

pain et ne ressembleront pas aux humanoïdes de science-fiction. Mais, via d'autres dispositifs, ils partageront nos efforts physiques et les prises de décisions à impacts sociaux et émotionnels. Si de tels robots étaient en partie destinés à devenir des palliatifs à des situations d'exclusion sociale ou des besoins d'aide dans la maladie, le handicap ou la vieillesse, ils le seraient aussi dans des situations d'isolement au sens large : des *Hikikomoris*¹³ aux travailleurs ruraux. Ils ne seraient plus le seul apaisement d'une génération de *yuppies* du genre *nerds*, *geeks*, *wannabees*, *hypsters*, *cellphone junkies* et autres socio-types.

Au Japon déjà, le METI (*Ministry of Economy, Trade and Industry*), le NEDO (*New Energy and Industrial Technology Development Organization*), le MHLW (*Ministry of Health, Labour and Welfare*) et l'Association pour l'assistance technique (ATA), ainsi que 130 compagnies, ont formé au niveau national cinq groupes de travail à partir de cinq priorités :

« Les dispositifs d'assistance médicalisée ; les dispositifs de surveillance de la démence sénile ; les dispositifs liés aux excréments ; les dispositifs d'aide à la mobilité et aux mouvements des personnes âgées ; et les dispositifs portables qui peuvent aider aux soins et assister les soignants¹⁴. »

Assistance en général, surveillance et sécurité, hygiène, aide à la mobilité et à la motricité, aide aux soignants, autant de marqueurs d'une nouvelle condition humaine liée à la qualité et à l'espérance de vie des populations. Parfois isolées, diminuées physiquement dans la mobilité ou mentalement et émotionnellement pour prendre des décisions, en des situations récurrentes, nouvelles ou extrêmes, les personnes âgées créent de nouveaux besoins qui seront le principal défi de la prévention sociale, du Design Universel et de l'UX Design (*Design User Experience*), des objets connectés et de certains robots. Néanmoins, si la robotique peut s'inscrire dans une volonté d'humanisation de lutte contre la précarisation de certaines conditions de vie, elle ne sera pas pour autant anthropomorphique. Les expectatives de capacités sociales, projetées

dans *G.U.N.T.E.R.* et les autres robots environnementaux non théorisant, ne sont pas pour demain. Pour l'instant, seuls les robots créés pour s'adapter aux environnements extrêmes (fonds abyssaux et espace), présentent de véritables avancées pour des robots humanoïdes. En définitive, les robots humanoïdes continueront à être rares. Par contre, il y aura sûrement de la robotique dans toutes sortes de nouveaux biens de consommation, jusqu'aux plus fantaisistes, qui « révolutionneront » nos modes de vies et notre quête affective en relation avec les objets, telle une actualisation de *La plainte du progrès* de Boris Vian (1955).

¹ Escola Superior de Desenho Industrial. Universidade do Estado do Rio de Janeiro.

² « Danger, Will Robinson ! » trouve son origine dans la série télévisée, lorsque le robot prévient le jeune Will Robinson d'une menace imminente.

³ Le robot humanoïde Asimo a été abandonné après plus de vingt ans d'investissements et de succès technologiques de Honda.

⁴ Dans la filiation du premier engin aquatique radiocommandé par Tesla en 1898, des engins sous-marins télérobotisés sont développés par diverses entreprises à partir des années 1960 : Atlas Elektronik, Bluefin Robotics, Hydroid, International Submarine Engineering Ltd, Kongsberg Maritime, OceanScan et Teledyne Gavia.

⁵ *Synchronized Position Hold, Engage, Reorient, Experimental Satellites*.

⁶ Longtemps les *tins toys* de robots ont été associés à des *tins toys* de *space rockets*.

⁷ www.youtube.com/watch?v=udff-twzkyzZg

⁸ Tel Baxter, Rethink Robotics, USA, 2013.

⁹ Roomba (2002) ; MowBot (1969) ; Aqua-Vac System (1967) ; Aibo (1999) ; Jibo (2017) ; Siri (2011).

¹⁰ C. BREAZEL, *Designing Sociable Robots*, Cambridge, MIT Press, 2002.

