

What Makes Us Who We Are

*On the relationship between human existence and technics,
thinking and technology, and the philosopher and the technician*



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Abstract

This thesis conceptually investigates the relationship between human existence and the technical object, and thereby relates questions faced within the philosophy of technology to the field of philosophical anthropology. This conceptual work will be taken up in a twofold manner. Firstly, I detail how the Western philosophical tradition has tended to distance its own practice and thinking from the technical, and how it, relatedly, has hierarchically subjugated technics from what essentially defines us as human beings. This will involve a genealogical investigation of the figure of the philosopher and the technician, which will detail how and why these figures have been antagonistic and oppositional from the start. The argument being that this relationship constitutes a genuine hindrance for thinking of existence as originally technical within the confines of traditional philosophical inquiry and its various schools of thought. Secondly, I conceptually investigate and phenomenologically describe the relationship between human existence and technics by way of an engagement with, first and foremost, the early and late thought of the German philosopher Martin Heidegger, the work of the French palaeoanthropologist André Leroi-Gourhan and the thought of the contemporary French philosopher Bernard Stiegler. The thesis sets out to question, in this regard, whether or not tool-user and tool, the human and the technical object are originally prosthetically coupled, and hence if, so to speak, the inventor is also invented with what it invents. Its argument being in this connection, that the invention of the human is technics. The central thesis of Heidegger's later philosophy of technology that the essence of technics is by no means anything technical will thus be called into question.

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“Humans make their own history, but they do not make it as they please; they do not make it under self-selected circumstances, but out of the actual given and transmitted situation. The tradition of all dead generations burden, like a nightmare, the minds of the living.”

Karl Marx, *The 18th Brumaire of Louis Bonaparte* (1852/1937, tm).

“From the emergence of *Homo sapiens*, the constitution of an apparatus of social memory dominates all problems of human evolution.”

André Leroi-Gourhan, *Gesture and Speech* (1964/1993: 229).

“A tool is, before anything else, memory”.

Bernard Stiegler, *Technics and Time, 1: The Fault of Epimetheus* (1994/98: 254).

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M. A. N.

Oslo,

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Foreword

Before turning to the elucidations and critiques, the speculative historical narratives and the phenomenological analyses, that collectively make up the thesis that now lay before you – the printed copy of which you might be holding in your hands at this moment or, rather, perhaps you are currently scroll through it with your hand, fingers and mouse as it is displayed as a digital document on a liquid crystal display – I would like to offer a few clarifications concerning the technical terminology I employ in regards to my questioning of philosophy’s traditional understanding of the technical and the human over the course of following pages. Firstly, I will note that the two general terms ‘technics’ and ‘the technical’ will be used interchangeably throughout the thesis. I acknowledge that these terms are not widely used outside of academic contexts in the Anglophone world, but related terms in German and the North Germanic languages such as ‘*der Technik*’ or the Norwegian ‘*teknikk*’ are, on the other hand, still part of common and non-academic language. Another related term ‘*la technique*’, employed by quite a few philosophers of central importance for the arguments and narratives offered in the proceeding, while arguably serving a more specialized function in French, is nevertheless also quite commonly used. In other words, both the German and French language have a wider spectrum of terms concerning the technical still in common usage, than is the case in the English language, whose ‘technique’ does not carry the general denotational significance of either ‘*der Technik*’ or ‘*la technique*’. For the term ‘technique’ unhelpfully connotes a certain antiquatedness and the usage of pre-industrial technical objects, which bring to mind the traditions of artisanal craftsmanship, especially when it is employed in a more general sense as concerning technique as such, at least outside of its more common employment within discourse concerning sports and the classical arts.

