forms themselves, the incipient form of writing found in the Tomb U-j inscriptions is profoundly rooted in the emblematic modes of representation more generally found in late fourth-millennium Egypt. Rather than chronological, the importance of the Tomb U-j material lies with the window it opens on the very early stages of development of an emerging writing, which can now be modeled as a local sequence.

The close proximity in time and the relative proximity in space of the southern Mesopotamian and Egyptian inventions of writing remains remarkable, but is explained by taking into account the broader context. The development of the earliest Egyptian writing is contemporaneous with, and directly related to, the emergence of regional political entities and associated elites. This in turn is part of a set of complexly interrelated phenomena that simultaneously affected various parts of the ancient Near East in the later fourth millennium, partly in relation to the development of, and attempts to control, supra-regional trade networks. In the context of major political and social changes affecting both southern Mesopotamia and Upper Egypt,[13] the roughly simultaneous emergence of writing in the two regions is no coincidence.

THE FUNCTIONS OF THE EARLIEST EGYPTIAN WRITING

Writing may emerge and develop for a variety of reasons, specific to any given society.[14] While protocuneiform is associated with the needs of already complex administrative structures and associated institutions of scribal training, Mayan writing shows a strong focus on ceremonial functions and elite display (see *15. The Development of Maya Writing,* this volume). Against the background of these two contrasting poles, an appreciation of the functional range of the earliest Egyptian writing is made difficult by potential gaps in the archaeological evidence, almost exclusively from funerary contexts. Other possible contexts in which writing might have been used, such as settlements, often lie buried under the alluvium

or present-day towns, have been insufficiently excavated, and could have involved perishable materials (Postgate, Wang, and Wilkinson 1995).

Due to the lack of direct evidence in the late fourth millennium, a general argument is sometimes made that the emergent Egyptian state must have needed writing for administrative control. This however need not have been the case. The classical image of the Egyptian bureaucratic state is based on material from considerably later times. It is also partly ideological, as in the funerary self-presentations of Old Kingdom elites. Furthermore, the situation as found in late fourth-millennium southern Mesopotamia cannot be generalized uncritically to the vastly differing Egyptian society, economy, and early state. Other parallels, such as in Mesoamerica (e.g., Inca quipus) or in fifth- and early fourth-millennium Greater Mesopotamia (e.g., Arslantepe in southern Turkey [Frangipane 2007]), illustrate how societies developing toward early state structures may well manage the level of administrative control they need by non-linguistically oriented record-keeping techniques of various sorts. Writing becomes a requisite only at a later stage. Such a stage was certainly reached in Egypt at some point no later than the early First Dynasty, but the generally limited knowledge of the Egyptian state and society of yet earlier periods makes it difficult to assess more precisely when.

The Tomb U-j inscribed material itself has been interpreted as directly evidencing an administrative function of the earliest attested Egyptian writing. Both the tags and the dipinti are physically associated with goods deposited in the tomb. Moreover, some tags display numerical notations. Yet, as appealing as this line of argument may seem, a closer consideration of the evidence suggests a more nuanced picture.

To begin with, the surfaces and modes of inscription point to a strong ceremonial dimension of writing in Tomb U-j. As discussed above, the dipinti hardly qualify as a cursive script, banning any conclusions drawn from the analogy with the functions of the later developing hieratic script. Furthermore, both the dipinti and the inscriptions on the tags involved a relatively time-consuming production process. The tags were first carved, then filled with paste, while the dipinti were painted with elaborate details, often in monumental size (fig. 6.1). Neither the paste fill of the tags nor the internal details of the painted signs carried any added value in making the signs more distinctive for practical purpose. Rather, this value resided at the level of the materiality of the inscribed object itself.

It has also been observed that the tags were made out of large bone plates scored into a grid (Dreyer, Hartung, and Pumpenmeier 1998, p. 137). The plates were cut along the lines of the grid only after the inscription was applied, as is shown by several cases of overlap of signs from one tag to another whenever the break was not made in the right place. The tags were thus produced in whole series in one place, rather than being attached to the goods on their various places of production, or upon the different moments of arrival of such goods in This/Abydos. This suggests that the tags were, from the very outset, designed for the tomb. The many hands that can be identified on the tags (Kahl 2001) further point to the participation of numerous individuals in rituals associated with the burial of the Tomb U-j ruler, perhaps to be viewed as enacting group identity (Wengrow 2008, p. 1027).

The material aspects of the Tomb U-j inscriptions thus reflect a strong ceremonial dimension of the earliest attested Egyptian writing.[15] To be sure, this is not exclusive of a utilitarian function, either within the particular context of Tomb U-j or more generally in late fourth-millennium Egypt. Numerical notations on the tags (Catalog No. 68) clearly reflect actual record-keeping practices. Similarly, the writing of names and places probably had a more mundane background in contemporary non-ceremonial marking practices. Within a proto-royal tomb such as Tomb U-j, the latter would have been transposed to a ceremonial level, through both context and material.

Yet, this need not imply a utilitarian function of the earliest Egyptian writing itself. Strictly speaking, the transposition of marking practices to a ceremonial level — to which the Tomb U-j inscriptions are a witness — primarily pertains to the very marking practices themselves, and does not necessarily extend to the repertoires and systems of signs employed in such. To be sure, it is safe to assume that contemporary non-ceremonial marking practices would have shared numerical signs with the Tomb U-j tags. However, they need not have shared much else. Numerical signs stand out as a subsystem in

any writing because they do not point to words or names. As to the non-numerical inscriptions in Tomb U-j, they seem to relate mainly to a small number of culturally important names. These are marked with a limited inventory of signs, most of which are highly prestigious visual forms, partly derived from emblematic representations. The manipulation of such visual forms was no trivial thing in late fourth-millennium Egypt. In actual record-keeping functions — to the extent to which such were needed at these early times — marking would have been done by largely different sets — and possibly even systems — of signs. There is no necessity,[16] nor any evidence as yet — neither internal to the Tomb U-j inscriptions, nor elsewhere in the period — that such contemporary utilitarian marking practices should have begun representing language, thus qualifying as incipient writing.

SUBSEQUENT DEVELOPMENTS

Written evidence becomes more abundant in late Dynasty 0/early First Dynasty (ca. 3200–3000 BC), roughly one century after Tomb U-j. While keeping a strong focus on names (e.g., fig. 6.8; Catalog Nos. 71–72, 74, 78), writing expanded from its initially highly restricted functions to other domains.[17]

On ceremonial objects (palettes, mace-heads, ceremonial tags) writing was used to complement pictorial compositions (Baines 1989). The latter remain predominant on such objects, expressing generic ideological archetypes associated with kingship. Writing allowed these visual representations to be secondarily related to the singular identity of a specific king, as well as, when place names are featured, possibly to a particular event (Vernus 1993). At the same period, written signs rapidly evolve toward distinctively "hieroglyphic" forms (fig. 6.8; Regulski 2010), while pictorial conventions of representation were established, many of which would be defining of Egyptian visual culture and remain remarkably stable throughout later history. Writing thus developed as one component of Egyptian centrally driven formal culture.

Standing alone, writing is found on seals, funerary vessels, private funerary stelae, and in offering lists. So-called "taxation marks" from late Dynasty 0 to the mid-First Dynasty have been reinterpreted as reflecting largely ritual dimensions of funerary economy, rather than narrowly utilitarian purposes (Kahl 1995). In its conspicuous usage on seals (Catalog Nos. 76–77; Kaplony 1963c; Pätznick 2005) — contrasting with Mesopotamia where seals remained largely uninscribed at this period — writing was associated with marking functions that could be both utilitarian and prestige bound, depending on the type of seals and contexts of sealing practices. References to written administration are found from the mid-First Dynasty (ca. 3000 BC) onward, as well as indirectly, with the

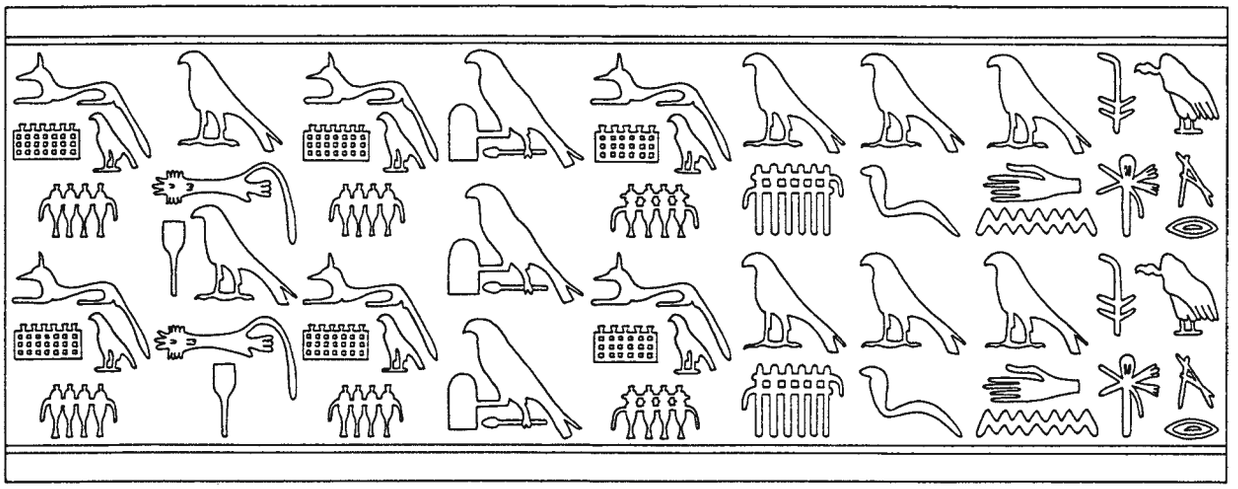


FIGURE 6.8. Seal with a complete list of royal names ranging from the beginning to the middle of Dynasty 1. From Abydos, Umm el-Qa'ab (seal reconstructed from multiple individual sealings). Note the distinctively hieroglyphic shape of the signs. Scale 1:1

appearance of a hieroglyphic sign depicting a papyrus scroll (reign of Qaʾa, end of First Dynasty [Kahl 1994, p. 36]). During the Second Dynasty, increasing cursiveness of ink-drawn signs and the development of consistent modes of abbreviating signs — such as emphasizing the distinctive visual features of the object depicted — similarly point to a widening range of usages of writing. These developments may be described as the earliest stages of hieratic proper — as opposed to ink-written signs found already in late Dynasty 0, which are mere painted versions of hieroglyphs (Regulski 2009).

While extending its functional range, writing came to represent ever more aspects of language. Besides royal and geographical names, it notated private names and an increasingly large variety of words. The latter notably included titles, administrative entities, and commodities (Catalog Nos. 70, 76–77). Simultaneously, writing tended toward increased autonomy from the material surface on which it was inscribed. In a first stage, isolated names or entities stood in exclusive relation to non-written elements, such as the object they were written on and/or pictorial compositions they were embedded in. In a second stage, names or entities were directly associated with each other, in inscriptions on seals, in lists (of titles, of offerings, probably also in administrative usage), and in more elaborate captions to pictorial scenes. Within the latter, verbs are significantly found in the infinitive only, rather than in a conjugated present or past tense. Complete clauses with predicative forms are found from the late Second Dynasty onward, initially in the context of expressing the relation of the king to the gods. Continuous texts appear only with the Old Kingdom, bundling individual clauses into cohesive written discourse. As a result of the above developments toward higher textual integration, the meaning of written messages became increasingly less dependent upon extra-linguistic frames of interpretation associated with their context of inscription.

The system itself underwent profound changes with gradually augmenting recourse made to strategies for secondarily specifying the readings of individual signs. Such strategies involve both phonetic and semantic complementation ("determinatives"), increasingly on a regular and systemic basis (Kahl 1994, 2001). A near complete set of signs representing the consonantal phonemes of the Egyptian language is attested by the early/mid-First Dynasty (ca. 3100–3000 BC). A large set of signs representing discontinuous sequences of two consonantal phonemes (so-called "biliterals") is developed before the Third Dynasty (ca. 2750 BC). Such values are derived by the rebus principle, now fully productive. Phonetically interpreted signs are used both in purely phonetic notations and, increasingly, for complementing otherwise notated words. Various strategies for semantic (meaning) specification are developed. These include both determinatives specific to one word and more generic ones that could be applied to a whole class of words. Double semantic complementation of a word by both a specific and a generic determinative is found by the Third Dynasty. As a result of the above developments, solely logographical notations, while still prominent, increasingly give way to more explicit writings of words through multiple signs. The overall number of signs dramatically increases to about a thousand, a figure comparable with protocuneiform.

The strong development of the phonetic component in notation and complementation is striking and becomes even more so when compared to the still predominantly logographic modes of notation found in contemporary Mesopotamia. At a general level, this contrast reflects two different possible trajectories in script evolution. The written representation of grammatical morphemes was extremely slow to emerge in both areas and did not play any significant role in the rapid phoneticization of the early Egyptian writing. It remains unclear whether the latter process is to be related to the particular morphological structure of Egyptian, with its salient consonantal root morphemes. To some extant, it may be related however to the distinctive focus of the earliest Egyptian writing on personal names. Names have a special status within any language because their referent is an individual, rather than a class of entities with particular semantic features potentially exploitable for written representation. While names found in Tomb U-j, mostly prestigious ones, could still largely be represented emblematically (fig. 6.2), the extension of writing to a wide range of personal names from late Dynasty 0 onward could have been one favorable locus for the phoneticization of the early Egyptian writing. Some names are clauses,

each word of which could be notated logographically (Catalog No. 71). Other names, however, have no particular linguistic meaning and are rendered purely phonetically (fig. 6.9).

The development of determinatives is also interpreted as a response to the widening functional ranges of writing. With more words being written, the need for disambiguation, both phonetic and semantic, increases. Determinatives, which stand at the end of a given word, further contribute to signalling word boundaries. With the extension of writing to continuous sequences of speech, this secondary function of determinatives becomes important. As the relative chronology of development suggests, the rise of determinatives may also have been an indirect consequence of increased phoneticism. Ambiguity — and thus the need for further specification — may be higher in solely phonetic notations, as opposed to such containing a logogram, dedicated to one, or very few, specific word(s). Furthermore, while a logogram immediately indicates the word boundary (the latter being identical with the sign itself), phonetic notations use multiple non-specific signs for representing one word, with the effect that word boundaries are not given a priori any more.

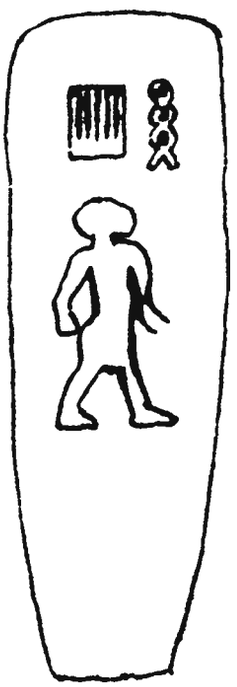


FIGURE 6.9. Dynasty 1 funerary stela from Umm el-Qa'ab, Abydos. Personal name reading *ḥp*. The name has no particular meaning in the language, and is notated purely phonetically *ḥ* + *p*. Scale 1:2

Egyptian writing at the beginning of the Old Kingdom (ca. 2650 BC; Schweitzer 2005, pp. 21–98) represented language in both its phonetic and semantic articulations. As a result of the complementary developments toward strong phonetic and semantic complementation as outlined above, one-sign notations of words had receded dramatically. Solely logographic notations, as well as purely phonetic ones without any semantic complementation, were mostly confined to high frequency items, such as core vocabulary and some grammatical words, as well as to predictable contexts, such as in sequences of titles. By and large, Egyptian writing had moved by the mid-third millennium to notations in which semantic and phonetic information, both incomplete, complemented each other to indicate the accurate reading. The particular balance between phonetic and semantic components allowed for the remarkable variability of spellings found in mature hieroglyphic writing. These developments strongly contrast with mid-third-millennium cuneiform which used complementation strategies only in a more limited way and remained predominantly logographic at the time.

CONCLUSION

The Tomb U-j inscriptions offer a rare view of a typologically extremely early developmental stage of writing. Based on internal analysis, this may be described as a marking system with a highly restricted scope of application. It displayed formal features typical of later writing and emergent representation of language. The latter occurred in relation to notating names, which point to a singular referent. The probably limited inventory of signs, as well as the strong, perhaps exclusive, focus on names, stand in a stark contrast with contemporary proto-cuneiform. Egyptian writing thus emerged as a local development, rooted in late prehistoric visual culture, notably in emblematic modes of representation.

As far as current evidence goes, the motivation for the earliest development of Egyptian writing would have revolved around marking, prestige, and ceremonial functions associated with the nascent kingship. Administrative needs need not have been a prime motivating factor and were possibly initially

managed by other, non-linguistically oriented, marking systems.

The focus on names kept for some time after Tomb U-j may have played a role in the early and thorough phoneticization of Egyptian writing. This in turn may have been instrumental in the increasing recourse made to semantic complementation, leading to a remarkably complex system of determinatives. The early Egyptian and contemporary cuneiform writings thus followed significantly different paths of development. Yet later, writing was extended to notate continuous strings of words and clauses, leading to an increasing alignment of written messages with actual speech.

In the past, Western semiotics — reaching back to Aristotle who was thinking within the cultural horizon of Greek alphabetic script — have tended to view writing exclusively in terms of its function of representing speech, i.e., as a secondary code, as "speech made visible." The Egyptian material contributes to a more differentiated perspective on early writing, one that is less strongly pre-defined by what is known from later developments.[18] Written messages only gradually gained autonomy from non-linguistic frames of interpretation. Full orientation of writing on speech was a process that took almost a millennium to be completed.

NOTES

[1] For a broader discussion of issues relating to the earliest Egyptian writing, see Baines 2004; Morenz 2004.

[2] http://www.potmark-egypt.com.

[3] In German Egyptology, the phenomenon is aptly captured by the phrase "Heraus-bildung" (of writing), meaning both "emergence" and "development out-of-images."

[4] The tomb and its material are magisterially published by Dreyer, Hartung, Pumpenmeier 1998; Hartung 2001.

[5] Hartung 2001. The origin of the vessels has been debated; for references, see *5. The Conception and Development of the Egyptian Writing System,* this volume.

[6] In epigraphy, "dipinti" generally refers to painted inscriptions, as opposed to incised ones, referred to as "graffiti."

[7] Dreyer, Hartung, Pumpenmeier 1998; Breyer 2002; Kahl 2003; Jiménez-Serrano 2007.

[8] Discussion in Kahl 2001, pp. 119–20, 122; Baines 2004, pp. 161–64.

[9] For example, Dreyer, Hartung, and Pumpenmeier 1998, pp. 173–77; Morenz 2004, with a discussion of possible parallels outside Tomb U-j.

[10] For example, Michalowski 1993 for Mesopotamian place names. In the Egyptian domain, a similar phenomenon is observed with standards, which were later integrated into full writing as a subsystem for designating the various "nomes," or provinces, of the country, centered around a sanctuary for which the standard stood as a token.

[11] "Monogenesis" of writing was notoriously advocated by Gelb (1963).

[12] Boehmer, Hartung, and Pumpenmeier 1993. For a lower date (ca. 3200 BC), see, for example, Joffe 2000, pp. 113–14, n. 4.

[13] For the latter, see Wengrow 2006.

[14] See, for instance, the studies collected in Houston 2004a.

[15] For further discussion, see Wengrow 2008; Baines 2004.

[16] For various forms of non-textual marking and record-keeping techniques, coexisting with writing in historical times in Egypt, see, for example, Pantalacci 1996; Gratien 2001; Andrássy, Budka, and Kammerzell 2009.

[17] For the material, see Regulski 2008b; Kahl 1994. For a general presentation and discussion, see Baines 1999. For an introduction to the period, see Wilkinson 1999.

[18] For similar perspectives in other cultures, see the studies gathered in Houston 2004a.

7. EGYPTIAN HIEROGLYPHIC WRITING

JANET H. JOHNSON

Egyptian is an Afroasiatic language that is distantly related to Semitic languages (e.g., Arabic, Hebrew, Akkadian) and many African languages (e.g., Berber, Cushitic, Chadic). Egyptian shares many things with these languages. One shared trait had a major influence on the Egyptian writing system — the root system. Most words consist of two or three consonants; the vowels changed depending on the form of the word being used (noun vs. verb, singular vs. plural, past tense vs. present tense, etc.). This led to use of a writing system that (like Arabic and Hebrew) wrote only the consonants, which were consistent among all the forms of the word, not the vowels, which changed from form to form (a native speaker of the language would have known which vowels to use with which forms, so there would not have been any confusion).

The earliest Egyptian writing may have written words by drawing a picture of the item involved. Each hieroglyph is a picture of a real object from daily life. But it is impossible to write some words in such a system (how do you draw a picture of "love" or "faith" as opposed to "man" or "house"?), and it is very hard to write complete sentences. Thus, the Egyptians employed the rebus principle: One can write a word using a picture of something that has the same sound. A classic example in English is drawing a (honey)bee followed by a leaf from a tree to write the word "belief." Thus, in Egyptian, a picture of a mouth  (phonetic *r*) could be used to write the preposition "to, at, against" (also phonetic *r*), or the floor plan of a simple house  (phonetic *pr*) could be used to write the verb "to go (up)" (also phonetic *pr*). Since, as noted, the consontal root was so important in Egyptian, only the consonants needed to be the same, not the vowels, for one picture to represent an unrelated word. Thus, many signs developed a phonetic meaning/usage derived from, but distinct from, their pictorial meaning. Such phonograms may represent one (e.g., *r*), two (e.g., *pr*), or three consonants. (Such phonograms are frequently referred to as uniliteral, biliteral, and triliteral signs; fig. 7.1.) The Egyptians did develop what modern scholars refer to as an alphabet, a group of twenty-four uniliteral phonetic signs representing each letter of the Egyptian phonetic inventory (see table 9.2 below). But the classic Egyptian scripts, based on hieroglyphs, never restricted themselves to using only alphabetic, or even only phonetic, signs. Rather, the writing system used a combination of both ideograms (or logograms) (e.g., as "mouth" or as "house") and phonograms (e.g., for the sound/letter *r* or for the sound/letter combination *pr*) in combination with what modern scholars call "determinatives" (or semagrams) — signs used to indicate the general category to which a word belongs (e.g., used as a "determinative" after many words indicating types of structures, from huts to palaces). Biliteral and triliteral signs were frequently accompanied by one or more uniliteral "phonetic complements" reiterating the phonetic structure of the word. For example,  *pr* "to go (up)" uses the biliteral *pr* followed by a uniliteral phonetic complement *r* and a "walking legs" determinative indicating that this word is a verb indicating motion or movement. When a sign was being used with its logographic meaning (and without phonetic complements), it was normally accompanied by a stroke (e.g., "house") where the stroke said "take me literally." Although in theory every hieroglyphic sign could be used in all of these ways, in actuality *pr* is one of the few which is so used regularly; most signs were restricted to one or two of the three functions of logogram, phonogram, determinative.

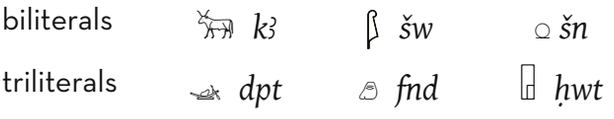


FIGURE 7.1. Examples of individual hieroglyphs that convey two or three consonants (biliterals and triliterals)

The earliest and most characteristic Egyptian script is hieroglyphs, a term derived from the Greek ἱερογλυφική "of sacred carving," reflecting the use of hieroglyphs on temple and tomb walls, stelae, statues, and other monumental inscriptions. The Egyptians themselves referred to this script as *mdw nṯr* "words of the god," believing that the god Thoth invented writing (see *5. The Conception and Development of the Egyptian Writing System*, this volume). Other scripts described as "hieroglyphic" are known, among them Luwian, Chinese, and Mayan (see *13. Anatolian Hieroglyphic Writing*, *14. The Beginnings of Writing in China*, and *15. The Development of Maya Writing*, this volume), but the systems are completely unrelated, and they developed in isolation from each other. The earliest hieroglyphic texts appear about 3320 BC; the latest dated hieroglyphic inscription comes from AD 394. The brief texts from the predynastic Tomb U-j at Abydos already employ signs for their phonetic values. For example, a tag (see fig. 6.4) is marked with a bird (known from later periods to have the phonetic value *bꜣ*) and the chair/throne sign (phonetic *st*); this combination has been interpreted as the writing of the geographic location Bubastis (*Bꜣ-st*). The complexity of the earliest texts has led some scholars to propose that Egyptian was the result of a "single invention" rather than a gradual development (Parkinson 1999, p. 73). Others, however, assume that the earlier stages of the script have simply not survived.

Egyptian hieroglyphs were, as noted, used in monumental and ceremonial contexts, including religious papyri and tomb furnishings. Hieroglyphs served as part of the decoration of such monuments and could be written in columns or rows and could face either right or left (the front of the hieroglyph would point toward the beginning of the inscription). This flexibility is especially noticeable on doorways where an inscription may start in the middle over the doorway and flow out and down in both directions (fig. 7.2). An inscription accompanying a human being or deity would face in the same direction as the human or deity. There is no space left between words or sentences, although the determinatives found at the end of most words do effectively mark word boundaries. Signs were arranged in square or rectangular groups rather than simply being strung out one after the other (e.g.,  where the *pr*-sign is written over the *r*); signs are read from top to bottom and from front to back. The placement of individual signs may be transposed for aesthetic reasons (to avoid gaps) or for honorific reasons. For example, in personal names that incorporate the name of a god, the divine name may be written before the other phonetic elements (fig. 7.3). The interaction between

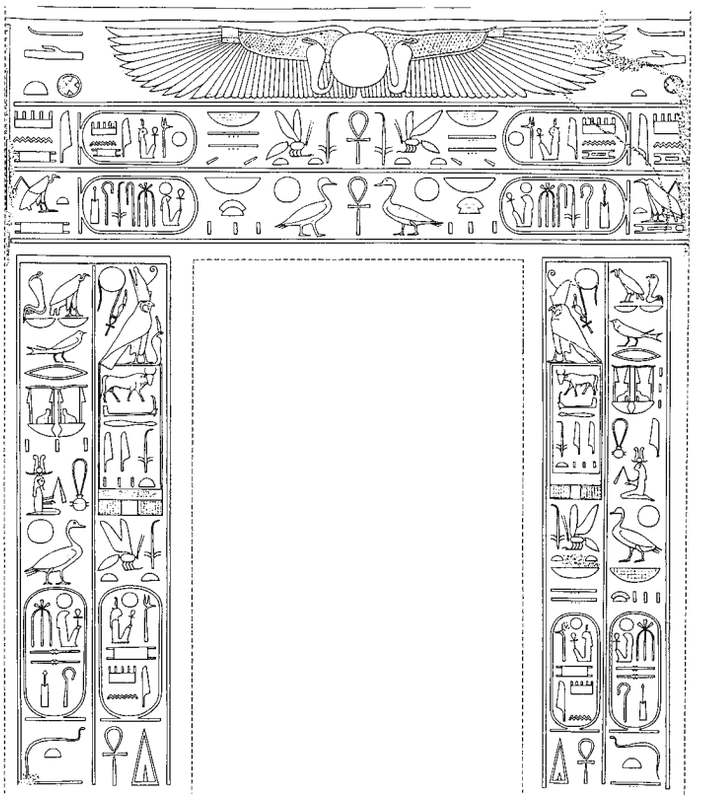


FIGURE 7.2. Doorway at the temple of Ramesses III at Medinet Habu decorated with hieroglyphic texts. The text on the lintel reads right and left from the central *ankh*-sign. The texts on the left jamb read from right to left, those on the right from left to right. The different orientation of the signs created a symmetrical composition

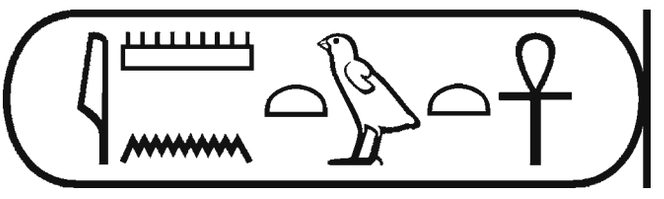


FIGURE 7.3. Cartouche (name ring) of King Tutankhamun to be read from left to right. The name is written *Imn twt ankh* because the name of the god Amun (*Imn*) has been honorifically placed first. However, the grammatical structure of the name, which means "Living Image of Amun," indicates that the name was read Tut-ankh-Amun

word and picture in the hieroglyphic system is highlighted by the occasional mutilation of signs of dangerous animals, etc., in tomb inscriptions (see figure on page 156, below).

There were several hundred signs in regular use until the Ptolemaic period (fourth–first century BC), when a large number of new signs were developed. Most signs appear in their classic shape already in the Old Kingdom and show little modification in their form through time. Because hieroglyphs can be elaborate images that are time-consuming to execute (fig. 7.4), the more cursive, and more rapidly written hieratic and Demotic scripts were usually used for economic, legal, and administrative documents, literary texts, and letters.

FIGURE 7.4. Highly detailed hieroglyph in the form of an owl that has the phonetic value *m*

OBJECT DESCRIPTIONS: CATALOG NOS. 80–82

80

80. FUNERARY STELA

Limestone, pigment
First Intermediate Period, Dynasties 7–11,
ca. 2219–1995 BC
Purchased in Cairo, 1935
66.0 x 43.8 cm
OIM E16955

Because hieroglyphs are not abstract signs but actual images of objects, there can be ambiguity about whether a sign is being used for its phonetic value, for the image it portrays, or for a combination of both functions. For example, a small figure of a man or woman normally follows the writing of a person's name indicating that the word is a person's name. On this stela, the large standing figures of the man and his wife serve two functions: as oversized hieroglyphs that normally follow their names and simultaneously as a representation of the couple.

The hieroglyphic writing system could be highly efficient. The images of offerings in front of the man — a foreleg, ribs, and head of a calf, five beer jars in a rack, two baskets, a shallow tray with bread(?), and two tall wine jars in stands — all have more extended phonetic spellings, but here, only the image of what is portrayed was used, blurring the line between phonetic writing and picture writing.

The artistic aspect of hieroglyphs is illustrated by the use of pigment on this stela. The small hieroglyphs of men and of men's faces in profile or frontal view are highly detailed in dark red and black, dark red being the color used for men's skin. In the third column from the right, the

small hieroglyphs of a seated man and woman are colored red and yellow respectively, just like the large figures of the man and his wife. The word for "bread loaf" is always yellow and the beer jar sign is dark red in imitation of their true color. Otherwise the red, yellow, and black pigments seem to alternate decoratively among the signs.

Hieroglyphs can be written from left to right or right to left. Their orientation is related to larger-scale figures to whom the text refers. On this stela, the man and his wife face right, and so all the hieroglyphs also face to the right. In this arrangement, the text is read from right to left, starting with the horizontal line at the top of the stela and then continuing with the right-hand vertical column.

The text that begins in the fifth row from the right demonstrates the potency of the written word. It implores visitors to the tomb to leave food, but, if they have nothing, to give bread, beer, cattle, and fowl and "every good thing" by the simple act of reciting the names of those provisions. This type of prayer, which transformed written text into actual food for the deceased, is called a "voice offering." These voice offerings are a common feature of funerary stelae, even though it is unlikely that a visitor could actually read the text (the literacy rate has been estimated at about 1–3 percent of the population). Yet the text had such effectiveness that its appearance on the stela guaranteed funerary provisions for the deceased. ET

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Dunham 1937, pp. 101–02, pl. 31.

THE ORIENTATION OF HIEROGLYPHS

The close relation between hieroglyphic writing and art is evidenced in the interrelation of the orientation of signs and figures in scenes. In the orientation of Egyptian writing, asymmetrical signs (such as animate beings) face the beginning of the line, looking against the flow of reading (see *13. Anatolian Hieroglyphic Writing* and *15. The Development of Maya Writing*, this volume, for similar phenomena in those systems). The most common orientation of the script is reading from right to left, with asymmetrical signs thus facing right. Any accompanying figures would likewise be mainly oriented to the right.

Very often, however, signs and figures can face to the left. The rules presiding over this orientation are multiple, at times in relatively complex interaction (Fischer 1977). In the case of a caption to a scene, the figures and the signs usually share the same orientation, but there are exceptions. For example, in Old Kingdom offering lists, the hieroglyphs usually face the person for whom the offerings are intended. Additional subtleties result from principles of harmonic composition.

FIGURE. False door stela of Nisuredi. Limestone, 50 x 32 x 6 cm. Old Kingdom, Dynasties 4–5, ca. 2613–2345 BC. OIM E10825

The orientation of signs is further adapted to their architectural setting. For example, when a text is inscribed on the jambs of a false door, signs on opposite doorjambs will face each other to create a symmetrical composition. An example of such symmetry is found on the false door stela of Nisuredi. Remarkably, however, while the general principle is at work on the outer doorjambs, deviations can be observed on the inner doorjambs of the same monument. On the upper part of the inner left doorjamb, the sign for *s* is oriented to the left , but at the bottom of that text, it is in reverse orientation: . Similarly, on the right inner doorjamb, the group "craftsmen" is written from right to the left, rather than as would be expected from the left to right orientation of the remainder of the column. The "correct" left to right arrangement of signs of this same title can be seen on the horizontal line.

Such examples, as well as many others, show how far the visual relation between hieroglyphic signs and pictorial representation were consciously exploited and deliberately composed in the monumental sphere. JSP

WRITING IN NEFERMAAT

Due to their iconic nature, hieroglyphic signs not only represent language, they also carry power of their own. This dimension is alluded to in an inscription on a panel from the early Fourth Dynasty mastaba of Nefermaat in Meidum, now housed in the Oriental Institute Museum. This inscription makes a remarkable statement about the status of hieroglyphic writing in the Old Kingdom.

swt ir nṯrw=f m sš n zin=f

He (Nefermaat) is the one who made his gods (i.e., hieroglyphs) in writing that cannot be erased.[a]

The designation  *nṯrw* "gods" for the signs engraved bears witness to the close relationship between writing and the sacred sphere, especially in the funerary context. Note that the designation of signs by *nṯrw* alone is rare: the usual term is  *mdw-nṯr* "godly words," referring to both uttered words and words in hieroglyphic writing, as well as to texts written in this script. As Nefermaat's inscription makes explicit reference to, signs of hieroglyphic writing had power of their own, beyond their basic function of mirroring speech. Developing just one specific example, some signs could not be used in particular contexts during the Old Kingdom. The sign representing the solar disk  is used to write the name of the solar god *Rʿ*, Ra, among other things. As such, it is found in Old Kingdom theophoric royal names (royal names incorporating a divine element), for instance, in the name of the Fifth Dynasty king  *Sꜣḥw-Rʿ*, Sahura. Remarkably, however, the very same sign is systematically avoided in non-royal theophoric names. In these, the sun sign is replaced by a phonetic writing of the god Ra: *r* (the mouth sign) + *ʿ* (the arm sign). Consider for instance the name of the Fifth Dynasty official  *Wr-rʿ*, Werra. In Old Kingdom theophoric names, the use of the solar disk thus appears to have been restricted to royal names only (Fischer 1986). JSP

FIGURE. Color inlay slab from the tomb of Nefermaat. From Meidum, Egypt. Old Kingdom, Dynasty 4, ca. 2613–2494 BC. OIM E9002

NOTE

[a] "Erasing" refers to the phenomenon of tomb usurpation. Re-use of extant elite tombs by later officials is well documented in the Old Kingdom. In Nefermaat's mastaba, the reliefs are deeply carved and filled with a color paste, protecting them against any attempts at destruction or usurpation.