¹¹ Débat qui met en équivoque le statut des indiens et des noirs vis-à-vis de celui des blancs. F. B. DE LAS CASAS, *Histoire des Indes*, Paris, Éditions du Seuil, 3 vols, 2002.

¹² Pepper (2014) ; Hugvie (2012) ; Nao (2007) ; Robo Helper (2012) ; Walking Assist Device (2008) ; HAL, (2013) ; iCat (2005).

¹³ Hikari (2017) ; EffiBot (2009).

¹⁴ Z. PARÉ, *L'âge d'or de la robotique japonaise*, Paris, Les Belles lettres, coll. « Japon », série « Études », 2016.

Heidegger and McLuhan: The computer as component* Michael Heim (1993) – part two

Language Machine is Our Destiny

Soon after trading in my electric typewriter for a portable computer in 1983, I came to believe that the machine in my hands was indeed the language machine of Heidegger's speculations. The "language machine" was Heidegger's groping term for the incipient phenomenon of word processing. Of course, word processing did not exist in Heidegger's lifetime, at least not as a cultural phenomenon. It existed only in the dreams of inventors like Doug Engelbart and Ted Nelson. Although he did not see the word processor, Heidegger did have a keen eye for the philosophical implications in the shift of writing technologies. He saw in writing technology a clue to the human relationship to language and to our awareness as beings embodied in the world:

*"Not by chance does modern man write 'with' the typewriter and 'dictates' -- the same word as 'to invent creatively' [Dichten] -- 'into' the machine. This 'history' of the kinds of writing is at the same time one of the major reasons for the increasing destruction of the word. The word no longer passes through the hand as it writes and acts authentically but through the mechanized pressure of the hand. The typewriter snatches script from the essential realm of the hand--and this means the hand is removed from the essential realm of the word. The word becomes something 'typed.' Nevertheless, mechanical script does have its own, limited importance where mechanized script serves as a mere transcription for preserving handwriting, or where typewritten script substitutes for 'print.' When typewriters first became prevalent, a personal letter typed on a machine was regarded as a lapse of manners or as an insult. Today, handwritten letters slow down rapid reading and are therefore regarded as old-fashioned and undesirable. Mechanized writing deprives the hand of dignity in the realm of the written word and degrades the word to a mere means for the traffic of communication."*¹

Heidegger focuses on the increasing typification brought about by modern rationalist

models of standardized intelligibility, models which underscore the advantages of repetition and instant recognition.

Heidegger's criticisms of the typewriter are somewhat off the mark now that the personal computer has replaced the mechanical typewriter. Unlike the typewriter, the word processor guides the hand into a nonmechanical process. The fingers on the keyboard might just as well be a voice that activates the information device, for the computer removes the writing activity from script and mechanical imprints. Word processing can also have a graphic interface which brings the hand back to bodily gestures like pointing and moving things around with a graphic pointing device or mouse. The actions are done in an already typified, digitized element. Unlike the typewriter, the computer does not simply replace direct hand movements with the industrial-mechanical action of springs, pulleys, and levers. The information environment allows gestures to work in ways that leave behind the industrial machine with its cumbersome but efficient mediation of human energy and attention. The electronic element shifts the quality of action to another level. The formulation of ideas on a word processor can establish impersonality while achieving a directness and flexibility undreamt of with the typewriter.

Heidegger sensed the power of the machine as an agent for changing our relationship to the word. In fact, the word processor changes our relationship to written language at least as much as the printing press. Nor can scholarship go unchanged. Heidegger correctly feared that electronic digital text might absorb his own work. In 1967, he feared that a rising tide of information might soon swallow his own writings:

"Maybe history and tradition will fit smoothly into the information retrieval systems which will serve as resource for the inevitable planning needs of a

cybernetically organized mankind. The question is whether thinking too will end in the business of information processing.”²

If it has already transformed the epistemic stance of the natural sciences, the computer is transforming the humanities as well. The word processor is the calculator of the humanist. This electronic machine gives its users the power to manipulate written language in new ways. Just as the printing press altered culture and scholarship soon after its invention, so too the computer automates the composition, storage, and transmission of written words. And if the computer affects all written communication, will it not in turn affect the way we regard and use language in general—not only when we sit at the word processor, but, by aftereffect, whenever we speak and listen, perhaps even whenever we think?

