

of the kind of chemical contamination that poisons plants and animals. But humans mess with the environment in all sensory modalities. That we are losing the night through excessive use of too-bright electric light sources in our cities and beyond has been much discussed; this light pollution disrupts the diurnal rhythms of animals, their communication, their navigation, their search for mates, and their life expectancy. Sound pollution is also common. The noises from our cities and from transportation interfere with sound signaling between animals. The level of low-frequency noise from ocean shipping has increased by a factor of 32 since World War II, and Yong lists some of the results:

As ships pass in the night, humpback whales stop singing, orcas stop foraging, and right whales become stressed. Crabs stop feeding, cuttlefish change colors, damselfish are more easily caught.

The list of pollutions continues for all sensory modalities. But because these changes have taken place gradually over the past century, humans are behaving like frogs in a pot of water that is coming slowly to a boil. As sensory pollution has increased and species have gradually disappeared, we have come to accept each stage as a new normal.

Yong points out that there is still time to reverse these trends. There are many reasons to do so, including some that are in our own best interest. Noise affects human stress levels and our ability to sleep. Illuminating our settlements so brightly that they can be seen from space wastes both energy and money, and, contrary to what is sometimes alleged, there is no evidence for a link between crime and “poor” city lighting.

Many of us spend enormous sums of money to travel to distant but “serene” nature spaces. Yong builds a convincing case that we can have such environments at our fingertips, if only we take appropriate steps. Doing so will preserve the diversity of sensory worlds in the animal kingdom, of which we are a part, and will enrich us in multiple ways.

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## Writing History

Brian Hayes

### INVENTING THE ALPHABET: The Origins of Letters from Antiquity to the Present.

Johanna Drucker. 380 pp. The University of Chicago Press, 2022. \$40.

Johanna Drucker has given her book a title in which the smallest word carries the heaviest weight. To speak of inventing the alphabet is to imply there is only one alphabet in all the world—despite the bafflement of English-speaking tourists confronting street signs in Athens or Moscow or Cairo. Drucker makes the point explicitly in her introduction:

Ask the average literate person about the alphabet and often the response is, “Which alphabet? Our alphabet? You mean the Greek alphabet?” In fact, the alphabet was invented only once, by Semitic speakers in the ancient Near East. Alphabetic scripts all derive from the same root; as they spread, their letterforms were modified. Even scripts as visually distinct as Arabic, Cyrillic, Latin, Greek, Hebrew, Devanagari, Tamil, and Gheeze have a common source.

Drucker’s view shines a spotlight on the alphabet as a cultural artifact of extraordinary antiquity and importance. The graphic forms of the letters have varied and evolved. So have the mappings from written symbol to spoken sound. A few letters have been added and others have been dropped in some linguistic communities. But through it all, the alphabet has somehow maintained its integrity, even as civilizations and their languages come and go.

Today, variants of the alphabet form the writing systems commonly used to represent almost all the world’s living languages. The major exceptions are the languages of China, Korea, and Japan.

The genre of *Inventing the Alphabet* is not history but historiography. The book’s primary aim is not to investigate the origin of the alphabet but to record the progression of ideas about that origin, as they evolved over a span of millennia. Looking back from the present moment, much of the story reads as

a catalog of fallacy and error. Before the 19th century, writers on alphabetic history had little material evidence to guide them, and in many cases, they had ideological or theological commitments to misguide them. Drucker treats these flawed theories with care and respect, placing them in their historical context, rather than judging them by present-day criteria. She is less forgiving of a few 20th-century commentators whose falsehoods seem to reflect a willful disregard of evidence.

Curiously, the earliest surviving account of alphabetic origins got the story mostly right. The Greek historian Herodotus, writing around 440 BCE, states that the alphabet was brought to Greece by Phoenician settlers. Herodotus is vague about the time of this cultural exchange, and also about who the Phoenicians were, and from where they came. Nevertheless, later research has confirmed the key fact that the Greek alphabet derives, with some alterations, from a much older Phoenician one.