In any case, I will largely follow the choices and differentiations made by Richard Beardsworth and George Collins in their translation of the first volume of the French philosopher Bernard Stiegler’s series of books published under the header *Technics and Time* throughout the breath of this thesis (1994/98). Beardsworth and Collins offer the following words of clarification concerning the recurrent terms ‘technics,’ ‘technique(s),’ ‘the technical,’ and ‘technology’; “The French terms *une technique* and *des techniques*, referring to one or more individual, specialized “techniques,” are translated as “technique” and “techniques.” The French *la technique*, referring to the technical domain or to technical practice as a whole, as system or result, is translated as “technics” or “the technical.” The French *la technologie* and *technologique*, referring to the specific amalgamation of technics and the sciences in the modern period, are translated as “technology” and “technological.” When hyphenated (*la techno-logie*, *techno-logique*, etc.), the terms refer to the thinking and logic of technics and are translated as “technology”” (1994/98: 280-1n1).

Concerning these last hyphenated terms I do, however, depart from Beardsworth and Collins’ translation and stick with the hyphenation in order to avoid any unnecessary confusion. I should also note that I will be using these renderings, or similar available options, in translating analogous terms in the German of Martin Heidegger. Doing so, among other reasons, in light of the fact that the French translation of “Die Frage nach der Technik” bears the title “La question de la technique” and that Stiegler employs the term ‘*la technique*’ precisely when commenting upon his *Technikphilosophie*.

Lastly, I would like to note at this early stage that, while the term ‘technics’ has gradually been accepted as a translation of the French ‘*la technique*’ in regards to its extensive employment in the thought of such French thinkers as Jacques Derrida, Jean-Luc Nancy, André Leroi-Gourhan, Gilbert Simondon, and the aforementioned Bernard Stiegler,

its usage in English is not tied exclusively to translations of, and discourses concerning, these thinkers, but has been, and to a large extent still is, a central term for Anglo-American philosophy of technology. Indeed, ‘technics’ had already been incorporated into the technical lexicon of philosophical terminology long before the quite recent appearance of translations of the work of these French thinkers. This is evidenced by the titles of such books as Lewis Mumford’s classic *Technics and Civilization* from 1934, as well as Don Ihde’s pioneering *Technics and Praxis: A Philosophy of Technology* from 1979, as well as his *Existential Technics* from 1983. However, as Ihde is known for his commentary on, and critique of, both Heidegger and the phenomenological tradition, one might be led to conclude that the term ‘technics’ is first and foremost a term employed in Continental philosophy – whether undertaken on or of the Continent itself – and not within the traditions associated with what is commonly referred to as “Analytic philosophy.” In a recent article on Giorgio Agamben’s book *Iluso dei corpi* the Norwegian philosopher Ragnar Myklebust implicitly suggests as much, when he notes that the Norwegian term ‘teknikk’ (‘technics’) – and I take it its cognates in German (*der Technik*) and French (*la technique*) as well – can be seen as the term employed by Continental philosophers interested in subjecting technology to thought, as opposed to, and employed instead of, the term more often used in Analytic and Anglo-American philosophy, namely ‘technology’ (Myklebust 2016: 148). This contrast is interesting, as it relates to differences of doctrine and conceptualization that, to a not insignificant extent, can be seen as springing from out of the relative obscurity of a general term signifying the technical domain as such – encompassing technical practices, technical objects and technical or technological systems etc. – within the English-speaking world.

In this regard, one should call attention to the fact that the terms *‘der Technik’* and *‘la technique’* carry a quite different sense than that associated with the related terms *‘Technologie’* (as in *‘Allgemeine Technologie’*) and *‘la technologie’* that more closely, but not in any way precisely, align with the rather ambiguous sense connoted by the English word ‘technology’. For as the translators of a short text written by the French philosopher Gilbert Simondon in 1965 and given the English title “Culture and technics” make clear by way of an endnote to this text, *‘la technique’*,

“is used to denote the general domain of technologies, techniques, methods, arts and practices, at once material and cognitive, through which humans engage and reshape their environment and psycho-social milieu. For Simondon, technology per se must be understood as only a part, albeit an extremely important one, of this broader modal sphere of technical activity and relationality” (2015: 23).