Computer technology is so flexible and adaptable to our thought processes that we soon consider it less an external tool and more a second skin or mental prosthesis. Once acclimated to the technology, we play it much as a musician plays an instrument—identifying with it, becoming one with it. Writing on the language machine produces a new kind of writing and thinking. At our fingertips is the calculating machine dreamt of by Pascal and Leibniz, the fathers of modern metaphysics, but now this calculator operates on our language as we spontaneously produce it.

Heidegger sensed that the language machine belongs to our destiny. What did he mean when he said the language machine would “take language into its management and master the essence of the human being”? Was he simply reacting to change? Should we place him historically among the reactionaries of his time?³ I think not. Political terms of reaction or progress are too crude here. Heidegger’s statement invites us to insight, not political agendas. He was meditating on a technology still in the bud. Now that this technology is blossoming, we need to consider what he was getting at. Neither Luddite nor technophobe, Heidegger resisted every attempt to categorize his views as either optimistic or pessimistic. Whether the glass was half-empty or half-full,

Heidegger was interested in the substance of its contents. He was a soft determinist, accepting destiny while studying the different ways of absorbing its impact. In this respect, he resembled the American philosopher of communications, Marshall McLuhan.

McLuhan and Computers

Like McLuhan, Heidegger believed he had grasped something unique and essential about the twentieth century. Both Heidegger and McLuhan felt an inner relationship to their epoch. Each believed he was interpreting a destiny the next generation would receive, and each believed that the legacy of his reflections on technology was far more important than his own personal value judgments about technology. McLuhan wrote that he held back his own value judgments from the public because they create «a smog in our culture.» He wrote: “I have tried to avoid making personal value judgments about these processes [of technological transformation] since they seem far too important and too large in scope to deserve a merely private opinion.”⁴ Similarly, Heidegger held back statements of personal values from his philosophy, whether statements of self-justifications or of a moral agenda. The point was to reflect on the radical shifts brought about by an unprecedented development.

Both Heidegger and McLuhan saw intimate connections between information technology and the way the mind works. If Heidegger is the father of information anxiety, McLuhan is the child of the television media of the 1960s. What synchronized their visions is the crucial role technology plays in defining reality, in operating as an invisible backdrop within which the content or entities of the world appear. Behind the visible entities of the world McLuhan glimpsed a hidden backdrop: “To say that any technology or extension of man creates a new environment is a much better way of saying the medium is the message. Moreover, this environment is always ‘invisible’ and its content is always the old technology. The old technology is altered considerably by the enveloping action of the new technology.” For Heidegger, likewise, the question of technology was not an ontic one, not one about the proliferation of

devices nor even about the possible supremacy of the machine over human beings. His ontological question touches the world, the clearing or backdrop against which things appear. Ontology has to do with our understanding of the being of things, not with things as such. The ontological question probes the invisible background. As McLuhan saw it, “The content of the new environment is always the old one. The content is greatly transformed by the new technology.... Today the environment itself becomes the artifact.”⁶ Technology would not sweep the older things away but would transform them while placing them before us as though nothing had changed. Similarly, according to Heidegger, the future takes up the past while making it present, and the environment we live in quickly becomes an artifact in the omnivorous future of the technological system.

McLuhan helps us understand what the computer does specifically as a language machine, as a component of human knowledge. Both McLuhan and Heidegger considered the most awesome power of technology to reside in its newly achieved intimacy with language. McLuhan noted with approval Heidegger’s treatment of language as a transcendental aspect of Being:

“The alphabet and kindred gimmicks have long served man as a subliminal source of philosophical and religious assumptions. Certainly Martin Heidegger would seem to be on better ground [than Kant was in assuming Euclidian space to be an a priori] in using the totality of language itself as philosophical datum. For there, at least in non-literate periods, will be the ratio among all the senses.... An enthusiasm for Heidegger’s excellent linguistics could easily stem from naive immersion in the metaphysical organicism of our electronic milieu.... There is nothing good or bad about print but the unconsciousness of the effect of any force is a disaster, especially a force that we have made ourselves.”⁷

