



# Towards an Ontology of Media

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## Abstract

This paper addresses the exclusion of physical and technical media from questions of ontology. It is argued, first, that from Aristotle onwards ontology has dealt with the matter and form of things rather than the relations between things in time and space. Second, it is argued that because the Greeks did not distinguish between speech elements and alphabetic letters there has been a tendency for philosophy to neglect writing as its own technical medium. This paper traces these tendencies through a range of philosophical sources: from Aquinas and Descartes to Fichte and Hegel. It is argued, by way of response, that it is only with Heidegger that a philosophical consciousness for technical media first arose, and that today the connections of mathematics and media, and of media and ontology are to be formulated in more precise terms.

## Key words

Heidegger ■ ontology ■ media

THE QUESTION of whether media can be thought of in terms of European ontology is both a crucial and a difficult one.<sup>1</sup> There are, for very good reasons, many technological or mathematical theories of communication media, even – as in McLuhan or Walter J. Ong – some silently theological ones. Ontology, however, as defined by Aristotle's 'Metaphysics', has been hostile from its very beginnings to media, whether physical or technical. More than any other theorists, philosophers forgot to ask which media support their very practice. Therefore, it is only with Heidegger's help that we can hope to develop something like an ontology of technical media.

I start from the assumption that philosophy (or, in Heidegger's term, European metaphysics) has been necessarily unable to conceive of media as media. This neglect begins with Aristotle: first, because his ontology



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deals only with things, their matter and form, but not with relations between things in time and space. The very concept of a (physical) medium (*tò metaxú*) is relegated to his theory of sensorial perception (*aisthesis*). Second, because the Greeks did not distinguish between articulated speech elements and articulated alphabetic letters, the very concept of writing as philosophy's own (technical) medium is missing from Aristotle onwards.

I shall proceed with a short history of this philosophical neglect, passing from Thomas Aquinas and Descartes to Fichte and Hegel, in order to show that only in Heidegger, when he turned philosophy into 'thought', did a growing consciousness for technical media arise. First, because already 'Being and Time' thematized the inconspicuousness of everyday media such as glasses and telephones; second, because in the 1930s Heidegger described mass media such as radio no more in existential but rather in historical terms; third, because after the Second World War he conceptualized the beginning of computers as the factual end of philosophy itself. This end, however, following Heidegger, makes it all the more necessary to pose (in terms of *Seinsgeschichte*, history of being) the question of why philosophic logic as invented by Aristotle finally led to its machinization by Turing, Shannon, and others.

Fifty years after Heidegger, I think his question has to be taken up in more precise terms. The leading role of mathematics in media history cannot be misread any longer as some Platonic error.<sup>2</sup> On the contrary, Greek arithmetic has played the same fundamental role as the concepts of being and ontology in founding an epoch where, for the second time in history, a universal medium of binary numbers is able to encode, to transmit, and to store whatever will happen, from writing or counting to imaging or sounding.

### I

In the case of Aristotle, the absence of media is almost obvious. To raise the ontological questions of how and in how many ways we can talk of being as being is tantamount to giving the answer that being in its fullest sense has the twofold sense of *eidos* and *húle*, form and matter. Sure, we can pose other questions, for instance, whether a thing is white or black, where it is and when it is, but all these categories, as Aristotle calls them, are secondary in relation to form and matter. To give just two prominent examples from the 12 books that, unfortunately, go under the title of 'Metaphysics': only if and when some melted bronze, thanks to a gifted artist, takes a god's or goddess's concrete human shape – in order to honor her or him – does a new being called sculpture come into existence. Only if and when male semen, full of formal information, mixes itself with formless menstrual blood will a new individual be born to the species of mankind. Thus, even though for every being in the world four grounds – from the efficient ground to the final one – are necessary and sufficient, the formal and the material ground figure as the two most necessary grounds.



on Sunday I made the biggest discovery of my life. It happened while I was working on the preface for Innis's 'Empire and Communications', which the University of Toronto Press is bringing out [again]. Put in a word, the discovery is this: for 2500 years the philosophers of the Western world have excluded all technology from the matter-form in entelechy treatment. Innis spent much of his life trying to explain how Greek culture had been destroyed by writing and its effects on their oral tradition. Innis also spent much of his life trying to draw attention to the psychic and social consequences of technologies. It did not occur to him that our philosophy systematically excludes *techné* from its meditations. Only natural and living forms are classified as *hylo-morphic*. (Letters, 429)

So, you can see or rather hear how the biggest discoveries of great media historians are error-prone. McLuhan's lecture on Aristotle's 'Metaphysics' turns their true meaning upside down. We have good reason to suppose, quite to the contrary, that form and matter are categories stemming originally from technical things and more or less forcibly transferred also to natural ones.