‘Technics’ – as the translators of Simondon also chose as their English rendering of the French *‘la technique’* – can in this regard be seen as an attempt at reemploying just such a general term in the English language – of drawing it out of obscurity – by some Anglo-American philosophers of technology educated in the Continental tradition. An effort that, as was intimated, is not of a particularly recent dating, and that, moreover, is often made in response to the work of translating accurately and with fidelity the German and French writings on the basis of which the thought of such figures as Don Ihde are formulated. This work of translation and conceptual reemployment constitutes an especially important task, since the language with which we describe and understand the world of tools, techniques and technologies is rather impoverished. Indeed, as Hans Blumenberg has observed: “The sphere of technicity suffers from a language deficit, a category defect” (2009: 27, quoted and translated in Hödl 2015: 13). This state of affairs is obviously not solely due to the inadequacy of our common forms of describing such structures and things, but also, as Heidegger aptly described and

emphasized, a result of the way in which the things we employ in our everyday practices, and the structures upon which we habitually rely, often withdraw from our grasp, and thus form the background through and upon which we live. Only in rare instances, such as the failure of a key technical object or the breakdown of the complex or ensemble of technical objects makeup a technical, can the technical emerge as the focus point of our attention and sustained reflection over the course of our everyday lives. For as Heidegger wrote in 1959; “The meaning [*Sinn*] pervading the technical world [*der technischen Welt*] hides itself” (GA 13 & 16/1966: 55, tm.).

This technical world hides itself particularly well through the historically inscribed techno-logical structures of the *dómos* we call the English language, and the mnemonic techniques we habituate by way of it. Language, being after all, the house in which man dwells according to Heidegger (GA 9/2008: 271). A house that – just like the world is found to *world* in historically shifting ways – itself *speaks* an historic speech that we have already listened to before, and in advance of, our given articulations, as the structures of language constitute the means with which and the medium through which we communicate (GA 12/2008: 411). The house of language, as it is historically configured in the Anglophone world, does, however, obfuscate the role of the technical, which is not merely due to the habitual nature of techniques, but also springs from out of the impoverished language with which one can analyze, describe and name matters concerning the technical. Employing the term ‘technics’ rather than the more colloquial ‘technology’ is an attempt, then, at highlighting the grounding and pervasive role that technical structures play in our lives, which the common locution ‘technology’ often misses and obscures. For by using this word I believe one is better prepared to “*see* the question” or, as it were, the enigma – as Heidegger puts it in the epilogue to “The Origin of the Work of Art” – that technics constitutes, and hence, for the purposes of this investigation of the coupling between the human and the technical, one comes to the task of elucidating the significance and urgency of the question concerning technics as it appears to us today armed with a more sharpened conceptual arsenal (GA 5/2002a: 50). With this thesis I have, therefore, attempted to begin the work of rectifying the impoverished language and conceptual framework with which we approach and think about matters concerning technical objects, techniques, technologies, and technical systems, a first step being the employment of the word ‘technics.’ As craftsmen of concepts, the conceptual tools with which we question the coupling between the human and the technical – between ‘the who’ and ‘the what’ – is something we must interrogate. For by neglecting to do so, we risk starting down the same tired paths of thinking that have traditionally led philosophers astray when faced with the operations of the technical object, and also, in turn, the animosity witnessed in their describing of the technicians operating with them. By retracing the steps of traditional philosophical pathways and reforming the philosopher’s conceptual toolbox new paths for thinking about technics can hopefully be opened. This, at any rate, is the task for which this thinking commences.

