THE ART OF DIGITAL MEMORY

Media Environments and the Mind

In his book *Origins of the Modern Mind*, the neuropsychologist Merlin Donald traces three social and cognitive stages accounting for the development of human culture.[1] The first Donald calls "Mimetic culture," which refers to the capacity of humans, prior to the development of language, to model and shape the physical environment through acts of collective imitation, social organization, and tool-making. The second Donald calls "Mythic culture," which, solidifying around 50,000 years ago, is grounded on the cognitive and social shifts coinciding with the invention of spoken language, the latter of which profoundly enriched the mental world of the human person through the imaginative and symbolic meanings communicated through the fundamental organizing principle of storytelling. Finally, the third and last stage of social and cognitive development is identified by Donald as "Theoretic culture," which describes the set of human attitudes and behaviors with which we are most familiar. In other words, building on the cognitive skills associated with mimetic and mythic culture, theoretic culture, from its most formative inception in Ancient Greece to the present day, undergoes a process of de-mythologization through the mental adoption of abstract, critical, and analytic thought as a product of the vast enhancement of information-processing power produced by the invention of written language as a system of extended memory or what Donald calls "external symbolic storage."

1. Memory and the Digital Environment

The association of advanced scientific thought and analysis with technologies that externalize memory is, of course, of immense significance when considering the social and cognitive implications of the contemporary digital environment. For instance, Douglas Engelbart, one of the key innovators of networked personal computing, was deeply influenced by the American engineer and administrator Vannevar Bush, whose legendary

[1] Merlin Donald, *Origins of the Modern Mind: Three Stages in the Evolution of Culture and Cognition* (Cambridge: Harvard University Press, 1991).

1945 article "As We May Think" theorized a mechanical memory retrieval device, which anticipated core functions of digital media such as hyperlinking precisely by articulating the importance of externalizing vital functions of human memory. According to Bush, non-mechanical filing systems cataloguing paper books and manuscripts did not represent an efficient retrieval system because they did not sufficiently externalize the brain's activity. As Bush writes:[2]

> Our ineptitude in getting at [a documentary] record is largely caused by the artificiality of the systems of indexing. When data of any sort are placed in storage, they are filed alphabetically or numerically and information is found (when it is) by tracing it down from subclass to subclass… The human mind does not work that way. It operates by association. With one item in its grasp, it snaps instantly to the next that is suggested by the association of thoughts, in accordance with some intricate web of trails carried by the cells of the brain… Man cannot hope fully to duplicate this mental process artificially, but he certainly ought to be able to learn from it. In minor ways he may even improve, for his records have relative permanency… Selection by association, rather than by indexing, may yet be mechanized. One cannot hope thus to equal the speed and flexibility with which the mind follows an associative trail, but it should be possible to beat the mind decisively in regard to the permanence and clarity of the items resurrected from storage.

What Bush called the "memex" was his proposed mechanization of the mental associations comprising human memory. The memex as envisioned by Bush was a personal desk, in which a terminal comprised of translucent screens and a keyboard was connected to an infrastructure of buttons and levers, operating on microfilm documents and a microfilm camera. In any research activity involving multiple literary sources, the memex user could construct what Bush called an "associative trail" by displaying documents on the screen, notating them with a stylus, and linking up relevant pages together by pushing a key, resulting in a unique trail of microfilm documents. Any associative trail of annotated documents could then be photographed by the microfilm camera and shared with researchers via microfilm. This proposed advance of human knowledge and scientific enterprise through augmenting the external memory devices of books with a new level of speed and preservation was seen by Bush in civilization-defining terms. As he writes:[3]

> Man has built a civilization so complex that he needs to mechanize his records more fully if he is to push his experiment to its logical conclusion and not merely become bogged down part way there by overtaxing his limited memory. The applications of science have built him a well-supplied house and are teaching him to live healthily therein. They have enabled him to throw masses of people against one another with cruel weapons. They may yet allow him truly to encompass the great record and to grow in the wisdom of race experience. He may perish in conflict before he learns to wield that record for his true good. Yet, in the application of science to the needs and desires of man, it would seem to be a singularly unfortunate stage at which to terminate the process or to lose hope as to the outcome.

While Bush's portrayal of the mechanization of memory in the context of western ideals of rational enlightenment provided a monumental impetus for the development of digital technologies, the actualization of

[2] Vannevar Bush, "As We May Think," in *The Essential Writings of Vannevar Bush* (New York: Columbia University Press, 2022), 124.
[3] Ibid, 129.