Heidegger's 'Origin of the Artwork' argues with great plausibility that form and matter present themselves much more evidently to us in sculptures than in stones or trees. This very fact, however, turns McLuhan's curious philological error into a historical truth. It is precisely because the opposition of form and matter stems from technology, not from natural and living forms, that ontology systematically excluded media technologies from its domain. The togetherness or *conrescence* of these two categories in one and the same present thing suppresses all distance, absence, and nihilation from its entelechy. Being, whether natural or technical, has been thought of for 2500 years (to agree with Heidegger) in the metaphysical terms of hereness and presence, *entelecheia* and *oustá*, not in their many opposites such as past and future, storage and transmission.

However, surprising as it may seem, media in Aristotle do exist. Not as part of his ontology, but as part of his theory of psychophysical man. Even more explicit in his book 'On the Senses' than in 'On the Soul', perception must presuppose physical media or elements in order to connect some actually perceived form/matter-being with the perceiving animal soul. Aristotle strongly contradicts his atomistic predecessors following whom imperceptibly small images or *eidola* separate themselves from a given object, travel without finding any resistance through *tò kenón*, the vacuum, void space, in order to finally arrive at the gates of our eyes or ears.<sup>3</sup> No, says the philosopher whose father had been, not by accident, a great king's physician. In the case of hearing, there must be air between the thing and the eardrum as well as between the eardrum and the cochlea. In the case of seeing, matters are even more complicated: between the thing and the human iris – whose pretty Aristotelian name, by the way, is *bride* – there must be air. whereas between the iris and the retina there must be water.



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Leucippus and Democritus, the Greek atomists, this quartet is also one of letters or elements. Aristotle, however, speaks of two elements, namely air and water, as of two ‘betweens’. In other words, he is the first to turn a common Greek preposition – *metaxú*, between – into a philosophical noun or concept: *tò metaxú*, the medium. ‘In the middle’ of absence and presence, farness and nearness, being and soul, there exists no nothing any more, but a mediatic relation. *Es gibt Medien*, we could say, with Heidegger’s late lecture on ‘Time and Being’. Therefore, instead of covering Aristotle with irony and pointless blame, McLuhan should have thanked the greatest Greek coiner of words for his message that there are media, at least natural or physical ones.

Inversely, the Canadian’s statement following which the medium is the message would have been unthinkable to Aristotle for the good reason that almost no Greek except himself could draw any distinction between oral sounds and their written representation. So deeply rooted in Greek culture was the singular identity between poetry, music, and the first and only vocalic alphabet that it opened the atomist’s eyes to the four letters or elements as constituting the cosmos itself. Even in Aristotle, the distinction between *phone* and *graphe*, voice and writing, was drawn just once when he wrote that, while speech sounds are signs of beings, written letters are only secondary signs of those sounds. Thus, metaphysics – as Derrida justly, albeit much too generally, has remarked – always already forgets technical media, from writing itself up to the written book, its own precondition.

## II

It would be a long and painful story to dig up this crazy coincidence of forgetfulness with technological change in every historical detail. Let it suffice to prefer for a moment Harold Adam Innis to his so-called follower McLuhan and to indicate some epochal changes that have altered, at one and the same time, the making of books and that of ontologies. You may call this a rather silly or trivial question, but neither the philosophers concerned nor Derrida, their self-appointed deconstructor, ever posed it. Quite in contrast to illuminators, painters, scientists, historians, and poets, thinkers tend to forget their very medium. This absence of a media ontology may well have been their deepest (and that means groundless) *raison d’être*. I shall give you some examples.

Ancient philosophers, from the pre-Socratics up to Aristotle and his Latin vulgarizers, used to scribble alphabetic letters on papyrus scrolls.<sup>4</sup> Readers had to open these so called volumina with their right hand, read aloud the text, and roll the reading matter back with their left hand to form again a concise storage medium. In classical times, when every thinking being except old proletarian Socrates knew how to write and read, this gave sufficient ground to teach and learn. The Greek word *lógos* had an inbuilt double sense: it meant that all the reasons which we give are tantamount to



became oratio and, in the second sense, ratio. You might say that Rome introduced, though did not conceptualize, a first distinction between media technical and physical. This probably explains why the Aristotelian duality of phone and logos, voice and speech, signifier and signified, has been superseded by a later Hellenistic trinity: Chrysippus, the Stoic, distinguishes not only *tà sematntonta* from *tà semainónema*, the signifiers and the signified, but this whole mediadic matter/form together also from *tà túnchana* – the contingent speechless events that Tyche (fortune) loves to have happen (D. L. VII 62). For the first time in our history, language seemed no longer coextensive with Being; speech and text as poor mere media lost their grip on all that is.