McLuhan suggests that Heidegger’s ideas have a greater appeal to a culture organized electronically because such a culture has already left behind the detached, linear, individualistic mentality of literate or print cultures. He

agrees with Heidegger in asserting that language technology belongs to us more essentially than any tool. When a technology touches our language, it touches us where we live. How can we philosophically reflect on the word processor? How can we get beyond the vague general talk about the dangers of the calculative mentality? McLuhan’s work can help track the impact of word-processing technology more specifically and clearly. But for me it was not McLuhan but an illustrious student of his, Walter J. Ong, who provided a more precise conceptual angle from which I could better see the language machine. For specific insight into the way the word processor alters our thought processes and even our sense of reality, I found help in the writings of Ong who treats the psychodynamics, the shifts in mentality, that occur in Western history as new technologies for language storage come into prominence.

Ong traces two major shifts in knowledge storage: the oral-to-literate and the chirographic-to-print shifts. The first occurred when the culture moved from a predominantly oral-based society to a society increasingly based on the written word. The second shift moved from handwritten (chirographic) texts to the more widely disseminated, mechanically produced printed books. With more detail and coherence than his mentor McLuhan, Ong traced these shifts in writing technologies as they affected human awareness and in turn influenced interactive epistemology (knowledge as it occurs in relation to tools and to other persons). Unlike an absolute stance, this epistemological approach takes seriously the changes that mark the history of human knowledge. The studies by Ong and Eric Havelock (*Preface to Plato*) provide concrete material for distinguishing different historical epochs by their characteristic ways of symbolizing, storing, and transmitting truths. The patterns of psychic transformation they trace dovetail nicely with Heidegger’s history of being.

According to Heidegger, we notice the eclipse of the truth of being occurring already in Plato’s metaphysics. Once the truth of being becomes equated with the light of unchanging intelligibility, the nature of truth shifts to the

ability of statements to reliably reflect or refer to entities. With the steadiness of propositional truth comes the tendency to relate to being as a type, form, or anticipated shape. With being as steady form, entities gain their reality through their being typified. Already in Plato we see the seeds of the Western drive to standardize things, to find what is dependable and typical in them. Truth as the disclosure process, as the play of revealing/concealing disappears behind the scene in which the conscious mind grasps bright objects apprehended as clear, unwavering, rational forms. As humans develop the ability to typify and apprehend formal realities, the loss of truth as emergent disclosure goes unnoticed. All is light and form. Nothing hides behind the truth of beings. But this 'nothing' finally makes an appearance after the whole world has become a rigid grid of standardized forms and shapes conceived and engineered by humans. As the wasteland grows, we see the devastation of our fully explicit truths. We see there is, must be, more. The hidden extra cannot be consciously produced. Only by seeing the limits of standardization can we begin to respond to it. We have to realize that each advance in typifying and standardizing things also implies a trade-off. When we first reach forward and grasp things, we see only the benefits of our standardization, only the positive side of greater clarity and utility. It is difficult to accept the paradox that, no matter how alluring, every gain in fixed intelligibility brings with it a corresponding loss of vivacity. Because we are finite, every gain we make also implies a lost possibility. The loss is especially devastating to those living in the technological world, for here they enjoy everything conveniently at their disposal—everything, that is, except the playful process of discovery itself.

The McLuhan-inspired theory of cultural transformation brings out the impact of the word processor even more sharply. But this theory lacks a poignant sense of loss or a feel for the trade-offs happening in finite historical transformations. Walter Ong's version of cultural transformation has about it something of a grand Christian optimism, seeing in the global network of electronic radio, television, and

film a way of re-integrating a fallen, fragmented humanity, creating a closer community. For Ong, the shift from a predominantly oral culture to a literate culture shattered the original tribal unity. In bringing about greater individualism and fostering the logical faculties, literacy cut into the psychic roots of belonging and severed the attachment to immediate interpersonal presence. The print culture even further reinforced literacy, spreading it ever more widely, lifting individualism to unprecedented heights. Then, in Hegelian fashion, Ong sees the electronic media sublating the earlier oppositions, the oral and the literate, so that electronics achieves an encompassing synthesis. Electronic visuals, supported by voices, re-creates human presence and re-unites the individuated members of the community. Underneath, however, the electronic images still depend on the reading of scripts, prepared messages, and a print-informed society. So the electronic media preserves individual literacy while at the same time surpassing it. Because of his hopeful Hegelian dialectic, Ong omits the critical evaluation that can only take place in the existential moment. While McLuhan remained publicly silent on the adverse effects of the new media, Ong appears to have absorbed criticism in a larger picture based on the Christian narrative of Garden-Fall-Paradise Regained.

