The Write Stuff

By BRUCE BOWER

Courtesy of The Metropolitan Museum of Art, Gift of John D. Rockefeller, Jr.

Portion of a cuneiform text found at a Near Eastern archaeological site dating to the ninth century B.C.

Researchers debate the origins and effects of literacy

In 1738, William Warburton, the future Bishop of Gloucester, boldly challenged religious and scholarly belief that God had delivered writing to humankind, complete with alphabetic signs for all the sounds that make up words. Script did not show up on the doorstep as a divine donation, Warburton argued; it evolved gradually among flesh-and-blood folks who first wrote with pictures that correspond to words (a picture of a fish for the word "fish" and so on), then devised pictures and marks to denote abstract ideas, and finally formulated the alphabet.

Warburton's proposal soon gained many proponents, and his argument that writing evolved into more sophisticated forms over time has remained remarkably durable. Building on this theme, scholars in the 1960s proposed the still-influential theory that the expansion of writing and literacy among the Greeks beginning around the fifth century B.C. stemmed from their invention of the alphabet and opened new intellectual vistas to Greek thinkers, including logic, reason, and skepticism. Before the alphabet, investigators held, rulers and bureaucrats had nurtured arcane scripts that served their own purposes while leaving the masses illiterate.

However, some researchers who focus on early writing and reading have begun to question such notions in the last decade, adding a new dimension to the debate about how evolution, whether biological or cultural, occurs – gradually or in spurts.

These researchers assert that ancient cultures in the Near East, Egypt, China, and the New World each boasted a few innovators who took no more than a century to introduce a script where none had previously existed. Once such sophisticated writing systems sprouted, they worked in concert with painting, sculpture, storytelling, and other established forms of communication. These critics of the gradual evolution view charge that writing did not revolutionize the way people think; rather, it provided a powerful new way to transmit previously existing ideas and removed the necessity of memorizing huge chunks of knowledge.

Political and social conditions in local communities determine who reads and how much they read, these researchers contend. More people may have been able to comprehend pre-alphabetic scripts, at least to some extent and in some areas, than has often been assumed. Still, most investigators peg widespread literacy to the invention of the printing press and the spread of primary education in urban societies.

The earliest scripts from such civilizations as ancient Sumeria, Egypt, and China "were invented as systems – not through gradual evolution, but in quantum leaps in the history of communication," contends assyriologist Piotr Michalowski of the University of Michigan in Ann Arbor, who studies ancient Near Eastern cultures and languages. "They were equally, if not better, suited to their tasks than was the early alphabet [of Greece]."

Michalowski's stance clashes with that of archaeologist Denise Schmandt-Besserat of the University of Texas at Austin. Over the past 15 years, Schmandt-Besserat has formulated a theory favoring the gradual evolution of the first writing system, which appeared roughly 5,000 years ago among the Sumerian people living in what is now Iran (SN: 12/24&31/88, p.408).

Schmandt-Besserat argues, most recently in her book *Before Writing, Volume 1: From Counting to Cuneiform* (1992, University of Texas Press), that accounting techniques originating at least 10,000 years ago provided the inspiration for Sumerian writing, known as cuneiform.

Archaeologists have uncovered thousands of clay tablets inscribed with wedge-shaped cuneiform signs. In a survey of museum collections in various countries, Schmandt-Besserat noted that archaeologists had also retrieved thou-

sands of small clay objects in the Near East dating to between 10,000 and nearly 5,000 years ago. The artifacts, which she calls tokens, assume a variety of shapes, including cones, spheres, and pyramids.

Tokens first served as counting devices to tally and keep track of goods for prehistoric farmers, Schmandt-Besserat contends. Particular shapes acquired specific meanings; for example, a cylinder stood for an animal. Counting usually relied on a one-to-one correspondence, such as denoting three animals with three cylinders, but certain tokens represented collections of items.

Around 3,300 B.C., incised lines and other markings proliferated on tokens, coinciding with the beginnings of state bureaucracy in the region, Schmandt-Besserat holds. Apparently, tokens had to account for a larger number of items with greater precision, she maintains.

About that same time, Sumerians began to store tokens in clay balls, or envelopes, and to affix signs on the balls specifying an office or an individual, the kinds of products dealt with, and the number of goods involved. Tablets soon replaced clay balls as a more convenient surface for these signs, thus marking the debut of cuneiform, Schmandt-Besserat contends.

