New Explorations
Studies in Culture and Communications

The Fourth Brain: Marshall McLuhan's Forecasts of A.I.

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Volume 4, numéro 2, automne 2024

URI : https://id.erudit.org/iderudit/1115382ar
DOI : https://doi.org/10.7202/1115382ar

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Éditeur(s)

New Explorations Association

ISSN

2563-3198 (numérique)

Découvrir la revue

Citer cet article

Kuhns, W. (2024). The Fourth Brain: Marshall McLuhan's Forecasts of A.I. *New Explorations*, *4*(2). https://doi.org/10.7202/1115382ar

Vol 4 No 2 (Fall 2024)

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The Fourth Brain:
Marshall McLuhan's Forecasts of A.I.

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Marshall McLuhan (1911-1980), the audaciously imaginative inventor of media studies, has proven to be one of the most far-seeing minds of the 20th century. I am firmly convinced that in time, McLuhan will be widely acknowledged as our Aristotle of technology: a philosopher who understood the life force of evolving technology with such depth of insight that he successfully placed the history and future of science and technology firmly within a humanist stronghold, rebuffing fears of advancing "too far" into technology, particularly with "superintelligent" AI. Nowhere in the history or future of technology did McLuhan ever detect anything we humans should find alien or alienating. "Man's technology is the most human thing about him," he announced confidently. (1975 65) Elsewhere he said, "Technology is part of our bodies." (1964 68)

McLuhan wrote serious philosophy with an uncommonly light touch. Here, for example, are remarks he made more than half a century ago about computer surveillance and data acquisition:

> We have reached a… point of data gathering when each stick of chewing gum we reach for is acutely noted by some computer that translates our least gesture into a new probability curve. (1964 51-52)
>
> The really great privilege of the elites of the future will be to erase the computer information about them and assume their private identities again. (1969b)
>
> The more the data banks record about each one of us, the less we exist. (1970 13)

Today it's apparent how accurate these observations have become. Yet in McLuhan's day, any one of them could have been the reliably laugh-inducing gag line of a stand-up comic.

McLuhan's most familiar tropes circled electronic media of his mid-century era, particularly TV, though he did frequently comment on computers. In the following passage from a 1967 piece he wrote with George Leonard for *Look* magazine, he not only foresaw the internet, he outlined one primary way that it would transform learning:

> A worldwide network of computers will make all of mankind's factual knowledge available to students everywhere in a matter of minutes or seconds. Then, the human brain will not have to serve as a repository of specific facts, and the uses of memory will shift. In the new education, breaking timeworn, rigid chains of memory may have greater priority than forging new links. New materials may be learned just as were the great myths of past cultures – as fully integrated systems that resonate on several levels and share the qualities of poetry and song. (1967b)

The passage deserves a second read. It presents, perhaps better than any other single passage of his that I have found, a concise summary of what McLuhan probably would have said about Artificial Intelligence, had he addressed today's current state of AI.

McLuhan's thinking on media in its broadest strokes is lodged in a hard nugget of paradox. An illustrious and popular professor who taught literature at the University of Toronto from 1946 to 1979, he argued that literacy itself has been a parenthetical historic anomaly – or what he sometimes termed artifact -- created first by the alphabet and vastly expanded over two millennia years later, by the printing press. According to McLuhan, literacy spawned most of what we identify as our present Western civilization: Nature as concept and object, as well as industrial mechanization, capitalism, nationalism, democracy, codified law, objective knowledge, individualism in all its states from the lone psyche to our notions of privacy, and much more. Lately, McLuhan stressed, with the rise of electronic media – primarily TV and computer – we are entering a post-literate era in which we are actively reversing these very effects achieved through writing and literacy. McLuhan proposed that we are returning to the ear-based tribal world that preceded the alphabet: inhabiting what he called "acoustic space". History, this literature professor argued, is a palindrome – like such words as *noon, civic* or *racecar* – and the judding shocks of recent times, especially the convulsive social and political divisions and our newly estranged notions of truth, spawned and exacerbated by social media,

are early evidence of society's tectonic shift to a post-literate and neotribal world.