The Potency of Writing in Egypt

In ancient Egypt writing was more than a means of communication because the written word had the power to create what was recorded. For example, the written reference to food offerings on a mortuary stela (see Catalog No. 80) ensured that those provisions would be provided for the deceased forever, and the written reference to a person's name ensured that individual's eternal existence in the afterlife. The connection between the writing of a person's name (or even the name of a god) and their existence is demonstrated by occasions where, for often unknown reasons, their name has been chiseled out or erased, thereby "killing" that individual. In a similar way, the identity of a statue could be altered by changing the name incised on it without recarving the facial features. In some contexts, signs of animals that might bite, sting, or consume funerary offerings were considered to be dangerous. When these signs appear in texts on coffins or on tomb walls, they are sometimes mutilated by knives or shown cut in two to render them powerless. ET

FIGURE. Determinative of a snake in the writing of the word "kill" or "decapitate" on the wall of the tomb of Kheruef at Thebes. The sign has been rendered harmless by three knives. Dynasty 18

81

81. LETTER TO THE DEAD

Baked clay, pigment
First Intermediate Period, Dynasty 11,
ca. 2199–1976 BC
Purchased in Cairo, 1929
23.0 x 9.0 cm
OIM E13945

Writing in Egypt was considered to have such power that it could transcend the realm of the living and the dead. Just as one might write to someone who was physically not present, writing was used to communicate with the dead. These "letters to the dead" are in the form of quasi-legal appeals from the living to the dead asking them to intercede on their behalf with the tribunal of the gods in the realm of the dead, or to appeal to dead relatives or acquaintances to stop harming the living from the beyond. Most of these letters are written on pottery vessels that were left in the tomb chapel of the recipient.

This example is written on a jar stand that would have supported a dish of food to attract

the spirit of the deceased. This letter is from a man to his deceased grandmother and father asking them for protection, to grant the birth of sons to his wife, and to act against two female servants whom he blames for his wife's infertility. ET

PUBLISHED (SELECTED)

Gardiner 1930, pp. 19–22; Wente 1990, p. 213; Teeter 2003, pp. 36–37; Janak 2003, pp. 275–77.

82. CIPPUS (HEALING STATUE)

Steatite
Ptolemaic period, fourth–third century BC
Purchased in Egypt, 1933
14.2 x 6.2 x (thickness at base) 4.7 cm
OIM E16881

82

Egyptian protective texts were thought to be far more than invocations — they were so potent that they were capable of effecting cures. This statue, which portrays the young god Horus standing on crocodiles, grasping and immobilizing dangerous creatures, symbolizes his ability to control wild and evil influences. The sides, back, and base of the statue are incised with hieroglyphic texts that refer to divine protection against crocodiles and other threatening creatures. Just as Horus the Child triumphed against the wild animals, the texts could heal the sting and bite of wild animals. The power of the texts was transferred to the sufferer by pouring water over the statuette, thereby activating the liquid through contact with the words. The water was then drunk by the sufferer. ET

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Seele 1947, pp. 43–52; Sternberg-El Hotabi 1999; Teeter 2003, pp. 103–04.

82, reverse, showing hieroglyphic texts

8. HIERATIC

KATHRYN E. BANDY

Hieratic is a cursive script that was most commonly written with a reed brush and ink on either papyrus or ostraca (pieces of pottery and stone). Examples of hieratic written in ink have also been found on cloth, leather, and wood; however, few such examples have been preserved. Hieratic was even written using a stylus on mud tablets (dated to the Old Kingdom, ca. twenty-third century BC) and a carved version of the script (known as "lapidary hieratic") is frequently found in graffiti at sites such as quarries and along trade routes.

The term "hieratic" comes from the Greek expression *grammata hieratika*, "priestly writings," which was coined by Saint Clement of Alexandria in the second century AD to describe the cursive script used for ancient Egyptian religious texts at the time. Hieratic, however, was not exclusively used during the Greco-Roman period for religious compositions. Hieratic texts are some of the earliest-attested documents in ancient Egypt (ca. 3200 BC) and provide some of the most important socioeconomic and cultural information about Egyptian society. Contrary to Saint Clement's characterization of the script, hieratic documents include not only religious texts, but also literary, medical, mathematical, administrative, and legal texts. Many of the famous literary tales known from ancient Egypt have been preserved on papyrus in hieratic.

The cursive nature of hieratic is what makes the script most notable. After dipping his brush in ink, a scribe would have been able to write several signs before having to re-dip for more ink. As a result of this technique, signs were frequently joined together and at first glance do not appear to resemble hieroglyphs. Hieratic was always written from right to left, as opposed to hieroglyphs, which could be written in either direction, and like hieroglyphs was written in either vertical columns or horizontal lines. Differences in the script's paleography — how a text was written as exemplified by the scribe's handwriting and the shapes of different signs — allow Egyptologists to date hieratic documents solely by the script. Egyptologists are even able to tell what kind of document a text is without reading it because there are distinct differences in the handwriting between literary and administrative documents.

Although the signs used in hieratic do correspond to most of the same shapes used in hieroglyphs, the script is neither a derivative nor an abbreviation of hieroglyphs. Despite the similarities, there is not a one-to-one correspondence in signs and writing between the two scripts. Hieratic even has some signs that are not found in hieroglyphs. Egyptian scribes were capable of using both scripts and most hieroglyphic inscriptions in formal contexts like temple or tomb walls were originally drafted in hieratic and then adapted into hieroglyphs. Hieratic texts are frequently transcribed into hieroglyphs for the convenience of modern Egyptologists, but differences in spelling, sign usage, and even the presence of a type of punctuation mark demonstrate that Egyptian scribes did not translate between the two scripts when they were writing. Instead, Egyptian scribes were able to use both scripts independently.

The appearance of hieroglyphs in about 3320 BC is seen as the beginning of writing in ancient Egypt, but hieratic is actually found soon after the first hieroglyphic inscription. Both scripts are found among the earliest examples of writing in ancient Egypt during Dynasty 0. The appearance of hieratic so early suggests that it was not a later adaptation of hieroglyphs but was developed alongside it. These early inscriptions were very brief and are found on vessels from burials. Typically they list only royal names and information about the contents of the vessels, frequently the place of origin. The first hieratic inscription, dating to about 3200 BC, is the royal name Scorpion from the site of Tarkhan, just south of Cairo. Examples of hieratic continue to be found throughout the Early Dynastic period (ca. 3000–2680 BC), when the first examples of monumental hieroglyphs — inscriptions appearing on large structures and objects, such as tombs, stelae, and statues — appear. The importance of writing, the use of papyrus, and

the importance of scribes even in early Egyptian history is illustrated by the inclusion of a roll of blank papyrus among the burial goods in the Early Dynastic tomb of the seal-bearer Hemaka at Saqqara.

Throughout the following millennia of Egyptian history, hieratic underwent a dramatic series of changes — the scripts of later pharaonic periods bear little resemblance to the earliest attestations of hieratic. Despite these changes, hieratic always remained an important part of a scribe's training and Egyptian writing. Hieratic even seems to have influenced hieroglyphs at different points in Egyptian history; some of the changing forms of Egyptian hieroglyphs reflect the hieratic script.

The longevity of the script demonstrates the important role it played in the written tradition of ancient Egypt. Hieratic texts are among the earliest examples of Egyptian writing and the script continued to be used throughout all ancient Egyptian history. Even after the advent of Demotic in the Late Period (seventh century BC), hieratic continued to be used for administrative and religious texts into the third century AD. Perhaps most illustrative of the importance of hieratic is the fact that the hieroglyphic sign used to represent the word "scribe" is a scribal palette with the inkwells and reed brush needed to write hieratic.

OBJECT DESCRIPTIONS: CATALOG NOS. 83–84

83

83. HIERATIC TEXT: PAPYRUS GARDINER III

Papyrus, ink
First Intermediate Period, ca. 2160–2055 BC
Gift of Alan H. Gardiner, 1933
24.0 x 36.5 cm
OIM E14062

This papyrus contains three sections of a series of funerary texts known as the Coffin Texts. Ancient Egyptian religious texts were frequently written in the hieratic script, as is the case here.

The division of the papyrus into three sections is clearly indicated by long black vertical lines, with each section containing a different funerary spell. The handwriting of the scribe is very clear and legible and is not as cursive as the hieratic script that people typically associate with papyri. Hieratic becomes more cursive over time and texts such as Papyrus Gardiner III, which dates relatively early in Egyptian history, are key sources in our understanding of how the script developed and changed over time. Nevertheless, despite the fact that some of the signs look very similar to hieroglyphs at first glance, there are a large number of joined (ligatured) signs and clear cursive forms. For example, there are almost no obvious animal or human signs on the papyrus even though they are present — all these forms become abbreviated and abstract in hieratic making them less recognizable than hieroglyphs.

As can be seen on the papyrus, the scribe was clearly conscious of the amount of space he used when writing. Through careful examination

of the papyrus, the order in which the papyrus was written can be reconstructed. The double horizontal lines at the top and bottom of the papyrus were inked first, then the dividing lines between the sections were added, and finally the hieratic text was written last. At the beginning of each of the three sections, and in the two horizontal lines in the central section of the papyrus, one can see that the scribe began writing carefully in order to conserve space — his handwriting is smaller and he leaves very little space between signs. Toward the end of each section, when it became clear that he was not going to run out of space, the signs become larger and more space is left between them in order to avoid large gaps in the columns on the papyrus.

The central section of this papyrus demonstrates a common trait of hieratic religious texts which is less frequently found in hieroglyphic texts. The section is divided into two series of very short vertical columns, with a long horizontal line of text below each. When reading the papyrus, the horizontal line is to be repeated after each short vertical column — essentially marking a refrain. Both horizontal lines contain the same content, stating the primary purpose and importance of the central spell: allowing the deceased to identify and associate himself with a variety of different divinities. As the text in the horizontal lines states, "the eye of Horus appears as me and I appear as the eye of Horus. I am it and it is I." The scribe wrote the portion of the text in this manner in order to avoid having to recopy the horizontal lines multiple times and save space on the papyrus. Writing in this manner was not just convenient for the scribe but was also an economic decision, as papyrus was rather expensive.

The texts written on the papyrus are part of a large corpus of funerary literature known as the Coffin Texts. Individual entries are called "spells" or "chapters," and this section of Papyrus Gardiner III has three spells on it (CT 942–944). The texts are best known from the large number of Middle Kingdom coffins that are decorated with funerary offerings and funerary texts. The title "Coffin Texts" is not an ancient Egyptian title, but a term used by Egyptologists to refer to the entire corpus of funerary literature of this period of Egyptian history. Coffin Texts are also found, however, in tombs, on stelae and other burial equipment, and on papyrus. The Coffin Texts are first attested in the First Intermediate Period (ca. 2160–2055 BC) and are best known in the Middle Kingdom (ca. 2055–1650 BC), predating the well-known Book of the Dead. Funerary texts were an important part of Egyptian religion and burial equipment because they not only provided information about the afterlife, but also contained knowledge that the deceased would need after death. The Coffin Texts are of particular importance because they provide some of the first examples of funerary texts and literature intended for non-royal individuals.

Although the provenance and owner of this papyrus are unknown (the owner's name is not preserved), the paleography, vocabulary, spelling, and grammar of the text, along with the text's layout, provide enough information to assign a date to the papyrus. KEB

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de Buck 1961, Spells 942–944, pp. CT VII.155–158.

84

84. HIEROGLYPHS AND HIERATIC: PAPYRUS RYERSON

Papyrus, pigment
Ptolemaic period, late third–second century BC
Purchased in Paris, 1919
88.0 x 40.0 cm
OIM E9787F

Hieroglyphs were generally used on temple walls, coffins, stelae, statues, and on some religious papyri, while cursive hieratic was usually used for administrative and literary functions and for religious texts on papyrus. This section of a Book of the Dead for a man named Ny-sw-Shu-Tefnut employs both scripts. On this document, hieroglyphs serve as captions to large-scale figurative scenes, such as that shown here, while hieratic is used for almost all the spells themselves and to caption smaller images. Many other contemporary Books of the Dead show this same patterning of hieratic and hieroglyphic writing, suggesting that the large figures were considered to be more formal, akin to scenes on temple walls, and thus were narrated by hieroglyphs, whereas the texts were literary and more appropriate for hieratic.

Presumably a team of artisans worked on this papyrus; a scribe who wrote the hieratic text, an artist who drew the images, and possibly a second scribe who added the hieroglyphs. Apparently, there was variation in how such teams worked. The vignettes (pictures that accompany the text) on Papyrus Ryerson were apparently done first, for the text in some areas is crowded into the available space. An unfinished Book of the Dead of Nespasef (in the Metropolitan Museum of Art) shows a different pattern. On that document, the hieratic spells were completed and spaces were ruled off for illustrations that were never inserted, one area bearing the notation "add the prescribed images."

Other features of the interaction of scribe and artist are observable on Papyrus Ryerson. The scribe who added the texts failed to place them by the relevant vignette, consistently being one or two spells off from the expected alignment of text and image. The section of Papyrus Ryerson shown here that portrays the weighing of the heart shows further lack of coordination between artist and scribe, for although the vignette was completed, Ny-sw-Shu-Tefnut's name was not inserted into the image as would be expected. In the hieroglyphic text above the scale, the deceased is referred to vaguely as "the Osiris" rather than "the Osiris

Ny-sw-Shu-Tefnut," and a space has been left (above the head of the baboon) where the name of one of his parents should have been inserted.

The ibis-headed god Thoth, who is shown with his scribe's palette recording the judgment, is referred to as "the Lord of the Gods' Words," a reference to the myth that writing was invented by Thoth (see *5. The Conception and Development of the Egyptian Writing System,* this volume). ET

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Allen 1960, pp. 10, 16–39, 202–03, pls. 34–35 (pls. 13–50 for entire papyrus); Mosher 1992, pp. 146–47 (n. 25), 148 (n. 28), 152 (n. 45), 155 (n. 62), 169–70; Teeter 2003, pp. 98–99, 118.

84, detail showing hieroglyphic text

84, detail showing hieratic text

9. EGYPTIAN DEMOTIC SCRIPT

JANET H. JOHNSON

Demotic is the name of the most cursive script developed by the ancient Egyptians. The term "Demotic" comes from Greek δημοτικά "popular," first used by Herodotus (fifth century BC) to distinguish this script from the "sacred" hieratic and hieroglyphic scripts. The Egyptians themselves referred to Demotic as *sḫ n šᶜ.t* "letter" or "document writing." Demotic came into use about 650 BC for writing contracts and administrative documents. By the Ptolemaic period (332–30 BC), it was also being used to write literary, scientific, and religious texts. Although many Egyptians learned to read and write Greek, and senior-level administration was carried out in Greek, both Egyptian and Greek were used for legal, literary, and religious texts throughout the Ptolemaic period. After Egypt was incorporated into the Roman empire, it became necessary to write legal documents in Greek, the language used in the administration, not Demotic. But Demotic literary and religious texts were being written and copied into the third century of our era. The latest-dated Demotic text is a graffito left at the Isis temple at Philae dated December 11, AD 452.

Historically, Demotic developed from hieratic and, like hieratic, was written from right to left. Most Demotic texts were written in ink using a brush (or, later, reed) on papyrus or ostraca (potsherds or flakes of limestone). More formal documents, documents intended to have a longer life-span, were normally written on papyrus. In addition to the common use of papyrus and ostraca, Demotic inscriptions were occasionally written on wood, linen, and other materials; when a Demotic inscription was carved in stone or metal, the script became much more angular and the orthography was occasionally simplified (for an example of Demotic carved in stone, see the Demotic section of the Rosetta Stone, fig. 9.1).

Demotic used both ideographic signs, including determinatives (see table 9.1), and phonetic signs, including a series of uniliteral or "alphabetic" signs (see table 7.1 above). Examples of the combination of signs found in words in Catalog No. 85 include *ỉnḥ*

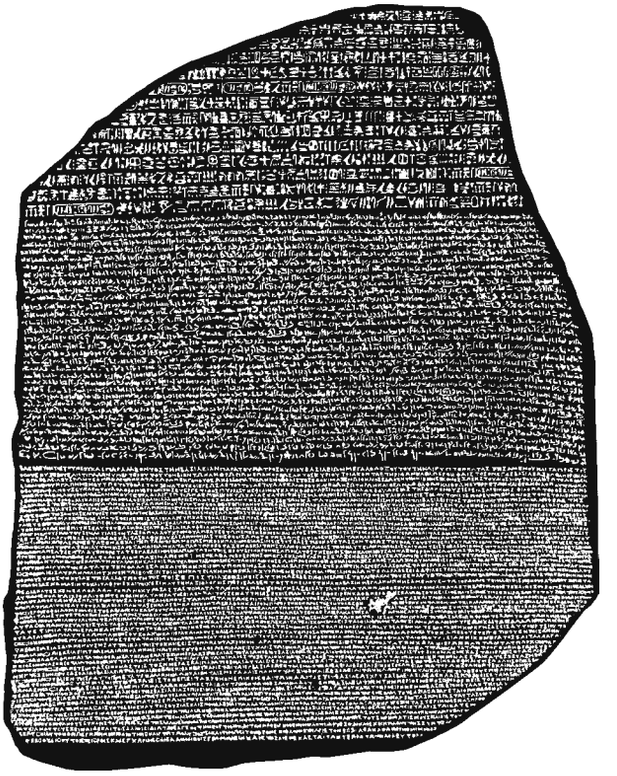


FIGURE 9.1. The Rosetta Stone. Inscribed in hieroglyphs (top), Demotic (middle), and Greek (bottom)

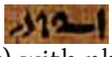
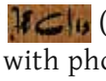
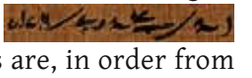
"courtyard"  (line 3 of text D), which begins (at the right) with phonetic *i*, then has a biliteral *ỉn* followed by an *ḥ* (third sign from right), and house determinative (the pair of signs at the left end); and *ᶜnḫ* "oath"  (line 7 of text E), which begins (at the right) with phonetic ᶜ (the first two signs at the right) followed by a stroke and *ḫ* (large round sign in middle) and man-with-hand-to-mouth determinative (the tall sign near the left end). Foreign words, including foreign names, were normally written using the alphabetic/uniliteral signs, as in the writing of the name of Alexander (the Great)  (line 1 in text A), where the signs are, in order from right to left, the beginning of a cartouche (used to mark a royal name), ꜣ, r, g, s, ꜣ, n, t, r, and s followed

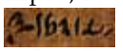
TABLE 9.1. Samples of determinatives in Demotic with derivations from hieroglyphs

Determinative	*Indicates*	*Demotic*	*From the Hieroglyph*
"Divine"	a god or king		
"Book roll"	a written document		
"Man-with-hand-to-mouth"	verbs of speaking, seeing, eating		
"Evil bird" and "dead man"	"bad, evil things"		
"Walking legs"	verbs of motion		
"Plant"	plants		

TABLE 9.2. Demotic unitateral ("alphabetic") signs with derivations from hieroglyphs. The various forms of the letters are often determined by position in word

Transliteration	*Demotic*	*Hieroglyph*
ȝ		
i		
e		
ʿ		
y		
w		
b		
p		
f		
m		
n		
r		
l		
h		

Transliteration	*Demotic*	*Hieroglyph*
ḥ		
ḫ		
ḫ		
ẖ		
s		
š		
q		
k		
g		
t		
ṯ		
ṯ		
ḏ		

by the ending of the cartouche and the abbreviation *ʿ w s* for *ʿnḫ wḏ͗ snb* "may he live, be prosperous and healthy"). Egyptian names involve the same kind of ligatures (combining two or more individual signs into one) as other Egyptian words, for example, *P͗-ti-n͗-nṯr.w* "The Man Whom the Gods Gave"  , which begins (on the right) with a ligature for the definite article *p͗*, a vertical stroke used here (and in names in general) for the verb *ti* "to give," a ligatured writing of the plural definite article *n͗*, a ligature of the noun *nṯr.w* "gods," a ligature of plural strokes, and the final dot (on the far left) used by this scribe to mark personal names. This name is a rather generic variant on a very common type of name in which the name of a particular god is used, for example, *P͗-ti-Wsi̯r* "The Man Whom Osiris Gave."

The traditional or historic writing of a word in earlier scripts formed the original basis for the writing in Demotic, which thus reflected historic orthography, not contemporary pronunciation. But Demotic soon developed its own orthographic conventions, distinct from those of hieratic. Through time, the number and extent of ligatures increased greatly, and, by the Ptolemaic period, the hieratic origin of the Demotic script is no longer clear in the Demotic. As an extreme example of the ligatures and cursiveness of Demotic, one can compare the Demotic word *rmṯ* "man"  (Catalog No. 85, line 2 of text A), with its ultimate hieroglyphic ancestor  . By the Roman period, scribes frequently added phonetic (usually alphabetic) signs to earlier conventional spellings or replaced conventional historic spellings with "alphabetic" ones, as if they were indicating (changes in) pronunciation or providing phonetic aids to help in recognizing non-obvious word groups or ligatures.

Scribes seem to have learned to read and write by memorizing words as units. There are distinctions in orthography and paleography that have been attributed to local scribal "schools" (e.g., Memphite vs. Theban), to differences in textual genres (e.g., literary vs. administrative vs. private), and to the skill and care of individual scribes (most of the texts that have been preserved were probably written by professional scribes; even people who were literate might hire or employ a professional for the sake of expertise, e.g., knowledge of proper legal terminology and clarity or elegance of handwriting) (see the discussion of individual differences in handwriting in Catalog No. 85).

Throughout the millennium during which Demotic was used, it was never the sole Egyptian script available (hieroglyphs being retained especially for formal inscriptions, hieratic for literary, and especially religious, texts) and during most of the period of its use it was not in official administrative use, either (Aramaic was used in the Persian period, Greek in the Ptolemaic and Roman periods; however, in both periods Egyptians, and especially temple personnel, frequently or even regularly used Demotic to communicate with the central administration). This led to many and various interactions between Demotic and other scripts and languages. For example, Demotic was used to add notes or glosses to a hieroglyphic or hieratic text. Some Demotic literary texts appear to be translations of earlier hieratic or hieroglyphic texts (e.g., Papyrus Carlsberg 1 and 1a, in which the hieroglyphic texts accompanying the cosmology on the ceilings of the tombs of the New Kingdom rulers Seti I and Ramesses IV (ca. 1297 and 1147 BC respectively) are quoted in hieratic and translated into Demotic, with added commentary); in other cases the hieratic and Demotic were used for different sections of a text (e.g., in the handbook describing the process of embalming a deceased Apis bull, Demotic is used in general, but more ritual passages seem to have been retained in hieratic; individual words or signs are occasionally written in hieratic even in the very late Demotic magical texts). Occasionally the scripts seem to share more equal status (e.g., the funerary texts in Papyrus Rhind are presented in hieratic and then in Demotic; on some private statues and funerary stelae the dedicatory inscription might be given both in hieroglyphs and in Demotic, although in other cases Demotic was restricted to the more personal information while hieroglyphs were used for the religious texts). Many Roman-period mummy labels are bilingual, Greek and Demotic, giving the name and place of origin/residence of the deceased individual, usually in the form of a short prayer. The decrees issued by the senior Egyptian priesthood in honor of the middle Ptolemies, for example, the Rosetta Stone (fig. 9.1), present the formal decree in Greek, Demotic, and hieroglyphs.

Translation between Demotic and non-Egyptian languages is also well attested. Not only are there similarities and probably literal translations between legal texts in Demotic and contemporary documents written in Aramaic (Persian period) and Greek (Ptolemaic period), but there are also a number of literary texts that were translated between languages.

During the Ptolemaic period, individual Greek words (names, titles, and professions) could be written in Demotic using the appropriate "alphabetic" signs (see the discussion of the writing of the name of Alexander, above). There is also one long text in Aramaic written using a very restricted inventory of Demotic "alphabetic" signs and determinatives. Similarly, Egyptian names and other words were written in Greek characters in Greek documents. Demotic legal documents frequently have a Greek notation at the bottom recording the registration of the document in the local records house. One Roman-period village in the Fayum has produced a large number of ostraca where Greek and Demotic are intermingled. One example is Ostracon Medinet Maadi/Narmouthis 60 (fig. 9.2), where the text is written in Demotic, from right to left, but with the Greek word *pinaks* "board, plank; writing tablet" written, left to right, in Greek in the middle of line 2 of the Demotic.

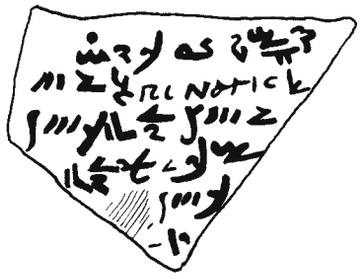
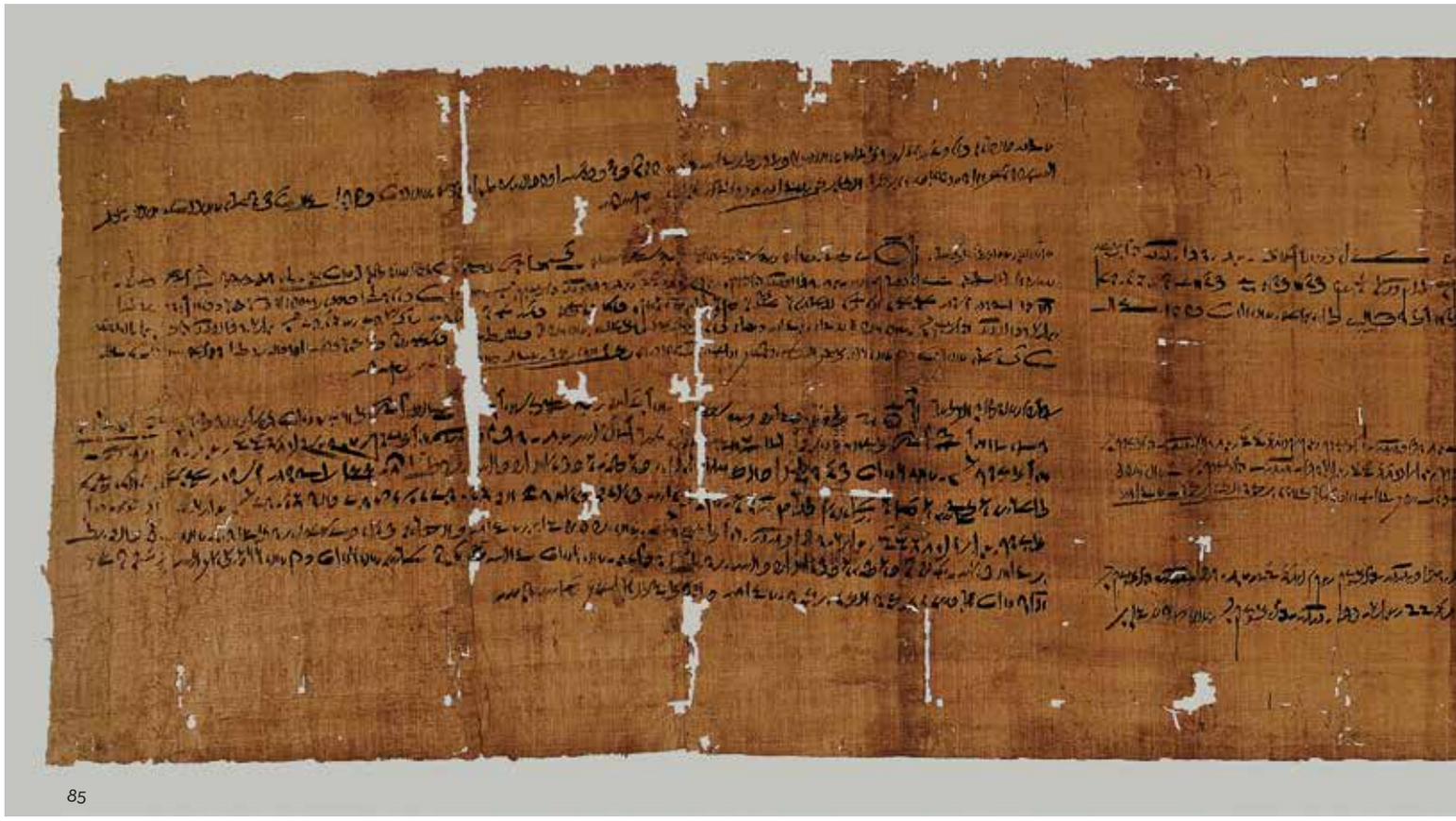


FIGURE 9.2. Ostracon Medinet Maadi/Narmouthis 60, which is written in Demotic and Greek

Demotic script was also the basis for writing the more cursive of the two Meroitic scripts used in Nubia. During the early Roman period Old Coptic, using the Greek alphabet and a more or less consistent set of Demotic "alphabetic" signs for sounds not represented in the Greek alphabet (e.g., ϥ from ⲫ and ϯ from ⲧ), was developed for transcribing Egyptian into Greek. It could be used for glossing individual words written in a Demotic text or, rarely, as a standalone script for writing a text. Old Coptic standardized into the final Coptic alphabet by about the third century AD.



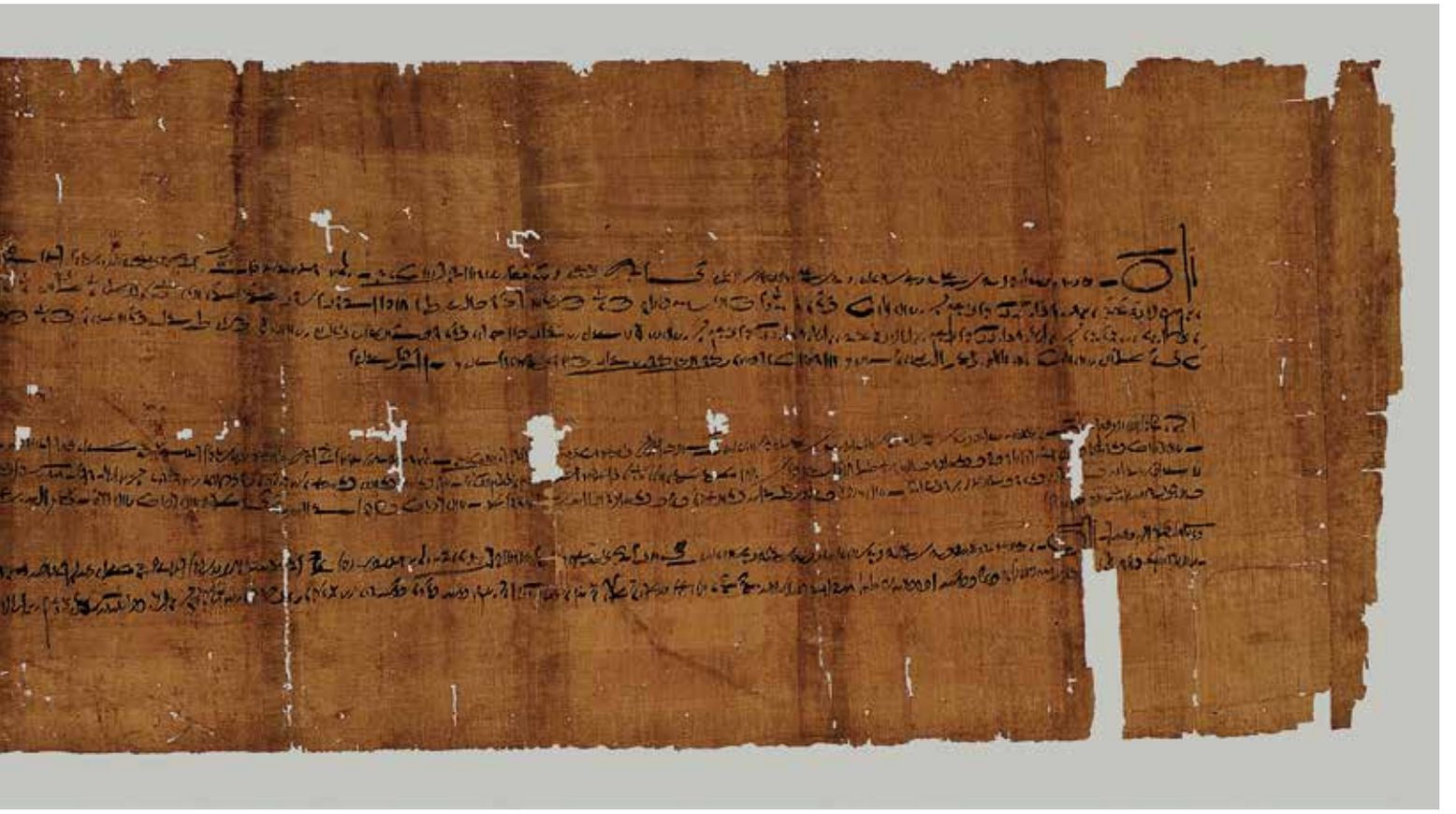
85

OBJECT DESCRIPTION: CATALOG NO. 85

85. DEMOTIC ANNUITY CONTRACT

Papyrus, ink
Late Period, reign dated to Alexander the son of Alexander (the Great), text dated between December 9, 311, and January 7, 310 BC
Egypt, Faiyum, Hawara
Purchased in Cairo, 1932
142.0 x 35.0 cm
OIM E25259

This Demotic contract is a so-called "annuity contract" made by a man named *ʿnḫ-mr-wr* to a woman named *N3-nfr(-mn)-ib-Pṯḥ*. Such contracts, made by a husband to his wife, appear to have had two major underlying aims: to assure that the husband will properly support the wife and her children and to assure that it is her children who will be his heirs. In a society in which, as a norm, men worked and acquired (disposable) income but women did not, this was an important guarantor of stability for both the family and the society. Catalog No. 85 is such an annuity contract, in which the man/husband acknowledges receipt from the woman/wife of ten pieces of silver for her "endowment." She and the children she will bear the man are acknowledged as his heirs of all property he currently owns or will acquire, whether land, animals, legal documents, or "any private/personal(ly owned) thing at all." He



promises to provide her with a specific amount of grain and silver every year for her (food) rations and clothing, which he must deliver to whatever house she prefers (this implies that he must continue to feed and clothe her even if she has left him or been thrown out of his house); she remains entitled to any arrears in his payments. He lists all his property, again whatever he has currently and whatever he may acquire, as security for her annuity. He acknowledges that he cannot return her silver to her and end the agreement but that if she wants the silver back, he must give it immediately (and thereby end the annuity and, presumably, the marriage). She also is assured that she will never be forced to travel to some "out-of-the-way" place to provide legal evidence with regard to this contract.