Abbreviations

Works of central importance for this thesis, and to which numerous references are made, are referred to by way of abbreviations. Below I have provided a list of the abbreviations used throughout the thesis. Concerning referencing I would also like to point out that I tend to supply the year of publication of the original edition before the year of publication of the edition I have used or quoted from, and whose pages the referenced page numbers refer to. This being a reference practice that I use most often when referring to translations. I should also point out that when referencing works by Heidegger I also tend to refer to the volume of the *Gesamtausgabe* in which the given article, book, essay, lecture or seminar can be found in the original German. When only a volume of the *Gesamtausgabe* is referred to the page numbers given are to that volume and not to pages of the English translation used. Finally, in cases where I have modified the translation of quoted passages the abbreviation “tm” (“translation modified”) is given, while the abbreviation “ea” is given in the reference when I have added an italic emphasis.

- GS Leroi-Gourhan, André *Gesture and Speech* translated by Anna Bostock Berger (Cambridge, MA: The MIT Press, 1993).
- SZ Heidegger, Martin *Sein und Zeit* (7th ed.) (Tübingen: Max Niemeyer Verlag, 1993); *Being and Time* translated by Joan Stambaugh (first 1996), revised edition by Dennis J. Schmidt (New York: State University of New York Press, 2010).
- T3 Mitcham, Carl *Thinking Through Technology: The Path between Engineering and Philosophy* (Chicago, IL: University of Chicago Press, 1994).
- TT1 Stiegler, Bernard *Technics and Time, 1: The Fault of Epimetheus* translated by Richard Beardsworth and George Collins (Stanford, CA: Stanford University Press, 1998).

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1 Introduction

The role played by technology in our lives is something we seldom reflect upon. For in the everyday, when we make use of technical objects and rely upon the support of technical systems for the completion of our habituated technical practices, technological structures appear to us as being unproblematic, as they have become thoroughly “transparent in use” (Clark 2003: 120, 123). Since technical objects, as things we utilize as means for accomplishing ends, occupy in this way the position of instruments, we habitually assigned such things an instrumental value, and thus relegate their significance to that of a simple supplemental and secondary status. When we thereby, whilst being captivatedly occupied with our smartphones and computers, do not *grasp* the role, impact and value of what we immediately are handling – with what we have already come to *grasp* with – in order to complete the various practices that make up our everyday lives, the profound and deep-seated ways in which technology structure this life remains unrecognized. How technological structures ground the habituated actions and reactions that together form the unreflective backbone of our existence, is not, then, a thought we often entertain. For it must be emphasized that technical objects do not merely make possible and allow for certain operations and their appropriate responses, they solicit – at times demand – specific forms of engagement in line with their functional usages as implemented tools facilitating the specific ways in which we happen to conduct our lives. Any systematic organization of technical objects entail, in this regard, chained sequences of operations that make up the very heart of our existence – of our world. Technical objects and technical practices are in this way deeply intertwined in any given organization of the everyday, arguably to the point of constituting the shifting and historical default position grounding what makes us – and typifies us as being – human. If technical objects and systems, and indeed technical practices and competences, structure in this way the very rhythm and flow through which we become who we are, more specifically by constituting the evolving configuration of our surrounding world of things and the programs of actions and reactions that this world solicits, we should acknowledge, or so I will argue, that the structuring role of *the technical*, or *technics*, is not simply supplemental, but elemental for the process of human becoming.

In order to clarify, I should note that in using the definite article in forming the term ‘the technical’ above, I extend, to some degree, our common doxastic notion of what counts as technical, and thus employ the term in a rather wide sense. As, for instance, including *technical objects* like our hammers, pens and screwdrivers, indeed even the shoes we wear, the cutlery we eat with, and the books we read, while equally including more complex structures like *technical ensembles* – like automobiles, hydroelectric power plants and the air-conditioning and heating of our homes – and the *technical systems* that underlie, at bottom, the technological makeup of an epoch, such as the electrical power grid and *the World Wide Web* it powers. This general term, however, also encompasses, along with and in connection to these objects, ensembles and systems, *technical practices* that *technical individuals* – like ourselves, as wielders of tools, as labourers partaking in the processes of production, *and* the various machines that now dominate the industrial landscape – enact and work to undertake.¹ Practices that include, in our case, not merely the hammering and sawing of a craftsman, say a woodworker, but also such mundane practices as, for instance, driving, reading, speaking, playing music, sports or videogames. Even