Bush's ideas in contemporary digital media may be seen as a significant departure from such rational idealism. Indeed, many of the core engineers aiming to implement Bush's vision in networked computer architectures found inspiration, not only in the recent fruits of western science, but also in the countercultural return to archaic models of tribal organization and psychedelic spirituality, as advocated by Stewart Brand's *Whole Earth Catalog*.[4]

More fundamentally, however, the collective experience of digital media as a contemporary forum for the public sphere seems to resonate neither with Vannevar Bush's rational idealism nor with Stewart Brand's return to tribal consciousness, but rather with a deep disappointment and cynicism revealing perhaps the inherent fault lines in both ideological precursors to our digital world. We see this most strongly, perhaps, in recent popular concerns that the digital dominance of social media platforms has turned the internet into an addictive battleground, in which, to drive engagement, AI-based algorithms intensify the ideological biases of users and aggravate the human psyche such that the latter is rendered susceptible to a continual molding and re-molding by various private interests.[5]

Such concerns may be responding, ultimately, to an extreme point of dehumanization resulting from both the technological rationalism championed by Bush and the technological holism championed by Brand. In other words, in opposition to unfettered rational individualism (the lineage of Bush), critics of social media highlight how the extraction of personal data for the enhancement of user experience sustains the individualistic uprootedness of consumer culture. Alternatively, in opposition to the collective immersion in technological ecologies (the lineage of Brand), critics target how individual discourse on social media has become captured by the so-called "filter-bubbles" and "echo chambers" of regressive ideological groupthink.[6]

The power of social media platforms to juxtapose the conflicting representations of individual progress and empowerment with those of viral trends, ideological mimicry, and so-called fake news has indeed led to a state of confusion, disorientation, and even resentment among social media users. Such a reaction has been so strong that the technological basis of digital media as an external symbolic storage for memory seems to have been obscured under the widespread association of the digital environment with fantasy and existentially distorted simulacra.

If the interplay of media environments structuring the digital present, however, is analyzed through the framework of media ecology—and some of its foremost thinkers such as Marshall McLuhan and Walter Ong—the implications of digital technology as a memory device become significantly clearer. This is especially the case if we understand the technological present as occupying a transitional space analogous to the historical transition between the two stages of culture described by Merlin Donald as "mythic culture" and "theoretic culture"—or, in the media ecological language of Ong and McLuhan, as "oral culture" and "literate culture", respectively.

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[4] Cf. Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: University of Chicago Press, 2006)

[5] Cf. *The Social Dilemma*, directed by Jeff Orlowski (Netflix, 2020).

[6] For an influential academic discussion that integrates both positions, see: Byung-Chul Han, *The Expulsion of the Other* (Cambridge: Polity Press, 2018).

2. Memory: Oral/Mythic vs. Literate/Theoretic

For Walter Ong, the role that memory plays not only in its artificial extension in writing but also as the primary embodied activity preserving the mythic structure of oral culture is essential for understanding and differentiating the two modes of social and cognitive organization related to orality and literacy. According to Ong, collective memory was not only a function that enabled pre-literate oral cultures to preserve the stories containing the most essential meanings and information structuring social life. Instead, the organic power of memory, not yet extended into written language, necessitated that the symbolic and communicative activity of oral culture take the form of narrative, myth, and poetic rhythm in the first place. As Ong writes:[7]

> An oral culture has no texts. How does it get together organized material for recall?... The only answer is: Think memorable thoughts. In a primary oral culture, to solve effectively the problem of retaining and retrieving carefully articulated thought, you have to do your thinking in mnemonic patterns, shaped for ready oral recurrence. Your thought must come into being in heavily rhythmic, balanced patterns, in repetitions or antitheses, in alliterations and assonances, in epithetic and other formulary expressions, in standard thematic settings (the assembly, the meal, the duel, the hero's 'helper', and so on), in proverbs which are constantly heard by everyone so that they come to mind readily and which themselves are patterned for retention and ready recall, or in other mnemonic form… Fixed, often rhythmically balanced, expressions of this sort and of other sorts can be found occasionally in print, indeed can be 'looked up' in books of sayings, but in oral cultures they are not occasional. They are incessant. They form the substance of thought itself. Thought in any extended form is impossible without them, for it consists in them.