The annuity contract (text A; see figure below) was written by a professional scribe at dictation from the person making the contract, in this case the man. The second person, in this case the woman, was present and heard the dictated statement and accepted the document only if his statement was acceptable. Thus, although the contract was made by one party to the other, the agreement was bilateral and subject to the approval of both parties.

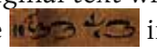
The scribe who wrote the document signed it after quoting all the statements by any of the parties to the contract (including relatives or others who might have had a vested interest in the property being transferred). Most Egyptian legal contracts end with a list of witnesses, people who were present for the dictation and can swear in court, if necessary, to the making of the document and to its contents. However, some documents, including this one, include handwritten copies of the entire contract written out by individual witnesses rather than just the list of names. It is not clear why, in a minority of cases over a period of several hundred years, witnesses would write out the entire contract rather than simply signing their names.

On this contract, four individuals, including one with the title "prophet of (the goddess) Neith," copied/rewrote the entire contract (texts B–E). Each man who wrote one of these witness copies began by giving his name (or name and titles) and identifying himself as a "witness" to the "speech" which Party 1, the man, had made and which he, the witness, proceeds to copy. Where, in the original, the scribe signed his name, the individual writing the witness copy wrote "I wrote this."

The original contract written by the professional scribe occupied the top right-hand portion (text A) of the large papyrus (created by connecting ten individual sheets of papyrus). The first witness wrote his copy (text B) immediately under the original contract. The second witness began immediately under the first witness (text C), but had to move then to the top of the second "column" to finish his text. The last two witnesses (texts D and E) filled the remainder of this second "column." Note that the second "column" is not as wide as the space occupied by the original contract, making for shorter lines and a generally more cramped feel for the second "column."

Although all five copies are written by men with fluid handwriting, each man's handwriting is distinctive and includes individual minor variations of paleography (the shape of the individual signs

FIGURE. Diagram of Catalog No. 85

and words) and spelling/grammar. For example, a genitival preposition may or may not be written or the feminine ending *t* may be added to the number 7 in the regnal year date, as in all witness copies, but not the original. An example of orthographic variation is found in the writing of the phrase *nt nb nt mtw=y* "everything which belongs to me." The scribe of the original text wrote (from right to left) in the third line  in a fine, old-fashioned calligraphic hand (with touches of hieratic) while the witnesses wrote  (from line 3 of text C), which becomes the typical Ptolemaic period writing of the phrase. The "double loop" of *nt* in text A  has become a single loop in text C  while the "hieratic"-looking top element of *nb* in text A  has taken its standard, more cursive, Ptolemaic form in text C  .

The variation between "early" and Ptolemaic handwriting is also seen in the word following this phrase, *ḥnᶜ* "and"; compare  . (A, line 3), written with three clear alphabetic signs *ḥ* + *n* + ᶜ (see alphabet chart, table 9.2), with  (B, line 3),  (C, line 3),  (D, line 4), and  (E, line 6), where the first sign has become a straight line and the second and third signs have been ligatured (run together in the writing).

The phrase *mt.t rmṯ nmḥ nb.t n pȝ tȝ* "any private/personal(ly owned) thing at all," mentioned above, is written in an elegant hand by the scribe of text A  (line 2). The scribe of text B  (line 2) clarified the "man-with-hand-to-mouth" determinative, the second (left-hand) sign in the writing of *mt.t* "thing" (texts A  and B  ; see the chart of determinatives, table 9.1), and wrote a much larger preposition *n* (texts A  and B ); the phrase in texts D  (line 3) and E  (line 4) is damaged in parts, but one can still see that the writing is thicker and less elegant than that of the scribe of text A. Especially in text A, one can also see that a skilled scribe could use his brush to produce both thick and thin lines (e.g., in the writing of the word *rmṯ* "man" in text E ), adding some elegance to the script.

In each copy of the text, the important key words are written larger than the rest of the text, immediately indicating to anyone seeing it what kind of text it is and physically pointing out the different parts of the legal document. Thus, text A starts with a large *ḥsb.t* 7(*.t*) "regnal year 7"  . About a third of the way along the first line is a large *ḏd* "(so-and-so) said"  followed, after the name and titles, by a large preposition *n* "to"  followed by the name of the second party. A little over two-thirds of the way along the line is a large *di* "(you) caused"  . The witness copies also write the large *ḥsb.t* 7.*t* "regnal year 7." Because they are quoting the speech of Party 1, the man, rather than recording their own speech, the large *ḏd* is replaced by a large *n ḏd* "(he being a witness) to/of the speech"  (text D, line 1). The preposition *n* "to" and the verb *di* may again be written large to identify the type of text and point to the individual parts of the legal document.

Another aspect of the writing that is clearly seen in this text is the rhythm of dark ink lines just after the scribe has dipped his brush in the ink, followed by gradual lightening of the strokes until the ink is so light that the scribe dips his pen again. For example, in the middle of line 3 of text E  , the darker ink at the beginning (i.e., the right-hand end) gives way to progressively lighter ink as the brush runs dry. Especially good and careful scribes would make the effort to avoid such sharp differences in ink tone by dipping their brush less fully but more frequently while writing a text of this sort, which not only formed an important legal document for the family, but which also, given the size and expense of the document, was a major familial investment. This document is part of a family archive, documents reflecting an individual's or family's economic interests and transactions, retained and stored by the individual or family because of their ongoing legal and economic importance. JHJ

PUBLISHED

Hughes and Jasnow 1997, pp. 19–22, pls. 14–19.

10. PTOLEMAIC HIEROGLYPHS

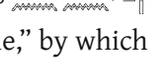
FRANÇOIS GAUDARD

The designation "Ptolemaic hieroglyphs" is used by Egyptologists to refer to the script employed by the scribes of Egyptian temples after the conquest of Egypt by Alexander the Great until the end of the second century AD. Also called figurative or cryptographic hieroglyphs, they are not only synonymous with difficulty, extreme complication, convolutions, obscure puns, and strange puzzles, but also and even more so with intense challenge and deep excitement. Their figurative nature misled early scholars into regarding the hieroglyphic script as purely symbolic.

To the layman these signs probably look like usual hieroglyphs, but to an uninitiated Egyptologist their interpretation is like exploring a *terra incognita*, and for good reason. Indeed, during the Middle Kingdom and the beginning of the New Kingdom, the number of signs commonly used by the scribes totaled about 760, but in the latest periods of Egyptian history many new signs were created and the corpus of hieroglyphs grew to several thousand signs (see, e.g., Daumas et al. 1988–1995). Concurrently, there was also a significant increase in the number of phonetic values that could be attributed to a single sign. A hieroglyph that in classical Egyptian was read in one or two ways could now have up to twenty or even thirty different readings, as in the case of the sign  , usually identified as a pustule. Moreover, a single word could also be written in various and complicated ways, making the script all the more difficult to decipher.

However, if it is true that the use of cryptography reached its peak during the Greco-Roman period, it was not restricted to that era. Indeed, sportive writings are attested, although rarely, as early as the Old Kingdom. They were used during the Middle Kingdom and also occurred in contexts including the royal funerary compositions of the New Kingdom inscribed in tombs such as those of Tutankhamun and Ramesses VI (see, e.g., Darnell 2004). It is in these early examples that the origins of the principles of cryptography in the Ptolemaic and Roman periods must be sought.

As unpredictable as such a system may seem at first sight, it was nonetheless logical and followed precise rules. What makes the signs so difficult to interpret is in fact the innovative approach used by scribes to apply old principles. Some of the ways through which signs could acquire their values were:

1) The "consonantal principle," by which multi-consonantal signs could retain only the value of their strongest consonant (e.g., the sign  , usually read *ib*, could stand for the letter *b*, its weak consonant, namely *i*, being dropped).
2) The "acrophonic principle," by which multi-consonantal signs could retain only the value of their first consonant, regardless of whether it was strong or weak (e.g., the sign  , usually read *wn*, could stand for the letter *w*).
3) The "rebus principle," by which a word could be written using a picture of something that had the same sound (e.g., the sign  from the word *mn*(*t*) "thigh" could stand for the phonogram *mn*(*t*) in the word  *mnmnt* "herd of cattle," the standard writing of which was ).
4) The "*pars pro toto* principle," by which part of a sign could stand for the entire sign (e.g., the sign of the pupil  could stand for the whole eye  , hence the writing of the verb *m33* "to see" as  instead of  , a more traditional writing being ).

Other reasons, including direct representation, derivation from hieratic, or the combination of several of the above-mentioned principles, could also be at the origin of a sign's value, but such a study is beyond the scope of the present discussion.[1]

One of the consequences of the application of these principles was a break with the traditional orthographic conventions, making the words much more difficult to recognize. For example, let us consider the word  *ršwt* "joy," which could be written  , with the gods Re () and Shu () standing respectively for the sounds *r* and *šw*, and the goddess Tefnut () for the final *t*. Also noteworthy is the sign of the head  , which could stand for the number seven  *sfḫ*, simply because the head has seven openings, namely two eyes, two ears, two nostrils, and a mouth. It also worked the other way around, and for the same reason the number seven could stand for the word *tp* "head." Of course, depending on the context, the sign could be read *tp* "head" and the group be read *sfḫ* "seven," since traditional writings were used concurrently with new ones. As mentioned above, there was also a significant increase in the number of phonetic values that could be attributed to a single sign. As a matter of interest, the traditional readings of the vulture hieroglyph  were *mt, mwt*, and sometimes *nr*, but in Ptolemaic hieroglyphs the same sign could be read as the phonograms *m*, *n*, *nr*, *nḥ*, *š*, *štꜣ*, *šṯy*, *qd*, *t*, *ty*, *tyw*, *ṯ*, *d*, or as the words *wnm* "right," *mwt* "mother," *mkỉ* "to protect," *nỉwt* "city," *nrỉ* "to fear," *nrt* "vulture," *nṯrt* "goddess," *rmṯ* "man," and *rnpt* "year." The use of new signs and innovative combinations of signs were also frequent. For example, the vulture hieroglyph could be combined with the horns of an ox  . As a result, the new sign  was read *wpt-rnpt* "New Year's Day" (lit., "the opening of the year"), with the horns standing here for the word *wpt* "opening," and the vulture for *rnpt* "year." Note that the traditional writings of *wpt-rnpt* were  or  . Another good example is the divine name  *Wnn-nfrw* "Onnophris," a designation for Osiris that could display several new forms, including, among others: 1)  (a desert hare [*wn*] holding the sign of the heart and windpipe [*nfr*]); 2)  (a flower [*wn*] within a coiled lotus [*nfr*]); 3)  (two lotus flowers [respectively *wn* and *nfr*] within a cartouche, with the variants and). Similarly, writings of the traditional title  *nsw-bỉty* "King of Upper and Lower Egypt" were as various as  , , , , , or . Sometimes a single sign could even stand for an entire phrase, as in the case of the sign rendering the phrase *dỉ ꜥnḫ mỉ Rꜥ* "given life like Re," traditionally written but replaced here with a cat (*mỉ*) wearing a solar disk (*Rꜥ*) on its head and giving (*dỉ*) an *ankh*, symbol of life (*ꜥnḫ*).[2]

In a quest for virtuosity in their theological exegesis, the ancient priests realized that the system could be pushed one step further. Indeed, in addition to being used for their phonetic values, the signs themselves, by their very shape, could also recall ideas and theological concepts. A well-known example is the name of the Memphite creator god Ptah, whose traditional writing  *Ptḥ* is also attested under the cryptographic form consisting of the sign *pt* "sky" standing for *p*, the god *Ḥḥ* "Heh" for *ḥ*, and the sign *tꜣ* "earth" for *t*. Note that for symbolic reasons these three logograms appear as *pḥt*, but the correct phonetic order, namely *ptḥ*, was easy to restore for someone in the know. The ingenious selection and disposition of the signs in the group depicting the god Heh with upraised arms, separating the earth from the sky, evoked the creation of the world performed by the god Ptah according to the Memphite Theology. Thus, with a single group of signs, one could both read the name of Ptah (*Ptḥ*) expressed in cryptographic form and be reminded of a major act of creation. This complicated process tended to be used in conjunction with a system by which the meaning of divine and geographical names, in particular, could be explained through sacred etymologies based on puns. By virtue of this principle of verbal analogy, the name of the god Amun *ỉmn,* whose pronunciation was similar to that of the word *ỉmn* "to be hidden," could also be written using the sign of the man hiding behind a wall . On the basis of this etymology the god could be referred to as "the hidden one." Another cryptogram of Amun, already known from earlier periods, was the graphic combination , for which various interpretations have been proposed. One of the most convincing is the following (see Van Rinsveld 1993): the sign , used for the word *ỉw* "island," can also stand for the letter *ỉ*. As for the sign , it is nothing but the standard writing of the letter *n*. In the group , note that *n* is in *ỉ*. Given that the preposition "in" corresponds to *m* in Egyptian, the phrase "*n* in *ỉ*" was said *n m ỉ*, which was also the name of Amun written backwards (*nmỉ* for *ỉmn*). Therefore, the name of the chief god of Thebes was hidden twice, first in the cryptogram and

again in the retrograde writing *nmi*, which perfectly fits the above-mentioned etymology of his name. As artificial and inaccurate as it may seem to modern eyes, this method was nonetheless extremely popular during all periods of Egyptian history.

Depending on the nature of the texts, the Ptolemaic hieroglyphic script could exhibit greater or lesser degrees of complication. One can in fact distinguish between two types of scripts: the first type, which could be referred to as "common," includes a certain percentage of new signs and phonetic values, but once these are known, texts written in such a script can generally be read without major difficulties. The other type of script, however, in which each sign is carefully chosen, is extremely complicated and would even pose a challenge to an experienced Egyptologist (see Sauneron 1974, p. 46). Texts of this latter type are well represented by two famous hymns inscribed in the hall of the temple of Esna in the late first century AD, one of them being composed almost entirely with signs depicting a ram and the other with signs depicting a crocodile (see, e.g., Leitz 2001).

When confronted with such a profusion of subtleties, complications, and sophisticated signs, the reader may wonder about the motivations of the ancient scribes. While it might be tempting at first to see this system as a means of concealing sacred knowledge from the uninitiated, several indications seem to point in a different direction, making such an explanation rather unlikely. Indeed, due to their placement high on the walls, several of the texts inscribed in temples remained illegible to the visitor and were obviously not meant to be read (see Sauneron 1982, p. 51). For this reason, there was apparently no need to hide their content, since they "were effectively answerable in detail only to the gods" (Baines 2007, p. 47). Moreover, important theological texts could be composed in a perfectly accessible script, while inscriptions of lesser importance were sometimes written in a highly cryptographic one (see Sauneron 1982, p. 52). All of this suggests that the use of such a script should best be viewed as part of an intellectual game rather than as a deliberate attempt at occulting any secret lore.

Some scholars wrongly considered Ptolemaic hieroglyphs to be a degenerate product of a civilization in decline, whereas we are in fact dealing with the ultimate outcome of an age-old science, whose keepers' boundless ingenuity and deep knowledge command respect and admiration.

NOTES

[1] For further discussion, see, for example, Kurth 2007; compare also Fairman 1943; idem 1945.

[2] On the process of creating new signs from older signs by assimilation or amalgam and on the influence of hieratic on the hieroglyphic script, see Meeks 2004, pp. x–xviii.

OBJECT DESCRIPTION: CATALOG NO. 86

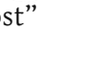
86. FRAGMENT OF A FUNERARY SHROUD

Linen, gesso, pigment
Greco-Roman period, fourth–first centuries BC
Egypt, Dendera
46.2 x 29.0 cm
OIM E42046

86

The texts on this shroud exhibit cryptographic writings, also called sportive writings, characteristic of the Ptolemaic and Roman periods. At that time, mummies could be wrapped in painted funerary shrouds. Unlike most shrouds from the Roman period, which tend to combine Greek and Egyptian influences, the present one is truly Egyptian in style. Its design is reminiscent

of some Third Intermediate Period cartonnage coffin decoration. It displays columns of text as well as protective deities. The style, the paint colors, and the level of detail and complexity of the inscriptions seem more in keeping with an earlier rather than a later date, which would favor a Ptolemaic dating. Only part of the decoration of the right side is preserved: Isis (upper register) and her sister Nephthys (lower register) are depicted as two kites to recall their role as mourners of the dead Osiris, with whom the deceased was identified. Isis is referred to as "the excellent god's mother" as an allusion to the fact that she is the mother of Horus, and Nephthys is called "the foremost." Both are said to be "offering the breath of life." Between them, one can see a representation of a lozenge-pattern bead net, which often covered mummies in earlier periods.

Despite their fragmentary condition, the texts of the present shroud, consisting mainly of offering formulae, are of particular interest. Indeed, they provide us with both unusual epithets of Osiris and some good examples of cryptography. Worth noting are the writing of the epithet *mwt-nṯr* "god's mother" as  (e.g., right and left columns) instead of the standard form  , and that of the adjective *wr* "great" as  (left column) for  . Also characteristic is the word *ḫnty* "foremost" written  (e.g., center and left columns) for  . However, the most interesting and innovative example by far is the cryptographic writing of the word *imntyw* "westerners" as  (bottom of center column) instead of  or . In this group, the sign , which usually stands for the letter *n*, reads *imn*, while the signs represent the number fifty, which was pronounced *tyw*. Note that a more standard writing of the word *imntyw* occurs at the bottom of the right column and is written with a variant of sign , itself a variant of , followed by determinatives and plural strokes.[1] FG

TRANSLATION

Center column (reading right to left, top to bottom):

> "[...]... the offering-bread of the *wabet*[2] for Anubis, from among the bread of Osiris,[3] foremost of the westerners, the perfect youth ...[...]"

Left column (reading right to left, top to bottom):

> ["... (to) Osiris, lord of] Abydos, the Great-Pillar, foremost of Dendera, (to) Isis, the great, the foremost, the god's mother [...]"[4]

Right column (reading left to right, top to bottom):

> "[...] to Horus, consisting of bread, consisting of beer of the god's mother (and) bread of Osiris of (?) ...[...]..., lord of the westerners [...]"

Upper bird, behind head:

> "[Is]is"

Upper bird, between wings:

> "the excellent god's mother offering the breath of life."

Lower bird, in front of head:

> "Nephthys"

Lower bird, between wings:

> "offering every breath of life, the foremost."

NOTES

[1] I would like to thank Eugene Cruz-Uribe, Christina Riggs, Robert Ritner, and Emily Teeter for their comments, as well as Laura D'Alessandro and Alison Whyte for providing technical information on the shroud. Special thanks also go to John Sanders, Thomas Urban, Leslie Schramer, and Natalie Whiting.

[2] For discussion and references on the *wabet* "Pure Place," see, for example, Wilson 1997, p. 214; Coppens 2007.

[3] An alternative rendering of this passage could be "from among the bread of the loaves of Osiris."

[4] For a parallel to the text of this column on a stela whose provenance is also Dendera, see De Meulenaere 1973, pp. 56–59, fig. 3 (= stela E. 8242, lines 1–2).

11. COPTIC

T. G. WILFONG

Coptic is the latest phase of the ancient Egyptian language. Grammatically, Coptic is closest to Demotic, but Coptic script marks a major departure for ancient Egyptian in that it is written solely with alphabetic signs. The earliest attempts at using an alphabet for Egyptian simply used Greek letters. Greek was the administrative language of Egypt from 332 BC onward and became common as a language of business and everyday life. Early experiments with alphabetic writing of Egyptian include explanatory glosses, rendering Egyptian words phonetically in Greek letters, in a few hieratic (cursive hieroglyphic) religious texts, and Demotic magical texts from the second century AD alongside a handful of Egyptian language texts written entirely in Greek letters. These texts show the advantages of using an alphabetic system (simplicity and precise indication of vowel sounds), but also show the limitations of using an unaltered Greek alphabet, in that Egyptian contained sounds not represented in Greek. Thus the Coptic alphabet, consisting of all twenty-four Greek letters plus six (or seven or more, depending on dialect) signs derived from Demotic, developed in the second and third centuries AD (fig. 11.1). Coptic, like Greek, was written from left to right only, marking a major departure from Demotic and hieroglyphs.

Coptic developed as Christianity was becoming an important force in Egyptian life, and the Coptic alphabet's relative lack of similarity to the earlier "pagan" systems of writing made it attractive to this burgeoning religion. Indeed, the formation of Coptic as a literary language and means of expression owed much to the early translation of the Greek New Testament into Coptic as well as to the growth of monastic writers such as Pachomius and Shenoute, who pushed Coptic into new realms of expression and rhetoric.

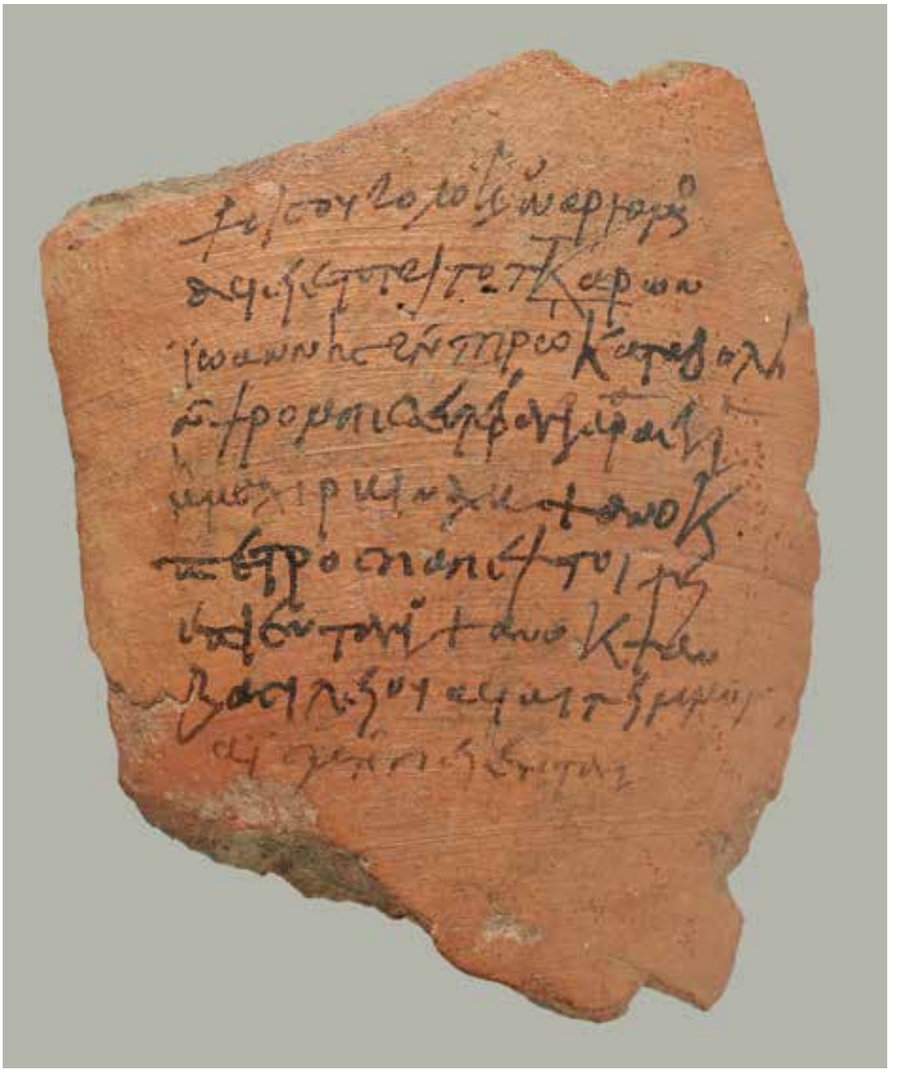
Coptic and Greek shared related scripts, and, for much of its history, Coptic co-existed in Egypt with Greek through the Arab Conquest of AD 641, and many literate Egyptians would have been bilingual. The rapid disappearance of Greek after the conquest and the relative increase in Coptic in the following centuries raise questions about just how deep this bilingualism went. Ultimately, Coptic was replaced as a language and script of business and daily life by Arabic — the ninth and tenth centuries saw a major decline in the everyday use of written Coptic, and it was effectively supplanted by Arabic for most uses by the eleventh century. But Coptic continued, and continues to this day, as a script and language of literature and liturgy in the Coptic church — no longer a living language (although there have been sporadic attempts in the past century at revival), but still an important part of Christianity in Egypt and, thanks to the large Coptic expatriate communities, throughout the world.

ⲁⲃⲅⲇⲉⲍⲏⲑⲓⲕⲗⲙⲛⲝⲟⲡⲣⲥⲧⲩⲫⲭⲫⲱϣϥϧϩϫϭϯ

a b g d e z ā th i/y k l m n ks o p r s t u/w ph kh ps ō š f h č k^y ty

FIGURE 11.1. The Coptic alphabet and English pronunciation

OBJECT DESCRIPTIONS: CATALOG NOS. 87–88



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87. OSTRACON WITH CURSIVE COPTIC SCRIPT

Baked clay, slip, ink
January 28, AD 719
Acquired in Egypt, ca. 1964;
Gift of George R. Hughes, 1986
13.7 x 11.1 x 1.8 cm
OIM E30025

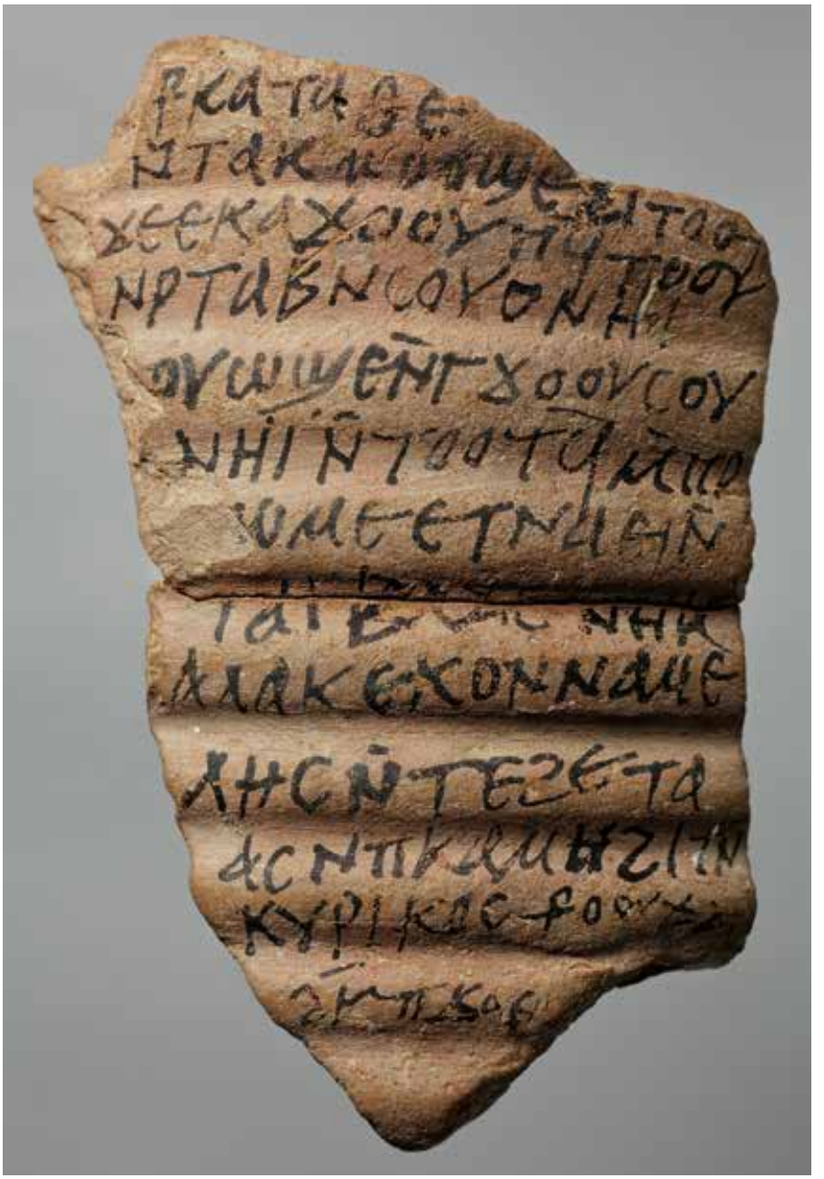
Coptic was written in a standard alphabetic system, but script styles varied depending on the type of document and training of the scribe. Official documents written by professional scribes tended to be written in a relatively standardized, highly cursive script, with frequent use of ligatures (combinations and joinings of letters) and abbreviations. Less official documents by non-professional scribes and literary texts tended to be written in non-cursive, uncial scripts with the individual letters kept mostly separate. These two Coptic ostraca (Catalog Nos. 87 and 88) come from roughly the same period in the western Theban region. Both are documents of daily life from individuals and share other common features, but they show markedly different styles of writing.

Shorter documents, such as receipts and personal letters like these, were often written in ink on sherds of pottery or chips of limestone. Both of these otherwise different kinds of document begins with a crossed *rho* ⳨ — a standard beginning for any documentary text in Coptic, perhaps all the more important in documents such as these, from after the Arab Conquest in AD 641, as a mark of the writer being Christian.

Catalog No. 87 is a tax receipt from the town of Jeme (the village built in and around the pharaonic temple at Medinet Habu) written in a cursive,

88. OSTRACON WITH UNCIAL COPTIC SCRIPT

Baked clay, ink
Seventh–eighth centuries AD
Acquired in Egypt, ca. 1964;
Gift of George R. Hughes, 1986
15.5 x 10.8 x 1.35 cm
OIM E30024



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professional scribal hand (Wilfong 1992, pp. 92–93; Hasitzka 2004, p. 121, no. 1013). Hundreds of similar tax receipts survive from Jeme (many found during the Oriental Institute's excavations at Medinet Habu) and nearly all were written within a twenty-year period (ca. AD 710–730) on a specific kind of pottery (fine ware with a buff or reddish slip). Catalog No. 87 records the payment of an unspecified tax by a man named Aaron, son of Johannes, in the amount of a "reckoned solidus." A solidus (also known as a *holokottinos* and roughly equivalent to the Arab dinar) was the highest denomination of gold coin in circulation at the time; a "reckoned solidus" would be a payment consisting of lower-denomination coins totaling a solidus. To understand the value (and burden) of such a tax payment, it may help to know that a solidus could buy ten to fifteen bushels of wheat, while a house at Jeme in this period might cost between four and eight solidi (Wilfong 2003–04). So a solidus was a substantial amount for the average Jeme inhabitant. The type of tax is not specified in the receipt, but the amount makes it likely that the tax was the "diagraphon," a poll tax levied on adult male non-Muslims in Egypt after the Arab Conquest. Taxes were levied locally to meet expected payments to the Arab administrators of Egypt on a fifteen-year tax cycle known as the

"indiction," instituted in the early fourth century AD under Byzantine rule. Thus, this document's date to "year 2," in theory, gives only its place in a repeating indiction cycle, and not an absolute date. But the presence of the well-known Psan, son of Basilios, as witness and the even better-known Jeme headman Petros as signatory allows us to date the ostracon more precisely to AD 719. Groups of Jeme tax receipts issued on the same day with the same signatures but to different taxpayers suggest that taxes were paid en masse at all-day sessions. Note how the last lines show the witness Psan's pen running out of ink — clearly he did not want to have to take the time to dip his pen again to finish.

TRANSLATION

> ₱ Here is a reckoned solidus. It has come to me from you — Aaron son of Johannes — in the first payment of this second year. Total: 1 reckoned solidus. Written in the month of Mechir, day 2, Indiction year 2. ₱ I, Petros, the village headman, sign this receipt. ₱ I am Psan, son of Basileos; he asked me, and I witnessed this receipt.

Catalog No. 88 is a personal letter, written in a non-cursive, uncial hand (Wilfong 1992, pp. 90–91; Hasitzka 2004, p. 51, no. 904). The writer was not a professional administrative scribe, but was literate and somewhat practiced. The pottery on which this letter was written is relatively coarse, ribbed ware, most probably from a wine amphora. Personal letters were often written on ribbed pottery, either because of its relative availability or because the ribs in the pottery served as useful guidelines for less-practiced scribes.

The writer was most likely a monk, and possibly even a solitary monk living in the ancient tombs in the western Theban hills. Monks of all sorts relied on family and friends for basic supplies and support, and the author of this letter was clearly dependent on Pkamê, the recipient, for a supply of four artabas of wheat (an artaba in this period was somewhat more than a bushel). The writer expresses clear irritation with Pkamê for not supplying this wheat sooner (he does so with a combination of word choice and the use of a special Coptic grammatical construction, the "second tense," to indicate emphasis). Coptic personal letters are so often formulaic expressions of conventional greetings that a letter like this, consisting entirely of substance and expressing some emotion, is a rare document indeed. The writer refers to the letter itself, in asking Pkamê to hand over the wheat to the bearer of "this ostracon." The ostracon is being carried on behalf of the writer to Pkamê by a third party; it is ambiguous whether the writer or the bearer is referred to in the phrase "from Kyriakos." The use of someone to deliver the ostracon and pick up the wheat suggests that the writer was in a monastery or solitary monastic cell that he could not leave, and Pkamê was in Jeme or a nearby village. The closing of the letter, "Farewell in the lord," is a standard ending for personal letters in Coptic.