eating, walking and merely dwelling in our electrically infused and maintained houses and cities can be included under this signification, as they all constitute operative practices of a technical and technologically involved nature. One could even hold, should this be admitted, that the term ‘technical’ or ‘technological’ extends to our bodily techniques, and that concordantly, as the Italian philosopher Roberto Esposito puts it; “[e]very movement of our body and every sound of our voice is technological” (2015: 118).² In summary, technical practices, objects, ensembles, and systems – even the gestural techniques of our bodies and the delicate muscular movements we make with our tongues in giving voice to the words with which we express ourselves – are all apprehended as ultimately forming a part, then, of what encompasses the general term here employed – the technical, or, as I chiefly will refer to it, technics – thus making it a general concept with an undoubtedly complex and vast, indeed ecological, sense and reference. By speaking of technics or the technical, therefore, I do not only, and quite narrowly, intend to refer to what we in our contemporary imaginary often associate with the term ‘technology’ such as the complex information machines that make up our computers and smartphones.

My aim is, rather, to highlight an aspect common to all the objects and systems mentioned above, namely the fact that we do not consciously entertain nor form propositions *about* such things nor their systematic organization when putting them to use, relying upon them, and quite simply living with them, in our everyday practices and routines. But rather, think, act, and dwell with and *through* them in accordance with their interactional possibilities, material allowances, and functional implementation into the very ground scheme of the environmental setup that constitute our lifeworld. Questioning the technical as such, and especially how technical objects and technologies relate to human existence, provides, in this way, on “a philosophical level. . . a less narrow focus than might at first seem likely” (Howell & Moore 2013: 2). For technical objects, systems and practices do in fact, by way of their interconnected organization, constitute our historically shifting and techno-logically specific everyday environments, and thereby function as the very base of our cultural and social memory; being, then, the ground onto which we are thrown, on which we find, with which we erect and through which we become inhabitants, actors, and inventors of our worlds of *praxis*:

If, then, technical objects and systems occupy such a deeply ingrained role in our lives, are they not more than just utilities that beings like ourselves circumstantially make use of, and as such are they not to be recognized as more than the mere effects – the setting into motion – of our efforts in making and maintaining them? For if such objects and systems structure and ground the technical practices they both call and allow for, and if they as such constitute the infrastructure through which we become who we are, can the technical really be described as a set of technicalities firmly located within our fixating and controlling grasp? In other words, are technical objects and systems really the products of a being and a species that is unaffected with what it grounds its existence with, with what amounts to the conditions under and through which it becomes who it is as a self, as well as what it is as a species? Is not, on the other hand, the inventor also invented with what it invents, with what it in grounding also in turn is grounded by, namely that the being of its world constitutes the always already existing structure *through* which its life is played out and made concrete?

Such questions concerning what the role of technical objects, systems and practices consists in are highly important to ask, discuss and proposes answers to. An importance, and indeed an urgency, that in our contemporary

