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The Revival of the Archaic: A History of Art and Technology

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James Petrillo's talk on the connections between ancient and modern forms of art and spirituality was vividly illustrated with images spanning many thousands of years. The first such image was a shot of an artwork by a friend of his, entitled *Totem and TV,* in which that truly totemic piece of apparatus is reimagined as an extravagant, almost a forbidding, specter in hallucinatory polychrome hues. As this image was being displayed—in a juxtaposition that would prove characteristic of his approach—Petrillo paid homage to Sigmund Freud's seminal 1913 monograph, *Totem and Taboo.* Totemism shares a number of concepts with animism, which Professor Petrillo described as the longest-held belief system in the world, having been in use for 35,000 years. It is also possibly the most comprehensive, as it "explains everything": if a tree falls, it is because the tree was motivated to do so; no further explanation is required.

The next juxtaposition was quick in coming: a shot of equine cave art from Lascaux (ca. 15,300 BCE), followed by one of a toilet, sitting enshrined in a tiny chamber whose black walls were covered with wildly colorful painting, scribbling, graffiti, drawings, and all manner of graphic adornment. While the beauty of cave art is widely acknowledged, its purpose and meaning are still (and may remain) the subject of much speculation; Petrillo asked what archaeologists 20,000 years in the future would make of the toilet: was it an altar, perhaps? More cave art was displayed, this time featuring the hand-prints found in caves throughout the world—images Petrillo interpreted as preliterate identity markers: "I was here; this is who I am." This posited transmission of fundamental information led to a discussion of information theory and orality (another heady juxtaposition). The cultural centrality of the storyteller correlates to that of the shaman, who, aided by intoxicants, goes to another world to acquire sacred knowledge; the modern-day human laboring at a computer, a steaming cup of intoxicants to hand, similarly passes into another realm in order to harvest arcane data.

The recession 12,000 years ago of the ice cap, and the resultant disappearance of animals basic to the human diet, led to the cultivation of plants. Among the ramifications of this innovation were a decreased mobility of human populations and the creation of systems of record-keeping which in turn led to writing. (This latter development was to be the theme of an upcoming talk by Professor John Hayes.) Many types of writing, from cuneiform to hieroglyphic to pictographic, arose—quite possibly independently—and underwent swift revision. Our English-language writing system, in which forty-four phonemes are represented by twenty-six letters, variously combined, was correlated to ancient Greek atomic theory, in which "basic units of physicality are rearranged to make all the things there are." Ours is a phonetic, rather than a visually representational, writing system (the word "person" does not resemble *a person*); Petrillo opined that the mental processes encouraged by such a system include atomism, deduction, abstraction, linearity, standardization, uniformity, and interchangeability.

Socrates, an exemplar of the oral tradition, and his disciple Plato essayed various means of organizing information, with syllogisms coming greatly into play. The primary disadvantage of syllogistic reckoning is that an erroneous initial premise will inexorably lead to an erroneous conclusion. In illustration of this relationship between premise and conclusion Petrillo adduced the postulated stability of the 400 AD Roman Empire and its precipitate collapse. He also cited the splendor of early Islam (at a time when "Europeans were living in mud huts"), and the development in the 13th century of new technologies born of the Europeans' desire to emulate the libraries and architecture of the Muslim culture they were seeking to destroy.

These new technologies were founded in mechanization, of which the abovementioned standardization, uniformity, and interchangeability were fundamental components. Among the earliest inventions profiting from these concepts were the clock (ca. 1350), perspective geometry (ca. 1425), and moveable type (ca. 1450). All of these inventions were devoted to the maintenance of an accuracy outside the natural, but sustaining the qualities of uniformity, standardization, and interchangeability that would enable perfection and reproduction of the work and/or data produced. The development of the camera out of the camera obscura is a case in point, as the production of images moved from the manual to the mechanical with a corresponding shift in the technical accuracy of their representation and reproduction. Moveable type supplied a visual representation of language that exemplified mechanization's triad of primary virtues. The clock, with its mechanical,unnatural division of time; the perspectival grid, which enabled the construction of previously unimaginable buildings like Brunelleschi's Duomo of Florence; and the uniform perfection of moveable type (unlike the individualized, human and personal affect of handwritten script) transformed the sensibility of the Western world.

Petrillo contrasted Isaac Newton's quest for a formula to explain the world with the agenda of Gottfried Wilhelm Leibniz, who harbored optimistic hopes for human peace and reason. Leibniz's notion of a "reasoning machine" to facilitate this end found a measure of realization in Charles Babbage's 19th-century "difference engine" and, later, in his "analytic engine." The mathematician Ada Lovelace was one of the few people who understood the implications of Babbage's work; her development of strategies for allowing the analytic engine to perform a multiplicity of functions has earned her a modern reputation as "the first computer programmer." Neither device was built in Babbage's or Lovelace's lifetime, but a revolutionary shift from a mechanistic paradigm to an algorithmic one was set in motion. Professor Petrillo described an algorithm as a recipe—a "logical procedure with a precise set of instructions . . . written in a fixed symbolic vocabulary, whose execution requires no insight, clearness, intuition, or intelligence." He also likened it to animism in its focus on the definition of objects and their behaviors.

Expanding the algorithmic framework, Alan Turing envisioned a machine using binary math, both to attain perfection of calculation and to determine what was calculable and what, ultimately, was not. Binary theory subsequently led to information theory, whose focus lay in quantifying information in order to better manipulate, store, and communicate it. Eventually the massive computers of the 1950s were born, along with branches of artificial intelligence philosophy dealing with the ever-popular question, “Can machines think?” A further development was the “amplified intelligence” of D. C. Engelbart, who declared that with intelligence augmented [as by a computer], “even if you can’t do the math, you can get the answers.”

Professor Petrillo showed an image of a Mayan shaman going through a portal to another world, then one of four people standing side by side yet focusing exclusively on their hand-held information transmittal devices. He asserted that we were in an ideational growth spurt, what with digital technology, the cracking of the genetic code, and other revolutionary developments, and closed by remarking that, with respect to the mystical journey to another world, “All of you have students who have used this portal [practically] since they were born.”