TRANSLATION

> ₱ Since you have left me only in order that you should send the four artaba measures of wheat to me, be so good as to send them to me through the man who will bring this ostracon to you. Stop! You have been negligent in this matter! Give it to Pkamê from Kyriakos. Farewell in the lord.

TGW

BIBLIOGRAPHY FOR EGYPTIAN ESSAYS

Allen, Thomas George

1960 *The Egyptian Book of the Dead: Documents in the Oriental Institute Museum at the University of Chicago.* Oriental Institute Publications 82. Chicago: University of Chicago Press.

Andrássy, Petra; Julia Budka; and Frank Kammerzell, editors

2009 *Non-textual Marking Systems: Writing and Pseudo-script from Prehistory to Modern Times*. Lingua Aegyptia, Series Monographica 8. Göttingen: Seminar für Ägyptologie und Koptologie.

Baines, John

1989 "Communication and Display: The Integration of Early Egyptian Art and Writing." *Antiquity* 63: 471–82.

1999 "Scrittura e società nel più antico Egitto." In *Sesh: Lingue e scritture nell'antico Egitto — inediti dal Museo Archeologico di Milano*, edited by Francesco Tiradritti, pp. 21–30. Milan: Electa.

2004 "The Earliest Egyptian Writing: Development, Context, Purpose." In *The First Writing: Script Invention as History and Process*, edited by Stephen Houston, pp. 150–89. Cambridge: Cambridge University Press.

2007 *Visual and Written Culture in Ancient Egypt*. New York: Oxford University Press.

Boehmer, Rainer; Günter Dreyer; and Bernd Kromer

1993 "Einige frühzeitliche 14C-Datierungen aus Abydos und Uruk." *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 49: 63–68.

Brewer, Douglas J., and Emily Teeter

1999 *Egypt and the Egyptians*. Cambridge: Cambridge University Press.

Breyer, Francis

2002 "Die Schriftzeugnisse des prädynastischen Königsgrabes U-j in Umm el-Qaab: Versuch einer Neuinterpretation." *Journal of Egyptian Archaeology* 88: 53–65.

de Buck, Adriaan

1961 *Egyptian Coffin Texts,* Volume 7: *Texts of Spells 787–1185.* Oriental Institute Publications 87. Chicago: University of Chicago Press.

Coppens, Filip

2007 *The Wabet: Tradition and Innovation in Temples of the Ptolemaic and Roman Period*. Prague: Czech Institute of Egyptology.

Damerow, Peter

2006 "The Origins of Writing as a Problem of Historical Epistemology." *Cuneiform Digital Library Journal* 1. [online publication]

Darnell, John C.

2004 *The Enigmatic Netherworld Books of the Solar-Osirian Unity: Cryptographic Compositions in the Tombs of Tutankhamun, Ramesses VI and Ramesses IX*. Orbis Biblicus et Orientalis 198. Fribourg: Academic Press; Göttingen: Vandenhoeck and Ruprecht.

Daumas, François, et al.

1988–95 *Valeurs phonétiques des signes hiéroglyphiques d'époque gréco-romaine*. Institut d'Égyptologie, Université Paul-Valéry. 4 volumes. Montpellier: Université de Montpellier.

Davies, Nina

1936 *Ancient Egyptian Paintings*, Volume 1. Chicago: University of Chicago Press.

Davies, W. V.

1987 *Egyptian Hieroglyphs.* Reading the Past 6. Berkeley: University of California Press.

de Buck, Adriaan

1961 *The Egyptian Coffin Texts* VII: *Texts of Spells 787–1185.* Chicago: University of Chicago Press.

Depauw, Mark

1997 *A Companion to Demotic Studies*. Papyrologica Bruxellensia 28. Brussels: Fondation Égyptologique Reine Élisabeth.

Dreyer, Günter

1987 "Ein Siegel der frühzeitlichen Königsnekropole von Abydos." *Mitteilungen des Deutschen archäologischen Instituts, Abteilung Kairo* 43: 33–43.

Dreyer, Günter; E.-M. Engle; Ulrich Hartung; Thomas Hikada; E. Christina Köhler; and Frauke Pumpenmeier

1996 "Umm el-Qaab: Nachuntersuchungen im frühzeitlichen Königsfriedhof 7./8. Vorbericht." *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 52: 11–81.

Dreyer, Günter; Ulrich Hartung; and Frauke Pumpenmeier

1998 *Umm el-Qaab,* Volume 1: *Das prädynastische Königsgrab U-j und seine frühen Schriftzeugnisse*. Archäologische Veröffentlichungen des Deutschen Archäologischen Instituts in Kairo 86. Mainz: Philipp von Zabern.

Dunham, Dows

1937 *Naga-ed-Der Stelae of the First Intermediate Period.* Boston: Museum of Fine Arts.

Emery, Walter B.

1939 *Hor-Aha.* Excavations at Saqqara 20. Cairo: Government Press.

1949 *Great Tombs of the First Dynasty at Saqqara I.* Excavations at Saqqara 22. Cairo: Government Press.

Fairman, Herbert W.

1943 "Notes on the Alphabetic Signs Employed in the Hieroglyphic Inscriptions of the Temple of Edfu, with an Appendix by Bernhard Grdseloff." *Annales du Service des Antiquités de l'Égypte* 43: 191–318.

1945 "An Introduction to the Study of Ptolemaic Signs and Their Values." *Bulletin de l'Institut français d'archéologie orientale* 43: 51–138.

Fischer, Henry

1977 *The Orientation of Hieroglyphs*. Egyptian Studies 2. New York: Metropolitan Museum of Art.

1986 *L'écriture et l'art de l'Égypte ancienne: quatre leçons sur la paléographie et l'épigraphie pharaoniques*. Paris: Presses universitaires de France.

Foreman, Werner, and Stephen Quirke

1996 *Hieroglyphs and the Afterlife*. Austin: University of Texas Press.

Frangipane, Marcella, editor

2007 *Arslantepe — Cretulae: An Early Centralised Administrative System before Writing*. Arslantepe 5. Rome: Università degli Studi La Sapienza.

Gallo, Paolo

1997 *Ostraca demotici e ieratici dall'archivio bilinguale di Narmouthis*, Volume 2: *Nn. 34–99*. Pisa: Edizioni ETS.

Gardiner, Alan H.

1930 A New Letter to the Dead." *Journal of Egyptian Archaeology* 16: 19–22.

1957 *Egyptian Grammar: Being an Introduction to the Study of Hieroglyphs.* 3rd edition. Oxford: The Griffith Institute.

Gelb, Ignace J.

1963 *A Study of Writing*. Chicago: University of Chicago Press.

Goedicke, Hans

1988 *Old Hieratic Palaeography*. Baltimore: Halgo.

Graff, Gwenola

2009 *Les peintures sur vases de Nagada I–Nagada II: nouvelle approche sémiologique de l'iconographie prédynastique*. Egyptian Prehistory Monographs 6. Leuven: Leuven University Press.

Gratien, Brigitte, editor

2002 *Le sceau et l'administration dans la vallée du Nil*. Villeneuve d'Ascq 7–8 juillet 2000. Sociétés urbaines en Égypte et dans le Soudan; Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille 22. Villeneuve d'Ascq: Université Charles-de-Gaulle - Lille 3.

Hall, Harry R.

1913 *Catalogue of Egyptian Scarabs, etc., in the British Museum*, Volume 1: *Royal Scarabs.* London: British Museum.

Hannig, Rainer

2006 *Die Sprache der Pharaonen: Grosses Handwörterbuch Ägyptisch-Deutsch (2800–950 v. Chr.), Marburger Edition.* Kulturgeschichte der Antiken Welt 64. Mainz: Philipp von Zabern.

Hartung, Ulrich

1998 "Prädynastische Siegelabrollungen aus dem Friedhof U in Abydos (Umm el-Qaab)." *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 54: 187–217.

2001 *Umm el Qaab,* Volume 2: *Importkeramik aus dem Friedhof U in Abydos (Umm el-Qaab) und die Beziehungen Ägyptens zu Vorderasiens im 4. Jahrtausend v. Chr.* Archäologische Veröffentlichungen des Deutschen Archäologischen Instituts in Kairo 92. Mainz: Philipp von Zabern.

Hasitzka, Monika

2004 *Koptisches Sammelbuch,* Volume 2. Mitteilungen aus der Papyrussammlung der Österreichischen Nationalbibliotek 23/2. Vienna: Hollinek.

Hassan, Fekri

1985 "Radiocarbon Chronology of Neolithic and Predynastic Sites in Upper Egypt and the Delta." *The African Archaeological Review* 3: 95–115.

Hawass, Zahi; Fekri Hassan; and Achilles Gautier

1988 "Chronology, Sediments, and Subsistence at Merimda Beni Salama." *Journal of Egyptian Archaeology* 74: 31–38.

Hendrickx, S.

2006 Predynastic – Early Dynastic Chronology." In *Ancient Egyptian Chronology*, edited by Erik Hornung, Rolf Krauss, and David A. Warburton, pp. 55–93. Handbuch der Orientalistik. Erste Abteilung, Nahe und der Mittlere Osten 83. Leiden: Brill.

Helck, Wolfgang

1987 *Untersuchungen zur Thinitenzeit*. Ägyptologische Abhandlungen 45. Wiesbaden: Harrassowitz.

Honore, Emmanuelle

2007 "Earliest Cylinder-seal Glyptic in Egypt." In *Proceedings of the Internalional Conference in Naqada and Qus Region's Heritage*, edited by H. Hanna, pp. 31–32. Alexandria: International Council of Museums.

Houston, Stephen

2004a *The First Writing: Script Invention as History and Process*. Cambridge: Cambridge University Press.

2004b "Writing in Early Mesoamerica." In *The First Writing: Script Invention as History and Process*, edited by S. Houston, pp. 274–312. Cambridge: Cambridge University Press.

Hughes, George R., and Richard Jasnow

1997 *Oriental Institute Hawara Papyri: Demotic and Greek Texts from an Egyptian Family Archive in the Fayum (Fourth to Third Century B.C.)*. Oriental Institute Publications 113. Chicago: The Oriental Institute.

Janak, Jiri

2003 "Revealed but Undiscovered: A New Letter to the Dead." *Journal of Near Eastern Studies* 62: 275–77.

Janssen, Jac. J.

1987 "On Style in Egyptian Handwriting." *Journal of Egyptian Archaeology* 73: 161–67.

Jiménez-Serrano, Alejandro

2004 "Elephants Standing on Hills or the Oldest Name of Elephantine." In *Egypt at Its Origins: Studies in Memory of Barbara Adams* (Proceedings of the International Conference "Origin of the State. Predynastic and Early Dynastic Egypt," Krakow, 28th–1st September 2002), edited by S. Hendrickx et al., pp. 847–58. Orientalia Lovaniensia Analecta 138. Leuven: Peeters.

2007 "Principles of the Oldest Egyptian Writing." *Lingua Aegyptia* 15: 47–66.

Joffe, Alexander

2000 "Egypt and Syro-Mesopotamia in the 4th Millennium: Implications of the New Chronology." *Current Anthropology* 41: 113–23.

Johnson, Janet H.

2001 *Thus Wrote ʿOnchsheshonqy: An Introductory Grammer of Demotic.* Studies in Ancient Oriental Civilizations 45. 3rd revised edition. Chicago: The Oriental Institute.

Jones, D.

2000 *Index of Ancient Egyptian Titles, Epithets and Phrases of the Old Kingdom*. British Archaeological Reports, International Series 866. Oxford: Archaeopress.

Kahl, Jochem

1994 *Das System der ägyptischen Hieroglyphenschrift in der 0.–3. Dynastie*. Göttinger Orientforschungen, IV. Reihe, Ägypten 29. Wiesbaden: Harrassowitz.

1995 "Zur Problematik der sogenannten Steuervermerke im Ägypten der 0.–1. Dynastie." In *Divitiae Aegypti: Koptologische und verwandte Studien zu Ehren von Martin Krause*, edited by Cäcilia Fluck, 168–76. Wiesbaden: L. Reichert.

2001 "Hieroglyphic Writing during the Fourth Millennium BC: An Analysis of Systems." *Archéo-Nil* 11: 101–34.

2002 *Frühägyptisches Wörterbuch: Erste Lieferung. A–F.* Wiesbaden: Harrassowitz.

2003 "Die frühen Schriftzeugnisse aus dem Grab U-j in Umm el-Qaab." *Chronique d'Egypte* 78: 112–35.

Kammerzell, Frank

2009 "Defining Non-textual Marking Systems, Writing, and Other Systems of Graphic Information Processing." In *Non-textual Marking Systems, Writing and Pseudo-script from Prehistory to Modern Times*, edited by Petra Andrássy, Julia Budka, and Frank Kammerzell, pp. 277–308. Lingua Aegyptia, Series Monographica 8. Göttingen: Seminar für Ägyptologie und Koptologie.

Kaplony, Peter

1963a *Die Inschriften der ägyptischen Frühzeit,* Volume 1. Ägyptologische Abhandlungen 8. Wiesbaden: Harrassowitz.

1963b *Die Inschriften der ägyptischen Frühzeit,* Volume 2. Ägyptologische Abhandlungen 8. Wiesbaden: Harrassowitz.

1963c *Die Inschriften der ägyptischen Frühzeit,* Volume 3. Ägyptologische Abhandlungen 8. Wiesbaden: Harrassowitz.

Kemp, Barry J.

2006 *Ancient Egypt: Anatomy of a Civilization.* 2nd edition. New York: Routledge.

Klasens, Adolf

1956 "Een grafsteen uit de eerste dynastie." *Oudheidkundige Mededelingen uit het Rijksmuseum van Oudheden te Leiden* 37: 12–34.

Kuhlmann, K. P.

2008 "Prädynastischer Elfenbeinhandel entlang der Oasenroute? Anmerkungen zum Toponym 'Abydos.'" In *Zeichen aus dem Sand: Streiflichter aus Ägyptens Geschichte zu Ehren von Günter Dreyer*, edited by Eva-Maria Engel, Vera Müller, and Ulrich Hartung, pp. 421–26. Menes 5. Wiesbaden: Harrassowitz.

Kurth, Dieter

2007 *Einführung ins Ptolemäische: Eine Grammatik mit Zeichenliste und Übungsstücken*, Volume 1. Hützel: Backe-Verlag.

Legge, F.

1907 "The Tablets of Negadah and Abydos." *Proceedings of the Society of Biblical Archaeology* 29: 18–24, 70–73, 101–06, 150–54, 243–50.

Leitz, Christian

2001 "Die beiden kryptographischen Inschriften aus Esna mit den Widdern und Krokodilen." *Studien zur altägyptischen Kultur* 29: 251–76.

Loprieno, Antonio

2004 "Ancient Egyptian and Coptic." In *The Cambridge Encyclopedia of the World's Ancient Languages*, edited by Roger Woodward, pp. 160–216. Cambridge: Cambridge University Press.

McGovern, Patrick E.

2001 "The Origins of Tomb U-j Syro-Palestinian Type Jars as Determined by Neutron Activation Analysis." In *Umm el-Qaab*, Volume 1*: Importkeramik aus dem Friedhof U in Abydos (Umm el-Qaab) und die Beziehungen Ägyptens zu Vorderasien im 4. Jahrtausend v. Chr.*, edited by U. Hartung, pp. 407–16. Archäologische Veröffentlichungen 92. Mainz: Philipp von Zabern.

Meeks, Dimitri

2004 *Les architraves du temple d'Esna: paléographie*. Paléographie hiéroglyphique 1. Cairo: Institut français d'archéologie orientale.

De Meulenaere, Herman

1973 "Trois stèles inédites des Musées Royaux d'Art et d'Histoire." *Chronique d'Égypte* 48: 56–59.

Michalowksi, Piotr

1993. "On the Early Toponymy of Sumer: A Contribution to the Study of the Early Mesopotamian Writing." In *Kinattûtu sha dârâti: Raphael Kutscher Memorial Volume*, edited by Anson Rainey, pp. 119–35. Occasional Publications of the Institute of Archaeology of Tel Aviv University 1. Tel Aviv: Institute of Archaeology of Tel Aviv University.

Midant-Reynes, Béatrix

2000 *The Prehistory of Egypt from the First Egyptians to the First Pharaohs*. Translated by Ian Shaw. Oxford: Blackwell Publishers.

Möller, Georg

1909–12 *Hieratische Paläographie: Die ägyptische Buchschrift in ihrer Entwicklung von der fünften Dynastie bis zur römischen Kaiserzeit.* 3 volumes. Leipzig: J. C. Hinrichs.

Morenz, Ludwig

2004 *Bild-Buchstaben und symbolische Zeichen: die Herausbildung der Schrift in der hohen Kultur Altägyptens*. Orbis Biblicus et Orientalis 205. Fribourg: Academic Press; Göttingen: Vandenhoeck and Ruprecht.

de Morgan, Jacques

1897 *Recherches sur les origines de l'Égypte: Ethnographie préhistorique et tombeau royal de Négadah*. 2 volumes. Paris: E. Leroux.

Mosher, Malcolm, Jr.

1992 "Theban and Memphite Book of the Dead Traditions in the Late Period." *Journal of the American Research Center in Egypt* 29*:* 143–72.

Naville, Edouard

1914 *The Cemeteries of Abydos*, Volume 1: *The Mixed Cemetery and Umm el-Ga'ab.* London: Kegan Paul, Trench, Trubner.

Newberry, Percy E.

1912 "The Wooden and Ivory Labels of the First Dynasty." *Proceedings of the Society of Biblical Archaeology* 34: 278–89.

Niwinski, Andrzej

1989 *Studies on the Illustrated Theban Funerary Papyri of the 11th and 10th Centuries B.C.* Orbis Biblicus et Orientalis 86. Fribourg: Academic Press; Göttingen: Vandenhoeck and Ruprecht.

Pantalacci, Laure

1996 "Fonctionnaires et analphabètes: sur quelques pratiques administratives observées à Balat." *Bulletin de l'Institut français d'archéologie orientale* 96: 359–67.

Parkinson, Richard

1999 *Cracking Codes: The Rosetta Stone and Decipherment.* Berkeley: University of California Press.

Pätznick, Jean-Pierre

2005 *Die Siegelabrollungen und Rollsiegel der Stadt Elephantine im 3. Jahrtausend v. Chr.: Spurensicherung eines archäologischen Artefaktes*. British Archaeological Reports, International Series 1339. Oxford: Archaeopress.

Petrie, Wiliam M. F.

1900 *Royal Tombs of the First Dynasty 1900,* Part 1. Eighteenth Memoir of the Egypt Exploration Fund. London: Kegan Paul, Trench, Trubner.

1901 *Royal Tombs of the Earliest Dynasties, 1901,* Part 2. Twenty-first Memoir of the Egypt Exploration Fund. London: Kegan Paul, Trench, Trubner.

1902 *Abydos*, Volume 1. Twenty-second Memoir of the Egypt Exploration Fund. London: Egypt Exploration Fund.

1903 *Abydos*, Volume 2. Twenty-fourth Memoir of the Egypt Exploration Fund. London: Kegan Paul, Trench, Trubner.

Petrie, William M. F., and James E. Quibell

1896 *Naqada and Ballas, 1895*. British School of Archaeology in Egypt 1. London: B. Quaritch.

Porat, Naomi, and Yuval Goren

2002 "Petrography of the Naqada IIIa Canaanite Pottery from Tomb U-j in Abydos." In *Egypt and the Levant: Interrelations from the 4th through the Early 3rd Millennium BCE*, edited by Edwin C. M. van den Brink and Thomas E. Levy, pp. 252–70. London: Leicester University Press.

Postgate, Nicholas; Taw Wang; and Toby A. H. Wilkinson

1995 "The Evidence for Early Writing: Utilitarian or Ceremonial?" *Antiquity* 69: 459–80.

Quibell, James E.

1904–05 *Archaic Objects*, Volume 2. Catalogue général des antiquités égyptiennes du Musée du Caire 65. Cairo: Institut français d'archéologie orientale.

Regulski, Ilona

2008a "The Origin of Writing in Relation to the Emergence of the Egyptian State." In *Egypt at Its Origins*, Volume 2 (Proceedings of the International Conference Origin of the State: Predynastic and Early Dynastic Egypt, Toulouse, France, 5th–8th September 2005), edited by Béatrix Midant-Reynes and Yann Tristant, pp. 983–1008. Orientalia Lovaniensia Analecta 172. Leuven: Peeters.

2008b Online Database of Early Dynastic Inscriptions: http://www2.ivv1.uni-muenster.de/litw3/Aegyptologie/index06.htm

2009 "The Beginning of Hieratic Writing in Egypt." *Studien zur altägyptischen Kultur* 38: 259–74.

2010 *A Palaeographic Study of Early Writing in Egypt*. Orientalia Lovanensia Analecta 195. Leuven: Peeters.

Van Rinsveld, Bernard

1993 "Un cryptogramme d'Amon." In *Individu, société et spiritualité dans l'Égypte pharaonique et copte: mélanges égyptologiques offerts au Professeur Aristide Théodoridès*, edited by Christian Cannuyer and Jean-Marie Kruchten, pp. 263–68. Ath: Illustra.

Sauneron, Serge

1974 "L'écriture ptolémaïque." In *Textes et langages de l'Égypte pharaonique: cent cinquante années de recherches, 1822–1972; hommage à Jean-François Champollion*. Bibliothèque d'étude 64/1. Cairo: Institut français d'archéologie orientale.

1982 *L'écriture figurative dans les textes d'Esna*. Esna 8. Cairo: Institut français d'archéologie orientale.

Scharff, Alexander

1929 *Die Altertümer der Vor- und Frühzeit Ägyptens*, Volume 1. Ägyptischen Sammlung 4. Berlin: Verlag von Karl Curtius.

Schott, Erika

1969 "Die Sockelinschrift des Narmeraffen." *Revue d'Égyptologie* 21: 77–83.

Schweitzer, Simon D.

2005 *Schrift und Sprache der 4. Dynastie*. Menes: Studien zur Kultur und Sprache der ägyptischen Frühzeit und des Alten Reiches 3. Wiesbaden: Harrassowitz.

Seele, Keith

1947 "Oriental Institute Museum Notes: Horus on the Crocodiles." *Journal of Near Eastern Studies* 6/1: 43–52.

Senner, Wayne M.

1989 "Theories and Myths on the Origins of Writing." In *The Origins of Writing*, edited by Wayne M. Senner, pp. 1–26. Lincoln: University of Nebraska Press.

Shaw, Ian, editor

2000 *The Oxford Histrory of Ancient Egypt.* Oxford: Oxford Uiversity Press.

Spencer, A. J.

1980 *Early Dynastic Objects*. Catalogue of Egyptian Antiquities in the British Museum 5. London: The British Museum.

Sternberg-El Hotabi, Heike

1999 *Untersuchungen zur Überlieferungsgeschichte der Horusstelen: Ein Beitrag zur Religionsgeschichte Ägyptens im 1. Jahrtausend v. Chr.* Ägyptologische Abhandlungen 62. Wiesbaden: Harrassowitz.

Teeter, Emily

2003 *Ancient Egypt: Treasures from the Collection of the Oriental Institute University of Chicago.* Chicago: The Oriental Institute.

van den Brink, Edwin C. M.

1992 "Corpus and Numerical Evaluation of 'Thinite' Potmarks." In *The Followers of Horus: Studies Dedicated to Michael Allen Hoffman*, edited by Renée Friedman and Barbara Adams, pp. 265–96. Oxford: Oxbow Books.

n.d. The International Potmark Workshop. Edwin C. M. van den Brink is moderator. http://www.potmark-egypt.com.

Vandier, Jacques

1952 *Manuel d'archéologie égyptienne*, Volume 1: *Les époques de formation,* Part 2: *Les trois premières dynasties*. Paris: A. et J. Picard.

Vernus, Pascal

1993 "La naissance de l'écriture dans l'Égypte ancienne." *Archéo-Nil* 3: 75–108.

2001 "Les premières attestations de l'écriture en Égypte pharaonique." *Aegyptus* 81: 13–35.

Vikentiev, Vladimir

1953–54 "Les monuments archaïques, Volume 6: La tablette en ivoire d'un haut fonctionnaire du roi de la 1re dynastie *Wenewty-Ouenephes*." *Bulletin de l'Institut d'Égypte* 36/2: 293–315.

Watterson, Barbara

1984 *The Gods of Ancient Egypt*. New York: Facts on File.

Weill, Raymond

1961a *Recherches sur la Ire dynastie et les temps prépharaoniques*, Volume 1. Bibliothèque d'étude 38. Cairo: Institut français d'archéologie orientale.

1961b *Recherches sur la Ire dynastie et les temps prépharaoniques*, Volume 2. Bibliothèque d'étude 38. Cairo: Institut français d'archéologie orientale.

Wengrow, David

2006 *The Archaeology of Early Egypt: Social Transformations in North-east Africa, 10,000 to 2650 B.C.* Cambridge World Archaeology. Cambridge: Cambridge University Press.

2008 "Limits of Decipherment: Object Biographies and the Invention of Writing." In *Egypt at Its Origins*, Volume 2 (Proceedings of the International Conference Origin of the State: Predynastic and Early Dynastic Egypt, Toulouse, France, 5th–8th September 2005), edited by Béatrix Midant-Reynes and Yann Tristant, pp. 1021–32. Orientalia Lovaniensia Analecta 172. Leuven: Peeters.

Wente, Edward F.

1990 *Letters from Ancient Egypt.* Atlanta: Scholars Press.

1995 "The Scribes of Ancient Egypt." In *Civilizations of the Ancient Near East*, Volume 4, edited by Jack Sasson, pp. 2211–21. New York: Charles Scribner.

Wilfong, T. G.

1992 "Greek and Coptic Texts in the Oriental Institute Museum from the Exhibition 'Another Egypt.'" *Bulletin of the American Society of Papyrologists* 29: 85–95.

2003–04 "Two Coptic Tax Receipts from Jeme in the Kelsey Museum." *Bulletin of the University of Michigan Museums of Art and Archaeology* 15: 88–91.

Wilkinson, Toby A. H.

1999 *Early Dynastic Egypt*. New York: Routledge.

Williams, Ronald

1972 "Scribal Training in Ancient Egypt." *Journal of the American Oriental Society* 92/2: 214–21.

Wilson, Penelope

1997 *A Ptolemaic Lexikon: A Lexicographical Study of the Texts in the Temple of Edfu*. Orientalia Lovaniensia Analecta 78. Leuven: Peeters.

Winkler, Hans A.

1938 *Rock-drawings of Southern Upper Egypt*, Volume 1*: Sir Robert Mond Desert Expedition, Season 1936–1937, Preliminary Report*. Archaeological Survey of Egypt 26. London: Egyptian Exploration Society.

12. THE INVENTION AND DEVELOPMENT OF THE ALPHABET

JOSEPH LAM

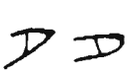
Of the various writing systems that emerged out of the ancient Middle East, the alphabet has undoubtedly exerted the most lasting influence. While the two other dominant systems of writing that were invented in the Middle East — Mesopotamian cuneiform and Egyptian hieroglyphs — eventually died out along with their associated cultures (thus requiring them to be deciphered by modern scholars), alphabetic systems of writing have remained in use without interruption into modern times and are pervasive in the world today. In fact, with the notable exceptions of Chinese and Japanese, the most common languages of the world utilize alphabetic scripts (Latin, Cyrillic, Arabic, Perso-Arabic, Devanagari, and Bengali) that are ultimately descended from the linear West Semitic alphabet.

The functional advantage of the alphabet over other writing systems lies in its economy. In contrast to logographic systems, in which a given symbol denotes a word, or to syllabic writing, in which a sign represents a full syllable of sound, alphabetic writing is characterized by the graphic representation of phonemes, that is, the shortest contrastive units of sound in a language (consonants or vowels), thereby greatly decreasing the number of signs. As a consequence, typical alphabetic systems have on the order of tens of signs, whereas logographic and syllabic systems have on the order of hundreds. This would no doubt have made the system easier to learn and master. The earliest West Semitic alphabet was characterized, incidentally, by the exclusive writing of consonants, a system that exploits a feature in the phonological structure of all Semitic languages, wherein every syllable begins with a consonant.

At the same time, one should not suppose that a simpler writing system led automatically to a high level of literacy, as is sometimes suggested. Learning a script is not the same as learning to read and write. The latter is a process that takes years even in modern times and is connected to a whole host of factors such as access to education and the functional role of writing in society.[1] In fact, it is doubtful whether literacy was at all a necessary skill for the vast proportion of people in antiquity. While it certainly seems reasonable to assume that the invention of the alphabet made the process of *scribal training* much easier, no immediate correlation can be made between alphabetic writing and broad literacy.

The earliest evidence for alphabetic writing comes from the second millennium BC in the Sinai and Egypt. The Proto-Sinaitic inscriptions, first discovered[2] by W. M. Flinders Petrie in 1905 (and supplemented by additional finds in subsequent decades), consist of linear pictographic symbols inscribed on statuettes, stone panels, and rock faces at Serabit el-Khadem, an ancient Egyptian mining site in the Sinai Peninsula. More recently, in the mid-1990s, two single-line rock inscriptions were discovered at the desert site of Wadi el-Hol, near Thebes in Upper Egypt,[3] in a script that strongly resembles the Proto-Sinaitic texts. Due to the lack of stratified archaeological contexts for these finds, absolute dates have proven difficult to establish, though some scholars place them as early as the beginning of the second millennium BC (Dynasty 12 in Egypt) on the basis of associated Egyptian material as well as historical considerations.[4]

The hybrid nature of these earliest signs gives us clues regarding the sociohistorical context for the origins of the alphabet. On the one hand, most if not all of these earliest pictographs have plausible connections to Egyptian hieroglyphic (and perhaps hieratic) symbols,[5] implying that the inventors were influenced at some level by Egyptian writing (see fig. 12.1). On the other hand, the phonemes represented by these symbols are derived from the West Semitic (and not Egyptian) words behind the pictographs. For instance, the sign for a hand is used to denote the /k/ sound through the West Semitic word *kaph* for "palm" or "hand," a word that also comes to be the name of the letter. (For comparison, the Modern Hebrew name for the corresponding letter is precisely *kaph*; note also the Greek letter name *kappa*.) This association of the letter name (*kaph*) with its initial

(1) West Semitic Letter Names	(2) Egyptian Hieroglyphic Prototype	(3) Proto-Sinaitic (Sinai 375a) Catalog No. 89	(4) Izbet Sartah Ostracon	(5) el-Khadr Arrowhead #2 Catalog No. 91	(6) Mesha Stela	(7) Samaria Ostracon Catalog No. 90	(8) Greek Letters and Names
ʾaleph (ox)	 (Gardiner F1)			—			A (alpha)
ḥet (fence?)	 (Gardiner O42)						H (eta)
kaph (palm)	 (Gardiner D46)			—			K (kappa)
ʿayin (eye)	 (Gardiner D4)					—	O (omicron)

(1) West Semitic letter name (with meaning in parentheses)
(2) Possible Egyptian hieroglyphic prototype, shapes drawn from the sign list of Gardiner 1957, and correspondences follow the suggestions of Hamilton 2006
(3) Proto-Sinaitic stone plaque from Serabit el-Khadem (Sinai 375a = Catalog No. 89); signs traced from digital photograph by the author
(4) Izbet Sartah ostracon; sign shapes drawn after Kochavi 1977, p. 7
(5) El-Khadr Arrowhead #2 (Catalog No. 91); signs traced from digital photograph by the author
(6) Mesha Stela (ninth century BC), in the Moabite script (highly resembling the Old Hebrew script); signs traced from digital photograph by the author
(7) Incised ostracon from Samaria (Catalog No. 90) in the Old Hebrew script; signs traced from digital photograph by the author
(8) Greek letters (with names in parentheses)

FIGURE 12.1. Script correspondence chart of select alphabetic signs

phoneme (/k/) is called the acrophonic principle (*acro-* "topmost" + *phone* "voice, sound"), and the fact that it is via the Semitic vocabulary that such a principle operates suggests that the linear alphabet arose for the purpose of writing a Semitic language. In fact, it is based on this assumption that the Sinai inscriptions have been partially deciphered,[6] revealing intelligible phrases such as *lbʿlt* ("for the Lady") and *rb nqbnm* ("chief of the miners").[7] The presence of Egyptian inscriptions in the vicinity of either Serabit el-Khadem or Wadi el-Hol would have provided sufficient impetus for such an invention to occur, if in fact one of these sites represents the ultimate place of origin. Though the paucity (and intractability) of the evidence prevents us from being too dogmatic on the details, what we can assert with reasonable confidence is that the alphabet was invented among Semitic speakers in the Egyptian realm, inspired iconographically by hieroglyphic writing but not bound by its modes of expression.[8] The presence of Asiatics in Egypt as various kinds of workers (e.g., builders, miners, mercenaries, etc.) in the Middle Kingdom is well documented and would furnish the broader sociohistorical backdrop for this remarkable innovation.