situation is due, in no small part, to the rapidity with which our technological environments are being altered and disrupted. This predicament is a result of not only the tall demands of constant innovation, the capitalist economic system, and the strategic manoeuvrings for market dominance undertaken by corporate enterprises, especially within the information technology sector, but also spring from out of the specific space of possibility that we find ourselves situated in by way of the *techno-logical* structuration currently in place; a structuration that differs radically from those of past technical epochs. Now, in light of this situation it again becomes necessary to readdress and reaffirm the intimate relationship between questioning the technical and questioning the human; in other words, of investigating the relationship between philosophical anthropology and the philosophy of technology. Sub-disciplinary fields of philosophical speculation that sprung to being at the turn of the 19th century largely in response to the transformative experiences of industrialization. A process and a historical period when traditional conceptualizations of both the human and the technical became fundamentally problematic. Today we are experiencing another radical problematizing of the human in light of environmental transformations, at the moment explicated within the spheres of academia with the concept of ‘the Anthropocene’ currently gaining prominence. A concept that serves to mark the coming into being of a new geological epoch under the sign of the human, which has been brought about as a result of, among other factors, industrialization and the immense impact it has effected upon the total planetary system. The questions raised and the answers given by philosophers of technology and anthropology in the late 19th and early 20th century find a new-found relevance and importance in this connection. A state of affairs that the ambiguity inherent in the concept of ‘the Anthropocene’ is capable of spelling out in and of itself, as it is a term formed by way of “the ancient Greek words *anthropos* meaning ‘human being’ and *keinos* meaning ‘recent, new’”. The term signals, in this way, that this new “age of man” does not leave the human intact and uncontaminated, but implicates, on the contrary, the being that we ourselves are by entailing a new formation of human existence – of what constitutes being human – in the same stroke (Bonneuil and Fressoz 2013/16: 3-4, and Stiegler 2015).³ Given, in other words, the urgency that the question concerning technics and the human currently presents and challenges us with, the conceptual work needed to adequately raise and readdress these related questions, is a task we cannot in good faith continue to neglect and suppress.

The following thesis will raise these questions and take on this conceptual work in a twofold manner. Firstly, by detailing how the occidental tradition has tended to distance its own practice and thinking from the technical, and how it, relatedly, has hierarchically subjugated technics from what *essentially* defines us as human beings. This will involve a genealogical investigation of the figure of the philosopher and the technician, which will detail how and why these figures have been antagonistic and oppositional from the start. The argument being that this relationship constitutes a genuine hindrance for thinking of existence as originally technical within the confines of traditional philosophical inquiry and its various schools of thought. Secondly, I will conceptually investigate and phenomenologically describe the relationship between human existence and technics by way of an engagement with, first and foremost, the early and late thought of the German philosopher Martin Heidegger and the early writings of the contemporary French philosopher Bernard Stiegler, as well as the latter’s reading and appropriation of the work of the French palaeoanthropologist André Leroi-

Gourhan.⁴ It is around the thought of these three thinkers, then, that my conceptual investigation of the coupling between human existence and technics, as well as my elucidation of the possible consequences this relationship might have for philosophical thought and practice, will largely revolve. While this second part, to a certain extent, mirrors and repeats the arguments, narratives and suggestions presented in the first, the human-technics coupling is questioned and argued for at a more philosophically fundamental level by way of my critical engagement with the theories and arguments of the aforementioned thinkers in the latter half of this thesis. In opening up such a large problematic I will ask the following questions, as the overarching research questions animating the conceptual investigations that follow.

Firstly, in regards to the first part of this thesis and the following second chapter, I ask as part of section 2.1 how ancient philosophy has understood technical objects, technical practices and indeed technical practitioners or *technicians* in regards to its general position concerning what, first and foremost, makes us human. Secondly, in section 2.2 and in regards to the establishment and pretension of a philosophy of technology in the late 19th and early 20th century, I then ask why such a project emerged and what limited its conceptualizations of technics and existence, specifically as concerns the two dominant general approaches found within this emergent field, namely engineering philosophy of technology and humanities philosophy of technology. Lastly, as part of section 2.3 I will investigate the possibility of establishing a new approach to describing and thinking of human existence and how it is intimately coupled with technics, specifically by asking if, how and why such an approach can and/or should go both through and beyond the limits of classical phenomenology and traditional hermeneutics. For can a post-phenomenology, akin to the one espoused by the American philosopher of technology Don Ihde, really work to mitigate and dissolve the divide still operative between philosophers and technicians; between, more generally, the cultures and the traditions of the humanities and those found within engineering and among technologists? For how would a unified approach to technics – one that reconnects the study of technics, technical objects and technologies with the study of existence, culture and society – actually look?