Heidegger, on the contrary, reminds us of the inevitable trade-offs in history. His philosophy does in fact proceed from the Hegelian sweep of historical epochs, but it denies the possibility of an integrative summation from one absolute standpoint. History is a series of ambiguous gains bringing hidden losses. The series of epochs that makes up the history of reality (*Seinsgeschichte*) expands or contracts with different hermeneutic projects but never permits a single cumulative narrative. Each moment of historical transformation brings a challenge of interpreting the losses and gains, the trade-offs in historical drift. The drift of history allows no safe haven from which to assess and collect strictly positive values once and for all.

In our era, Heidegger's notion of the intrinsic trade-offs of history can spark a critical anal-

ysis of computerized writing. Existential criticism can investigate the implications of a specific technology in all its ambiguity. Because it accepts historical drift, existential criticism proceeds without possessing a total picture of the whither and wherefore, without accepting the picture promoted by either technological utopians or dystopians. There is no need to enforce a closure of pro-or-con, wholesale acceptance or rejection. While recognizing the computer as a component in our knowledge process, we can attend to what happens to us as we collaborate with technology. Because human history is a path of self-awareness, as we deepen our understanding of computer interaction, we will also increase our self-understanding.

¹ M. HEIDEGGER, *Parmenides*, in *Heidegger Gesamtausgabe* vol. 54, Frankfurt, Vittorio Klostermann, 1982, 118-119. Originally lectures given in the winter of 1942-43, my translation; the interpolations in brackets are mine. In this passage, Heidegger is commenting on the ancient Greek notion of 'action' (*pragma*).

² M. HEIDEGGER, "Preface", in *Wegmarken*, Frankfurt, Klostermann, 1967, my translation.

³ A recent study that locates Heidegger's theory of technology within the cultural reaction of the Weimar Republic is M. ZIMMERMAN, *Heidegger's Confrontation with Modernity: Technology, Politics, Art*, Bloomington, Indiana University Press, 1990.

⁴ Cf. M. McLUHAN, "Letter to Jonathan Miller (April 1970)", in M. MOLINARO, C. McLUHAN & W. TOYE (eds.), *The Letters of Marshall McLuhan*, New York, Oxford University Press, 1987, 406. In this letter, McLuhan wrote: "I take it that you understand that I have never expressed any preferences or values since *The Mechanical Bride*. Value judgments create smog in our culture and distract attention from processes. My personal bias is entirely pro-print and all of its effects." In other places McLuhan will not be so open about his stance. In writing to Eric Havelock (May 1970), for instance, he says: "My own studies of the effects of technology on human psyche and society have inclined people to regard me as the enemy of the things I describe. I feel a bit like the man who turns in a fire alarm only to be charged with arson. I have tried to avoid making personal value judgments about these processes since they seem far too important and too large in scope to deserve a merely private opinion." M. McLUHAN, *Letters*, M. MOLINARO, C. McLUHAN & W. TOYE (eds.), *The Letters of Marshall McLuhan*, op. cit., 405 and 406, respectively.

⁵ M. McLUHAN, "Letter to John Culkin (September 1964)", M. MOLINARO, C. McLUHAN & W. TOYE (eds.), *The Letters of Marshall McLuhan*, op. cit., 309.

⁶ M. McLUHAN, "Letter to Buckminster Fuller (September 1964)", M. MOLINARO, C. McLUHAN & W. TOYE (eds.), *The Letters of Marshall McLuhan*, op. cit., p. 398.

⁷ M. McLUHAN, *The Gutenberg Galaxy: The Making of Typographic Man*, Toronto, University of Toronto Press, 1962, 66. "Heidegger surf-boards along on the electronic wave as triumphantly as Descartes rode the mechanical wave."