Cuneiform signs did not begin as pictures that portrayed objects, as Warburton had theorized, but instead resembled various tokens from the prehistoric accounting system, the Texas archaeologist asserts. Picture signs entered the script as it developed further. Writing fostered a greater capacity for abstract thinking, evidenced by Sumerian scribes' subsequent invention of numerals and assignment of specific sounds to symbols that already designated certain words, she maintains.

Schmandt-Besserat says the evolution of cuneiform may not apply to early writing systems developed in China, Egypt, and the Americas, although she cites archaeological evidence that Sumerians influenced Egyptian culture (SN: 3/3/90, p.136).

"But like most of the greatest human achievements, writing was the final step in a long chain of inventions," she says.

Schmandt-Besserat offers the best current theory for the origins of cuneiform, contends Marvin A. Powell of Northern Illinois University in DeKalb, a historian of Sumerian culture. Cuneiform probably failed to spark major changes in abstract thinking, however, since only a small portion of the population could read it, Powell says.

Scripts dating to 2,500 B.C. or earlier, in the Near East or anywhere else, will continue to resist thorough translation because they contain few symbols corresponding to speech sounds, he adds. This makes it more difficult to understand the nature of these written materials, Powell notes.

But Michigan's Michalowski offers several reasons to question the gradual evolution of cuneiform from counting devices. First, Schmandt-Besserat's tokens hail from different Near Eastern cultures that used similarly shaped pieces of clay in different ways. Second, researchers do not know whether most museum-held tokens were found in households, administrative buildings, or other parts of archaeological sites, which obstructs efforts to pin down their uses. Also, the resemblance of marks on clay envelopes to early cuneiform symbols falls far short of that proposed by Schmandt-Besserat, Michalowski argues.

X-ray studies of Sumerian clay balls have shown that the number and type of tokens inside do not always correspond to markings on the outside, indicating that different bureaucrats devised their own accounting codes rather than hewing to a unitary system, Michalowski says. This argues against Schmandt-Besserat's view that cuneiform evolved gradually, he adds.

Instead, it seems more likely that one or a few people invented cuneiform writing in a "sudden stroke," the Michigan researcher contends. Written tablets entered an extended family of Sumerian communication devices, including cylinder seals, potters' marks, painting, and clay tokens, in his opinion.

Only a few people actually read the cuneiform script on stone monuments and other public objects. The vast majority probably viewed the mysterious symbols as confirmation of the power wielded by elite officials, Michalowski asserts.

Cuneiform shares key features with early scripts employed in Egypt, China, and Mesoamerica (an ancient region encompassing southern Mexico and part of Central America), he contends in a chapter of *Literacy: Interdisciplinary Conversations* (1993, Deborah Keller-Cohen, editor, Hampton Press). All of these scripts consisted of a combination of word signs, syllable signs, and "classifiers," which designated certain attributes of an object, such as the material from which it was made.

On the other hand, each society exploited script for different ends, Michalowski argues. For instance, cuneiform served largely administrative purposes in a rapidly growing civilization encompassing many ethnic groups and languages. For most of its 3,500-year history, cuneiform expressed formalized dialects that did not correspond to spoken speech but that allowed the script to be used by groups that spoke a variety of tongues, Michalowski says.

Studies conducted by John Baines, an egyptologist at the University of Oxford in England, indicate that Egyptian writing assumed two forms from its beginnings some 5,000 years ago: abstract signs for administrative recording and picture-oriented hieroglyphics for public displays. Royalty employed the earliest known Chinese writing, dating to the 16th century B.C., as a technique to foretell future events and discern the meaning of omens. And Mayan script, appearing around A.D. 250 in Mesoamerica, described historical events and placed them within a complex calendar system.

The ability to write accompanied, but did not cause, the growth of these civilizations, Michalowski adds. Equally large and complex societies, from Africa to South America, lacked writing entirely.

Although most research regarding the origins of reading and writing deals with cuneiform, investigators now pay increasing attention to the Classic-era Maya, who left examples of their intricate hieroglyphics, or glyphs, on stone monuments, pottery, and other artifacts. The Classic period of Maya civilization extends from about A.D. 250 to A.D. 900.

Carved hieroglyphics ring the border of a stone altar, dating to A.D. 711, found at the Classic-era Maya site of Tikal in Guatemala.

Payson D. Sheets

Linguistic data suggest that few Classic Maya citizens could read, although most knew about hieroglyphic writing, which was produced mainly at the behest of their rulers, holds anthropologist Cecil H. Brown of Northern Illinois University.