I believe McLuhan would have regarded Artificial Intelligence as a wind at the back of our movement into a retribalized culture. In many contexts, McLuhan associates the future of the computer with the cohesive "corporate consciousness" of kin-woven tribes. This is one face of post-literacy. Another is that reading itself stands to become shallower and skimpier. We will likely limit our consumption of print to scrolling an email feed, Facebook, and Google News, very seldom cracking a book cover to cover. AI will almost certainly take on mastery of whatever knowledge we once acquired by sustained reading and study. Confronted with longer works that it remains important for us to know, we might look to AI as film executives look to script-reading assistants who prepare synopsis notes. AI may relieve us of giving hard, sustained attention to the printed page by delivering customized versions and variants of synopsis notes. For certain, AI will become a fresh driver of the distraction-riddled universal attention deficit disorder that has become a commonplace condition in the age of the cell phone.

Things do not have to evolve in this manner. There are scenarios in which AI could promote and reinforce continuous high standards of literacy. If schools made sustained and personally rewarded reading as primal an outcome as mastery of STEM subjects, AI could become a personalized tutor to every student. AI could also translate important writings into freshly accessible forms, such as graphic novels. If AI's evolution is left solely to commercial forces, most likely we will see AI expediting the process of liberating us from sustained and acutely attentive reading altogether. Those areas of the brain devoted to highly focussed cognitive attention are already in decline; under the aegis and delegated authority of AI, they stand to decline further. As Andrey Mir has shown convincingly in his masterful map of palindrome-guided post-literacy, *Digital Future in the Rear View Mirror* (2024), our future will be decided more surely by the authority of what we hear over what we read. AI is certain to play a big part in that process.

What did Marshall McLuhan have to say about AI?

In recent years I have been assembling an immense database of McLuhan's most striking passages. I have tried to read everything he produced, published and unpublished. In all McLuhan's output I have located only one mention of Artificial Intelligence by that name. In

a 1978 draft of a speech, McLuhan prefaces a quote from Marvin Minsky by naming the MIT lab where Minsky worked. That's it.

McLuhan may have sensed -- as, before his 1980 death, so many did -- that "AI" was more hope and hype than proven tech. All McLuhan's thought is metaphorical – that's a major source of its reach and much of its intoxicating power. Even though McLuhan did not address AI by that term, many of his observations about the future of the computer assumed the vast growth of digital capability that today we associate with AI.

Did McLuhan foresee primarily, positive or threatening outcomes in the accelerating evolution of the intelligent computer? In one passage he suggests that the outcome of universal programming – a far conceptual shore of AI – could contribute to either utopia or dystopia.

> Computer technology can – and doubtless will – program entire environments to fulfill the social needs and sensory preferences of communities and nations. The content of that programming, however, depends on the nature of future societies – but that is in our own hands. (1969)

Not once in all his output have I seen McLuhan regard the computer as a competitor to human abilities, or as a potential threat to humanity. In one of the most thorough and accessible statements of his thought, the interview with *Playboy* published in its issue of March, 1969, McLuhan said:

> This is the real use of the computer… to speed the process of discovery and orchestrate terrestrial -- and eventually galactic -- environments and
> energies. Psychic communal integration, made possible at last by the electronic media, could create the universality of consciousness foreseen by Dante when he predicted that men would continue as no more than broken fragments until they were unified into an inclusive consciousness.
> (1969 [1999] 262)

If McLuhan saw potential downsides in computer evolution, they were primarily due to people succumbing to the shortened attention spans and abbreviated reading habits imposed

by electronic media, as well as becoming stripped of their bodies, and engaging as “discarnate beings” with their machines and one another. He would almost certainly have considered a discarnate condition to be an acute downside of the technologies of virtual reality.

