

Writing is a fundamental of humanity, a form of communication for all great civilizations. Because writing is closely tied to the culture and society they were founded for, writing provides wonderful insight into history and context of when it was produced. Egypt was one of the earliest nation states to establish a writing system. Their hieroglyphics are still present on stone tablets, but they also created and used a papyrus paper that allowed writing to be portable. Papyrus is made from the sedge plants. First the green outer layer is skinned, then sliced into thin layers and rolled to make it more flexible and resilient than the brittle plant itself. The slices are then soaked in freshwater for two weeks, then assembled by weaving the slices together, and then pressed together for one week. This was the first paper in the world.

As the Roman Empire took over the Mediterranean, the papyrus trade became essential to distributing the technology for writing across the world. Easy access to papyrus and books was made possible and affordable due to the abundance and strength of the papyrus trade. However, over time as the empire's hold on the region slips, so too does the market for papyrus. There is a direct correlation with the number of books being written and access to papyrus. This scarcity makes books rarer and more precious as Europeans begin using animal hides to create parchment.

Parchment is made from the skin of animals, usually goat, sheep, or cow, and stretched and scraped to make a beautifully smooth writing surface. Because parchment is made directly from animal skin, you can see the imprints of bones in the coloring of the parchment. Using some of these natural delineations as lines to fold and create books, the origin of the "spine" of a book comes quite literally from the spine markings on parchment. Because parchment was flexible enough to be folded, it could be sewn together in a codex, the form of a modern book. Each sheet of parchment would make eight pages, and therefore it requires a large number of animals to create the pages of a single book. The investment in raising animals, creating parchment, and then of course writing and creating books is a long and complicated process, leading to the heightened value of books.

A single book in the medieval times might cost as much as a middle-class house. It would take hundreds of animals to create the parchment for a book, as well as months to years of a scribe's work to create the text of a book. Because of the investment required to produce books in this way, access

became limited to those with the means to purchase the making of a book. This has a direct impact on reading culture in Europe. Because Egyptian society had accessible and cheap papyrus, books were commonplace and affordable, leading to a literate society. However, the limitations of European medieval books came at the cost of a broader reading culture. These limitations have a direct impact on cultural development and the spread of ideas.

While European manuscripts were decorated around the rather uniform and repetitive text, Asian calligraphy found beauty within the characters themselves and were particularly unadorned. Paper was invented in China by the second century, and by the seventh century it had grown into a thriving, important industry. Chinese paper was very resilient and hard to tear, leading to the phrase “thousand year paper, hundred year silk,” indicating that the paper would last even longer than silk clothing. Absorbent, flexible, and inexpensive, paper was so plentiful that even a thousand years ago, blank notebooks were common place in China.

For 600 years, the Chinese guarded their secret of making paper. When war broke out between Islam and the Tang dynasty, Islam succeeded in capturing paper makers, and the secret was exposed. The Chinese process was to use the bark of mulberry trees. First, the bark would be peeled from the young mulberry shoots to expose the light-colored pith. These fibers are cooked in sulfur, then pounded for up to 8 hours to produce a pulp. Mixed with water, the fibers form a thick soup that is then strained on a sieve and pressed between cotton to form a single piece of paper. Eventually the paper is hung to dry. The Islamic culture built on the Chinese process, adding the additional step of polishing. This cheap and productive process allowed the Islamic world to flourish in scholarship.

While European progress languished behind the Islamic world for a while, Gutenberg’s invention of the printing press revolutionized text. A goldsmith by trade, Gutenberg cast roman letters using a metal alloy that allowed a quick and systematic way to reproduce the same text multiple times. Printed pages could also then have handmade flourishes added to create the same experience as a handmade manuscript. With two people working a single press, they could make 2,500 prints in a single day, producing texts and distributing ideas at an unprecedented rate.

Roman letterforms are distinct and repetitive, making it conducive to Gutenberg’s methods. This allowed for success, where other writing systems could have, and did fail to use the same technologies. For example, attempts to move Arabic toward the printing press were made, but the fluid and intertwined characters and meanings were simply not suited to the rigidity of movable type, and never took off. Additionally, the Qur’an was never attempted because movable type was not good enough to match the

standards required for the holy text. However, Gutenberg's first text was the Christian Bible, catering to a large market that earned him profit from his efforts.

The history of paper making and writing utensils is great and varied. It's fascinating to see just how intertwined the writing implements used reflect the society and its spread of ideas. The line that struck me most was just how many thoughts went undocumented because of little or no access to parchment in Europe. It's fascinating to study what we do know, and paper and writing is essential to the legacy that we do know about. But it's also interesting to consider what other thoughts, ideas, and knowledge was or could have been.