The word for "write" is virtually the same in all but one of 31 modern Mayan languages recorded by linguists, Brown reports in the August-October 1991 CURRENT ANTHROPOLOGY. The single exception involves the only geographically isolated Mayan tongue.

In contrast, the word for "read" varies greatly from one Mayan language to another, he points out.

The shared word for "write" apparently originated with the Classic Maya or their immediate descendants and was incorporated into nearly all Mayan languages that followed, Brown maintains. Each language group innovated a different term for "read" after the introduction of alphabetic literacy by Spanish missionaries in the 16th century, he proposes.

Brown sees the evidence as consistent with other evolutionary explanations of early writing systems, the most prominent being, perhaps, that developed since the 1960s by anthropologist Jack Goody of the University of Oxford. High-ranking officials who understood Classic Mayan writing probably cultivated its complex mix of picture and sound signs to keep most people illiterate, ignorant, and subservient, Brown argues. Inscribed Classic monuments placed in prominent locations were read *to* the public, not *by* the public, he adds.

A society of readers depends on a more easily learned script composed of alphabetic signs for vowels and consonants, Brown asserts.

Mayan languages studied by Brown contain clues to the way in which the Classic Maya read, rather than implying rampant illiteracy, responds anthropologist Dennis Tedlock of the State University of New York at Buffalo. The words for "read" gathered by Brown fall into three classes, Tedlock asserts in the April 1992 CURRENT ANTHROPOLOGY: those referring to speaking or shouting, those involved with counting, and those associated with looking (often specifically at paper). Words for "read" in the sense of both counting and looking turn up in the same sentence of a Spanish-commissioned book written in one Mayan language shortly after European conquest, Tedlock remarks.

Words referring to a process in which speech gets transformed into visible text and then undergoes interpretation have deep roots in Mayan languages, he argues. But a pair of words meaning "reading and writing" as used in modern industrial nations appears nowhere among Mayan speakers, Tedlock notes.

The three terms for "read" noted by Tedlock support the presence of "recitation literacy" among the Classic Maya, holds Stephen Houston, an anthropologist at Vanderbilt University in Nashville. First, literate Maya "saw" the paper on which glyphs appeared, then "counted" or interpreted the signs, and finally "spoke" or "called aloud" from the written page.

Similarly, ancient Greek writing often served as a way for thinkers, including Aristotle, to jot down rough outlines of their ideas as aids in giving lectures, Houston states. The Greeks also committed to script the general substance of heroic tales that had been passed down orally for generations, so as to jog the memory of those who publicly recounted such exploits.

Although the Classic Maya lacked a Greek-style alphabet, many more of them could read, at least to some extent, than implied by Brown, or so Houston and Vanderbilt colleague David Stuart argue in the December 1992 CURRENT ANTHROPOLOGY. In most societies, they contend, literacy with any script spans a range of abilities rather than existing as an "all-or-nothing" accomplishment.

Moreover, reading and writing do not need an alphabetic system in order to flourish, Houston argues. China and Japan offer obvious examples, as both countries have long boasted extremely high rates of literacy despite their use of elaborate, nonalphabetic scripts.

The ability to read does not always coincide with the ability to write, since writing demands greater preparation and skill, Houston notes. For instance, even Classic Maya farmers probably understood that stylized pictures of animals and people on glyph-covered stone monuments represented the names of certain rulers, whereas only high-ranking scribes knew how to write out the names with glyphs.

Yet writing extended beyond official sources, as evidenced by graffiti on buildings and artifacts at many Classic Maya sites, Houston points out. The graffiti usually consist of fairly crude symbols for objects rather than the glyphs employed by scribes, but researchers have so far recorded and studied few of the informal scrawls.

The number and type of graffiti collected so far indicate that writing remained limited during the Classic period, Houston contends. Densely populated areas yield more evidence of literacy than rural regions, he says.

In a related archaeological study of graffiti at ancient Greek and Etruscan sites, Simon Stoddart of the University of Bristol in England and James Whitley of the British School at Athens, Greece, found regional variations in the ability to use the early alphabet. Apart from literature and poetry, informal writing appears on numerous artifacts from Athens dating from 700 B.C. to 450 B.C. Scratchings on stone implements or pottery give the name of the writer or indicate that the object served as a ritual offering. Painters and potters often signed their works and added inscriptions to scenes portrayed on pots, the scientists point out.