This Stoic heroism notwithstanding, reading practices of the ancient volumes did not greatly change in Rome. As long as every thought depended, however unacknowledged, on Homer and the poets, there was no need at all to make comparisons between this book and that. Only when a criminal (the Christian) heresy succeeded in subverting all of Rome was a change in book technology urgently demanded. On Christian fathers/writers such as Augustine fell the unheard of duty to compare three different conflicting book traditions: a task so dreadful, impossible, and idiotic that – even though it anticipated what we actually have to do – Aphrodite has spared me its bitter cup.

Saint Augustine, in order to reconcile (or to refute) by his own books the many and contradictory volumes of Homer, Moses, and the Apostles, had a big mediadic advantage over the so-called pagans. Christian writers were among the first to switch from papyrus volumes to bound parchment books. This change in media technology made simultaneous comparisons and concordances between different source books much easier. It had systematic effects not only on the form of philosophy but also on its contents. Whereas the Greek doxographers discussed the philosophers before their own time in simple chronological order – for instance from Socrates to Xenophon and Plato up to Aristotle – scholastic thinkers such as Thomas Aquinas had access to a wide range of books. Therefore, to settle each issue in question in his ‘Summa theologiae’, Aquinas referred to biblical sentences, Aristotelian definitions and patristic hair-splitters before making his decision.

Obviously, Gutenberg’s famous printing press put an end to all this polyphonic, but still handwritten, reasoning. Thanks to print, and typesetting, books became more and more vernacular, and that meant more and more national, so that René Descartes could start a completely new kind of ontology. He wrote most of his books in French but published them, for good political reasons, in the Protestant Netherlands. He forgot – or at least pretended to forget – all traditional schools, authors, and authorities in order to pose himself as an author in the modern sense. His famous ego, while thinking, was just a lonely body sitting before a fire and supplied with ink.



(strangely or perhaps evidently enough) the operators and operands of modern algebra, that is, the 26 alphabetic letters and their mathematical defigurations such as plus and minus, the root sign and so on. In other words: ontology turned again – almost as with the Greek Pythagoreans – into a branch of elementary algebra.

As you know from Michel Foucault, this Cartesian method could bring into order every being or datum in the modern cosmological universe – except man as such. When Immanuel Kant gave his German followers the new order to put their transcendental ego into the middle of ontology, this was no easy undertaking. Fichte's university lectures, for instance, robbed the students of the traditional textbooks which philosophers had used to comment or 'interpret' since the days of Saint Thomas. Instead, each summer week Fichte wrote a chapter of his masterpiece that he first read before his students and only afterwards published for the general public in small printed sheets. In doing so, Fichte could simply not predict or foresee the final philosophic conclusion his lectures would reach at the end of that long summer term in 1794. In certain ways, we could therefore say that German idealism already anticipated not only Humboldt's new academic freedom but also Nietzsche's later and much more famous philosophic fragments.

Let me finish with this sketch of ontology's own media history. Hopefully, you have realized that philosophy, although it dealt from time to time with physical media or elements such as ether, light, and water, completely neglected its own technical media from the ancient volumes up to the modern bestsellers. Therefore, it's high time to pass on to the revolution called 'Time and Being'. As you may know, in 1927 the young Heidegger called for the 'destruction of metaphysics' as such. This proved tantamount to proving that actual presence was not the most noble ontologic attribute. Quite the contrary, beings such as ourselves are distinguished from others by the twofold absence of future and past. Distance proves to be a prominent feature of our being-in-the-world. Matter, as for instance the leather of our handmade shoes, is not just Aristotelian matter, but always already relates to dead animals and therefore to nature in general. Forms, for instance that of an iron hammer, take shapes most suited to our hand and its future work. Room in general and place in particular are no abstract Cartesian coordinates at all, but relate to our walking and seeing, our talking and hearing. Thus, for instance, a friend Heidegger approaches on the street is much nearer to a myopic than not only the asphalt but also the glasses on his nose. When Heidegger calls Hannah Arendt by phone, her beloved voice comes much nearer than the telephone receiver itself. And finally, modern man has become a consumer of radio news which distracts him with worldwide news from his existential authenticity.

In the first two examples, as you may have observed, the glasses and the telephone respond one-to-one to Aristotle's eyes and ears. Technical



the third example, this is still more striking. Radio or ‘Rundfunk’, as Heidegger and every German of the time called it, was explicitly introduced as a recent invention by whose means ‘man’s existential tendency to “de-distanciate”, to diminish distances, has been historically implemented’.

