From Gutenberg to the Internet

Free Speech, Advancing Technology, and the Implications for Democracy

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To Laurence, Ben and Kate, with love
(and with thanks for having patience while I wrote this book), RLW

Contents

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Introduction: The Evolution of Speech and Technology

The history of free expression is inextricably linked with advances in speech technology.[1] Prior to the 1400s, people had extremely limited communications technologies available to them, and communication was necessarily slow, difficult and inefficient. Messages were frequently hand carried in oral or written form.[2] As a result, a Roman Emperor might wait days, if not weeks, to hear the outcome of an important battle fought in a distant place. Without telephones, telegraphs or the Internet, the "news" had to be transported to Rome by foot, chariot, horseback or ship.[3]

Of course, "communication" (in a broad sense) has existed since the beginning of time.[4] Although prehistoric humans communicated primarily through oral means, they also created representations in the form of cave drawings[5] and figurines.[6] Indeed, such communicative symbols have been used for tens of thousands of years,[7] even though the alphabet (as such) did not exist until about 1700 B.C.[8] (although some date the practice of writing to even earlier periods[9] and indeed question whether the alphabet is superior to hieroglyphics[10]).

The development of the alphabet and writing involved a major step forward in communication,[11] enabling "the civilizations who employed it to achieve unparalleled size and complexity."[12] However, since people had few means available to them for producing writings, the communications possibilities of the written word were necessarily limited.[13] For many centuries, almost all written documents were laboriously prepared by hand, and there was no method for quickly reproducing written works.[14] Many of the earliest writings (aside from ancient tokens[15]) were made on papyrus[16] with brushes,[17] including Greek writings such as the *Iliad* and the *Odyssey*.[18] Because of the limited availability of papyrus,[19] non-Egyptians eventually developed a substitute material,

parchment, from the skin of sheep, calves and goats.[20] Although "paper" was created in China in the second century,[21] the first paper factory did not exist in Europe until the twelfth century,[22] and paper was not widely used in Europe prior to the development of the printing press.[23]

For centuries after writing became possible, communication methods remained painfully inefficient by modern standards, and both the powerful and the poor encountered significant difficulties in communicating with large numbers of people over long distances. There was no shortage of effort to develop more effective systems of communication. Some nations established "relay systems" that allowed them to move information more quickly.[24] For example, the ancient Greeks used "runners" to carry important news from place-to-place,[25] and also used a torch system that allowed them to signal information between distant towers.[26] Some societies used flags and pennants to communicate,[27] and some used fires.[28] During the Revolutionary War, Americans (and their French allies) used torches, flares and heavy guns.[29] Within France, a mechanical system was developed that allowed messages to be transported from the south of France to Paris in less than four hours.[30]

The first true communications breakthrough did not occur until the fifteenth century when Johannes Gutenberg developed the printing press.[31] Gutenberg's invention was preceded by the development of primitive printing presses in China, centuries earlier,[32] as well as by the development of movable type in Korea.[33] The Chinese presses were primitive, requiring the printer to engrave a block of wood in order to produce a page of print.[34] Once the block was engraved, the printer could use a press to create multiple copies of the document. Early Europeans used similar engraving techniques to create so-called "block books."[35] Most of these block books were religious in nature, involving only pictures, with text being provided later, usually by hand.[36]

Gutenberg's invention involved the development of a system of movable type. Although scholars debate the issue, there is no indication that he was aware of the prior Korean invention of movable type.[37] In essence, Gutenberg forged lead pieces representing every letter of the alphabet, both lower- and upper-case. He kept this type in cases that separated the lower-case letters from the upper-case letters,[38] and he used the type to "compose" pages by assembling the letters into wooden boxes the size of a printed page, and thereby laying out the pages to be printed.[39] Gutenberg's invention represented a dramatic advance in communications technology. Rather than being forced to laboriously carve a block of wood (which could then be used to print multiple copies), it was now possible to quickly assemble individual pages by drawing letters from