Ong's emphasis on the concrete, the poetic, and the mythic as essential characteristics, not only of communication in oral culture, but also of thought in oral culture, suggests the manner in which the natural capacities of human memory, extended only by spoken language, intertwine with the very nature of being itself as shaped, and thus graspable, by human intelligence. Importantly, as Ong notes, the fact that essential knowledge of the world, in oral cultures, is only retained to the extent that the formulaic expression, parable, or myth encoding such knowledge is kept intact necessitates a fundamental conservatism or traditionalism animating oral cultures. In other words, since the individual and collective memory of cultural truths is encoded only in definitive mythic and poetic formulas, the standard character of such formulas needs to be retained. This is true even if such formulas can be interrelated in manifold and virtually limitless ways as was the case with the Homeric poet who could memorize the fundamental order of a 15,000 line poem not by memorizing the entire poem verbatim but rather by improvising each performance on the basis of standard phrases—such as "clever Odysseus" or "rosy-fingered Dawn"—which fit neatly into the rhythm of the hexameter meter.[8] If the standard phrases were themselves reconfigured by the Homeric poet, or any member of an oral culture, the larger edifice

[7] Walter J. Ong, *Orality and Literacy: The Technologizing of the Word* (New York: Routledge, 2002), 33-35.
[8] Ibid, 57.

of settings and themes communicating the Homeric poem—and oral culture itself—would be lost. As Ong writes:[9]

> Traditional expressions in oral cultures must not be dismantled: it has been hard work getting them together over the generations, and there is nowhere outside the mind to store them. So soldiers are brave and princesses beautiful and oaks sturdy forever. This is not to say that there may not be other epithets for soldiers or princesses or oaks, even contrary epithets, but these are standard, too: the braggart soldier, the unhappy princess, can also be part of the equipment. What obtains for epithets obtains for other formulas. Once a formulary expression has crystallized, it had best be kept intact. Without a writing system, breaking up thought—that is, analysis—is a high-risk procedure. As Lévi-Strauss has well put it in a summary statement 'the savage [i.e. oral] mind totalizes'.

It is this totalizing and uncritical character of oral or mythic culture that disintegrates, in large degree, under the theoretic mentality of literate culture. That is, due to the capacity of writing—and in particular the highly efficient system of phonetic alphabetic writing—to serve as an external repository of symbolic and conceptual meanings, human memory is able to transcend its biological limitations such that, free from the constraint of knowing reality only in so far as that knowledge is inseparable from elaborate psychological and ritualized means of retrieval, the mind can contemplate and revise its own symbolic constructs. Thus, supplementing the neuropsychological term "engram," which refers to "a single entry in the biological memory system," Merlin Donald coins the term "exogram" to refer to "single entries in the [external symbolic storage]," each of which may be described as "an external memory record of an idea."[10] Noting that "the conceptual products of cognition themselves cannot undergo extensive refinement in a purely oral tradition," Donald writes, "only in elaborate exographic systems, such as written histories or mathematical or physical theorems, can the products of thinking be frozen in time, held up to scrutiny at some future date, altered, and re-entered into storage, in a repetitive, iterative process of improvement."[11]

Accounting for the psychological revolution of the literate extension of memory, the classical scholar Eric A. Havelock characterizes the birth of alphabetic literacy in Ancient Greece as a dramatic shift which broke the spell of the oral tradition. In his book *Preface to Plato*, Havelock aims to account for the famous denigration of poetry—specifically the poetic structure of *mimesis* or imitation—in Plato's *Republic*. As Havelock argues, Plato's privileging of rational discourse—or dialectic—over the poetic tradition of mimesis signifies more than an argumentative position; rather, it reflects Plato's own articulation and absorption of the wide-scale psychological transformations in Greek culture, whereby the mimetic and mythic cultures (as we have seen outlined by Merlin Donald) were progressively displaced by the theoretic culture of external symbolic storage. For Plato, Havelock explains, *mimesis* reflected the manner in which the popular transmission of knowledge in the Greek oral tradition inherited by Plato operated, not through the rational intuition and analysis of abstract essences, but

[9] Ibid, 38-39.
[10] Donald, 314.
[11] Ibid, 316.

rather through the instinctive, and even hypnotic, full-body immersion in poetic rites, as guided by the Homeric poet or "minstrel". Describing the typical situation of learning in Greek oral culture, Havelock writes:[12]