Another collection of data coming from the second millennium is the Proto-Canaanite inscriptions, an umbrella term for a diverse and fragmentary group of texts (inscribed on pottery and other objects) hailing from various sites in Palestine, some

of which do have secure archaeological contexts. Though the archaeological evidence overall is spotty and inconclusive, two tentative reasons can be adduced for placing these later than the inscriptions from Serabit el-Khadem and Wadi el-Hol. First, within the Proto-Canaanite texts, one can observe a gradual evolution away from purely pictographic shapes to more abstract, stylized forms. Second, their context in Palestine puts them one step removed geographically from the Egyptian sphere, the presumed context of the alphabet's invention. While the earliest datable Proto-Canaanite inscription, the Lachish Dagger (a highly pictographic four-sign inscription), can be attributed to the seventeenth century BC on archaeological grounds,[9] the majority of the Proto-Canaanite objects come from the thirteenth century and later.[10] Among these are the Izbet Sartah ostracon, part of which represents the earliest-known linear "abecedary" (a sequential writing out of all the alphabetic letters); several objects from Lachish, including an "ewer" (a pitcher in the shape of a vase), a bowl, and other pottery sherds; and a number of inscribed arrowheads from different locations, such as those found at el-Khadr near Bethlehem (Catalog No. 91).[11]

North of Palestine, in the region of modern Syria, little direct evidence exists for the linear alphabet before the first millennium BC; however, here we have additional data of a different kind. At the site of Ras Shamra, on the Mediterranean coast (near modern Latakia), in the ancient city of Ugarit (ca. thirteenth century BC), we find a fully functioning alphabetic system utilizing cuneiform signs (wedges impressed with a stylus on clay) rather than linear characters. This system, which appears not to have been based on Sumero-Akkadian syllabic cuneiform, was used not only for writing texts of all genres in the local West Semitic language of Ugaritic, but occasionally for other languages as well (e.g., Hurrian). Among the roughly two thousand Ugaritic texts (Bordreuil and Pardee 2004, p. 20) discovered at the site to date are a number of abecedaries, used in the context of scribal training,[12] which give us a glimpse into the Ugaritians' own internal conception of the alphabet (fig. 12.2). This alphabet consisted of thirty signs, with the first twenty-seven representing distinct consonantal phonemes, and the last three being variations on two of the other phonemes (#28 and #29 in the sequence were variants of *ʾaleph* [sign #1

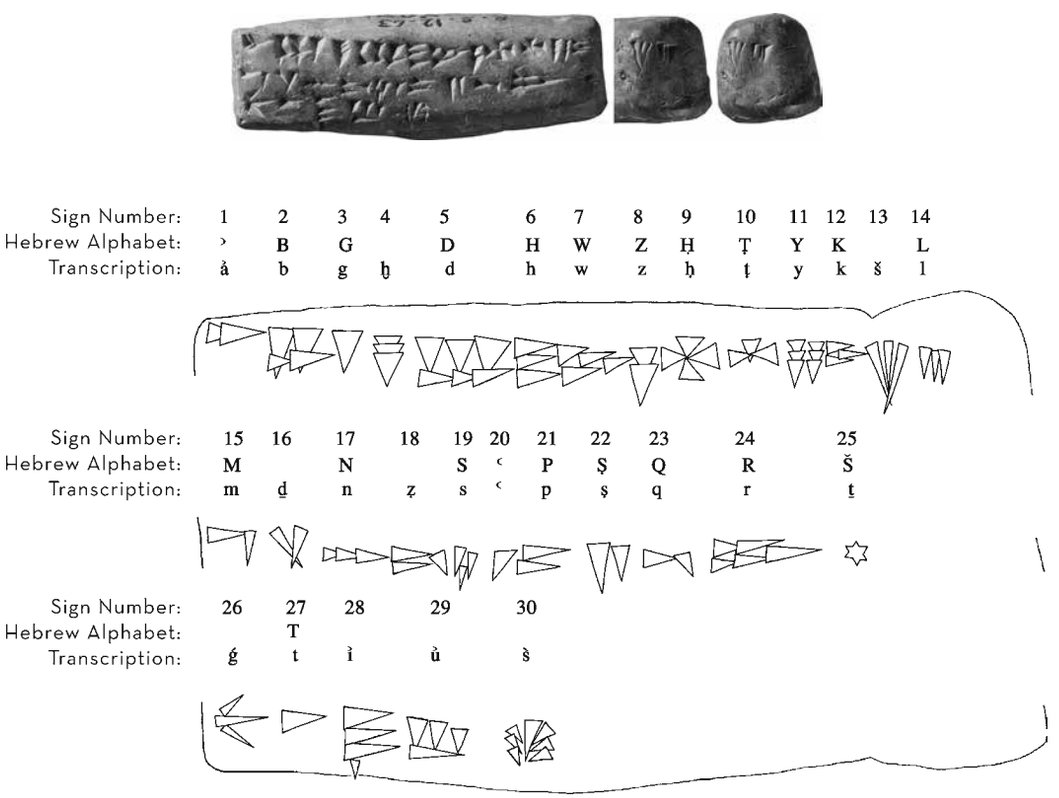
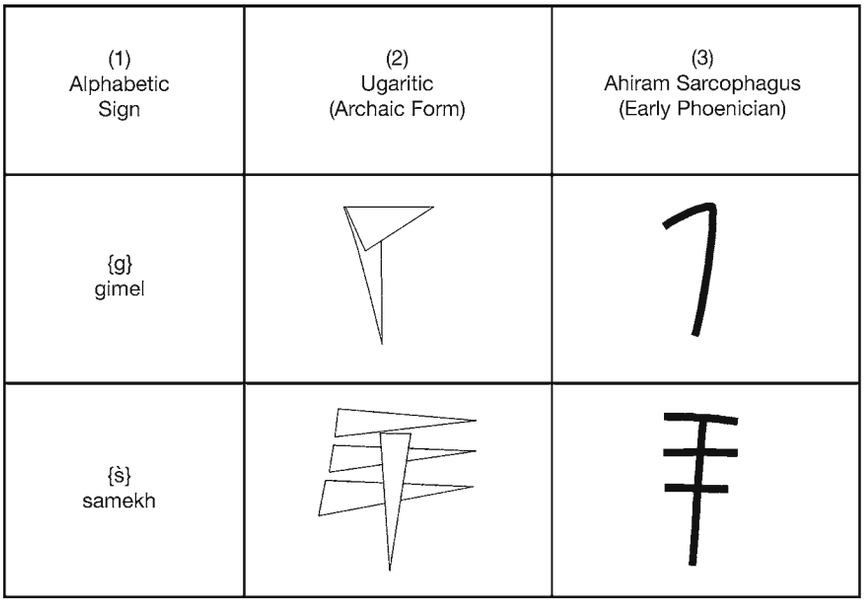


FIGURE 12.2. Ugaritic abecedary from Ras Shamra (RS 12.063; scale 1:1) and below, the Ugaritic alphabet and Hebrew correspondences



(1) Alphabetic sign
(2) Ugaritic archaic forms: two-wedged *gimel* is from RS 15.111, line 4, and four-wedged *samekh* is after RS 94.2440, Second Abecedary; shapes based on photographs in Pardee 2007, p. 196
(3) Ahiram Sarcophagus (Early Phoenician, ca. 1000 BC) shapes based on Dussaud 1924, p. 137

FIGURE 12.3. Comparison between the "archaic" forms of two Ugaritic cuneiform signs and their linear alphabetic counterparts

in the alphabet], while #30 was probably a borrowing of an alternate form of *samekh* from contemporary Canaanite).[13] What is notable is that the order of the first twenty-seven signs (ʾ, b, g ...) is consistent with the twenty-two–letter alphabetic order attested in the first millennium, leaving aside of course the five phonemes present in Ugaritic but not preserved in later Phoenician. Moreover, at least two of the signs (the "archaic" forms of {g} and of {ṡ}, the aforementioned sign #30) can be seen as cuneiform imitations of their corresponding linear alphabetic counterparts (see fig. 12.3). For these reasons, it is not unreasonable to surmise that a linear alphabet of twenty-seven signs was also used in the northern Levant during this period, and that the Ugaritic alphabet was a conceptual adaptation of it for cuneiform writing. (The last three signs, #28–30, would have been added to accommodate the particular needs of scribal writing at Ugarit.) The twenty-two–letter alphabet would then represent a simplification of this earlier system, in keeping with the phonetic merging of various consonants occurring in later West Semitic.[14]

With the turn of the first millennium BC came the stabilization of the alphabet in terms of the orientation of the letters and the direction of writing (right to left). As already intimated, this is generally associated with the Phoenicians, since the twenty-two–letter system that came as the result of this stabilization corresponds exactly to the phonemic inventory of the Phoenician language. When Hebrew and Aramaic speakers adopted this alphabet for their own texts, they did not create additional symbols for phonemes in their languages that were absent in Phoenician; they simply utilized the twenty-two available signs, making practical accommodation where necessary. Whether this was due to the perceived prestige of the Phoenician script or some other reason is difficult to ascertain. In any case, while the direction of writing and orientation of letters remained stable, the shapes of the letters continued to develop over the course of the first millennium, giving birth to distinct Hebrew and Aramaic scripts, and perhaps other separate orthographic traditions as well. In particular, the familiar "square" script, which grew out of the Aramaic script tradition, began to be used for writing Hebrew sometime in the Second Temple period and became the standard Jewish script (and is now used for Modern Hebrew).

The first-millennium stabilization of the alphabet in Canaan relates also to questions concerning the spread of alphabet writing to the Greeks and to the Arabian Peninsula. According to classical tradition, the Greek alphabet was borrowed from the Phoenicians, a scenario that would fit well with the appearance of the oldest Greek inscriptions in the eighth century BC. However, some scholars have argued for an earlier divergence from Proto-Canaanite (in the eleventh century), based on multi-directionality in early Greek writing[15] (possibly implying that the transmission happened before the right-to-left direction became fixed) and on common characteristics in letter shapes. Such a hypothesis certainly has its merits, but it cannot be embraced unreservedly until further inscriptional data emerge in support of it.[16] At the same time, while the earliest Epigraphic South Arabian texts come also from the beginning of the first millennium (ca. eighth century BC), there is more direct evidence, albeit tentative, to suggest a possible branching off of the South Arabian alphabet[17] from Proto-Canaanite in the second millennium BC. This evidence comes in the form of two abecedaries in the cuneiform alphabetic script, one from Ugarit and one from Beth Shemesh in Palestine, conforming not to the familiar *abgad* order, but to the so-called *halaḥam* order (h, l, ḥ, m ...) known from much later South Arabian attestation.[18] These admittedly slender pieces of evidence nevertheless provide a point of contact between Proto-Canaanite and a possible Proto-South Arabian alphabetic tradition in the mid-second millennium. More importantly, sporadic evidence of this kind, tantalizing as it is, reminds us of the still-partial nature of our current knowledge of the origins of the alphabet, an understanding that is sure to be refined in the future as further archaeological discoveries yield new surprises.

NOTES

[1] A helpful correction to some misconceptions regarding alphabetic writing and literacy can be found in Rollston 2006, pp. 48–49.

[2] I refer here to the first modern archaeological excavation of the material, though McCarter (1974, p. 56) notes how inscriptions from the area were known from at least the sixth century AD onward.

[3] These inscriptions were discovered during the 1994–95 season of the Theban Desert Road Survey led by John Darnell (Darnell et al. 2005, p. 73).

[4] For instance, Darnell and colleagues (2005, p. 90) attribute the Wadi el-Hol inscriptions to "ca. 1850–1700 BCE" based on associated inscriptions in Egyptian. Similarly, others such as Orly Goldwasser (2006, pp. 131–34) posit a Middle Kingdom context for both the Serabit el-Khadem and Wadi el-Hol texts. The strongest challenge to this consensus in recent years has been Benjamin Sass (2004–05, 2008), who has put forward the possibility of a fourteenth-century date for the beginnings of the alphabet.

[5] Hamilton (2006, pp. 269–75) insists on the derivation from both hieroglyphic and hieratic signs.

[6] This decipherment was first achieved in brilliant fashion by Gardiner (1916).

[7] For a summary of possible readings in the Proto-Sinaitic texts, see Sass 1988, pp. 46–49.

[8] Goldwasser (2006, p. 135) holds that the inventors of the alphabet were not trained in Egyptian hieroglyphic writing and merely used it as an iconic model. At the other extreme, Darnell and colleagues (2005, p. 90) assert that these early inscriptions attest to a "fairly high degree of literacy in Egyptian." Hamilton (2006, p. 293) adopts an intermediate position, stating that "[a] few of the early alphabetic writers may have had some, but not much scribal training ... [while] the rest [of the texts] appear to be of non-scribal quality, perhaps amateurish."

[9] Even Benjamin Sass (2004–05, p. 150), who has argued for a fourteenth–century genesis of the alphabet, acknowledges that "the Lachish dagger ... is the sole object among the [Proto-Canaanite finds] whose Middle Bronze pedigree is beyond reproach."

[10] See Sass 1988, pp. 151–56, especially the chart on p. 155.

[11] On the el-Khadr arrowheads, see Milik and Cross 1954.

[12] For a discussion of the Ugaritic abecedaries and their function, see Hawley 2008.

[13] According to Tropper (2000, pp. 43–44), the Proto-Semitic reflex of *samekh* had already been deaffricated in Ugaritic (represented by sign #19), and so sign #30 was created to denote the affricate /s̀/ in foreign and loan words. (In linguistics, an "affricate" denotes a class of speech sounds consisting of an initial stop followed by a release of air through a narrow passage, as with the /ch/ sound in the English word *chat*.)

[14] For a much fuller discussion of these various points, see Pardee 2007.

[15] Naveh (1973, p. 1) observes that "the archaic Greeks wrote in horizontal lines either from right to left, or from left to right, or in boustrophedon" (a kind of writing in which lines alternate between left-right and right-left orientation).

[16] The strongest case for the borrowing of the Greek alphabet from Proto-Canaanite is that of Naveh (1973 and 1987, pp. 175-86). For a recent critique, see Sass 2005, pp. 133-46.

[17] The Old South Arabian alphabet consists of twenty-nine signs representing twenty-nine consonants, the most of any attested Semitic language.

[18] For a discussion of the Ugarit abecedary in relation to the Beth Shemesh exemplar, see Bordreuil and Pardee 2001.

REFERENCES

Birnbaum, S. A.

1957 "Ostraca." In *Samaria-Sebaste,* Volume 3: *The Objects From Samaria*, edited by J. W. Crowfoot, G. M. Crowfoot, and K. M. Kenyon. Reports of the Work of the Joint Expedition in 1931–1933 and of the British Expedition in 1935. London: Palestine Exploration Fund.

Bordreuil, Pierre, and Dennis Pardee

2001 "Abécédaire (nº 32)." In *Études ougaritiques*, Volume 1: *Travaux 1985–1995*, edited by Marguerite Yon and Daniel Arnaud, pp. 341–48. Ras Shamra-Ougarit 14. Paris: Éditions Recherche sur les Civilisations.

2004 *Manuel d'ougaritique*, Volume 1: *Grammaire, Fac-Similés*. Paris: Geuthner.

Butin, Romain F.

1936 "The New Protosinaitic Inscriptions." In *Excavations and Protosinaitic Inscriptions at Serabit el Khadem: Report of the Expedition of 1935*. edited by Richard F. S. Starr and Romain F. Butin. Studies and Documents 6. London: Christophers.

Cook, Edward M.

1992 "An Aramaic Incantation from Khafaje." *Bulletin of the American Schools of Oriental Research* 285: 79–81.

Darnell, John C.; F. W. Dobbs-Allsopp; Marilyn J. Lundberg; P. Kyle McCarter; Bruce Zuckerman; and Colleen Manassa

2005 "Two Early Alphabetic Inscriptions from the Wadi el-Ḥôl: New Evidence for the Origin of the Alphabet from the Western Desert of Egypt." *Annual of the American Schools of Oriental Research* 59: 63–124.

Dussaud, René

1924 "Les inscriptions phéniciennes du tombeau d'Aḥiram, roi de Byblos." *Syria* 5: 135–57.

Gardiner, Alan H.

1916 "The Egyptian Origin of the Semitic Alphabet." *Journal of Egyptian Archaeology* 3: 1–16.

1957 *Egyptian Grammar: Being an Introduction to the Study of Hieroglyphs.* 3rd edition. Oxford: Griffith Institute.

Geller, Markham J.

1983 "More Graeco-Babyloniaca." *Zeitschrift für Assyriologie und Vorderasiatische Archäologie* 73: 114–20.

Goldwasser, Orly

2006 "Canaanites Reading Hieroglyphs: Horus Is Hathor? — The Invention of the Alphabet in Sinai." *Ägypten und Levante: Internationale Zeitschrift für ägyptische Archäologie und deren Nachbargebiete* 16: 121–60.

Hamilton, Gordon J.

2006 *The Origins of the West Semitic Alphabet in in Egyptian Scripts*. Catholic Biblical Quarterly Monograph Series 40. Washington, DC: Catholic Biblical Association of America.

Hamilton, Gordon J.; Marcel Marée; Marilyn J. Lundberg; and Bruce Zuckerman

2007 "Three Recently Relocated Early West Semitic Alphabet Texts: A Photographic Essay." *MAARAV* 14/1: 27–37.

Hawley, Robert

2008 "Apprendre à écrire à Ougarit: Une typologie des abécédaires." In *D'Ougarit à Jérusalem: Recueil d'études épigraphiques et archéologiques offerts à Pierre Bordreuil*, edited by Carole Roche, pp. 215–32. Paris: De Boccard.

Huehnergard, John

2000 "Old South Arabian Inscriptions in the Harvard Semitic Museum." In *The Archaeology of Jordan and Beyond: Essays in Honor of James A. Sauer*, edited by Lawrence Stager, Joseph A. Greene, and Michael D. Coogan, pp. 196-206. Winona Lake: Eisenbrauns.

Kochavi, Moshe

1977 "An Ostracon of the Period of the Judges from 'Izbet Ṣarṭah." *Tel Aviv* 4: 1–13.

McCarter, P. Kyle

1974 "The Early Diffusion of the Alphabet." *Biblical Archaeologist* 37: 54–68.

Milik, Jósef T., and Frank M. Cross, Jr.

1954 "Inscribed Javelin-heads from the Period of the Judges: A Recent Discovery in Palestine." *Bulletin of the American Schools of Oriental Research* 134: 5-15.

2003 "Inscribed Arrowheads from the Period of the Judges." In *Leaves from an Epigrapher's Notebook: Collected Papers in Hebrew and West Semitic Palaeography and Epigraphy*, edited by F. M. Cross, pp. 303–08. Harvard Semitic Studies 51. Winona Lake: Eisenbrauns.

Naveh, Joseph

1973 "Some Semitic Epigraphical Considerations on the Antiquity of the Greek Alphabet." *American Journal of Archaeology* 77: 1–8.

1987 *Early History of the Alphabet: An Introduction to West Semitic Epigraphy and Paleography*. Jerusalem: Magnes Press.

Pardee, Dennis

2007 "The Ugaritic Alphabetic Cuneiform Writing System in the Context of Other Alphabetic Systems." In *Studies in Semitic and Afroasiatic Linguistics Presented to Gene B. Gragg*, edited by Cynthia L. Miller, pp. 181–200. Studies in Ancient Oriental Civilization 60. Chicago: The Oriental Institute.

Rollston, Christopher

2006 "Scribal Education in Ancient Israel: The Old Hebrew Epigraphic Evidence." *Bulletin of the American Schools of Oriental Research* 344: 47–74.

Sass, Benjamin

1988 *The Genesis of the Alphabet and Its Development in the Second Millennium B.C.* Ägypten und Altes Testament 13. Wiesbaden: Harrassowitz.

2004–05 "The Genesis of the Alphabet and Its Development in the Second Millennium B.C.: Twenty Years Later." *De Kêmi à Birīt Nāri: Revue Internationale de l'Orient Ancien* 2: 147–66.

2005 *The Alphabet at the Turn of the Millennium: The West Semitic Alphabet* ca. *1150–850 BCE: The Antiquity of the Arabic, Greek, and Phrygian Alphabets*. Tel Aviv: Sonia and Marco Nadler Institute of Archaeology.

2008 "Wadi el-Hol and the Alphabet." In *D'Ougarit à Jérusalem: Recueil d'études épigraphiques et archéologiques offerts à Pierre Bordreuil*, edited by Carole Roche, pp. 193–203. Paris: De Boccard.

Tropper, Josef

2000 *Ugaritische Grammatik*. Alter Orient und Altes Testament 273. Münster: Ugarit-Verlag.

Westenholz, Aage

2007 "The Graeco-Babyloniaca Once Again." *Zeitschrift für Assyriologie und Vorderasiatische Archäologie* 97: 262–313.

OBJECT DESCRIPTIONS: CATALOG NOS. 89–94

89. PLAQUE WITH PROTO-SINAITIC INSCRIPTION

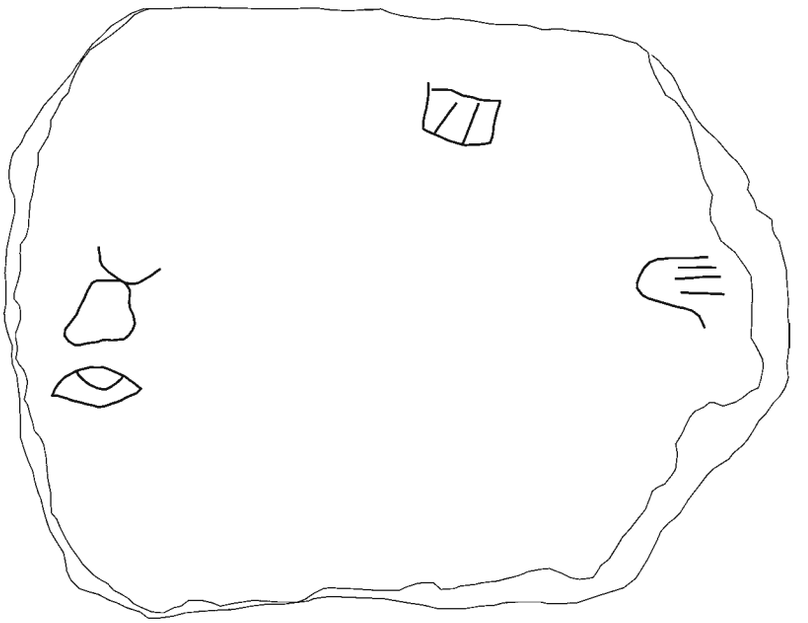
Stone
Early second millennium BC
Egypt, Sinai, Serabit el-Khadem
18.0 x 13.0 x 2.9 cm
HSM 1935.4.7

The Proto-Sinaitic inscriptions, which represent arguably the earliest examples of alphabetic writing, consist of signs patterned on Egyptian hieroglyphic symbols but having phonetic values derived from the West Semitic words behind the pictographs (the so-called acrophonic principle). This stone plaque, though barely legible, nonetheless contains a number of recognizable Proto-Sinaitic signs around its edge, including an ox head (West Semitic *ʾaleph*), a hand (*kaph*), and an eye (*ʿayin*). JL

PUBLISHED

Butin 1936; Hamilton et al. 2007.

89



90

90. OSTRACON WITH OLD HEBREW TEXT

Baked clay
Iron Age II, shortly before 722 BC
Israel, Samaria
6.5 x 6.0 x 1.3 cm
HSM 1934.9.1

This sherd (part of a bowl) contains a list of names, incised in the Old Hebrew script of the first millennium BC. JL

PUBLISHED

Birnbaum 1957, sherd 4, pp. 17–18, pl. 1:4.

91. ARROWHEAD INSCRIBED IN PROTO-CANAANITE

Bronze
Twelfth–eleventh century BC
Israel/West Bank
Purchased in Jerusalem, 1953
9.0 x 1.7 x 0.6 cm
HSM 1978.1.1

The text on this arrowhead, one among a group of exemplars originating from el-Khadr near Bethlehem, is written in a script that represents a transitional stage between Proto-Canaanite and early Phoenician. The inscription reads: "arrow of ʿBDLBT." JL

PUBLISHED

Milik and Cross 1954; Milik and Cross 2003, no. 49, pp. 303–08.

91

92

92. OLD SOUTH ARABIAN (MINAEAN) INSCRIPTION

Stone
Fifth–second century BC
Purchased in Sana'a, Yemen
25.0 x 22.8 x 8.0 cm
HSM 1936.1.18

The monumental South Arabian script seen here consists of twenty-nine signs representing twenty-nine consonantal values, the most of any Semitic alphabet. Though this particular text is only a fragment, it appears to describe a series of building activities. JL

PUBLISHED

Huehnergard 2000.

93

93. ARAMAIC INCANTATION BOWL

Baked clay
Sasanian, third–seventh century AD
Iraq, Khafajah
18.4 x 4.1 cm
OIM A17877

The incantation on this bowl, written in Jewish Babylonian Aramaic, exemplifies the use of the Aramaic "square" script. The text proceeds in a spiral (clockwise from the center) and contains a spell for protecting the owner's house against various demons and afflictions. The presence of holes in the bottom is unusual for this kind of incantation bowl. JL

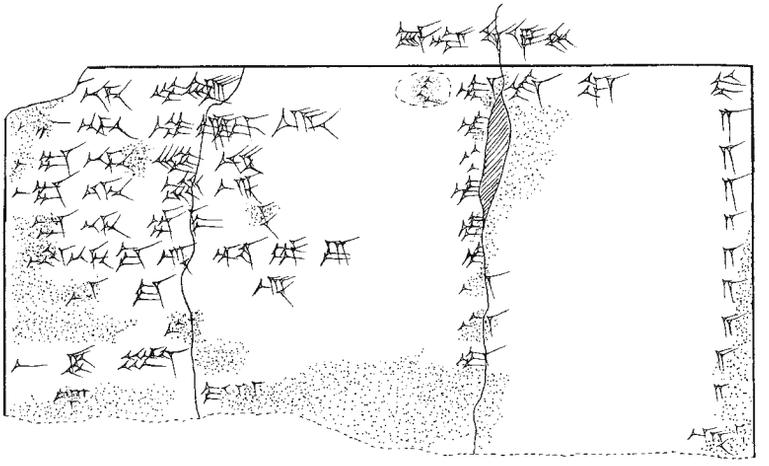
PUBLISHED

Cook 1992.

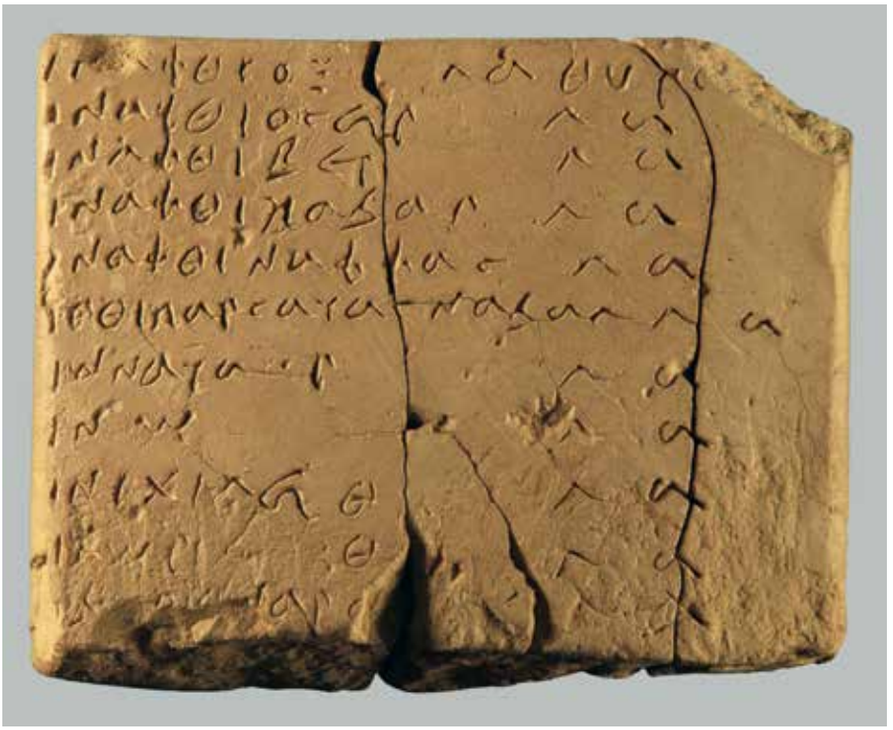
94. INCANTATION IN CUNEIFORM AND GREEK ALPHABET

Clay
First century BC
Purchased
11.0 x 8.5 x 3.2 cm
HSM 1893.5.39

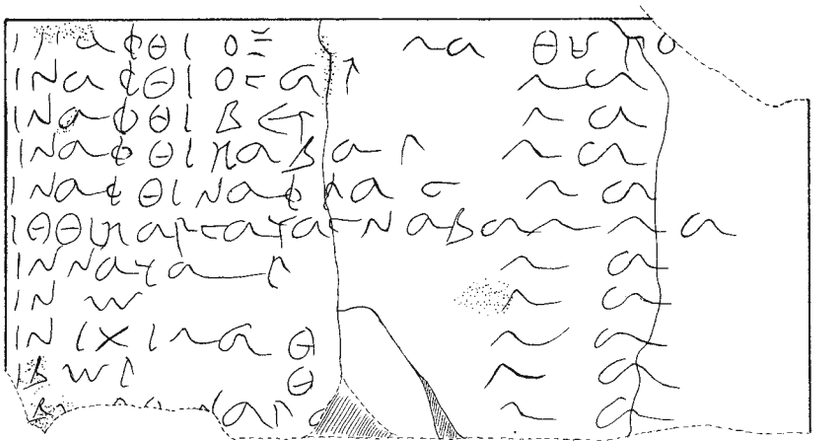
94, obverse



This remarkable text is one of the best-preserved examples of a tablet inscribed with cuneiform on the obverse, representing either Sumerian or Akkadian, and an accompanying Greek transcription on the reverse.This small corpus of school tablets, known as the Graeco-Babyloniaca, dates to the end of the cuneiform tradition at the turn of the current era. The paleography of the Greek letters — that is, the shapes of the individual characters — suggests that these texts probably date between roughly 50 BC and AD 50. The obverse of this particular tablet contains an Akkadian magical text known as a *zi-pad*$_3$ incantation; the reverse contains a phonetic rendering of the Akkadian written with the Greek alphabet. That beginning scribal students endeavored to transcribe Akkadian into Greek raises a number of intriguing questions regarding the scribal milieu, the cultural context of these tablets, and the nature of scribal training at the very end of the cuneiform era. Furthermore, these tablets provide fascinating glimpses into the pronunciation of the Sumerian and Akkadian languages. Although Akkadian had likely ceased to exist as a spoken



94, reverse



language centuries prior to the writing of these texts, the Greek transcriptions reveal a number of archaisms that typify older phases of the language. The transcription conventions for Sumerian were different, reflecting the language's distinct phonemic inventory and pronunciation — a remarkable fact indeed given that Sumerian had not been spoken in nearly two millennia, attesting to the perseverance of the ancient, oral scribal tradition. CW

PUBLISHED

Geller 1983.

13. ANATOLIAN HIEROGLYPHIC WRITING

ILYA YAKUBOVICH

Anatolian hieroglyphs are not to be confused with Egyptian hieroglyphs. The main features that the two scripts have in common include their use for carving texts on monumental objects and a large number of pictorial signs. In Anatolia, as in Egypt, many signs were used for writing whole words, and their shapes reminded the readers of the meanings of the respective words. Nevertheless, the two writing systems were used in different parts of the ancient Middle East and are not related to one another. The Anatolian hieroglyphic script functioned as a writing system in present-day Turkey and northern Syria between approximately 1400 and 700 BC.

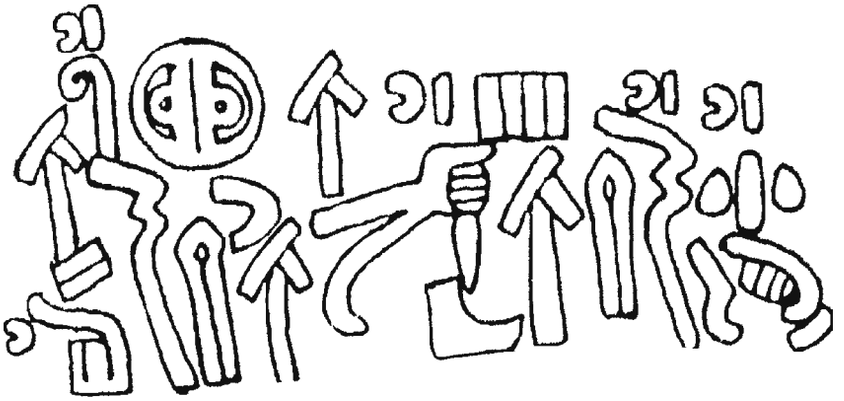
The Anatolian hieroglyphic script is known under various names. The term "Hittite hieroglyphs" was used in the late nineteenth century, when scholars had little knowledge about the languages of the area, and reflects the use of this writing system in the Bronze Age Hittite empire and the Early Iron Age Neo-Hittite states. Historians and archaeologists occasionally continue to employ this term, but from the linguistic point of view it is inaccurate, since the longer hieroglyphic inscriptions are all written in Luwian, a language closely related to, but distinct from Hittite. The more adequate term "Luwian hieroglyphs" has become more popular in the recent years among philologists. It has, however, its own drawbacks since the script was not created for writing Luwian, and the earliest inscription could be read in either Luwian or Hittite, as explained below. The designation "Anatolian hieroglyphs" has the advantage of being linguistically neutral, that is to say clearly distinguishing between the script and the languages with which it is associated.

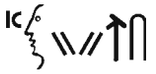
There are three main types of Anatolian hieroglyphs: phonetic signs, logograms, and determinatives. Phonetic signs were most commonly deployed not for recording individual sounds, but for rendering whole syllables of the structure "consonant+vowel," e.g., *pa*, *ti*, *su*. In some cases, different signs could be used for the same syllable: thus, no less than seven signs could be used to write *sa*.

Logograms were special signs reserved for high frequency words, which would refer to their meaning rather than phonetic structure. Since we do not know the pronunciation of many Luwian words written with logograms, and since a number of specialists in Anatolian hieroglyphs happen to be classicists by training, the current convention is to use Latin capitals for writing logograms, for example, DOMINUS "lord," EDERE "eat," SUB "under." Determinatives (or determiners) are frequently the same signs as logograms, but do not stand for particular spoken words, being instead appended in writing in order to clarify the meaning of other words. For example, the logogram TONITRUS "Storm god" is usually written with the unpronounced determinative DEUS "god," and the combination of the two signs is rendered in transliteration as (DEUS) TONITRUS.

Anatolian hieroglyphic inscriptions do not have a fixed direction of writing. Usually, a text is divided into horizontal lines, and if a particular line is written right to left, then the next one is written left to right, and vice versa. Scholars refer to this type of writing as boustrophedonic, meaning that the text moves along like an ox plowing a field. Because of this practice, the signs in odd and even lines of a text look like mirror images of one another (asymmetrical signs, like heads, face the beginning of the line regardless of the direction of writing). To make things even more complicated, each line tends to be two or three symbols "thick," and thus individual words are likely to form two-dimensional clusters. One should also keep in mind that a number of Anatolian hieroglyphic signs have cursive shapes, which occasionally creep into the monumental inscriptions.