There is another key AI term I have not found mentioned in McLuhan’s writing and speaking: “algorithm.” McLuhan was keenly aware of the coded instructions guiding a computer’s operations. He had fun citing Joseph Weizenbaum’s description of compulsive programmers in rumpled clothes who work, as Weizenbaum wrote, “until they nearly drop.” (1976 116) McLuhan renamed the compulsive programmer a “cybernetic cytoblast” who, like a compulsive gambler, “is happily isolated in an abstract world” of pure code. (1978 9)

Yet McLuhan may well have had a distinctive take on the algorithm and its potential. A frequent motif in his references to the future of the computer, he often proposed, would be its task of “programming the environment.” In 1964 he wrote that, with advanced computers, “To reprogram the cultures of the globe becomes as natural an undertaking as curriculum revision in a university.” (1964b 519) Six years later, somewhat whimsically, he proposed, “Let’s program the whole environment like a double helix.” (1970 312) In another context, he remarked, “It becomes mandatory to program the environment itself as a work of art.” (1968 252)

Recently, several major architects of today’s “deep learning” AI -- such as Geoffrey Hinton, father of the neural net computing hardware which enables AI learning, and Mustafa Suleyman, who helped launch the powerful DeepMind system, and who now heads the AI program at Microsoft – have voiced their anxiety that AI will soon outdistance humans in intelligence, and perhaps relegate us to a role comparable to the that which we’ve assigned to dogs, cats, hamsters, and goldfish. The overwhelming fear, shared by many AI engineers, is that evolving AIs may diverge from a stable alignment with human values and human intentions. A facetious example of extreme misalignment is the “paper clip” scenario, an update of the Sorcerer’s Apprentice fable, in which a superintelligent AI, programmed to make paper clips, realizes it needs an abundance of atoms and since humans have so many atoms, the human race becomes mined for its atoms in the unconstrained production of ever-growing seas of paper clips.

In a 1966 letter to the editors of *Life* magazine – sent shortly after they had profiled him

as “Oracle of the Electric Age” -- McLuhan addressed the alignment issue concisely. His letter was included in the 1987 *Letters of Marshall McLuhan*.

> If we maintain lively dialogue with, and among, the technologies, we can enlist them on the side of traditional values instead of watching those values disappear while we play the helpless bystanders. (1987 334)

A pet McLuhan theme was to seize the potentials that a new technology offered and not waste its energies by assigning it to do old jobs. “The computer is being set to do all the old jobs, nothing new,” he protested in 1967. “It is like buggy-whip holders in the first motor car.” (1967b 6) He called this abiding pattern “the law of implementation” and countered it with one of his shrewdest aphorisms: “New means create new goals.” (1972 194) He took it as axiomatic that fresh technological innovations demand innovative thinking about their uses and applications.

> We must maximize rather than minimize the various features of our new media. It’s easy now to see that they are not mere vehicles for already achieved experience and insight…. Radio and Television aren’t new ways of handling manuscript and book culture. The motor-car wasn’t a substitute for the horse. It did what the horse could never do. (1956 403)

What did he propose that the computer should be doing that nothing before it could do? For one, he proposed

> …arranging the entire human environment as a work of art, as a teaching machine designed to maximize perception and make everyday learning a process of discovery. (1967 68)

In *Understanding Media* he wrote,

> We can now, by computer, deal with complex social needs with the same architectural certainty that we previously attempted in private housing. Industry as a whole has become the unit of reckoning, and so with society, politics, and education as wholes. (1964 358)

No project, he suggested, would be too large for the computer. But he also advised that such projects were best conceived and gestated by programmers who approached their work

in a limber state of improvisation and creative play.

> The future masters of technology will have to be lighthearted and intelligent. The machine readily masters the grim and the dumb. (1969 55)

And what of the prospect that one day an advanced AI system might acquire consciousness? McLuhan openly doubted such a prospect, yet he regarded a conscious computer as he did all technologies since the alphabet: a fresh uttering and outering of our humanity. As he wrote in *Understanding Media:*

> Any process that approaches instant interrelation of a total field tends to raise itself to the level of conscious awareness so that computers seem to "think". In fact, they are highly specialized at present, and quite lacking in the full process of interrelation that makes for consciousness… But a conscious computer would still be one that was an extension of our consciousness, as a telescope is an extension of our eyes, or as a ventriloquist's dummy is an extension of the ventriloquist. (1964 351)

I should note: McLuhan's choice of a ventriloquist's dummy as example is unique to this context. I have not encountered ventriloquism used as a metaphor anywhere else in McLuhan's output. Was he possibly, if subliminally, suggesting that, even though a conscious computer began as -- and remained -- an extension of human consciousness, it might yet act independently of our command, like Victor Frankenstein's creation, or like the wooden puppets encountered in fables of ventriloquists' dummies gone rogue?