> The minstrel recited the tradition; and the audience listened, repeated, and recalled and so absorbed it. But the minstrel recited effectively only as he re-enacted the doings and sayings of heroes and made them his own, a process which can be described in reverse as making himself 'resemble' them in endless succession. He sank his personality in his performance. His audience in turn would remember only as they entered effectively and sympathetically into what he was saying and this in turn meant that they became his servants and submitted to his spell. As they did this, they engaged also in a re-enactment of the tradition with lips, larynx, and limbs, and with the whole apparatus of their unconscious nervous system. The pattern of behaviour in artist and audience was therefore in some important respects identical. It can be described mechanically as a continual repeating of rhythmic doings. Psychologically it is an act of personal commitment, of total engagement and of emotional identification. The term mimesis is chosen by Plato as the one most adequate to describe both re-enactment and also identification, and as one most applicable to the common psychology shared both by artist and by audience.

Anthropologically, therefore, Plato's role in advocating for the dialectical interrogation of abstract formal truths, in place of the unquestioning imitation of poetic tradition, may be seen, in large degree, as the communication to the evolving literate Greek public of the existential advantages of the new artificial extension of memory in writing, even if Plato himself did not articulate, or even understand, his philosophical activism in this way. Regardless of his own awareness of media effects, Plato's shifting of knowledge from the concrete multiplicity of *becoming* to the abstract unity of *being* signaled the new theoretic culture grounded in external memory storage. In other words, as exemplified in Plato's innovative articulation of the theoretic mind, it was only through the fixed visual organization of knowledge in alphabetic writing that the human mind could conceive of the multiplicity of sensory occurrences in terms of unchanging logical categories and existential principles. Through abstracting the unitary essence of things—such as "justice" or "beauty"—from their irregular and varied manifestations in narrative events, the dialectical mind could, as Havelock writes, "create a one out of the Homeric many."[13]

It is just this creating of an *abstract one* out of the *concrete Homeric many* that indicates, perhaps, the most significant psychological shift erupting from the invention and dissemination of technologies of external symbolic storage. As Merlin Donald notes, this shift is one of "demythologization," such that, unlike mythic culture's incorporation and extension of the earlier mimetic culture, theoretic culture, in its tendency to identify truth with intellectual abstraction, challenges the basic presuppositions of mythic culture—that is, the mythic identification of knowledge, not with formal definitions, but with narrative experiences.

As Donald indicates, such demythologization is not just an historical shift marking the beginning of western civilization, but rather an ongoing activity of cultural and epistemological revision as new technologies of external symbolic storage—from print to newspapers to computers—gradually emerge. Such continuous reframing of cultural knowledge and identity can only be described, as Donald notes, as "agonizing." As Donald writes, "Nothing illustrates the transition from mythic to theoretic culture better than this agonizing process of

[12] Eric A. Havelock, *Preface to Plato*, (Cambridge: Harvard University Press, 1967), 159-160.
[13] Ibid, 185.

demythologization, which is still going on, thousands of years after it began. The switch from a predominantly narrative mode of thought to a predominantly analytic or theoretic mode apparently requires a wrenching cultural transformation."[14]

Of course, if we are to regard such a "wrenching cultural transformation" in terms of the media analysis of Marshall McLuhan, it is clear that such a transformation should not be seen merely as a necessary transition to objective knowledge periodically impaired by the ideological trauma experienced by intellectually regressive forces of cultural conservatism. Instead, on the basis of McLuhan's notion of sensory balance, the mythic nature of the oral mentality and the theoretic nature of the literate mentality may both be understood as activating distinct *types* and *functions* of memory, each of which may only reach its perfection through being informed by the others. Indeed, as McLuhan indicates, it is precisely in the educational formation of the classical and medieval liberal arts that the sensory memory tied to mythic narrative and the intellectual memory tied to abstract relationships were reconciled.