Secondly, as concerns the third chapter and the second part of this thesis, I will investigate how technics informs and structures human existence, specifically by questioning, as part of section 3.1, how the thought of the early Heidegger, as it is laid out in the first division of *Sein und Zeit*, opens for thinking about this form of being as originally technical. Moving beyond the framework of traditional phenomenology, hermeneutics and philosophical speculation I then enquire into the origin of human existence when I in section 3.2 ask, with Leroi-Gourhan and Stiegler, if not the coming into being of the human coincides with that of technics, and hence that *technogenesis* coincides step by step with *anthropogenesis*? Returning subsequently to Heidegger in section 3.3, I criticize his later thought for holding that the essence of technics is nothing technical, and ask, in this connection, if there is anything worth salvaging from his later thinking when it comes to matters concerning technical objects, technologies and technics in general. Lastly, in section 3.4, I summarize the inherent promise of the central thesis of Stiegler's philosophy of technology, namely that existence is originally technical and hence that existential spatialization and temporalization are inevitably prosthetic and technological, by way of his reading of the ancient Greek myth of Prometheus and Epimetheus. In general, the third chapter asks, in this regard, whether or not a path can be opened for thinking about who we ourselves are – of establishing a

philosophical anthropology – that nevertheless can avoid the pitfall of anthropologism. For is actually a philosophical anthropology that avoids deflating layers of difference and differentiation – that does not deflate layers of *individuation* – and which at the same time criticizes and works to overcoming categorical oppositions that toxically places us on a footing above, and indeed beyond, all other modes of life and becoming, at all possible?

By reframing the question concerning the human as a question concerning technics, I will argue that the thought of Bernard Stiegler can be seen as illuminating a promising path forward for criticizing the dominant image of the human found in various forms throughout the history of philosophy by articulating an alternative to the rationalism and essentialism of traditional philosophical anthropologies. For by arguing that human existence is structured by “a process of exteriorization” that mutually constitute human interiority with the technical objects of that being’s anterior milieu, Stiegler holds that there can be no pure consciousness that is somehow given prior to and shielded from the world of techniques and technologies (TT1: 17). In this regard, Stiegler’s central thesis, which can be referred to as his argument for an “originary technicity of memory” (2007: 27), leads to a philosophical anthropology that thinks of existence as individuated techno-logically, and that as such can be termed a *philosophical techno-logy* (2013a: 164). This would entail that the material and technical aspects of specific technical objects and technologies, as well as their systematic interrelations or networks, will have to be taken heed of, even for the philosopher and humanities scholar interested in questions concerning the very grounds of existence, culture and society. The figure of the philosopher can no longer be fundamentally opposed, then, to the figure of the technician, as it is only *through* technics and its technical logic (*techno-logy*) that thought can find both its means and its *place of expression*. The central point being, ultimately, that the technical is not a latecomer to an already rational and self-sufficient human subject, and that, relatedly, technical objects, technologies and technical systems do not merely serve as a means to preformed human ends. In fact, for Stiegler the question concerning technics “is the question of time” and hence it is at the core of the question of existence (TT1: 154).

This suggestion, and the genealogical impetus that leads to its formulation, is part of what I will endeavour to elucidate and critically engage with in the following, while simultaneously having to forgo an extended engagement with other suggestions and responses offered in regards to the same overall problematic.⁵ The conceptual investigations and genealogical narratives given in the following chapters are, in this regard, deeply inspired by the early thought of Stiegler and draws chiefly upon the first of the three volumes that have so far been published of his series of books entitled *Technics and Time* (1994/98, 96/2012, 2001/12).⁶ My arguments, narratives and perspectives are not, however, always in agreement with Stiegler’s philosophy and in certain aspects significantly depart from it. In this connection, I forward a critique of his early philosophy over the closing pages of both chapter two and three, specifically by asking whether or not Stiegler sufficiently engages with and phenomenologically describes concrete technical objects and technologies, and if his apparent interest in, understanding of and emphasis upon the specificity of the history and evolution of technics really is adequate? For does Stiegler in fact ultimately fail to undertake the practical and concrete work that the arguments forwarded in his early and foundational writings actually call for, and thereby does he, in the final analysis, really break with the totalizing perspective – the so-called view from above – embodied by the classical philosopher?