Between Herodotus and the era of modern scholarship lie two millennia of unconstrained speculation, some of it astute, some asinine. One recurrent theme concerns the story of Moses on Mount Sinai. When he received the stone tablets inscribed with the Ten Commandments, in what alphabet were those laws written? Some medieval and Renaissance authors postulated that the script of the tablets was humanity’s first written language, and so our alphabet must be viewed as a direct gift from God. As late as the 18th century, the novelist Daniel Defoe defended this assertion with a highly imaginative argument: If writing had existed earlier, we would have received more detailed descriptions of prior events such as the drunkenness of Noah. Drucker comments that “Defoe could not resolve the basic contradictions that lingered: if writing did not exist before Moses received the Tablets, then how could he and the children of Israel read the Laws?”

The search for biblical validation of alphabetic origin stories was at least focused on the right part of the world. Others looked farther afield. In 1569, the Dutch writer Johannes Goropius Becanus insisted that a dialect of Flemish was the language of Adam, and in 1764 Gaelic nationalist Rowland Jones believed the first writing was in a Celtic script. Attempts to claim the alphabet as a trophy accomplishment of certain



ethnic and linguistic groups continued into the 20th century, and turned sinister with the contention that the credit should go to a (fabricated) Aryan race rather than the Semitic peoples of the eastern Mediterranean.

What transformed the study of the alphabet into a scientific enterprise, Drucker writes, was the flowering of systematic archaeology, starting in the 19th century and continuing today. Simply put, more digging produced more data. The number of alphabet specimens from the crucial period—the second millennium BCE—is still only in the hundreds, but it's enough for Drucker to express confidence about the identity of the originators. They were people of the land of Canaan, occupying the coastal cities of Tyre, Sidon, and Byblos, in territory that roughly corresponds to the modern nation of Lebanon. Their language was in the Semitic family but distinct from ancient Hebrew. These people were indeed the ones we know as the Phoenicians, although that's not a name they applied to themselves.

Curiously, the oldest known alphabetic inscriptions, discovered only in recent decades, are found not in the homeland of the Phoenicians but in Egypt and in the Sinai Peninsula (which was then, as now, controlled by Egypt). These writings, carved or scratched in soft stone, are written in a Semitic language but show the influence of Egyptian hieroglyphics. Given

this evidence of bilingualism, the graffitiists were probably more than casual travelers passing through Egyptian territory; Drucker suggests mercenaries, workers, or slaves. She offers a thumbnail summary of the current state of knowledge: "The alphabet was formed in the context of cultural exchanges between Semitic-speaking people from the Levant and communities in Egypt after or around 1800 BCE."

Drucker is a diligent and accomplished scholar, and is currently the Breslauer Professor of Bibliographical Studies at the University of California, Los Angeles. She is also an artist, a typographer, and a book designer. *Inventing the Alphabet* is an eye-opening synthesis, distilling an immense body of work by hundreds of authors and researchers. In fact, she reports that the project began more than 40 years ago, in her first year of graduate study. Given this broad scope, it seems churlish to ask for more, but I could not help noticing that almost all the sources are European. It would be interesting to hear more from the Arabic and South Asian communities who share our alphabetic heritage.

Drucker's central claim that the alphabet was only invented once is surely true; all of the alphabetic scripts known today can be traced back to the Phoenician characters. But it's another matter to suggest that the differences between modern scripts are minor enough that

we can still speak of *the* alphabet. One might as well say that because life on Earth emerged only once, there is only one life-form on the planet today. In this respect, Drucker sometimes overreaches. For example, she dismisses arguments that the Greek alphabet stands apart from its predecessors because it was the first to include distinct letters for vowels. She may be right to do so, but she does not supply detailed arguments in support of that position.

The fact that all alphabets come from the same source is in itself intriguing, and even disturbing. Why would such a useful device arise only once in all of human history? Perhaps the reason is that once the alphabet existed, there was no need to reinvent it. After all, the letters were never patented. But this is only half an answer. People who had no contact with Mediterranean cultures, such as those in the Americas, invented their own writing systems, but none of them chose to develop an alphabet. I can't help wondering what would have happened if the Phoenicians had not come up with their ingenious scheme for converting spoken language into a stream of written symbols. I can barely imagine the modern world without it.

Brian Hayes is a former editor and columnist for *American Scientist*. His most recent book is *Foolproof, and Other Mathematical Meditations* (MIT Press, 2017).

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