This conclusion is obviously mistaken. I do not mean that Heidegger should have attributed the invention of radio to Heinrich Hertz and Guglielmo Marconi; he simply should not have attributed it to man. That is why, only ten years later, Heidegger spoke of airplanes and radio emissions as technical media solely characteristic of our Cartesian epoch. Thirty years later, he even realized that modern machine tools and, above all, postwar computers cannot be thought of anymore as external and extensive objects which our immaterial Cartesian subject represents to itself. On the contrary, computer technology on the one hand and man on the other are inseparately linked by an endless feedback loop, by technology’s essence as the danger itself. Insofar as Aristotelian logic is no professor’s task anymore, but implemented in digital computers, philosophy as such has come to its historical end; at the same time, however, the dawn or task of thinking has barely begun. Heidegger asks us in simple words to rethink for the first time the media history of Europe as such, and this at the very moment when European thought disappears by its global expansion. The recursion should start with the earliest Greek thinker-poets, pass to Aristotle’s fatal distinction between physics and logic, and lead to our latest logical and arithmetical machinery. Precisely this is what, thus far, I have tried to sketch for you in not too Heideggerian terms.

Let me conclude this task by making two critical remarks which probably mark only the historical distance between Heidegger’s 1964 and our 2009. First and, I think, quite mistakenly, Heidegger ascribed the introduction of mathematics to ontology to Plato who, in fact, was rather the promotor of their long-lasting separation. By describing the ‘history of being’ as a sequence of epochal thinkers and only of them, Heidegger has neglected the crucial innovations which at the same time took place in mathematics. It would be clearly feasible, although too lengthy, to correlate, for instance, Platonic metaphysics with its great forerunner, the Pythagorean theory of natural numbers, or to correlate scholastic numbered questions and books with the contemporary introduction of Indo-Arabic numbers. Finally, the cases of Descartes and Leibniz are most telling. Both turned their new mathematics into corresponding new ontologies and vice versa. As technical media, generally speaking, are but the visible side of some moon whose dark side would be mathematics and physics, the omission of this Heideggerian omission would be quite helpful to achieve our common goal.

Second, Heidegger’s lifelong dream to destroy the binary opposition between form and matter may be easier to attain with the help of mathematics and computer science. Certainly, matter still matters and form is



blueprints, layouts, mainboard designs, industrial roadmaps, and so on, in order to learn its very categories from scratch, namely from the hardware of high tech. Given the fact that the so-called von Neumann architecture is most probably not the optimal one, but nowadays almost standard, we see registers, busses, and random access memory. Structurally, the bits stored in registers perform logical operations and arithmetical calculations, the multiple busses transport commands, data, and addresses, whereas the RAM supplies storage places for commands, addresses and data. Moreover, this threefold architecture which is clearly a feedback loop repeats itself over many fractal dimensions, from nanometres through millimetres up to visible layers with whom we end users can interact. Commands, addresses, and data, that is, proceedings, transmissions, and memories, however, might have been retrieved not only in computer architectures but in the whole recursive history of technical media. Libraries are storage media for storage media called books. Telegraph cables have been, since the American Civil War, transmission media for military commands. A fundamental data processing has been at play whenever ontological thought or mathematical writing changed the course of cultural history. Instead of still subjecting humans, beings, and machines to the dichotomy of form and matter, we could learn to spell out, at least for the time being, this new trinity made up of commands, addresses, and data. It would be an ontology of media under the twofold conditions of silicon solid-state physics and von Neumann architecture which are, as you may know, intricately interwoven.

‘There will arrive the day when holy Troy has been destroyed’, was one of Hector’s famous sayings in Homer’s ‘Iliad’. We cannot predict but gloomingly foresee the night of this fire. Perhaps a rosy new dawn will arise and realize the dream most dear to solid state physicians: computers based on parallel and tiny quantum states instead of on big and serial silicon connections. Then I, or rather my successors, shall withdraw this paper.

#### *Editor’s notes*

1. For an introduction to Kittler’s life and work, see Winthrop-Young and Gane (2006) and Armitage (2006). For an interview that touches on many of the key points of the present article, see Gane and Sale (2007).
2. On the connection of media and mathematics, see Kittler’s ‘Number and Numeral’ (2006) and Armitage (2006).
3. For a more extensive consideration of this point, see Kittler’s *Optische Medien* (2002). For a review of this book see Gane and Hansen-Magnusson (2006).
4. For a more detailed account of this media history, see Kittler’s ‘The History of Communication Media’ (1996).

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