3. The Medieval Art of Memory

Particularly, McLuhan and his son Eric identify the historical importance of the Ancient Greek Stoics, who drew on the evolving culture of rationalism in applying allegorical exegesis to the mythic tradition. In this way, the Stoics sublimated the mythic mentality into the regions of philosophy, science, and theology, while preserving much of myth's essential perceptual structure. Thus, after the *logos* or repository of cultural wisdom of the oral tradition had been fragmented by the abstractive analysis of literacy, the Stoics, the McLuhans note, salvaged the fragments of the oral tradition and reintegrated them under the three kinds of word or *logos* which would become the liberal arts of the trivium. These arts comprised the silent word of Dialectic or the *logos hendiathetos*, the written word of Grammar or the *logos spermatikos*, and finally the spoken word of Rhetoric or the *logos prophorikos*.[15] Together, these arts would reframe the human participation in the cosmic *logos* as, in the Roman phrase, *ratio atque oratio*, which can be translated to both "reason and speech" and "wisdom and eloquence."[16] As the classical trivium was incorporated into Christian learning, therefore, the *logos spermatikos* of Grammar (or the interpretation and use of etymology and analogy to signify the intelligible life of forms) bridged together the mythic symbolism of scripture and the abstract principles of nature. As Marshall and Eric McLuhan write, "Christian grammarians found a congenial figure/ground interplay between scripture and nature… in Genesis where the creation is presented as a divine speech. Accordingly, they bent their efforts to developing parallel techniques for interpreting the 'two Books' [of scripture and of nature] which they regarded as fully complementary, as warp and woof."[17]

Underlying the union of oral-based sensory (or imaginative) memory and literate-based intellectual memory was the practice of artificial memory or *ars memoriae* formalized in Ancient Greece and Rome and employed as an inherent mnemonic tool in the medieval Christian training of moral and intellectual virtue. Originating as a method by which Greek and Roman orators could remember complicated arguments and turns of phrase, the

[14] Donald, 275.
[15] Marshall and Eric McLuhan, *Laws of Media: The New Science*, (Toronto: University of Toronto Press, 1988), 124.
[16] Ibid, 10.
[17] Ibid, 9.

art of memory principally consisted of imagining elaborate architectural structures in one's mind, and arranging the subjects one wished to remember within certain places or 'loci' that served to assist one's recollection both through the methodical order of the mental loci as well as the associative imagery which one placed within them.

Importantly, as representative of the literate transformation of the imitative collective memory of the oral tradition—that is, in prompting the construction of an interior world in which one's individual relationship to existential truth was ordered and signified—the art of memory was consistently discussed, in the ancient and medieval worlds, as an analogical interiorization of writing as an external symbolic storage. Indeed, in her work *The Book of Memory: A Study of Memory in Medieval Culture,* Mary Carruthers supplies abundant examples of the conceptualization of memory as a kind of interior writing. In addition to the Ancient Greek metaphor of the memory as a wax-tablet on which intelligible visual signs are inscribed, Carruthers writes, "When the ancients use the word 'visual' to refer to the nature of the phantasm [or mental image retained by the imagination], it is the act of reading words that they have in mind. The point is well made by John of Salisbury: 'Letters however, that is their shapes… are in the first place signs of words…; then of things, which they bring to the mind through the windows of the eyes, and frequently they speak silently the sayings of those no longer present.'"[18]

Likewise, Aristotle associates recollection with alphabetic order, observing that the latter's simultaneous rigidity and flexibility are well-suited to free acts of mental organization. Paraphrasing Aristotle, Carruthers writes, "If one assigns a separate letter of the alphabet to distinct pieces of information, then one can move from one bit to the next using the rigid order of the letters to organize otherwise unrelated material. In recollecting, one can start with Alpha, if one wishes. But if one wants to remember something further on, one could begin instead at Theta. Or one could begin with Zeta and move easily to its 'neighbors,' Eta or Epsilon. It is the interior orderliness of the places that makes it possible to read what is written in the shapes stored in memory."[19]

Importantly, however, in line with the Stoic adaptation of the mythic tradition to the new theoretic culture, the literate or alphabetic basis of the medieval art of memory did not override the narrative poetics of the oral tradition. Instead, the fixed and abstract categorical order of mental topics to remember was understood by medieval writers as being intertwined with memory as a performative act of mental poeisis and creativity, through which one inserted oneself into the larger narrative of one's culture, along with the intricate pattern of salvation history. As Carruthers writes,[20]

> Modern scholars usually translate *cogitatio* as 'thought,' but this conceals a crucial difference in how pre-moderns conceived of what that is from how we conceive of it. Cassiodorus says literally that 'the mind enters into thoughts'; a modern would much more likely say 'the mind thinks.' *Cogitatio*…is defined in rhetoric (and in Greco-Arabic somatic psychology) as a combinative or compositional activity of the mind. It necessarily uses memory because it combines *imagines* [or images] from memory's store. One should therefore think of a single *cogitatio* or 'thought' as a small-scale composition, a bringing-together… of various pieces (as phantasmata) from one's inventory…

[18] Mary Carruthers, *The Book of Memory: A Study of Memory in Medieval Culture*, (Cambridge: Cambridge University Press, 2008), 32.
[19] Ibid, 34.
[20] Ibid, 39.