The first-known specimens of Anatolian hieroglyphic writing come from the central Anatolian kingdom of the Hittites after the introduction of the Mesopotamian cuneiform to this region. It seemed odd to a number of scholars that this highly original and complicated writing system was developed in competition with an established form of writing. It was, therefore, suggested that the Anatolian hieroglyphs must have originally been



Transliteration					
	|wa/i-mu	|á-mi-zi-i	|tá-ti-zi	DEUS-ni-zi-i	|(LITUUS)á-za-ta
Transcription	wa-mu	aminzi	tatinzi	masaninzi	azanta
Translation	And-me	my	paternal	gods	loved
	"My paternal gods loved me"				

This is a quotation from a monumental decree of Halparuntiya, late ninth-century BC ruler of the Neo-Hittite kingdom of Gurgum in southwestern Turkey. In the lines above, individual words recorded in Anatolian hieroglyphs are aligned with their sign-by-sign transcriptions, transliterations, and translations. This example is sufficient to demonstrate the principal structural peculiarities of the Anatolian hieroglyphic script. Thus, the logogram  = DEUS "god" is accompanied by the phonetic complement *ni-zi-i* indicating the plural number. The verb *aza-* "to love" is preceded by the determinative  = LITUUS (graphically a crooked staff, symbol of authority in the ancient Middle East), which is otherwise generally placed in front of verbs and nouns related to cognition and perception. The sign  , marked in transliteration by the vertical line | is a word-divider used with various degrees of consistency in individual inscriptions. The slanted line above the transliteration *á* and *tá* represents a modern convention for distinguishing homonyms, that is, *á* and *tá* are condidered to be the second signs to have the values *a* and *ta* respectively. Note that *n* is systematically omitted in writing in the middle of words before consonants.

invented somewhere else, for example, in the western Anatolian kingdom of Arzawa, and only later borrowed by the Hittites (Hawkins 1986). In my opinion, this hypothesis is neither logically necessary nor empirically plausible. On the one hand, a new writing system may be created not for pragmatic reasons but as a way of expressing nationalistic sentiments. On the other hand, the linguistic analysis of the Anatolian hieroglyphic script supports the hypothesis that they originated in the Hittite-Luwian bilingual environment of central Anatolia.

The most obvious parallel for a new script marking a new cultural identity in the ancient Middle East is the invention of the Old Persian cuneiform at the court of the first Achaemenid kings (ca. 520 BC). This happened at the time when both Mesopotamian cuneiform and the Aramaic alphabet were already in use in Iran. Presumably, the early Achaemenids

regarded deploying new sign shapes for writing Old Persian as an important propagandistic device. In a similar fashion, the Hittite kings may have viewed the use of the hieroglyphic script as a symbol of their cultural independence from Mesopotamia. This interpretation is all the more likely since the appearance of the first phonetic hieroglyphic inscriptions roughly coincides in time with the shift from Akkadian to Hittite as the principal language of cuneiform texts in the Hittite capital Hattusa in the fifteenth–fourteenth centuries BC (van den Hout 2009). In the case of longer texts recorded on clay tablets, the change of a written language would represent a sufficient statement of nationalistic self-assertion. By contrast, the short inscriptions on stamp seals largely consisted of personal names and, therefore, could in principle be read in any language. Therefore, the use of the new hieroglyphic script was the most efficient way of stressing their indigenous character.

The available archaeological record confirms the hypothesis that the Anatolian hieroglyphic script originally evolved for making short inscriptions on personal objects. The stamp and cylinder seals from Anatolia and northern Syria dating back to 2000–1700 BC already feature a number of symbols that will later constitute a part of the Anatolian hieroglyphic inventory (Catalog No. 95). After the formation of the Hittite kingdom in about 1650 BC, individual symbols begin to be combined with each other for the purpose of rendering simple messages. Although the "Kubaba-seal" (Catalog No. 96) was probably carved in a later period, the interplay of signs on this object is typologically similar to the practices of the Hittite Old Kingdom. By the fourteenth century BC one can observe the emergence of a phonetic syllabary that made it possible to record unambiguously personal names, such as the name of Massanawiya (Catalog No. 97). But inscriptions of this type were not yet linked to the grammar of any particular Anatolian language. The final step, made in the thirteenth century BC, was the use of hieroglyphic signs for marking endings of nouns and verbs. Only at this stage do we observe the functional extension of hieroglyphic writing to other genres, such as monumental royal inscriptions, and its close association with Luwian. At the same time, the evolved script was conducive to making longer inscriptions on personal objects (Catalog No. 98).

In order to learn more about the region where the script under discussion was first created, it is important to determine the spoken language(s) of its inventors. It is common for many archaic scripts to use pictograms as phonetic signs in such a way that the beginning of a word depicted by a pictogram constitutes its derived sound value. Thus, in the early Canaanite alphabet, the letter *b* depicts a house, reflecting the fact that the Canaanite word for house is **bayt*, *k* is a pictogram depicting a hand, since **kapp* "(palm of) hand" begins with the sound *k*, and so on (see *12. The Invention and Development of the Alphabet,* this volume). The analysis of Anatolian hieroglyphs suggests that some of the pictograms derive their phonetic values from the Hittite language, while others draw upon their Luwian equivalents, as illustrated in table 15.1. This implies that the creators of the script were equally familiar with the Hittite and Luwian languages. Therefore fourteenth-century Hattusa, where the extensive presence of native Luwian speakers can be confirmed through the analysis of personal names, references to the use of Luwian in Hittite administrative texts, and structural interference between Luwian and Hittite, emerges as the most likely venue for the phonetic elaboration of Anatolian hieroglyphs (Yakubovich 2009).

Three bilingual inscriptions are to be highlighted in connection with the decipherment of the Anatolian hieroglyphic script. The seal of the western Anatolian king Targasnawa, inscribed in hieroglyphs and in cuneiform, allowed the British scholar A. H. Sayce to give the correct interpretation of the logograms for "King" (REX) and "Land" (REGIO) as early as 1880. This was the beginning of ancient Anatolian philology. The extensive Luwian and Phoenician bilingual inscription of Karatepe (southeastern Turkey), found in 1947, provided a solid confirmation of many hypothetical readings that were advanced by scholars of Luwian in the 1920s and 1930s. This discovery helped to establish the study of "Hittite hieroglyphs" as a universally accredited philological field. The discovery of short Urartian inscriptions both in Mesopotamian cuneiform and Anatolian hieroglyphic transmission on large vessels found at Altıntepe (northeastern Turkey) prompted the reevaluation of phonetic values of several important hieroglyphic signs (Hawkins, Morpurgo-Davies, and Neumann 1974). These "new readings" helped to establish a very close genetic relationship between the

TABLE 15.1. Some Anatolian hieroglyphs and their base of derivation

Sign	*Logogram*	*Sound Value*	*Base of Derivation*
	CAPERE "take"	*da*	Hitt. *da-* "take" (vs. Luv. *la*(*la*)- "take")
	4 "four"	*mi*	Hitt. *miwa* "four" (vs. Luv. *mawa* "four")
	PES "foot"	*ti*	Hitt. *tiya-* "walk, step" (compare Luv. *ta-* "stand, step")
	PRAE "before"	*pari*	Luv. *parri* "before" (vs. Hitt. *peran* "before")
	BONUS "good"	*wa* or *wi*	Luv. *wāsu-* "good" (vs. Hitt. *assu* "good")
	SIGILLUM "seal"	*sa*	Luv. *sasanza* "seal" (vs. Hitt. *siyatar* "seal")

Luwian language of the longer hieroglyphic inscriptions and cuneiform texts.

At the same time, there remains much space for new interpretations specifying the values of individual Anatolian hieroglyphs. To illustrate the importance of this ongoing work, it is enough to refer to the fragmentary Iron Age inscription from the Antakya region mentioning Halparuntiya (Catalog No. 99). The name of the country ruled by this king was traditionally read as "Wadasatina," but the recent work on the sign <ta$_4$> confirmed its alternative phonetic interpretation as *la* (Rieken and Yakubovich, 2010). At the same time, a new inscription found in Aleppo features the name of the same country with the initial <pa> sign. This opens the possibility that the country of Walastina/Palastina (phonetically possibly "Falastina"), in the southernmost tip of Turkey and northern Syria, had a name related to that of the biblical Philistines, who settled in the southwestern part of present-day Israel (Lawler 2009, p. 24). Thus, minor philological discoveries pertaining to the Anatolian hieroglyphic writing are likely to have a substantial impact upon how we understand the history of the Levant in the Early Iron Age.

REFERENCES

Collon, Dominique

1987 *First Impressions: Cylinder Seals in the Ancient Near East*. Chicago: University of Chicago Press.

Dinçol, Ali, and Belkis Dinçol

1980 *Anadolu Medeniyetleri Müzesinde Bulunan Hitit Hieroglif Mühürleri/Hethitische Hieroglyphensiegel im Museum für Anatolische Zivilisationen*. Ankara: Ankara Turizmi, Eskieserleri ve Müzeleri Sevenler Derneği Yayınları.

Gelb, Ignace J.

1939 *Hittite Hieroglyphic Monuments*. Oriental Institute Publications 45. Chicago: University of Chicago Press.

Haines, Richard C.

1971 *Excavations in the Plain of Antioch*, Volume 2: *The Structural Remains of the Later Phases: Chatal Hüyük, Tell al-Judaidah, and Tell Taʿyinat*. Oriental Institute Publications 95. Chicago: University of Chicago Press.

Hawkins, John David

1986 "Writing in Anatolia: Imported and Indigenous Systems." *World Archaeology* 17/3: 363–74.

2000 *Corpus of Hieroglyphic Luwian Inscriptions,* Volume 1: *Inscriptions of the Iron Age*, Parts 1–3. Berlin: Walter de Gruyter.

2003 "Scripts and Texts." In *The Luwians*, edited by Craig Melchert, pp. 128–69. Handbuch der Orientalistik 1/68. Leiden: Brill.

Hawkins, John David; Anna Morpurgo-Davies; and Günter Neumann

1974 "Hittite Hieroglyphs and Luwian: New Evidence for the Connection." *Nachrichten der Akademie der Wissenschaften in Göttingen (Philologisch-historische Klasse)* 6: 145–97.

van den Hout, Theo

2009 "A Century of Hittite Dating and the Origin of Hittite Cuneiform Script." *Incontri Linguistici* 32: 11–35.

Laroche, Emmanuel

1960 *Les hiéroglyphes hittites*. Paris: Éditions du Centre national de la recherche scientifique.

Lawler, Andrew

2009 "Temple of the Storm-god: A 5000-year-old Sanctuary Emerges from Beneath Aleppo's Medieval Citadel." *Archaeology* 62/6: 20–25.

Mora, Cielia

1987 *La glittica anatolica del II millennio A.C.: Classificazione tipologica*. Studia Mediterranea 6. Pavia: G. Iuculano.

Munn, Mark

2008 "Kubele as Kubaba in a Lydo-Phrygian Context." In *Anatolian Interfaces: Hittites, Greeks and Their Neighbours*, edited by Billie Jean Collins, pp. 159–64. Oxford: Oxbow Books.

Payne, Annick

2010 *Hieroglyphic Luwian*. 2nd revised edition. Wiesbaden: Harrassowitz.

Rieken, Elisabeth, and Ilya Yakubovich

2010 "The New Values of Luwian Signs L. 319 and L. 172." In *Luwian and Hittite Studies Presented to J. David Hawkins on the Occasion of His 70th Birthday*, edited by Itamar Singer, pp. 199–219. Tel Aviv: Institute of Archaeology, Tel Aviv University.

Tischler, Johann

2002 "Zur Morphologie und Semantik der hethitischen Personen- und Götternamen." In *Altorientalische und Semitische Onomastik*, edited by Michael P. Streck and Stefan Weninger, pp. 75–84. Alter Orient und Altes Testament 296. Münster: Ugarit-Verlag.

Yakubovich, Ilya

2009 "Hittite-Luwian Bilingualism and the Origin of Anatolian Hieroglyphs." *Acta Linguistica Petropolitana* 4/1: 9–36.

Zehnder, Thomas

2010 *Die hethitischen Frauennamen: Katalog und Interpretation*. Wiesbaden: Harrassowitz.

OBJECT DESCRIPTIONS: CATALOG NOS. 95–99

95. CYLINDER SEAL

Hematite
Mittani, 1600–1500 BC
Turkey, Tell Tayinat
Excavated by the Syrian Expedition of the University of Chicago, 1936
2.1 x 1.1 cm
OIM A27494

95

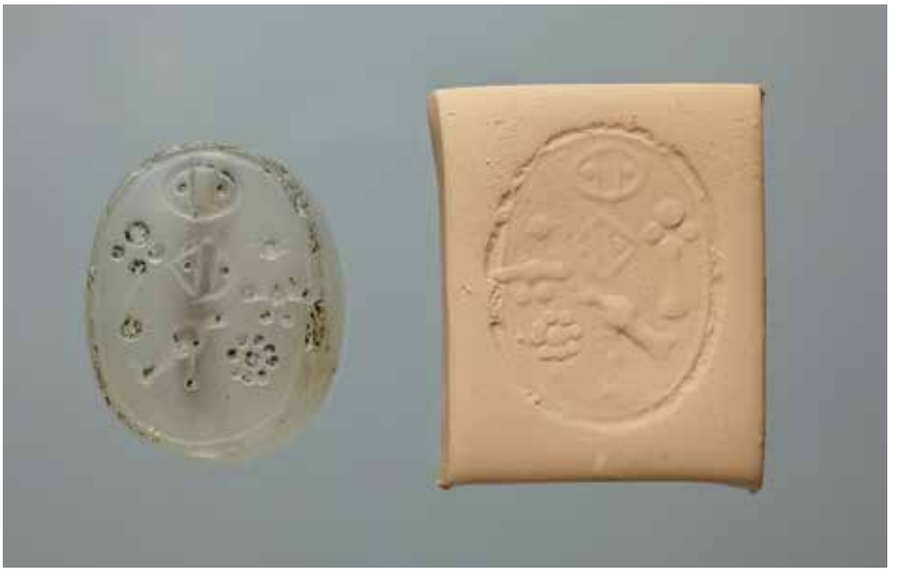
95, modern impression

The majority of the Anatolian hieroglyphic signs have indigenous origins. Nevertheless, a small set of foreign signs that became widespread throughout the eastern Mediterranean may have influenced the development of Anatolian writing. The clearest example is the *ankh* cross, originally the Egyptian symbol of life. Its popularity throughout the eastern Mediterranean need not surprise us given its importance in modern popular culture. This cylinder seal, found in the Early Iron Age layer of Tell Tayinat but presumably coming from nearby Alalakh, illustrates that the *ankh* symbol had already been known in the Levant in the early second millennium BC. In the Linear B writing, used for rendering Mycenaean Greek, the cursive shape of the *ankh* symbol acquired the sound value *za*. It is possible that Greek ζόη "life" was a trigger of this process, although this does not explain the vocalism of the Linear B sign.

Beginning in the fifteenth century BC, we encounter a similar sign used with the meaning VITA "life" on Hittite royal seals. Many scholars were convinced about the connection between this symbol and the Egyptian "ankh" (Laroche 1960, pp. 68–69). In contrast to this established theory, James Burgin, a graduate student at the University of Chicago, has recently adduced cogent iconographic arguments for taking the VITA sign as a simplified adaptation of the image of the Hittite double-headed eagle. In my opinion, there is no real contradiction between the two points of view because the Egyptian symbol of life could influence the semantics of the genetically unrelated but outwardly similar VITA sign. IY

96. STAMP SEAL

Chalcedony
Iron Age, 1000–700 BC
Purchased in Berlin, 1929
2.2 x 1.8 x 1.2 cm
OIM A6812



96 96, *modern impression*

This stamp seal of uncertain provenience came to the Oriental Institute collection in 1929. It is inscribed (from top to bottom) as (DEUS) *ku*-AVIS, which constitutes a reference to the Syrian goddess Kubaba. The first sign DEUS "god" is a determinative for gods or goddesses. The second one presumably refers to the phonetic value of the first syllable of the divine name. The third symbol is a logogram that literally means "bird," which implies that a bird was Kubaba's symbol in Syrian iconography. Interestingly enough, a bird of prey is also a symbol of the Phrygian mother goddess Cybele, whose name is possibly etymologically connected to that of Kubaba (Munn 2008). The monumental inscriptions from Carchemish contain the fuller spelling of the same theonym as (DEUS) *ku*-AVIS-*pa*-*pa*.

The inscription has close parallels on a number of Iron Age seals, none of which was documented in the course of controlled excavations (Hawkins 2000, pp. 577–80). The name of Kubaba appears on them either alone or together with the name of the sun god. This group is typologically quite unusual, since Anatolian hieroglyphic seals normally refer to the names of their owners and not to deities. Nonetheless, the fact that Kubaba's name was correctly read for the first time only in 1931 (Laroche 1960, p. 77) strongly suggests that the seals of this group are genuine despite their uncertain origin. It is simply impossible to imagine that they were all falsified before their meaning became clear to modern scholars, especially given the fact that the earliest of them were found in the nineteenth century. For occasional cuneiform "divine seals," offering a remote parallel to this group, see Collon 1987, p. 131. IY

97. TABLOID SEAL

Limestone
Thirteenth century(?) BC
Turkey, Chatal Höyük (Amuq),
Level IIIb, quadrant v-13
2.3 x 1.9 x 1.0 cm
OIM A12728

97 97, modern impression

This seal was found on February 10, 1934, on the northeast spur known as Area 1 on the mound of Chatal Höyük (Haines 1971). Level IIIb has been described as a residential area of irregularly laid-out mudbrick complexes with packed earth floors and has been dated to roughly 1000–500 BC.

The seal has a rectangular, tabloid form. It is lengthwise perforated with holes measuring 0.4 cm at the outside but slightly narrowing toward the inside. It was made of stone with a light beige color. The two large, carved sides are flat with rounded edges. The side with the inscription bears Anatolian hieroglyphic signs within a rectangular border measuring 1.95 × 1.55 cm. The signs have been carefully laid out over three "lines." The three signs are centered, the middle sign *wa/i* filling the entire middle line. The two other signs are each placed in the center flanked by simple vertical incisions in line 3, and by a vertical incision and the sign for "man" (VIR) in line 1 in the following way:

| VIR DEUS |
wa/i
| i(a) |

This results in a name, DEUS-*wa/i-i*(*a*), which from the determinative VIR must be a man's name. Filling in the Luwian word for "god" *massan*(*a/i*)- for the DEUS sign (word signs or logograms are customarily rendered in Latin) it can be read as *Mas*(*sa*)*nawiya* or *Massanawaya*. The problem, however, is that names ending in *-wiya* are thus far exclusively attested for women. Reading the name *Massanawaya* leaves the *-w-* to be explained. Another possibility would be to use the Hittite word for "god" *šiu-*, which could result in a name *Šiwaya*.

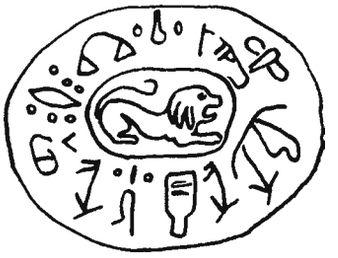
When turned along its short side and turned 90 degrees to the left the engraving on the other side shows what seems to be a bird-like creature facing left. This engraving fills the entire surface and there is no trace of a border.

Rectangular seals inscribed with Anatolian hieroglyphs of this kind are rare. The seal's closest parallel is one now kept in the Museum of Anatolian Civilizations in Ankara. Reportedly, it stems from the same general region, that is, Gaziantep or Kahramanmaraş, according to Ali and Belkıs Dinçol (1980, pp. 7f., 21f., pl. 5, no. 5; Mora 1987, p. 290, no. XIIa 2.28, pl. 87). According to their description it is of almost identical size (2.1 × 1.7 × 0.9 cm), form, and material. The inscription (*pi-ti-ya* VIR BONUS) is likewise laid out symmetrically within a rectangular border with the signs for VIR and BONUS and an additional filler antithetically on either side although less carefully executed than the Chatal Höyük exemplar. It too has a perforation through its long side. However, as opposed to the seal from Chatal Höyük this seal has no figure engraved on its reverse and shows the same inscription on both sides in practically identical fashion.

The date of the Ankara seal cannot be determined, since it does not come from a regular excavation, but it is usually dated to the thirteenth century BC (cf. Dinçol 1980, p. 17; Mora 1987, p. 346). The seal in the Oriental Institute's collection was found in the Iron Age levels of Chatal Höyük. However, as opposed to the second millennium,

when seals were extremely common, they seem to have been rare in the Iron Age. If this date is correct, then the seal might have been preserved as an heirloom. TvdH

98



98, modern impression

98. SCARABOID SEAL

Lapis lazuli, gold
Iron Age
Turkey, Tell Tayinat, unstratified level in section "IX"
Excavated by the Syrian Expedition of the University of Chicago, 1937
2.2 x 1.6 x 0.7 cm
OIM A41977

This seal was found on July 21, 1937, during Oriental Institute excavations. It has a gold setting along the edges with knob-like protrusions on both short ends. With those knobs the total length is 2.2 cm. The setting leaves the flat carved side on the bottom open and has small clamps pointing upward around the curved side to a height of 4 mm. Originally it probably was a ring. The very well-preserved inscription is finely incised and runs in an oval band formed by the gold setting on the outside and a single drawn line on the inside surrounding a recumbent lion in the center. The inscription reads:

za-a-wa/i SIGILLUM-*za* EXERCITUS-*la/i/u-mu-wa/i-sa* SOL SACERDOS (or SOL-*sa* SACERDOS)

The signs face inward and the inscription starts on the lower right just below the lion's rear. The *za*-signs date the inscription to the Iron Age. After the SACERDOS or in between the SACERDOS and the *za*(*-a-wa/i*) there is a small hook (<) that might have been intended as marking the beginning (or end) of the inscription. If so, the text says "This is the seal of Kula(n)muwa, priest of the sun god." It also possible (David Hawkins, personal communication) that the "hook" is a smaller variant of the *sa*-sign that we see at the end of the personal name (EXERCITUS-*la/i/u-mu-wa/i-sa*). In this case, the *sa* may be read as a case ending following SOL and can be understood as "(This is the seal of Kula(n)muwa, priest,) blessed by the sun god."

This seal belongs to a small group of five so-called ownership seals (see Hawkins 2000, pp. 573,

580–83) whose provenance and archaeological context is often problematic. A close parallel to the Tell Tayinat seal with a recumbent lion and an oval-shaped inscription in Anatolian hieroglyphs surrounding it was recently offered on the international art market. The inscription is very similar but the seal is said to have been made of hematite and has a hammer-shaped pierced handle.

A Kulamuwa (or Kulanmuwa) is known as king of Sam'al in the eighth century BC, but whether that was the same individual as the one on the seal discussed here remains unclear. TvdH

99

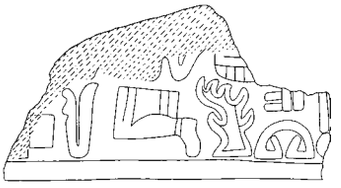
99. ROYAL INSCRIPTION IN LUWIAN

Basalt
Iron Age II/Amuq O, eighth century BC
Turkey, Tell Tayinat
Excavated by the Syrian Expedition of the University of Chicago, 1936
Fragment 1: 41.2 x37.6 cm; Fragment 2: 14.2 x 23.4 cm
OIM A27861D–H

Fragments of an Iron Age Luwian inscription mention King Halparuntiya and the name of his country. Halparuntiya's name in Fragment 2 is written semi-logographically: it contains signs HALPA "Aleppo" and CERVUS$_2$ "Runtiya, Stag god." The sign TONITRUS "storm god" was frequently added to the logogram HALPA because the city of Aleppo was famous for its temple of the storm god.

The adjective *wa/i-la/i-sà-ti-ni-⌜za-sa⌝* in Fragment 1, presumably derived from the name of Halparuntiya's country, was previously read as *wa/i-ta$_4$-sà-ti-ni-⌜za-sa⌝* and translated as "Wadasatinean" (Hawkins 2000, p. 366). The sign formerly read as <ta$_4$> can now be read as <la/i>, which means that it can be used for both the syllables *la* and *li* (Rieken and Yakubovich 2010). Note that any Anatolian hieroglyphic sign for a syllable ending in *a* can be also read as a plain consonant in a cluster (thus <sà> can stand for *s*).

99, Fragment 1



99, Fragment 2

		Transliteration	*Translation*
Fragment 1:	line 1	... -ni-sá wa/i-la/i-sà-ti-ni-⌜za-sa⌝(REGIO)...	...Walastinean ...
	line 2	... x x x | x-wa/i-i ...	
	line 3	... x-pa-wa/i-ta-´ REL-a-za x x x ...	... but (that) which ...
	line 4	... FORTIS-li?-i-na |*273-i-na |x...	... mighty virtue ...
	line 5	... x-ni(-)a+ra/i-li-ka SUPER+ra/i-´⌜CAPERE?⌝-ta |*356-sù-ha(-)⌜da⌝-mi-i... REL-sá REL-za(-)x...	(translation unclear)
Fragment 2:		...wa/i...-´⌜TONITRUS⌝.HALPA-⌜pa⌝-CERVUS$_2$-ti-ia-sa x...	...Halparuntiya...

The same adjective is also attested with the initial <pa>, which implies that its initial sound was something between *p* and *w*, perhaps *f*. This makes it possible to connect the name of Halparuntiya's country, phonetically Falastina or something similar, with the name of the biblical Philistines. IY

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14. THE BEGINNINGS OF WRITING IN CHINA

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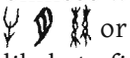
As anyone who has ever been to a Chinese restaurant knows, the experience can be daunting not only for the abundance of dishes listed on the menu (and often on the wall) but also perhaps even more so for the names of the dishes — and especially for the way they are written. Despite the widespread belief that the Chinese writing system is pictographic or ideographic, I suspect that few patrons will be able to see the "beef strips" in the name 牛肉絲 or the "fish" in the many dishes containing the graph 魚 or its many derivatives. In fact, all four of these characters are pictographic, or at least were when they were first created over three thousand years ago. If we could imagine going into a restaurant in thirteenth-century BC Anyang, the time and place of the earliest-known examples of Chinese writing, we might be better able to pick out  or especially  (though we might be more likely to find  "turtle" on the menu). However, their depictive qualities became progressively less apparent as the script developed, to the point that today it is probably misleading to refer to even them as pictographs, not to mention the 99 percent or more of current Chinese characters that depict primarily the sound of the word, such as 魷, 鮑, 鮪, 鮫, 鮭, 鯉, and 鰻 for "squid" (*yóu*), "abalone" (*bào*), "tuna" (*wěi*), "shark" (*jiāo*), "salmon" (*guǐ*), "carp" (*lǐ*), and "eel" (*mán*), among just the different kinds of fish that might be found on the menu of a Chinese restaurant in America.

That the Chinese script is the only one of the four ancient writing systems to remain in use today is both an advantage and a disadvantage in trying to describe it. As the examples depicting the forms of the character for "fish" suggest, the script in use today — whether the "simplified" script used in mainland China or the "traditional" script used in Taiwan, Hong Kong, and most American restaurants — has evolved a long way from its earliest usage, both in the detail of individual characters and in the general system itself (fig. 13.1). On the one hand, the continuity of use allows us to trace that evolution with considerable confidence; there is no need for a Rosetta Stone for us — at least those of us trained to do so — to read the ancient script. On the other hand, because we know the script of one period, we run the risk of anachronism when we rely on that knowledge to read the script of another period. Descriptions of the script today are likely to misrepresent, to a rather considerable extent, that ancient script. Conversely, descriptions of the most ancient script now known will diverge, also to a rather considerable extent, from the later historical script. However, my assigned topic in this essay being the origins of writing in China, it is that most ancient script that I try to describe.

As did writing elsewhere, writing in China began with picture writing, but eventually took a decisive turn toward depiction of sounds, if by "writing" we mean the visual record of language. Some scholars

Ancient Script				*Clerical*	*Standard*
Identificational	Bone	Zhou Bronze	Small Seal		
					

FIGURE 14.1. Chart illustrating the evolution of the character for *yú* 魚, "fish"

regard marks painted on Neolithic pottery as the beginning of writing. Some of these marks bear a certain resemblance to individual characters in the later Chinese script, such as the following from the mid-fifth-millennium BC site of Banpo, in present-day Shaanxi province, in the west of China:

However, most of these marks could be said to resemble characters in other scripts as well, and none of them occurs in any sort of linguistic context. Other scholars have focused on more complex marks found on pottery from the Dawenkou culture of eastern China some two millennia later, such as  and  , interpreting the first of these as depicting the sun rising over the horizon and the second as the sun rising over mountains. Without even asking why the second mark should depict the horizon as being over the mountain, we should simply note that these marks too do not occur in any sort of linguistic context.

It is not until the oracle-bone inscriptions of the late thirteenth-century BC that we find grammatically connected marks that certainly record language (see Calaog No. 101). There is no archaeological evidence with which to address the related questions of how long before that time writing developed and in what contexts. (There are lively debates, especially among Western scholars, as to whether writing developed gradually or rapidly, and whether it developed exclusively in a "religious" context or, as in the ancient Middle East, it was tied to court administration, but these will have to be topics for another occasion.) Although the oracle-bone inscriptions are primitive in comparison with the Chinese script of today, they do reflect a fully mature writing system. These inscriptions on turtle-shell and ox bone (and thus known in Chinese as "shell-and-bone writing" [*jiágǔwén*]) (fig. 13.2) derive from divinations performed at the royal court of the last nine kings of the Shang dynasty (ca. 1220–1050 BC). It is doubtless an accident of preservation and discovery that these divination records are the earliest-known written records from China — there was almost certainly other writing at the same time done on the more perishable media of bamboo and wooden strips, and from slightly later there begin to be inscriptions on bronze vessels (as, for example, Catalog No. 100) — but it is a more or less happy accident. Especially from the beginning of this period, the inscriptions concern a wide range of topics, from birth-giving to warfare, from settlement building to the harvest, from the weather to the king's toothaches, and so, despite their limited context and more or less formulaic nature, the inscriptions provide a surprising amount of information about the cultural life of the time and, to a somewhat lesser extent, about the nature and sorts of writing that were possible.

FIGURE 14.2. Turtle plastron with oracle texts

The inscriptions typically begin with a "preface," which can indicate any or all of the following information: the day of the divination, the "diviner" presiding, and, in later examples, the place of divination. Then follows the divination proper, known since no later than the seventh century BC (and doubtless much earlier as well) as the "charge" or "command." Except in the very earliest examples of divination, this charge was phrased as a declarative statement; thus, "We will attack such-and-such a state," rather than "Should we attack such-and-such a state?" Although the effect of this declarative mode of charging the turtle may not have differed much from questioning it, especially through much of the Shang dynasty, when divinations were customarily performed

in positive–negative pairs ("She loves me" — "She loves me not"), the theological implications are interesting; in the subsequent Zhou dynasty (1045–249 BC), divination charges were formulaically phrased as prayers ("We will do such-and-such; would that it succeed"). Following the "charge," the most complete inscriptions might include also a "prognostication," almost invariably done by the king himself, and/or a "verification," which indicates what actually did happen (almost invariably always confirming the king's prognostication). There can also be separate inscriptions recording the crack "number," which crack was to be "used," and "bridge notations" (inscribed on one or the other of the two wing-like protrusions on the side of the turtle plastron) usually indicating who contributed the turtle and/or who prepared it. I will quote here just one very famous pair of divinations from the reign of King Wu Ding (reigned ca. 1220–1190 BC) regarding the birth-giving by one of his principal wives, the Consort Hao, the discovery of whose tomb in 1975 rates as one of the great accomplishments in the history of Chinese archaeology. The inscriptions illustrate well the four different portions of a full divination, and the rubbing of the plastron also displays well the cracks in the plastron (which is what the king examined in making his prognostication) and the numbers associated with them.

甲申卜㱿貞婦好㞢加工占曰其隹丁㞢加其隹庚㞢引吉三旬又一日甲寅㞢允不加隹女

Crack-making on *jiǎshēn* (day 21), Que divining: "Consort Hao will give birth and it will be advantageous." The king prognosticated and said: "If it be a *dīng* day that she gives birth, it will be advantageous; if it be a *gēng* day that she gives birth, it will be extensively auspicious." On the thirty-first day, *jiǎyín* (day 51), she gave birth. It really was not advantageous; it was a girl.

甲申卜㱿貞婦好㞢不其加三旬又一日甲寅㞢允不加隹女

Crack-making on *jiǎshēn* (day 21), Que divining: "Consort Hao will give birth and it will not be advantageous." On the thirty-first day, *jiǎyín* (day 51), she gave birth. It really was not advantageous; it was a girl.

It would be possible to use this pair of divination inscriptions to arrive at some far-reaching conclusions about the nature of Shang life, but that too must be a topic for another time. For now, however, I turn my attention to an overview of the script.

Discussions of the Chinese writing system usually begin with the *Shuō wén jiě zì* or *Discussion of Design Graphs and Analysis of Composite Graphs* by Xu Shen (ca. AD 55–149), the earliest extant analytical dictionary in China. The postface to this dictionary of 9,353 different characters divides them into six categories, giving two examples for each. I provide a literal translation of the categories, as well as the translations used in the English edition of Qiu Xigui's *Chinese Writing,* the most authoritative overview of the Chinese writing system, including especially its earliest periods (though note that Qiu did not define the fifth category, "Turning and Commenting," saying that "it is basically unnecessary today to pay any attention to" it):

"Pointing at Affairs" or Semantographs:	上 *shàng* "above"; 下 *xià* "below"
"Resembling Shapes" or Pictographs:	日 *rì* "sun"; 月 *yuè* "moon"
"Shapes and Sounds" or Phonograms:	江 *jiāng* "river"; 河 *hé* "river"
"Converging Meanings" or Syssemantographs:	武 *wǔ* "military"; 信 *xìn* "trust"
"Turning and Commenting":	考 *kǎo* "father"; 老 *lǎo* "aged"
"Loaning and Borrowing" or Loangraphs:	令 *lìng* "leader"; 長 *zhǎng* "elder"

The first two of these categories are, as both their literal translations and Professor Qiu's more formal terms would suggest, what we would normally refer to as pictographs, in the first case more conceptual, in the second more realistic. Although the modern characters 上, 下, 日, and 月 have again diverged sufficiently from their origins as perhaps to be unintelligible to the uninitiated, their original shapes should be more or less clear at a glance: ⊙, 𝔻, ⚌, and ⚍. Characters of these two types make up about 10 percent of the characters in the *Shuō wén jiě zì*, though they probably constitute a third or more of all deciphered oracle-bone characters.