Moreover, aristocrats commissioned inscriptions on their tombstones and on special vases; they read the latter at drinking parties known as symposia.

A "fairly wide literate audience" must have existed in Athens, Stoddart and Whitley contend in the December 1988 ANTIQUITY. Still, no more than one in five Athenians learned to read and write, a proportion that probably was not exceeded in any other ancient society with access to an alphabet, they add.

In contrast, written material from the Greek-controlled island of Crete, at that time and later, took the form primarily of law codes and provisions, the researchers assert. The lack of graffiti, dedication inscriptions, and literature indicates that official scribes did most writing on Crete and only a small minority of the population could read, they argue.

Regional variation in the extent of writing also appears at Etruscan sites in central Italy dating from 700 B.C. to 500 B.C., although literacy was largely tied to the efforts of rulers to legitimate their power with inscriptions on sanctuaries and tombs, Stoddart and Whitley add.

Findings such as these challenge the long-dominant conception of writing as a technology that inevitably improved in efficiency and gained more users over time, much like light bulbs or telephones, Houston says.

Even Oxford's Jack Goody, in the 1960s an advocate of the Greek alphabet as a technology that single-handedly promoted widespread literacy and profound intellectual advances, has subtly abandoned this position in more recent publications, maintains anthropologist John W. Halverson of the University of California, Santa Cruz.

"Literacy is not some kind of independent force acting on passive recipients," Halverson writes in the June 1992 MAN. "What matters is *what* is written and read, not *that* it is written and read."

More people accumulate more knowledge and make more rapid intellectual advances when ideas get circulated in print, he says. But this does not amount to a fundamental change in the capacity to think and reason, in Halverson's opinion.

Psychologist David R. Olson of the University of Toronto disagrees. In a series of papers published during the 1980s, he argues that widespread reading altered human thought enough to make modern science possible. According to Olson, literacy encouraged people to write with the express purpose of formulating new knowledge, fostered the separation of data from interpretation, and sparked the development of concepts necessary for scientific inquiry, such as "assertion," "conjecture," and "inference."

While debate continues regarding the origins and effects of literacy, many researchers acknowledge that reading and writing exert a rather weak grip on many thoroughly modern folks.

"Modern Western culture may be saturated with literacy, but it remains for the great majority, who read little and write less, predominantly oral," John Halverson comments. "Information and communication are primarily channeled through direct speech, television, radio, and the telephone."

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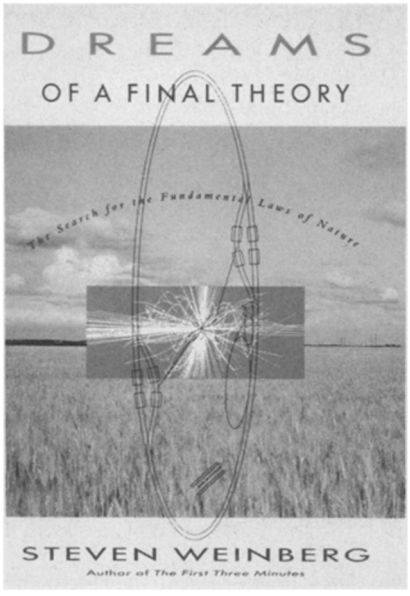

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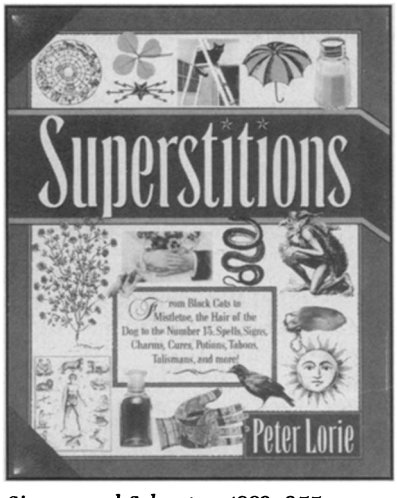

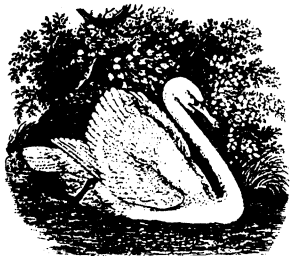

Swan

A swan's feather, sewed into the husband's pillow, was thought to ensure fidelity. Perhaps this custom arose from the fact that swans mate for life. There is also the widespread belief that the "swan song" of the otherwise mute swan only happens just before it dies. Wood engraving by Thomas Bewick.

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