In the context of St. Thomas Aquinas' enumeration of the faculties of the human soul, the medieval understanding of *cogitatio* is significant, because it underlines Aquinas' own discussion of the art of memory as a method of training the internal sense faculty, which Aquinas called the cogitative power. As the cognitive bridge between sensory particulars and immaterial universals, the cogitative sense functioned for Aquinas as the habit-forming power, by which the human person exercised the virtue of prudence, since it was precisely the intuitive apprehension of universal truths within concrete situations that was developed through the faculty of the cogitative. Particularly significant for the medieval art of memory as integrative of both the sensory memory indicative of oral culture and the intellectual memory indicative of literate culture was Aquinas' understanding of memory, even in its intellectual mode of recollection or reminiscence, as intrinsically embedded in the corporeal. Thus, in her own discussion of the art of memory, Frances Yates notes that, in contrast to his teacher Albert the Great, [21]

> Aquinas does not make the hard and fast distinction between memory in the sensitive part, and reminiscence (including the artificial memory as an art of reminiscence) in the intellectual part of the soul on which Albertus had insisted. Reminiscence is indeed peculiar to man, whereas animals also have memory, and its method of proceeding from a starting-point can be likened to the method of the syllogism in logic… Nevertheless the fact that men in trying to remember strike their heads and agitate their bodies (Aristotle had mentioned this) shows that the act is partly corporeal. Its superior and partly rational character is due—not to its being in no way in the sensitive part—but to the superiority of the sensitive part in man, to that in animals, because man's rationality is used in it.

Aquinas' understanding of memory as, like the cogitative power, both intellectual and corporeal illuminated the medieval art of memory—and by implication the larger media environment of scribal culture within which it flourished—as tethering the artificial memory of external symbolic storage, which gave human reason the capacity to fragment, reintegrate, and modify elements of cultural knowledge, with the biological memory of the human psyche, which can only operate through ritualized patterns and rhythms of evocative sensory content, or, in Aquinas' words, "similitudes." With regard to practicing the art of memory, therefore, Aquinas writes:[22]

> [A man] should assume some convenient similitudes of the things which he wishes to remember; these should not be too familiar, because we wonder more at unfamiliar things and the soul is more strongly and vehemently held by them; whence it is that we remember better things seen in childhood. It is necessary in this way to invent similitudes and images because simple and spiritual intentions slip easily from the soul unless they are as it were linked to some corporeal similitudes, because human cognition is stronger in regard to the sensibilia. Whence the memorative (power) is placed in the sensitive (part) of the soul.

[21] Francis A. Yates, *The Art of Memory,* (Chicago: University of Chicago Press, 1966), 72.
[22] As cited in Yates, 74.

4. The Art of Memory and the Digital Present

Through training both intellect and senses, reason and imagination, the medieval art of memory oriented the soul toward the universal Logos. It is in light of this interior mediational balance that McLuhan saw in medieval scribal culture—itself a mixture of literate and oral habits—a sophisticated and perennial model for human learning. Viewed through the lens of memory, we might say that McLuhan's critique of print culture[23] as suppressing the mythic and sensory dimension of orality through excessive analytical thought rests largely on how the external symbolic storage of printed books rendered abstract information retrieval so efficient that the biological memory of sensory imitation and imagination was no longer required to be at the forefront of cultural activity. Indeed, it is likely print culture's suppression of the deep mythic structures of memory that helped pave the way for an immense retrieval of sensory mimesis and myth in the twentieth century electronic media environment. However, as with any pendulum swing, the excessive sensory bias of electric media may be seen to have merely countered that of print media. In other words, if print culture suppressed the mythic in favor of the rational, electric culture suppressed the rational in favor of the mythic. Or to put it in Thomist terms, if print culture suppressed corporeal similitudes in favor of spiritual intentions, electric culture suppressed spiritual intentions in favor of corporeal similitudes.