The category "Shapes and Sounds," or phonograms in Qiu Xigui's terminology, is far and away the

largest category in the *Shuō wén jiě zì*, as it is also in the modern script. It too is largely unproblematic: it features characters composed of two or more components, of which one serves to indicate the semantic classification (and thus is often termed the "classifier" or "determinative"), and one serves to indicate the pronunciation (and is thus usually termed the "phonetic"). The two examples given by the *Shuō wén jiě zì*, 江 and 河, both meaning "river" (江 usually being used for rivers of southern China, while 河 tends to be used for rivers of northern China), both feature the classifier 氵, which derives in turn from the character 水 *shuǐ* "water" (originally written ), together with a component that indicates the pronunciation: in the case of 江, now pronounced *jiāng* (anciently pronounced *krông), the component is 工, now pronounced *gōng* (anciently pronounced *kông); in the case of *hé* 河 (*gâi), the component is *kě* 可 (*khâi?, which is in turn derived from *kâi). But for one feature, this category potentially would have led to the Chinese script becoming purely phonetic: the phonetic components tended not to be chosen at random, but rather were often chosen because they were semantically meaningful as well. Thus, for instance, the phonetic component for the word *jiāng* 江 "river" is 工, which was originally the pictograph  of a "spade" (there are other explanations of the character, but most of them involve a pointed excavating tool with a long handle). Other words written with this phonetic component include *gōng* 功 "work," *gōng* 攻 "attack," *hóng* 鴻 "goose" (for its long neck?), *hóng* 虹 "rainbow," *hóng* 紅 "pink" (but originally deriving from "needle"), *kōng* 空 "hollow, empty," *gǒng* 鞏 "to build" (a foundation), and so on. Similarly, the phonetic component for *hé* 河 "river" derives originally from the pictograph of an ax handle,  (subsequently written *kē* 柯 *kâi; the ax handle is perhaps better seen in the pictograph *hé* "to carry on the shoulder": ), with an added "mouth" component, 口, to indicate that it was only being used for the sound. Other words written with the same phonetic component share this image: *kě* 軻 "draft pole" (of a chariot), *gě* 笴 "slender bamboo," *qí* 錡 "chisel," *qī* 踦 "to stand on one foot," and so on.

It is surely no coincidence that these two phonetic components, each in its own way originally words for long, narrow objects, were used to represent the sounds of the two words for "river," which after all is also a long, narrow object. Other phonetic components were certainly available, and some of them would have provided a closer match for the pronunciations *krông and *gâi (not to mention the later pronunciations *jiāng* and *hé*), but they would not have contributed as well to the meaning of the characters. The *Shuō wén jiě zì* provides a special twofold analysis for some, though by no means all, such characters, terming them "'Converging Meanings' with one component 'Also Phonetic'" (which, inspired by the terminology used in the English translation of Qiu Xigui's *Chinese Writing*, might be termed a "phonophoric-syssemantograph"). Although the semantic contribution of many of these phonetic components has long since ceased to be apparent, it can often be divined at the earliest stages of the script.

The fourth category of characters in the *Shuō wén jiě zì* is "Converging Meanings" or syssemantographs in Qiu Xigui's terminology. It refers to the joining together of two or more semantic components to arrive at a third, convergent meaning. The two examples that the *Shuō wén jiě zì* gives are both problematic, but for different reasons. *Xìn* 信 "trust" is composed of the component for "man" (*rén* 人) and the component for "language" (*yán* 言) and is said to mean "a man standing by his word." While it may be that the "man" adds some meaning to the word (the character is also commonly written with components for "thousand" [*qiān* 千] and "body" [*shēn* 身], in both of which "man" is both a semantic and phonetic component), it is also clear that it also indicates the pronunciation of the word: *xìn* 信 "trust" was pronounced *sins while *rén* 人 "man" was pronounced *nin. This too would seem to be a phonophoric-syssemantograph, if not purely a "Shape and Sound" phonograph. The other example of this category, *wǔ* 武 (*maʔ) "military," is readily analyzed as comprising the components *zhǐ* 止 (*təʔ) "foot" and *gē* 戈 (*kwâi or *kôi) "dagger-ax" (the oracle-bone form is ). It seems clear that neither component can readily serve as the character's phonetic, but what meanings converge? According to the *Shuō wén jiě zì*, following a much older gloss, the component *zhǐ* 止 "foot" stands instead for its extended meaning "to stop," and the two components together therefore mean "to stop fighting," a counter-intuitive sense for "military" that surely owes more to later moral philosophy than it does to the intrinsic nature of

the language. In fact, in oracle-bone inscriptions it is more likely to have meant "armed soldiers on the march," a sense as pictographic as it is convergent of two separate meanings.

Because of these problems, perhaps the most influential Western accounts of the origin and early development of the Chinese language and script, those of Peter Boodberg (1937, 1940) and his student William G. Boltz (1994), have argued that no complex characters should be analyzed as lacking a phonetic component. This seems clearly to be wrong, especially for the early period of the language reflected by the Shang oracle-bone inscriptions. Rather, more reasonable is the suggestion of Qiu Xigui (2000), the leading Chinese authority on the topic, that groups these "Converging Meanings" characters together with those of the "Pointing at Affairs" and "Resembling Shapes" categories as all being pictographic. Among numerous examples of this category, Qiu Xigui cites three different characters combining different components with a "knife" (*dāo* 刀) component: *yí* 劓 "cut off the nose (as a punishment)," the archaic form of the character,  , being a "knife" underneath the pictograph of a nose ( ; i.e., *zì* 自 "nose"); *shān* 删 (the oracle-bone form of which is ) "to excise" (as in to erase brush-written characters on bamboo strips by shaving them off with a knife), combining a "knife" with "bound bamboo strips"; and *jié* 魝 () "to clean fish," combining a "knife" with a "fish." Another particularly pictographic example to add to these examples might be that for the word *yuè* "to cut off a foot (as a punishment)," one oracle-bone form of which is written  (other examples replace the knife with a "hand" holding a "saw,"  , and/or  accentuate the victim's remaining foot). Another allograph,  , seems to replace the saw head and cut-off foot with the graph for "meat" (). It was this version that eventually became the conventional way of writing the character, though the "meat" was in turn replaced by the graphically similar "moon" ( ; i.e., *yuè*) and came to serve as the phonetic component of the character: *yuè* 刖.

The last two categories of characters as analyzed by the *Shuō wén jiě zì* are relatively rare (especially the category "Turning and Commenting," about which almost no one can agree and for which the *Shuō wén jiě zì* provides almost no examples), but the category "Loaning and Borrowing" is not without interest. It refers to one word for which a pictograph exists being used to write another homophonous word, usually one that would be difficult to depict (generally known as the rebus principle). Common examples are *hé* 荷 "to carry on the back" and *hé* 何 "what" and *jī* 箕 "basket" and *qí* 其 "he, she, it" (as well as a modal particle). *Hé* 荷 was originally written simply 何, the oracle-bone form clearly being a pictograph of a man carrying an ax handle  , and thus is a good example of what I have termed above a phonophoric-sysse-mantograph, combining the two semantic components "man" (i.e., *rén* 人) and "ax handle" (i.e., *kē* 柯, itself a loan character for the word *kě* 可 "able"), with *kě* also serving as the phonetic. Because it was more or less homophonous with the word *hé* "what," the character was "borrowed" to write that word. Later in the development of the script, in order to differentiate the two different words, an extra semantic component (*cǎo* 艹 "grass") was added to the character for the word "to carry on the back." A similar process is seen in the case of *jī* 箕 "basket" and *qí* 其 "he, she, it": the original graph for *jī* "basket," the pictograph , was borrowed to write *qí* 其 "he, she, it." Then, to differentiate the two words, the semantic element "bamboo" (i.e., 竹) was added to the character for "basket." For several centuries, the pictograph continued to be used to write the word *qí* 其 "he, she, it," but by about 800 BC it too was modified with the added phonetic component *jī* 丌 (which eventually became graphically fused with the original pictograph, so that it was no longer distinguishable as a separate component).

Another important pair of words that seems to have undergone a similar "borrowing" process and that illustrates several interesting developments with the Chinese script is *diān* 顛 (the archaic pronunciation of which was *tîn) "the crown of the head" and *tiān* 天 (*thîn) "heaven." Even though the *Shuō wén jiě zì* defines *tiān* 天 "heaven" as *diān* 顛 "the crown of the head," still the relationship between the words has been only dimly recognized. Part of the confusion stems from the dictionary's analysis of the character 天 as "Converging the Meanings" of a horizontal line (一, not necessarily the character *yī* 一 "one") and the character *dà* 大 "great," understood as "the highest, above which there is nothing else." In fact, the original form of the character for *tiān* 天 "heaven" was , featuring a round top rather than a horizontal

line. It seems likely that this was originally a pictograph of a man accentuating the head and thus stood for the word *diān* 顛 "the crown of the head," and that the character was then borrowed to write the nearly homophonous "heaven." It is likely that from an early time the round head was also identified as the character *dīng* 丁 (*têng) "top of a nail head" (subsequently written as *dīng* 釘, another case of "Loaning and Borrowing") and served as the phonetic component of the character (an allograph of which is in fact *dǐng* 頂 [*têngʔ]). This phonetic component was lost when the round head was replaced with a horizontal line, part of a gradual simplification of the script, with rounded and curved strokes tending to become squared and straightened, and otherwise made easier to write.

As the above analyses show, the Chinese script as seen at its stage of development at the time of the Shang oracle-bone inscriptions was still strongly pictographic in nature, though it is important to note, and as some of the examples considered above show, it became ever less so. This has caused a controversy between paleographers, who tend to focus on written characters, and linguists, who focus on spoken language and for whom, indeed, language is only spoken; for most linguistic theories, writing is epiphenomenal and can be defined as writing only insofar as it renders speech. Yet, it is not hard to demonstrate that Shang oracle-bone inscriptions could and did render in writing distinctions that could be made in speech only less economically. For instance, consider the words *mǔ* "male," written conventionally as 牡, and *pìn* "female," again written conventionally as 牝, in both cases employing a phonetic component (*tǔ* 土 in the case of *mǔ* 牡, and *bǐ* 匕 in the case of *pìn* 牝) together with a "bovine" (牛) signific. In oracle-bone inscriptions, however, these two phonetic components could be combined with an array of animals to indicate their gender: "bulls"  or "cows"  , to be sure, but also "rams"  and "ewes"  , "boars"  and "sows"  , "stallions"  and "mares"  , and even a "buck" deer:  . There is no indication that these different characters were pronounced differently, or that they gave rise (at least directly) to different words in the later language. This is by no means an isolated case; similar examples could be shown for types of sacrifice (differentiating both the offerings and the vessels used to hold the offerings), for objects of hunting and trapping, and, in one notable case, even what was to be gotten in an attack on the western Qiang people: "cowries"  or "heads"  (both apparently allographs of *fú* 孚 "to capture"). It might well be said that this is an indication of an immature stage of the script. However, much later examples could also be adduced, as for instance in the early twentieth century when written differentiations of the pronouns "he" (*tā* 他), "she" (*tā* 她), and "it" (*tā* 牠 or 它), or, for Christians, even *tā* 祂 "He" (i.e., Christ or God), were introduced for the single word *tā* 他 that had always sufficed to indicate the generic third-person pronoun. It seems to me that this might be explained as a way in which the script has influenced the language itself, which, I would like to suggest, is not an entirely uninteresting phenomenon and should certainly count as a fine example of "visible language."

FURTHER READING

Boltz, William G.

1994 *The Origin and Early Development of the Chinese Writing System*. American Oriental Series 78. New Haven: American Oriental Society.

Boodberg, Peter A.

1937 "Some Proleptical Remarks on the Evolution of Archaic Chinese." *Harvard Journal of Asiatic Studies* 2/2: 329–72.

1940 "'Ideography' or Iconolatry?" *T'oung Pao* 35: 266–88.

Chang, Ping-ch'uan

1962 *Hsiao-t'un*, Volume 2: *Inscriptions*, Fascicle 3, Part 2: *Inksqueezes of the Restored Specimens of Inscribed Tortoise Shells with Annotations*. Archaeologia Sinica 2. Taipei: Institute of History and Philology, 1962. No. A7691B7731.

Kelly, Charles Fabens, and Ch'en Meng-chia

1946 *Chinese Bronzes from the Buckingham Collection*. Chicago: Art Institute of Chicago.

Qiu Xigui

2000 *Chinese Writing*. Early China Special Monograph Series 4. Berkeley: Society for the Study of Early China and the Institute of East Asian Studies, University of California.

Rawson, Jessica M.

1990 *Western Zhou Bronzes from the Arthur M. Sackler Collections*, Volume 2: *Ancient Chinese Ritual Bronzes in the Arthur M. Sackler Collections.* Cambridge: Harvard University Press.

Shaughnessy, Edward L.

1989 "Shang Oracle-bone Inscriptions." In *Ritual and Reverence: Chinese Art at the University of Chicago*, edited by Robert Poor, Edward L. Shaughnessy, Harrie A Vanderstappen, Richard A. Born, and Sue Taylor, pp. 68–90. Chicago: David and Alfred Smart Gallery.

OBJECT DESCRIPTIONS: CATALOG NOS. 100–101

100

100. GRAIN VESSEL (*GUI*)

Bronze
China, Western Zhou dynasty, second half of eleventh century BC
27.0 x (diameter at lip) 22.2 cm
Art Institute of Chicago, Lucy Maud Buckingham Collection, AIC 1927.316

This handled tureen is one of an extensive array of bronze vessels commissioned by China's royal family and political aristocracy for the preparation and offering of millet and other food in ceremonial banquets. This vessel's distinctive style, with its basin cast onto a hollow square base derived from an altar or stand, was introduced soon after the Zhou conquest of China's first archaeologically verified dynasty, the Shang. Exuberantly imaginative creatures animate the surface. Two large, coiled dragons spread across each side of the bowl; animal-headed birds form the handles; and on the

base, creatures with spiky, flame-like plumage display a clever ambiguity: they may be read as addorsed birds or as elephant-headed "dragons" facing each other.

Inside the bottom of the basin, an inscription of eleven characters runs from top to bottom in two columns reading right to left*: Zhong Cheng zuo you bao yi yong xiang wang ni wei yong* "Zhong Cheng makes his treasured vessel, to use to feast the king's reciprocal immortalizing."[1] This brief text commemorates a celebratory event: the commissioning of this vessel to entertain the king by a court official or attendant named Zhong Cheng. The strongly rendered and well-balanced script incorporates a few pictographic characters, among which "feast" (left column, second character) depicts two figures kneeling face to face over a grain vessel.

Like almost all bronze inscriptions, this text is countersunk in the metal. This was achieved by carving the characters into a wet clay block, which was then pressed into a second block that locked into the vessel's clay piece-mold assembly and created a positive (relief) impression from which the bronze was cast. Given the vessel's extraordinary technical skill and artistry, it may seem curious that its message is visible only from above and would have been completely concealed when the tureen was filled with food. Yet being spiritually as well as physically integral to the vessel, these words would have been recognized by all participants, both living and dead, in a feast in which this vessel filled a prominent role. EP

NOTE

[1] Translation by Edward L. Shaughnessy.

PUBLISHED

Kelly and Ch'en Meng-chia 1946, pp. 44–47, 150; Rawson 1990, p. 366.

100, detail of inscription

101. ORACLE BONES

Turtle plastron and ox bones, some with pigment
Shang Dynasty, ca. 1200 BC
China
Various dimensions (see below)
The David and Alfred Smart Museum, Smart 1986.385, 1986.386, 1986.392, 1986.393, 1986.397

These bits of turtle shell (the plastron or flat underbelly of the turtle) and ox bones bear some of the earliest examples of writing in China. They are records of divination — essentially the attempt to influence the outcome of future events — performed on behalf of the kings of the last portion of the Shang dynasty (ca. 1200–1050 BC) and concern a wide range of topics of concern to the kings. The shells (and bones) were prepared in advance of the divination by carving and drilling hollows into the back of the shell. Then, at the moment of the divination, a hot brand was inserted into a hollow, causing a stress crack in the shape of ᚴ to appear on the front of the shell. (Number 1986.385, the largest piece exhibited here, provides a good illustration of such a crack, including the scorching of the shell caused by the hot brand.) The shape of this crack apparently indicated the result (positive or negative, auspicious or inauspicious) of the divination. Sometime afterward the record of the divination, sometimes including also a record

101, 1986.385

101, 1986.386

of what "really" did happen, could then be incised into the shell near the crack (though 1986.385 itself does not bear any inscription). The other pieces exhibited here are all quite fragmentary, caused in part by the crack-making process itself, but they illustrate something of the writing of the time, and 1986.397 includes portions of three related divinations to determine to which Shang ancestor (the names of Da Yi, meaning the Great Yi — the founding father of the dynasty — and Da Jia, are preserved) a specially raised sheep should be offered. ELS

TRANSLATIONS

1986.385 (10.3 x 6.9 cm):

(uninscribed)

1986.386 (7.0 x 5.6 cm):

"Mei" (apparently a name)

1986.392 (9.8 x 2.6 cm):

"day forty-one" (of the Shang sixty-day cycle)

1986.393 (7.8 x 2.3 cm):

"Wu should not"

1986.397 (7.0 x 2.1 cm):

"Divining on *xin-* ..."

"Divining on *xinwei* (day eight): 'To Da Yi announce a shepherded lamb.'"

"Divining on *xinwei* (day eight): 'To Da Jia announce a shepherded lamb.'"

"... announce a (shepherded) lamb."

PUBLISHED

Shaughnessy 1989.

101, 1986.392 *101, 1986.393* *101, 1986.397*

15. THE DEVELOPMENT OF MAYA WRITING

JOEL W. PALKA

Late Classic Period Maya writing (ca. AD 600–800) is one of the best-understood scripts in ancient Mesoamerica. Maya inscriptions number in the thousands, and they are found from northern Yucatán down to Chiapas, western Honduras, and El Salvador. In this extensive region, the Maya built numerous cities with impressive stone-block temples and open plaza spaces with stone stelae and panels, surrounded by their agricultural fields and pole-and-thatch residential constructions. The Maya interacted heavily through trade, warfare, political alliances, and collective ritual, resulting in a shared culture and artistic tradition. The ancient Maya are well known for their finely made painted ceramics, jade carvings, incised shell, and sculpture that carry ornate inscriptions.

We live in a time of exciting advancements in the decipherment of Late Classic Maya writing; in the last fifteen years, epigraphers have explored the linguistics of Maya writing and deciphered many more signs, leading to an excellent comprehension of Late Classic Maya inscriptions. Classic Period Maya texts (ca. AD 250–900) include calendars, classifications of objects, descriptions of events in the lives of elites, and even scribal signatures. The Classic Maya wrote mostly in a Ch'oltian Mayan language, although Yucatec Mayan is also represented in the script. The texts accurately represent language, including vocabulary, verb conjugation, syntax, and sounds such as glottal stops and long vowels. However, readers embellished or "performed" the narratives, especially with public monuments and during rituals.

The Classic Period Maya script balances the use of logographs, or word signs, and syllables, hence, scholars labeled it "logosyllabic." There are over three hundred signs in the Late Classic Maya script, many of which are standardized syllables and logographs. However, the scribes often varied the way they wrote, invented glyphs, and reorganized the signs, resulting in a great diversity in the script and its incomplete decipherment. Thus, it takes many years for students of Maya writing to memorize the sign repertoire and even longer to write in the script.

Surprisingly, we know little about the origins and earliest phases of Maya writing. By pondering the nature and distribution of Maya writing, clues to its origins can be revealed. The material and social contexts of Maya writing suggest that its origins cannot be traced to a single factor, such as for either religious, political, or economic purposes. Additionally, various early Maya scripts evolved pointing to their complex origins. It is also important to note that Maya text, image, and object are closely interrelated. The Maya scribes planned the hieroglyphs as painstakingly as they crafted the fine artifacts bearing the texts. Elite art became more extraordinary, socially important, and economically valuable once the fine calligraphy was added.

In this essay, I discuss the historical background of Maya writing, then I explore the contexts in which Maya writing appears. It is on the topics of what and where Maya writing is seen that we may find intriguing clues toward its origins. Maya writing is found on everything associated with elites, including jade ear spools, carved bones, stucco building facades, ceramic vessels, and stone monuments. The context of Maya writing also indicates that its permanence was important. Maya texts were painted on paper, wood, cloth, and even human skin, but most of these inscriptions have not been preserved. Nonetheless, the extensive corpus of Maya writing exists because texts were purposely carved on non-perishable materials. Thus, records of events could be transmitted over generations, and the spoken words and writing itself, all symbols of power in Mesoamerica, would be preserved.

MESOAMERICAN SCRIPT HISTORY

Ancient Mesoamerican scripts are concentrated in central Mexico, the Gulf Coast region, the southern Mexican states of Guerrero and Oaxaca, and the Maya

area of the Yucatán Peninsula. Known scripts include Olmec, Zapotec, Nuiñe, Teotihuacán, Maya, Isthmian, Aztec (Nahuatl), and Mixtec writing. Mesoamerican writing occurs on carved stone monuments, ceramics, murals, wood, and portable objects, such as jade, shell, and bone. Mesoamerican peoples created countless books and records on paper or animal skin, but only a few examples, which date to the late pre-contact and post-conquest periods, have survived. Mesoamerican scripts generally combine logographs and syllables. For instance, a Maya word for jaguar, *balam*, was written either logographically in the Classic period as a jaguar's head, phonetically as *ba-la-ma* (the last vowel *a* is dropped), or the jaguar-head sign with a syllabic *ba* prefix or *ma* suffix acting as phonetic complements.

The historical context of Mesoamerican writing illuminates the origins and nature of Maya script. The Maya were not the first literate people in ancient Mexico and Central America, since both Olmec and Zapotec scripts were invented earlier. Writing was more than likely invented in the Early or Middle Formative period (ca. 1200–600 BC) with the evolution of politically complex societies of the Olmec in the Gulf Coast region of Mexico, in addition to Guerrero, Oaxaca, central Mexico, and Central America. Olmec civilization had large settlements, hereditary elites, interregional trade, and elite art, all of which provided important pre-conditions for the development of writing. Numerous greenstone plaques and celts owned by elites, such as the "Humbolt Celt" and "Tlaltenco Celt," exhibit iconography and short inscriptions. Unfortunately, all early writing in Mesoamerica remains undeciphered, but the signs probably include noble titles, god names, and calendar dates.

A few years ago, scholars reported an inscription on a serpentine block discovered during modern construction at Cascajal, Veracruz, near the Olmec site of San Lorenzo. Recent studies of the stone support its antiquity, and it may be associated with Middle Formative-period pottery and iconography. But the stone's exact provenance and date are unknown. The incised signs resemble other Olmec hieroglyphs, they repeat in obvious patterns, and the text possibly has a top-down, left to right reading order similar to other Mesoamerican scripts. Ceramic figurines found by archaeologists at the site of Canton Corralito, Chiapas, Mexico, dated to about 1300–1000 BC exhibit similar writing.

Other examples of the earliest Mesoamerican writing are found in the highlands of Oaxaca, mostly on the monumental Danzante sculptures, which depict captives and sacrificial victims. Radiocarbon dates associated with the excavation of a stone monument at San José Mogote place the sculpture and its two glyph inscriptions at around 600 BC. Monuments at nearby sites, including Monte Alban, date the beginnings of writing here to about 500–200 BC. This script may record the Zapotec language.

EARLY MAYA TEXTS AND CONTEXTS

Maya writing developed in the tradition of Mesoamerican writing initiated by the Olmec and Zapotec. More than likely, literate peoples in the Gulf Coast or highland Oaxaca influenced Maya writing. Early Maya writing occurs on the same media as other scripts, it probably represents language through logographs and syllables, and it more than likely records calendars and events in the lives of elites, perhaps rulers. However, while the Maya adopted writing from other Mesoamerican cultures and borrowed a few signs, such as the signs for "cloud" and "hill," they invented their own hieroglyphs. The earliest Maya writing differs considerably from Classic to Postclassic times.

Maya writing was widespread by about 100 BC and it was placed on everything. Interestingly, not one, but several early scripts were found throughout the Maya region. The presence of different scripts is intriguing since the Maya shared iconographic styles and material culture. Maya writing only became standardized through elite interaction and political expansion during the Classic period. Classic Maya texts are read in hieroglyph blocks from top to bottom and from left to right; the individual sign clusters within the blocks are read in a similar manner. The early Maya inscriptions are linear in organization, with fewer paired columns like in the Classic period, and we assume that they too are read from top to bottom and left to right. Human heads often face to the viewer's left, perhaps to the beginning of of the sentence like in Egyptian and Classic Maya writing.

The earliest-known Maya writing, which dates to 400–200 BC, appears in murals on palace walls at the site of San Bartolo, Guatemala. One glyph may be read *ajaw* "lord/noble," which is a common Late Classic Maya title. The painted glyphs flank depictions of anthropomorphic deities, and the signs may refer to these gods, their actions, or perhaps the names and titles of Maya lords. Scholars assume these texts are in a Maya language since some signs resemble later ones, and the writing is associated with Maya material culture and architecture. However, their linguistic affiliation is a mystery.

The easiest discernible signs in Maya writing are calendar dates, since they typically have numbers or coefficients from one to nineteen, and the named day signs are written in cartouches. Dots or fingers stood for the number one, rectangular bars represented the number five, a round moon-like glyph denoted "twenty" or "many," and a cross-hatched lobed "fan-like" symbol meant "zero," but these later two are more common in the Classic period. Other logographs represented calendar periods, such as twenty days and twenty years (of 360 days), that combined with coefficients to produce larger numbers. For example, during the Classic period, a bar placed immediately to the left of the sign for twenty Maya years designated "100 years." Many of the earliest Maya inscriptions do not exhibit calendar dates with clear bar and dot numbers. Perhaps the numbers were symbolized by logographs, or possibly head variants as seen in some Late Classic texts.

Monumental Art

Maya writing on stone stelae, buildings, and murals or "public" contexts paralleled other early Mesoamerican scripts. Early Maya writing often occurs on carved stone monuments, like at the sites of El Baul, Chiapa de Corzo, Kaminaljuyu, El Portón, Chalchuapa, El Mirador, and Takalik Abaj. The scripts at these centers vary, which may be due to differences in language, local scribal practices, script chronologies, or localized writing traditions. The early stone monuments are concentrated in the Maya highlands, which speaks to the elevated cultural importance of writing in this area and perhaps to interaction with literate peoples in adjacent highland Oaxaca. Conversely, during the Classic period, carved monuments with writing predominated in the Maya lowlands, including the sites of Uaxactun, Yaxchilán, Tikal, and Copán.

The early Maya script predating the Classic period most likely records the names and titles of Maya elites or their gods. Numbered day and month signs in the Maya calendar occur on monumental public art, but they are more common in the Classic period. Importantly, the calendars not only marked the timing of rituals and events in the lives of the elite but also were likely used to track periods related to the Maya economy, such as market days, tribute schedules, and gift exchanges.

Maya writing on monuments was paired with images of elites or deities indicating the close association between art and script. Furthermore, Maya calligraphy was well developed from the very beginning, which indicates an early origin date or direct diffusion of writing, and the high artistic quality of the script cannot be overemphasized. The hieroglyphs are prominently displayed next to images, and they are frequently large enough to see from a distance. Maya writing also occurs as high-relief carvings instead of incising or painting. The appearance of the writing suggests that it may have been used to appeal to the sensation of touch rather than just the senses of sight (seeing) and sound (reading). Touching the sculptures would accentuate the connection between art and writing, in addition to drawing attention to their beauty, importance, and permanence.

Portable Objects

Personal objects with carved or incised Maya script further exemplify the intersections of art, writing, touch, and permanency. Some of the earliest examples of carved Maya writing are on polished jade, bone, and shell objects. Like Late Classic Period examples, these early inscriptions probably include the objects' owners' names and titles, deity names, and signs related to the qualities of the objects themselves. Later objects of carved bone often display texts that mark the kind of object and ownership, such as *u baak* "his/her bone," followed by the person's name and titles. The redundant marking of objects with obvious labels, such as his/her "bone" or "jade" on objects made from these materials, is a fascinating aspect of Maya writing. The practice may be due to artistic reasons and for making words permanent. However, this early writing may also have

stemmed from economic activity and transaction recording, since fine objects with owners' names in the Classic period were tribute payments or gifts to other elites. The objects with texts describing their qualities and owners would also have had higher cultural and economic value over non-inscribed ones.

From the earliest times, elite Maya artists created the texts and designs simultaneously on portable objects and monumental art. It appears that some noble scribes added texts at a later date, sometimes centuries after the object was finished. For example, many early Maya inscriptions were added to the reverse of objects. The texts reinforced the artistic quality of the objects and made them more socially and economically important. These permanent words described the qualities, ownership, or deities associated with the objects. If the objects were tribute items or gifts, then the givers' or previous owners' names and titles were forever visible for everyone to see, touch, and read. Maya elites held and manipulated these objects, and therefore, the carved texts would be felt and not erased with use.

THE RISE OF EARLY MAYA WRITING

In summary, the first Maya writing developed from earlier Mesoamerican scripts in southern Mexico during a period of growth in complex regional polities and human populations. The texts did not exist before the rise of elites, who controlled political, economic, and religious domains, and it arose following extensive interregional interaction. The script exhibited fine calligraphic style and occurred on elite Maya material culture, indicating that educated elites learned and transmitted writing from region to region over time. Early Maya writing consisted of different scripts that were used locally by relatively small numbers of people in a restricted interaction sphere. Thus, the creation of early Maya writing may have been like the development of historic religious and nativistic texts around the world by indigenous prophets following colonial subjugation, such as the Cherokee script. In this instance, Sequoyah created the Cherokee written syllables in the early nineteenth century following interaction with literate American colonists. In the Maya case, regional elites copied earlier literate Mesoamerican cultures and developed writing to possibly communicate religious and political information to gain local power and prestige following interregional interaction with other expanding Mesoamerican polities, including the Olmec and Zapotec.

Additionally, Maya writing was integrated into the crafting of the objects themselves and their iconography, thus script, artifact, and art cannot be separated. Maya writing made objects more aesthetically pleasing and thus of greater economic and political value. The possible inclusion of personal names and titles in early Maya writing could have been important for recording economic transactions between elites, such as tribute payments and gifts. Inscriptions with calendar dates may have recorded these transactions underscoring the economic potential of Maya writing.

The permanency of the carved texts was also crucial for social reasons. Inscribed texts could not be easily erased, and the words could be touched while the objects were being manipulated and read over many generations. Histories and words could be transmitted to descendents and viewers through time. The power of words and the person who reads or speaks them has always been central to Mesoamerican politics and religion. In this sense, early permanent texts may have been similar to writing on charms in ancient to modern Europe, where the preserved words empowered their creator. According to the nature and context of Maya writing, then, the origins and development of the script cannot be attributed to one, but rather to many, interlinked factors that involved interregional interaction and the religious, economic, political, and social life of the elites.

FURTHER READING

Coe, Michael

2005 *Reading the Maya Glyphs*. New York: Thames & Hudson.

Fahsen Ortega, Frederico

1995 "La transición Preclásico Tardío-Clásico Temprano: El desarrollo de los estados mayas y la escritura." In *The Emergence of Lowland Maya Civilization: The Transition from the Preclassic to the Early Classic*, edited by Nikolai Grube, pp. 151–62. Markt Schwaben: Verlag Anton Saurwein.

Fahsen, Frederico, and Nikolai Grube

2005 "The Origins of Maya Writing." In *Lords of Creation: The Origins of Sacred Maya Kingship*, edited by Virginia M. Fields and Dorie Reents-Budet, pp. 74–79. Los Angeles: Los Angeles County Museum of Art.

Hassig, Ross

2001 *Time, History, and Belief in Aztec and Colonial Mexico*. Austin: University of Texas Press.

Houston, Stephen

2005 "Writing in Early Mesoamerica." In *The First Writing: Script Invention as History and Process*, edited by Stephen Houston, pp. 274–309. Cambridge: Cambridge University Press.

Justeson, John S., and Peter Mathews

1991 "Evolutionary Trends in Mesoamerican Hieroglyphic Writing." *Visible Language* 24/1: 88–132.

Marcus, Joyce

1992 *Mesoamerican Writing Systems: Propaganda, Myth, and History in Four Ancient Civilizations*. Princeton: Princeton University Press.

Monaghan, John

2008 "Revelatory Scripts, 'the Unlettered Genius,' and the Appearance and Disappearance of Writing." In *The Disappearance of Writing Systems: Perspectives on Literacy and Communication*, edited by John Baines, John Bennet, and Stephen Houston, pp. 323–34. London: Equinox.

Mora-Marín, David

2009 "Early Olmec Writing: Reading Format and Reading Order." *Latin American Antiquity* 20/3: 395–412.

Rice, Prudence M.

2007 *Maya Calendar Origins: Monuments, Mythistory, and the Materialization of Time*. Austin: University of Texas Press.

Saturno, William A.; David Stuart; and Boris Beltrán

2006 "Early Maya Writing at San Bartolo, Guatemala." *Science* 311/5765: 1281–83.

OBJECT DESCRIPTION: CATALOG NO. 102

102. HIEROGLYPHIC CYLINDER STONE

Limestone
Late Classic Maya, AD 700/800
Possibly Bonampak/Lacanha area, Mexico or Guatemala
21.6 x 41.9 cm
The Art Institute of Chicago, gift of Mr. and Mrs. Herbert Baker, AIC 1971.895

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This sculpture seems to be the top portion of a stone cylinder or column. It depicts what appears to be a deceased ancestor (perhaps in the form of a mummy bundle) ensconced in the earth. His name glyph consists of a rabbit head with a curled element on top. The top hieroglyphic text states that an undeciphered object (perhaps this column) was likely erected in AD 670, some 29 years after the death of this presumed depicted ancestor (probably in AD 641). The side text states that the deceased ancestor's later successor (and possibly grandson) completed a number of years in office as lord. His name (possibly "Turtle Back") and titles (e.g., "Smoker/Incenser Lord") are given and he is said to be from a place called "Bubbling/Gurgling/Upwelling Water," likely in the Usumacinta River region. This text demonstrates fairly common aspects of Maya hieroglyphic writing, such as elision of weak consonants and conflation of signs. JB

TRANSLATION

> Fifteen days, two "months," and nine and twenty "years" [since] "Rabbit?" died on 2 *Chikchan* 8 *Uniw*, then a ??-*bil* is erected on 6 *Ajaw* 18 *Ik' Sihom*. Six? "years" are completed in lordship [by] Ancestor-Turtle, the Smoker/Incenser Lord, Turtle-back?, he of Bubbling/Gurgling/Upwelling Water, [the *Xukalnah* Lord].