Nonetheless, a consciousness first awakened in a network of computers seems to precede McLuhan's grand dream of humanity achieving a universal collective consciousness. Throughout his lifetime oeuvre, McLuhan devotes literally hundreds of phrasings to the notion of a humanity-spanning collective or "corporate" consciousness. It is a vision of McLuhan's which seems to bind world-spanning electronic media with our return to the hyper-intense social cohesion of tribal societies. Here is a sampling of passages reiterating perhaps the most cherished of his pet themes:

> The computer, in short, promises a Pentecostal condition of universal understanding and unity. The next logical steps would seem to be, not to translate, but to bypass language in favor of a general cosmic

> consciousness which might be very like the collective unconscious dreamt of by Bergson. (1964 80)
>
> The next immediate step technologically is the extension of consciousness. (1963 letter to John Snyder [1987] 290)
>
> All men are totally involved in the insides of all men. There is no privacy and no private parts. In a world in which we are all ingesting and digesting one another there can be no obscenity or pornography or decency. Such is the law of electric media which stretch the nerves to form a global membrane of enclosure. (1964b 518)
>
> With the computer there has risen the possibility of extending consciousness itself as a technological environment. (1971 48)
>
> Survival now would seem to depend upon the extension of consciousness itself as an environment. This extension of consciousness has already begun with the computer and has been anticipated in our obsession with ESP and occult awareness. (1972 14)

How did McLuhan foresee our links to the computer as it evolves: as additions fitted into our pockets like cell phones, or closer to the body, ala fitbits and eyeglasses? In a 1966 discussion forum with journalist Mike Wallace, he gave a strong hint.

> The real job of the computer in the future is not going to have anything to do with retrieval. It's going to have to do with pure discovery, because we use our memories for many purposes, mostly unconscious. When you can recall things at a very high speed, they take on a new mythic and structural meaning that is quite alien to ordinary perception. So, the computer… has, in spite of itself…. revealed the knowledge of the mythic pattern, structures and profiles, all of which are quite excitedly loaded with discovery.(1966 8-9)

Note how seamlessly McLuhan moves here between human and computer memory. He suggests that each form of memory becomes so wholly accessible to the other, it almost becomes pointless to distinguish between the two. AI will share in our memories, and provide us with a span of intelligence and memory vastly beyond what we acquired previously from education and private experience.

In early 1965, speaking in New York, McLuhan speculated about the future of our bond with the computer, in effect, speculating about our most intimate downstream relationship to A.I. He foresaw “a kind of computerized ESP” -- linkages to computers not requiring language – which would enable a “corporate consciousness” in which we would all share. McLuhan anticipated a device he described as a “small personal computer, about the size of a hearing aid, that would process our private experience through the corporate experience, the way dreams do now.” (1965, 44)

Is McLuhan suggesting that A.I. will someday embody and expand our shared spirit by raising our collective consciousness to ever-more refined realms of social cohesion, similar to the synchrony-forging role served by rituals and mind-altering drugs among our tribal ancestors?

In *The Triune Brain in Evolution* (1990), the neuroscientist Paul D. Maclean provided the foundation for an excellent metaphor describing what McLuhan may have imagined as a destination in our evolving interaction with advanced computers, that is, with AI. MacLean described the human brain as three stages of evolving brains, each addition building on and remaking what came before. At the core is the reptilian brain. The small reptilian brain is regulated by appetite and fear and is widely known by its instinct-driven response to threat: flight or fight. Mounted atop that core brain, and filling much neural volume in the human cranium, is the mammalian brain, largely dedicated to refined use of a mammal’s adaptive senses and its emotion. Then comes the addition unique to higher mammals, most acutely developed in the genus *homonid*: the relatively thin neocortex with its density of folds. The neocortex in *homo sapiens* introduces distinctive new forms of neurons, which enable cognition, attention, memory, language, reasoning and learning.

I read McLuhan here proposing that, with the computer and highly advanced AI, we are in the process of building a neo-neocortex, one that will in time become either a prosthetic or biological capping of our present triune brain. If McLuhan were to encounter ChatGPT, DALL-E, Cleo, Jasper, or Midjourney, he might well declare our current generative AI to be an embryonic stage of our forthcoming fourth brain.

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