What this means is that, if the art of memory supplemented the mythic association of images with the rational order of alphabetic information, the electronic retrieval of orality through 20th century radio and television broadcasts dramatically lessened the rational order of alphabetic information so that the mythic association of auditory and visual images could reign. Obsolescing the intellectual memory and retrieving the biological memory, therefore, the manner in which the "secondary orality"[24] of electronic culture encodes meaning proceeds by the same mythic structure as the "primary" oral tradition. That is to say, as with the oral minstrel's spellbinding recitation of psychically impressionable narratives, images, and sounds, the ways in which electronic content is shaped so as to penetrate the mass audience's memory operates precisely through the individual's desire to merge with the recurring sensory formulas and extraordinary imagery of the mass media experience.

Of course, what complicates the electronic retrieval of the oral tradition—presenting us perhaps with both positive and negative implications—is that such a retrieval has occurred from within the abstract and critical mentality of theoretic culture. Thus, in terms of the *negative* implications of such a retrieval, the mythic immersion of electronic media brings back the participatory intensity of biological memory in simulated form—or, in other words, in a form which is inherently deprived of its natural origins in the collective reality of a living physical community. Accordingly, quite distinct from the oral culture's centuries' long development and refinement of a coherent body of collective meanings, the mythic narratives and poetic rhythms of electronic culture are to a large degree crafted by entertainment executives, public relations experts, and advertising agencies, such that the attention of a demographic of people can be captured and influenced for a variety of

[23] Cf. Marshall McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man*, (Toronto: University of Toronto Press, 1962).
[24] Cf. Ong, 132-135.

purposes. It is this confusing mixture of biological and artificial memory, mythic and theoretic culture, that we encountered at the beginning of this paper in relation to the rising cultural disillusionment resulting from social media. In this respect, the fact that social media users take it upon themselves to imitate the attention-grabbing techniques of advertising means that the so-called democratization of social media only *intensifies* the psychological alienation issuing from mass media simulacra.

At the same time, because the electronic retrieval of the mythic mentality occurred within the larger framework of theoretic culture, it is possible to see how the countercultural casting of personal computing as the psychedelic realization of cybernetic spirituality and collective intelligence[25]—all of which intensified and even directly contributed to the simulated mythology of mass media consumerism—is merely a misguided distraction from the true character of the digital media environment as a new domain of external symbolic storage or memory. That is to say, if the manner in which the contemporary digital environment serves to extend not only the associative links among mental images, but also the literate ordering of mental contents, by way of an ever more sophisticated variety of personally chosen software functionality, including the growing use of AI agents, then the digital environment, in its most fundamental form, might be closer to Vannevar Bush's Memex than Stewart Brand's LSD. In this way, just as the transition from mythic culture to theoretic culture generated an agonizing process of demythologization, we might regard the current transition from an electronic environment based on simulated mythology to a digital environment based on programmable memory as a replay of such demythologization, except now, instead of the Homeric panoply of Gods and Demigods, the superheroes of the Marvel Universe are cast aside.

Indeed, if Aristotle's notion of recollection which supplied the theoretical basis for the medieval art of memory depended on the association and ordering of mental contents, then the digital environment retrieves the art of memory and brings it to a new level of intensity, such that the dynamic reality of our inner constitutions is now remembered by our digital environments, driving us to confront ourselves in ways we never had to before—an agonizing demythologization indeed. With language that unmistakably evokes the digital environment, Carruthers writes, "It is apparent from the metaphors [medieval authors] chose to model the processes of memory and perception that the imagines [or mental images] were thought in some way to occupy space. They are 'incised' or 'stamped' into matter, they are 'stored' and can be recalled or reconstructed by means of memorial storage. And because each memorial phantasm is in some way physically present in the brain, it can be given a particular 'address' during the process of memory storage, associations that will 'send' recollection to it."[26]

If the ubiquitous sending of recollection is now an unavoidable reality of the digital environment, it may be the case that the digital exposure of our own mental contents may be the only sign to help us remember the significance of memory itself—that is, the art by which we continually find ourselves through re-collecting our various mental postures in a unified orientation to reality. We may hope that such recollection might reenvision the perfect memory of the computer as directed, not toward the meticulous extraction of personalized consumer

[25] Cf. Adam Pugen, *Reclaiming Communication from Information: Knowing in the Digital Age*, https://lyceum.institute/humanitas-technica/humanitas-technica-theoretical-paper-reclaiming-communication/
[26] Carruthers, 31.

data, but rather toward the sending of mental processes to the personal recollections—energized by a renewed awareness—of our own souls.