CONCORDANCE OF MUSEUM REGISTRATION NUMBERS

Registration Number	*Illustration Number*	*Description*
ART INSTITUTE OF CHICAGO		
AIC 1927.316	Cat. No. 100	Grain vessel (*gui*)
AIC 1971.895	Cat. No. 102	Hieroglyphic cylinder stone
SEMITIC MUSEUM, HARVARD UNIVERSITY		
HSM 1893.5.39	Cat. No. 94	Incantation in Cuneiform and Greek alphabet
HSM 1934.9.1	Cat. No. 90	Ostracon with Old Hebrew text
HSM 1935.4.7	Cat. No. 89	Plaque with Proto-Sinaitic inscription
HSM 1936.1.18	Cat. No. 92	Old South Arabian (Minaean) inscription
HSM 1978.1.1	Cat. No. 91	Arrowhead inscribed in Proto-Canaanite
THE ORIENTAL INSTITUTE OF THE UNIVERSITY OF CHICAGO		
ChM III-755	Cat. No. 36	Intact clay envelope with seal impressions
ChM III-804	Cat. No. 14	Ancient seal impression showing figures carrying textiles that arc down from their heads
ChM III-811	Cat. No. 38	Sealing
ChM III-859	Cat. No. 17	Ancient seal impression with archer and captives with arms bound
ChM III-870	Cat. No. 15	Ancient seal impression with workers in front of a granary
ChM III-925A	Cat. No. 33	Broken clay envelope with tokens inside
ChM III-937A	Cat. No. 31	Sealed numerical tablet fragment
ChM IV-443A–C	Cat. No. 27	Disk-shaped tokens with horizontal lines
ChM V-120	Cat. No. 34	Conical token with convex top
OIM A1447	Cat. No. 57	Gudea votive inscription
OIM A2480	Cat. No. 60	Syllabary
OIM A2515	Cat. No. 53	Archaic administrative text
OIM A2519	Cat. No. 62	Seleucid legal text (sale of a house plot)
OIM A3275	Cat. No. 58	Ur III administrative text (receipt for one dead lamb)
OIM A3616	Cat. No. 16	Cylinder seal with scribe, priests, and part of a boat
OIM A3648	Cat. No. 6	Cylinder seal with animals and the "reed bundle" symbol of the goddess Inana
OIM A3670	Cat. No. 56	Early Dynastic III lexical list
OIM A6812	Cat. No. 96	Stamp seal
OIM A10825	Fig., p. 154	False door stela of Nisuredi
OIM A11471	Cat. No. 18	Cylinder seal with triangle and dot design
OIM A12728	Cat. No. 97	Tabloid seal
OIM A17129	Cat. No. 7	Cylinder seal with three goats
OIM A17641	Cat. No. 11	Cylinder seal showing a lion attacking a bull
OIM A17754	Cat. No. 4	Cylinder seal with horned animal and temple facade
OIM A17861	Cat. No. 19	Cylinder seal with arcade design
OIM A17877	Cat. No. 93	Aramaic incantation bowl
OIM A19841	Cat. No. 28	Broken disk with painted cross
OIM A21370	Cat. No. 5	Cylinder seal with two horned animals and temple facade
OIM A21761	Cat. No. 8	Cylinder seal with three goats
OIM A22003	Cat. No. 59	Letter
OIM A27494	Cat. No. 95	Cylinder seal
OIM A27861D–H	Cat. No. 99	Royal inscription in Luwian
OIM A27906	Cat. No. 9	Cylinder seal depicting fish
OIM A29808B	Cat. No. 61	Ornamental peg with trilingual text
OIM A32353	Cat. No. 2	Stamp seal with geometric motif
OIM A32441	Cat. No. 13	Ancient seal impression with seated textile workers and animals
OIM A32442	Cat. No. 10	Ancient seal impression depicting goat and plant
OIM A32474	Cat. No. 35	Intact clay envelope with seal impressions
OIM A32491	Cat. No. 40	Figurine of a bull or calf
OIM A32507	Cat. No. 23	Crescent-shaped token with incised lines
OIM A32537	Cat. No. 3	Stamp seal with geometric motif
OIM A32553	Cat. No. 12	Ancient seal impression with a "master of animals" or herding scene
OIM A32595	Cat. No. 29	Clay lump with dots
OIM A33044	Cat. No. 22	Spherical token with impressions
OIM A33070A–E	Cat. No. 20	Disk-shaped tokens

Registration Number	*Illustration Number*	*Description*
OIM A34819	Cat. No. 21	Pyramidal tokens
OIM A41977	Cat. No. 98	Scaraboid seal
OIM A55048	Cat. No. 1	Stamp seal in the abstract form of an animal with animals incised on base
OIM A64619	Cat. No. 25	Crescent-shaped token with incised lines
OIM A64622	Cat. No. 30	Disk-shaped token with six dots
OIM A64623	Cat. No. 24	Jar-shaped token
OIM A64625	Cat. No. 26	Crescent-shaped token with incised lines
OIM A64678	Cat. No. 32	Broken clay envelope with tokens inside
OIM A64679	Cat. No. 37	Bulla with seal impression
OIM E1814	Cat. No. 64	Vessel with pot mark
OIM E9002	Fig., p. 155	Color inlay slab from tomb of Nefermaat
OIM E5865	Cat. No. 78	Funerary stela
OIM E5882	Cat. No. 66	Sherd with pot marks
OIM E5883	Cat. No. 65	Sherd with pot marks
OIM E5899	Cat. No. 67	Sherd with pot marks
OIM E5932	Cat. No. 68	Numerical tag
OIM E5954	Cat. No. 71	Cylindrical vessel
OIM E6095	Cat. No. 69	Label
OIM E6105	Cat. No. 72	Inlay for small cosmetic box
OIM E6192	Cat. No. 70	Tag
OIM E6252	Cat. No. 77	Sealing
OIM E6703	Cat. No. 76	Jar sealing
OIM E6714	Cat. No. 75	Sealing
OIM E6718	Cat. No. 74	Sealing
OIM E7911	Cat. No. 79	Votive plaque
OIM E9787F	Cat. No. 84	Hieroglyphs and hieratic, Papyrus Ryerson
OIM E10592	Cat. No. 73	Cylinder seal
OIM E13945	Cat. No. 81	Letter to the dead
OIM E14062	Cat. No. 83	Hieratic text Papyrus Gardiner III
OIM E16881	Cat. No. 82	Cippus (healing statue)
OIM E16955	Cat. No. 80	Funerary stela
OIM E25259	Cat. No. 85	Demotic annuity contract
OIM E30024	Cat. No. 88	Ostracon with uncial Coptic script
OIM E30025	Cat. No. 87	Ostracon with cursive Coptic script
OIM E42046	Cat. No. 86	Fragment of a funerary shroud
SMART MUSEUM OF ART, UNIVERSITY OF CHICAGO		
Smart 1986.385	Cat. No. 101	Oracle bone
Smart 1986.386	Cat. No. 101	Oracle bone
Smart 1986.392	Cat. No. 101	Oracle bone
Smart 1986.393	Cat. No. 101	Oracle bone
Smart 1986.397	Cat. No. 101	Oracle bone
VORDERASIATISCHES MUSEUM, BERLIN		
VAT 5294	Cat. No. 48	Administrative text (list of livestock)
VAT 5302	Cat. No. 49	Administrative text (grain transactions)
VAT 14540	Cat. No. 39	Inana symbol
VAT 14682	Cat. No. 44	Tablet with numerical signs and writing
VAT 14942	Cat. No. 45	Archaic administrative text
VAT 15003	Cat. No. 46	Archaic list of occupations
VAT 15245	Cat. No. 50	Archaic administrative text (theoretical calculation of grain)
VAT 15246	Cat. No. 51	Archaic administrative text (theoretical calculation of grain)
VAT 16741	Cat. No. 47	Writing exercise
VAT 16744	Cat. No. 52	Archaic administrative text (list of rations)
VAT 16749	Cat. No. 41	Perforated tag
VAT 16750	Cat. No. 42	Perforated tag
VAT 21307	Cat. No. 43	Perforated tag
YALE UNIVERSITY		
NBC 3842	Cat. No. 63	Hittite inventory of wool and woolen garments
NBC 5921	Cat. No. 54	Archaic administrative text (transfer of slaves)
YBC 7056	Cat. No. 55	Archaic administrative text (transfer of goats)

CHECKLIST OF THE EXHIBIT

1. The Invention of Writing in Mesopotamia

OIM A32507	Crescent-shaped token with incised lines
OIM A33044	Spherical token with impressions
OIM A19841	Broken disk with painted cross
OIM A33070A–E	Disk-shaped tokens
OIM A34819	Pyramidal tokens
OIM A64619	Crescent-shaped token with incised lines
OIM A64622	Disk-shaped token with six dots
OIM A64623	Jar-shaped token
OIM A64625	Crescent-shaped token with incised lines
ChM IV-443A–C	Disk-shaped tokens with horizontal lines
OIM A32595	Clay lump with dots
OIM A64678	Broken clay envelope with tokens inside
OIM A64679	Bulla with seal impression
OIM A32474	Intact clay envelope with seal impressions
ChM III-755	Intact clay envelope with seal impressions
ChM III-925A	Broken clay envelope with tokens inside
ChM V-120	Conical token with convex top
OIM A3616	Cylinder seal with scribe, priests, and part of a boat
OIM A3648	Cylinder seal with animals and the "reed bundle" symbol of the goddess Inana
OIM A11471	Cylinder seal with triangle and dot design
OIM A17129	Cylinder seal with three goats
OIM A17641	Cylinder seal showing a lion attacking a bull
OIM A17754	Cylinder seal with horned animal and temple facade
OIM A17861	Cylinder seal with arcade design
OIM A21370	Cylinder seal with two horned animals and temple facade
OIM A21761	Cylinder seal with three goats
OIM A27906	Cylinder seal depicting fish
OIM A32353	Stamp seal with geometric motif
OIM A55048	Stamp seal in the abstract form of an animal with animals incised on base
OIM A32537	Stamp seal with geometric motif
OIM C4010	Rolling of A17861
OIM C4015	Rolling of A3648
OIM C4018	Rolling of A21370
OIM C4020	Rolling of A17129
OIM C4022	Rolling of A17754
OIM C4025	Rolling of A3616
OIM C5623	Rolling of A17641
OIM C5625	Rolling of A21761
OIM C5626	Rolling of A27906
OIM C5627	Rolling of A55048
OIM A32441	Ancient seal impression with seated textile workers and animals
OIM A32442	Ancient seal impression depicting goat and plant
OIM A32553	Ancient seal impression with a "master of animals" or herding scene
ChM III-870	Ancient seal impression with workers in front of a granary
ChM III-859	Ancient seal impression with archer and captives with arms bound
ChM III-804	Ancient seal impression showing figures carrying textiles that arc down from their heads
OIM A32491	Figurine of a bull or calf
OIM A2515	Archaic administrative text (barley)
VAT 14540	Inana symbol
YBC 7056	Archaic administrative text (transfer of goats)
VAT 15003	Archaic list of occupations
VAT 14682	Tablet, Uruk
VAT 14942	Archaic administrative text
VAT 16750	Perforated tag
VAT 21307	Perforated tag
VAT 5294	Administrative text (list of livestock)
VAT 15245	Archaic administrative text (theoretical calculation of grain)
VAT 15246	Archaic administrative text (theoretical calculation of grain)
VAT 16741	Writing exercise
VAT 16744	Archaic administrative text (list of rations)
VAT 16749	Perforated tag
VAT 5302	Administrative text (grain transactions)
NBC 5921	Archaic administrative text (transfer of slaves)
ChM III-937A	Sealed numerical tablet fragment
ChM III-811	Sealing
OIM C3199	Modern stylus

2. Other Uses of Cuneiform Script

OIM A3670	Early Dynastic III lexical list
OIM A1447	Gudea votive inscription
OIM A2480	Syllabary
OIM A3275	Ur III administrative text (receipt for one dead lamb)

NBC 3842	Hittite inventory of wool and woolen garments
OIM A29808B	Ornamental peg with trilingual text
OIM A2519	Seleucid legal text (sale of a house plot)
OIM A22003	Letter

3. The Invention of Writing in Egypt

OIM E1814	Vessel with pot mark
OIM E5882	Sherd with pot marks
OIM E5883	Sherd with pot marks
OIM E5899	Sherd with pot marks
OIM E5932	Numerical tag
OIM E6192	Tag
OIM E6095	Label
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OIM E6105	Inlay for small cosmetic box
OIM E5865	Funerary stela
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OIM E6718	Sealing
OIM E6714	Sealing
OIM E6252	Sealing
OIM E6703	Jar sealing

4. Other Egyptian Scripts

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OIM E9787F	Hieroglyphs and hieratic, Papyrus Ryerson
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OIM E30024	Ostracon with uncial Coptic script
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The Potency of Writing in Egypt

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HSM 1935.4.7	Plaque with Proto-Sinaitic inscription
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GLOSSARY OF LINGUISTIC TERMS

MONICA L. CREWS

abecedary A sequential listing of the alphabetic letters of a writing system.

accusative case The marker of the direct object of an action in a sentence. Like other cases, the accusative must be marked to be described as a case (e.g., English distinguishes an accusative case in the personal pronouns: "Mary slapped *him*."; "The dog bit *me*.").

acrophony The use of a graph or sign to represent only the initial phoneme of the original value of the graph (adj. acrophonic).

acrophony is also used to describe the practice of naming letters using a word beginning with that letter (the Hebrew alphabet names its letters using acrophony, e.g., *kaph* "palm" is used to name the letter representing the phoneme /k/).

affix A morpheme that is attached to the beginning (prefix) or end (suffix) or inserted into (infix) a word stem to form a new word. Affixes can form derived words (e.g., shame-*less*; laugh-*able*) or inflected forms of words (e.g., look-*ed*; dog-*s*; buy-*ing*).

agglutinative language Agglutination is where affixes are added to a word (e.g., aim-*less*-*ly*). Agglutinative languages employ agglutination widely throughout the language to express grammatical relationships. In agglutinative languages, verbs are not inflected, but affixes are attached to a base verb to express the various characteristics of the verbal action, including voice, person, and tense or aspect. Modern agglutinative languages include Hungarian, Turkish, and Japanese.

Example Sumerian

šeš.ĝu$_{10}$.ene.ra. "For my brothers." **šeš** (*noun* "brother")-**ĝu$_{10}$**(*1st person singular possessive suffix* "my")-**ene**(*plural marker*)-**ra**(*dative case marker* "to, for")

Akkadian An extinct language belonging to the East Semitic branch of the Semitic language family. It is related to other Semitic languages such as Hebrew and Arabic. Akkadian and the related Eblaite language are the only known East Semitic languages. Akkadian appears in the written record in Mesopotamia from the mid-third millennium BC to the first century AD. There are two major dialects of Akkadian, Assyrian and Babylonian.

allograph A variant form of the shape of a graph or sign (e.g., A, a, *a*, etc. in the modern Latin script).

allomorph A variant pronunciation of a morpheme based on neighboring sounds (e.g., English plural -s has an allomorph [z] when following a voiced consonant: dog*s* [z] vs. cat*s* [s]).

alphabet A standardized set of basic written symbols (letters), each of which represents roughly a phoneme in a language.

Aramaic A Semitic language with a 3,000-year history leading into modern times. The Aramaic script was widely adopted for other languages and is related to the Arabic and Hebrew scripts. It was used as an administrative language of the Assyrians in the first millennium BC and was the everyday language in Israel during the Second Temple period (539 BC–AD 70).

Aztec (Nahuatl) The Nahuatl writing used by the Aztecs in pre-Columbian central Mexico was a primarily pictographic and ideographic system augmented by the rebus principle and syllabic signs. Some do not consider Aztec script to be true writing, but rather proto-writing because the system did not record complete sentences or phrases. The script was used to record Nahuatl, a language in the Uti-Aztecan language family. Modern Nahuatl is still spoken by about one and a half million indigenous speakers in central Mexico.

biliteral A single sign that represents a sequence of either two consonants, two semi-consonants (e.g., *w* or *y*), or a combination of both.

boustrophedon Writing alternate lines in opposite directions, also called bi-directional writing. The Greek term refers to the turns made by plowing oxen (adj. boustrophedonic).

case (cuneiform tablet) This refers to the way in which cuneiform tablets were organized and demarcated by the scribe. Sections of the tablet that were sectioned off by the scribe with straight lines are called "cases." On the earliest tablets, cases were often square and contained one sign or a couple of signs. As time passed, more signs were included in each case, signs began to be written in order within a case, and cases became more linear, marking the lines of a text. By the first millennium BC, lines of a text were no longer individually separated by the scribe into cases, though certain sections of a text were often marked, such as the end of part of a literary text or particular sections of administrative documents.

case (grammatical) A grammatical category used to identify and describe the relationship of different elements in a sentence (e.g., the accusative case marks the direct object of an action, and nominative marks the subject).

Ch'oltian Maya An extinct language from Mesoamerica written using Maya hieroglyphs that was spoken in eastern Chiapas and Guatemala. It belongs to the Maya language family and was thought to be a prestige dialect in the Classical period (ca. AD 600–800).

classifier See **determinative**.

consonantal writing Writing that ignores vowels, using consonants and semi-consonants (such as glottal stops, *w*, and *y*).

Coptic A script used to write Egyptian that developed through the adaptation of the Greek alphabet in the first century AD. Six or seven signs from the Demotic script were added to those of the Greek alphabet to represent Egyptian phonemes that Greek lacked.

cryptogram A figure, representation, or written symbol with hidden significance.

cryptography Writing in code or cipher (adj. cryptographic).

cuneiform A writing system used for several different languages in the ancient Middle East from the fourth millennium BC through the first century AD where signs were made by pressing a reed stylus into wet clay. Cuneiform is named for the characteristic wedge shape of the strokes made by the triangular end of a reed stylus. The name comes from Latin *cuneus* (plural *cunei*), which means "wedge."

Demotic The most cursive script used by the ancient Egyptians. It developed from hieratic and was written commonly on ostraca or papyrus in ink with a brush or reed. The word "Demotic" comes from Greek and means "popular," distinguishing it from hieratic and hieroglyphics,

which were known for their use in sacred contexts.

determinative A silent graphic device where a graph or sign is used to classify a word belonging to a particular semantic category.

> *Example* In Sumerian and Akkadian, determinatives are used to mark words such as place names, personal names, divine names, city names, wooden and metal objects, and certain kinds of animals and professions.

diachronic Relating to the study of phenomena (such as of a language or culture) as they change over time.

Eblaite An extinct Semitic language centered at the city of Ebla, located in modern northern Syria, during the mid-third millennium BC. Eblaite was one of the first Semitic languages to be committed to writing and, with Akkadian, is one of the only known members of the East Semitic branch of the Semitic language family.

Elamite An extinct language with no known language relatives that was used by the Elamites, and which takes its name from Elam, a city located in modern Iran. Elamite was one official language of the Persian empire from about the sixth to the fourth century BC.

epigraphy The discipline of studying, deciphering, and interpreting inscriptions, especially ancient inscriptions.

epistolary Relating to or written in the form of a letter or correspondence.

faience (Egyptian) a non-clay-based ceramic composed of crushed quartz or sand with a surface finished by glass transition or vitrification. This process gives faience a variety of bright blue-green colors.

genitive case The marker, mostly, of possession, but it can be used to mark other grammatical functions depending upon the language (e.g., in Sumerian, the gentive case is marked by the morpheme *-ak* e_2 diĝir*ak* "the house of the god" or "the god's house").

glottographic (system) Referring to a system of communication that represents speech so that the language is recoverable from the system itself. Also called "true writing."

glyph A figure, symbol, or character engraved, incised, or carved in relief.

grammatology The study of writing systems and scripts, coined by I. J. Gelb.

Graeco-Babyloniaca texts A small group of school tablets from the turn of the current era that have an Akkadian or Sumerian text on the obverse with a Greek transcription given on the reverse. The Greek transcriptions give indications of the pronunciation of both Akkadian and Sumerian, despite the fact that both languages had long ceased to be spoken. Amazingly, even though Sumerian, for example, had not been spoken in nearly two millennia, the Greek transcriptions reflect the language's phonemic inventory and pronunciation. These texts date to the very end of the cuneiform tradition, sometime between 50 BC and AD 50.

graph The smallest definable segment in a stretch of writing or print, sometimes synonymous with **sign**.

hieratic A cursive script related to Egyptian hieroglyphics that was commonly written in ink on ostraca or papyrus with a reed brush.

hieroglyphs The written symbols of a pictographic writing system characterized by their use in ceremonial or monumental contexts, such as their use for religious texts, on temple walls, or on stone monuments. Egypt, Anatolia, and the Maya, among others, employed different and unrelated systems of hieroglyphic writing.

Hittite An extinct language used in ancient Anatolia (modern Turkey) during the second millennium BC. Hittite belongs to the Indo-European family of languages, which includes languages such as English, Greek, the romance languages, Hindi, and Russian.

homophony When words with different meanings have the same pronunciation. These words are called **homophones** or **homonyms**. Homonyms may or may not share a logographic sign or alphabetic spelling (e.g., bear [verb] vs. bear [noun]; flower vs. flour).

Horus name The oldest attested name of an Egyptian king. The Horus name (king's name) was usually written inside of a representation of a palace facade, called a *serekh,* with the image of Horus sitting atop or next to the *serekh*.

Hurrian The extinct language of the Hurrian people, who inhabited northern Mesopotamia during the end of the third through the second millennium BC. Hurrian belongs to the Hurro-Urartian language family along with Urartian. It was the official language of the Mittani empire in the mid-second millennium BC.

iconicity The similarity, resemblance, or analogy between the form of a sign or graph and its referent.

iconography A visual representation, a symbolic representation, and conventional meanings associated with a visual image, or the study of the visual arts and their subjects, meanings, and interpretations.

ideogram/ideograph A sign or graph that represents an idea or concept such as the graphs used to write "above" and "below" in Chinese (adj. ideographic).

infix An affix that is inserted into the middle of the word to which it is added.

> *Example* Infixes, though common in many languages, are extremely rare in English. Infixation in English sometimes occurs with the plural for certain words, such as spoonful or passerby spoon<s>ful; passer<s>by.

inflection/inflexion The modification of a word to express different grammatical categories, such as number, gender, tense or aspect, case, etc.

isolate (linguistic/language) A language without any known language relatives, such as Sumerian. One commonly cited modern isolate is Basque, which is spoken in Spain and France.

Isthmian script A script used in and around the Isthmus of Tehuantepec in Mexico during the first few centuries AD. Some claim it to be descended from users of Olmec iconography and thus call it Epi-Olmec, but Isthmian is a preferred label since it indicates the geographical range of the texts, but does not assume descent from Olmec.

lexeme The minimal unit of the vocabulary of a language (e.g., jump, jumped, and jumping are forms of the English lexeme jump). Lexemes can be one word or multiple words, as is the case with some idiomatic expressions (e.g., by and large "in general," catch on "understand"). The individual parts of a multi-word lexeme are one word lexemes in other contexts.

lexical Relating to the words or vocabulary of a language, separate from its grammar.

lexicography The craft of compiling and writing dictionaries, and the scholarly endeavor of describing semantic (and other) relationships between words in the lexicon (vocabulary) (adj. lexicographic or lexicographical).

ligature A sign that combines two or more individual signs into one.

logo-consonantal (script) Where logograms are extended phonetically to express the consonants of the words they represent, ignoring vowels (e.g., in Egyptian, *sꜣ* "duck" and *sꜣ* "son" could be written using the same graph, though they likely were pronounced with different vowels).

logogram A written symbol (sign or graph) that represents a word. Some logograms used in written English include % "percent" and & "and."

logo-syllabic (script) Where logograms are extended phonetically to express syllables (e.g., Sumerian logograms *a* "water" and *gi* "reed" are also used to express the phonetic syllables *a* and *gi/ge*, respectively).

Luvian/Luwian An extinct Indo-European language spoken in Anatolia during the second and first millennia BC. It is closely related to Hittite. Luvian was written using both cuneiform and Anatolian hieroglyphs.

Maya script A logo-syllabic, hieroglyphic script used in ancient Mesoamerica during the first millennium AD to write mostly a Ch'oltian Maya language, part of a language family found in Mesoamerica. The Maya script is one of the best understood but not the earliest writing of ancient Mesoamerica.

Mixtec writing Mixtec writing incorporated pictorial representations of scenes and events with a logographic writing system. Mixtec is a tonal language, where difference in meaning is distinguished with variations in tone and vocal inflection. Thus, many of the phonetic symbols in Mixtec writing are used to represent tone. Mixtec belongs to the Oto-Manguean language family in Mexico. We have eight manuscripts that use Mixtec writing and cover a span from about AD 940 to 1550.

metonymy Where a word or concept is substituted for another word or concept to which it is closely related, or of which it is a part. This can be done either verbally (e.g., in English, "counting heads" means "counting people") or visually in a script (e.g., using a pictograph of an animal's head to represent the whole animal).

monosyllabic Consisting of one syllable. A monosyllabic language consists primarily of words that are one syllable in length.

morpheme The smallest unit of meaning in a language. Morphemes can be entire words (e.g., *song*, *harm*, *walk*) or parts of words (e.g., song-*s*, harm-*ful*, walk-*ed*). The latter are called bound morphemes because they only occur when combined with other morphemes.

morphogram A graph or sign that represents the most basic form of a morpheme regardless of pronunciation (e.g., English plural -s is written with the morphogram *s* despite the fact that in certain phonetic contexts it has the pronunciation [z]: dog*s* [z], bird*s* [z] vs. cat*s* [s], plant*s* [s]).

morphography Using graphs or signs to represent morphemes based on meaning rather than sound.

morphology The structure and form of words as well as the linguistic study of those structures (adj. morphological).

morphophonemic A change in the pronunciation of a morpheme when in contact with other sounds (e.g., the English plural -s as pronounced in dog*s* [z] and cat*s* [s]).

nominative case The marker, generally, of the subject of a verb or predicate verb (e.g., In Akkadian the nominative case is marked with the morpheme *-um* added to the end of a noun *awīl**um** illik* "the man went").

Old Persian One of two attested Old Iranian languages alongside Avestan. Old Persian was first attested in the written record during the time of the Achaemenid dynasty (ca. 550–330 BC). The oldest Old Persian inscription is the Behistun inscription (ca. 520 BC), in which Darius (550–486 BC) takes credit for inventing the Old Persian cuneiform script. It was the first language deciphered that used a cuneiform script.

Old South Arabian A consonantal alphabetic script used around the southern edge of the Arabian Peninsula. It is believed to have split from the Proto-Sinaitic script as early as 1300 BC, but it is not attested until around the eighth century BC.

Olmec script A script used by the Olmec people in Mesoamerica, who lived in the tropical regions of Mexico from about 1250 to 400 BC.

orthography The study of spelling and the rules governing the use of written symbols in a standardized system (adj. orthographic).

ostraca Pieces of pottery or stone.

Palaic An extinct Indo-European language attested in the Hittite capital of Hattusa during the second millennium BC.

paleography The study and scholarly interpretation of earlier, especially ancient, writing and forms of writing. In particular, paleography is the study of the physical characteristics of a script (adj. paleographic).

pars pro toto Latin for "(taking) part for the whole," *pars pro toto* is where part of an object or concept is used to represent the entire object or concept (e.g., using a pictograph of an animal's head to represent the entire animal or set of animals).

Phoenician An extinct Semitic language that was spoken in the coastal area of the Levant in what was Canaan in ancient times, including parts of modern Lebanon, Syria, Israel, Tunisia, Algeria, and Malta. The Phoenician script was a non-pictographic consonantal alphabet that became one of the most widely used scripts. It was adapted to write Greek and Aramaic, which were both adapted further to write Latin, Hebrew, and Arabic.

phone Any speech sound in a language. Unlike phonemes, phones comprise all the speech sounds of a given language regardless of meaning or distinction between words.

phoneme Any one of the set of speech sounds that convey a distinction in meaning between words. (e.g., /b/ and /p/ are two phonemes in English *bit* and *pit*, *bat* and *pat* are distinct words because the first phoneme of each word is distinct.) One phoneme may have several pronunciations, or phones, that are regarded as identical by the speaker (e.g., in English, the phoneme /w/ can be voiced or voiceless without affecting meaning). The various pronunciations of a single phoneme are known as allophones.

phonemic Relating to the phonemes of a language (e.g., the phonemic inventory of a language is the inventory of all its phonemes).

phonetic Relating to the speech sounds of a language (e.g., the phonetic inventory of a language is the inventory of all its phones, or speech sounds).

phonetic complement A sign that gives part of the phonetic rendering of a logogram that has multiple readings (English writing often uses phonetic complements when writing ordinal numbers 1st, 2nd, 3rd, etc.).

phoneticism The phonetic representation of speech sounds.

phoneticize To represent speech with a system of graphs or signs corresponding to speech sounds (noun: phoneticization).

phonogram A graph or sign used to represent sound rather than meaning. This is in contrast to logograms (which represent words or morphemes) and determinatives (which are not pronounced).

phonographic (system) When a writing system uses graphs or signs that represent sounds (phonograms), such as an alphabetic writing system.

phonology The systematic use of sound to encode meaning in spoken language. The study of the way sound functions in any given language (adj. phonological).

phonophoric-syssemantograph Wh en two or more elements with distinct meanings are joined together to represent a third meaning, and where one or more component is, or can be, a phonetic complement.

pictography Writing using signs or graphs that express meaning through a graphic resemblance to a real-life object. These graphs are called pictographs or pictograms.

polyphony When words with different pronunciations are represented with the same sign or graph.

Example In Sumerian, the sign KA can be used to write several different words including ka "mouth," zu_2 "tooth," dug_4 "speak," gu_3 "voice," and inim "word," among others.

prefix An affix that precedes the element to which it is added (e.g., *un*-known).

protoliterate A term referring to the very earliest stages of writing in ancient Mesopotamia. The Protoliterate period includes, for example, the Uruk IV and Uruk III phases of writing and lasts up until about 2900 BC.

proto-cuneiform A term referring to the earliest phases of the archaic cuneiform script, including the Uruk IV and III stages of the script

Proto-Sinaitic/Proto-Canaanite A consonantal alphabetic writing system that was used in several inscriptions in the Sinai, Egypt, and Canaan during the second millennium BC.

radical Any one of the consonants or semi-consonants belonging to a root, or, in certain cases, the root itself (e.g., the Akkadian verb *šapāru* has three radicals špr).

rebus principle Extending the use of existing pictograms or graphs to represent other words, morphemes, and syllables with the same or shared sounds (e.g., in Sumerian, the sign *da* "side" can also be used to write the homophonous comitative verbal affix *da* "with").

referent The entity in the external world to which a spoken or written expression refers. A referent can be a person, object, animal, or concept, among others.

root The base form of a word before inflection or the addition of affixes (e.g., in English, the root of mice is *mouse*, the root of singing is *sing*, the root of taxation is *tax*, etc.).

sealing A term used to refer to the impression made by a cylinder or stamp seal on wet clay.

semagram See **determinative**.

semantic Referring to the meaning of a word (e.g., semantic range = the range of possible meanings incorporated by a word).

semantograph A pictograph designed to represent a conceptual word, such as "above" or "below."

semasiographic (system) Referring to a system of communication that only represents ideas. Semasiographic systems are not bound to speech, and thus the ideas represented can be verbally communicated in any number of ways in any language.

semiotics The study of signs and symbols, whether natural or artificial (adj. semiotic).

serekh An Egyptian word for a rectangular representation of a palace facade inside of which a king's name was written.

sign A written character that conveys meaning through a word, morpheme, syllable, or one or more phonemes, sometimes synonymous with **graph**.

stylus A writing utensil used by impressing, etching, or incising the writing material. In Mesopotamia, reeds were cut to make styli, which were impressed onto wet clay to write cuneiform signs.

suffix An affix that follows the element to which it is added (e.g., love-*ly*).

Sumerian A language with no known language relatives that was used in ancient Mesopotamia. It died out as a spoken language at some point in the late third or early second millennium BC but continued to be used as a written scholarly language up through the first millennium BC.

syllabary A set of graphs or signs that represent syllables.

syllable The smallest segment of speech pronunciation that must contain one vowel and may or may not contain one or more consonants or semi-consonants.

syllabogram A written graph or sign that represents a syllable.

synchronic Relating to the study of phenomena (such as of language or culture) of one period without reference to historical antecedents.

syssemantograph A graph where two or more elements with distinct meanings are joined together to represent a third meaning (e.g., in Chinese "man" + "language" = "trust." This combination is said to mean "a man standing by his word.")

Teotihuacán script A Mesoamerican script named after the city Teotihuacán in Mexico which began to be used around AD 350 or 450. It combined word signs of a nominal and titular nature with narrative or pictographic scenes, which make the signs difficult to identify and decipher.

tokens Considered precursors to writing, tokens are small clay counters used throughout Mesopotamia in various accounting systems in the fourth millennium BC. They can be simple (without markings) or complex (with markings and incisions).

transliteration The transcription of the graphs or signs of one writing system into those of another. Transliteration is used by modern scholars to represent cuneiform, hieroglyphs, and other ancient writing systems with more familiar alphabetic characters.

triliteral A single sign that represents a sequence of three consonants or semi-consonants (e.g., *w* or *y*).

Ugaritic An extinct Semitic language dating to the thirteenth century BC in Ugarit, located in the northwest of modern-day Syria near the modern town of Ras Shamra. It was written using a consonant-only alphabetic cuneiform script.

uniliteral A single sign that represents either one consonant or one semi-consonant (e.g., *w* or *y*).

Urartian The extinct language of ancient Urartu, the capital of which was located near Lake Van in eastern Turkey. Urartian was first attested in the ninth century BC and appears in the written record through the sixth century BC. It belongs to the Hurro-Uraritan language family with Hurrian.

verbal root The base form of a verb before inflection or the addition of affixes. For example, verbal roots in Semitic languages often consist of two or three (sometimes more) consonants because vowels as well as the reduplication or infixation of consonants are dependent upon the form of the verb. In Akkadian, *prs is the verbal root of *parāsum* "to cut, decide" (*purus* "Decide!"; *iparras* "He will cut"; *iptarsū* "They have cut"; and so on).

Yucatec Maya A Maya language spoken in the Yucatán Peninsula, northern Belize, and Guatemala, which is also represented in the Maya script.

Zapotec A family of related languages in Mesoamerica spoken by the Zapotec people from the southwestern-central highlands of Mexico. It is estimated that there are over half a million current speakers of Zapotec languages in the world. The ancient Zapotec script is hieroglyphic.

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