For it is important to step down from an overly abstract and formally heightened perspective when questioning technics in this regard, since there is no universal essence of technical objects and, in line with the position I am investigating and defending here, concordantly none is to be found for human beings either. For finding technical objects to inevitably structure and mediate the relations formed between human beings and their surroundings, human existence is historically and techno-logically open for transformation in connection to changes made to its environment. Indeed, when sufficiently innovative or disruptive technologies are implemented – such as, in more recent decades, the personal computer and *the World Wide Web* – they do not simply enhance a given preformed structure, but also destabilize and transform the historical and techno-logical structures in, through and with which we exist. Such disruptions also affect both how we think and what we think about as they alter the milieu through which thought *thinks*. The habituation of different techno-logical structures of living over the last few centuries has, in this regard, destabilized the traditional image we have of ourselves as human beings. It being clear, for instance, that the traditional and essentialist position holding that the nature of “man” is given *sub specie aeternitatis* has lost some traction and appeal over the last centuries in light of the rapid and highly *destructive* techno-logical transformations that characterizes industrialization, automatization, cybernetization (Hörl 2015), and today the coming into being of advanced biotechnologies. As concerns the position of the philosopher in connection to such transformations Yuk Hui, and philosopher *and* computer engineer, has argued that “the idea of the philosopher as a figure who stands outside as mere critic and defends the purity of thought has been washed away in the flux of technological progress” (Hui & Lovink 2016). I am not thereby suggesting that philosophers or scholars within the humanities more generally are to become tech-savvy engineers. I am, however, arguing that a one-sided approach, in either direction, is in and of itself insufficient if one’s intention is to grasp the technical condition and the techno-logical structuration in, through and with which we become who we are.

The starting point is, then, as Gert Lovink has phrased it, that “the nature of technics needs to be taken into account when talking about being” (Hui & Lovink 2016). This is, as I will detail and argue for in third chapter by way of my engagement with Heidegger, Leroi-Gourhan and Stiegler, because “the invention of the human is technics” (IT1: 137). When I hereby set out to question technics my aim is, then, to expand the nature and scope of this question, specifically as it was raised by the late Heidegger when he in “Die Frage nach der Technik” asserts that “the essence of technics is by no means anything technical” (GA 7/1977: 35, tm.). The *way* of questioning that seeks to open a new path for thinking about existence as originarily technical will, in this regard, have to not only deeply engage with the corpus of philosophy and its traditions, but also pay attention to and take heed of the significance of specific technical objects, technologies and transformations of our techno-logical environments. While, I will not be able to undertake any empirical investigations of the technicity of specific technical objects and technological systems and will offer only brief phenomenological descriptions of our contemporary engagements with such devices as, for instance, our touchscreen smartphones throughout the breadth of this still quite traditional thesis in philosophy, my aim with the following critical engagements, genealogical tracings and philosophical speculations is to elucidate and argue for the necessity of doing so.

2 Philosophy and Technics: Human beings and technical objects

“If bad faith is “the need not to see what one sees,” how can the philosopher, without deceiving himself, not accept the challenge presented by the world of techniques, a world that is regarded as meaningful? The philosopher will no doubt always tend to deny the authenticity of this world, not only because technical behavior is more opaque than any other, but because in that world it is as if the abstraction of acts crushes meaning. Does it make sense to look for a meaning in that which touches being only by rejecting in man all that makes of him a philosopher, that is, the bearer of essential meanings?” Pierre Ducassé (1958/2014: 28).

In what follows I will attempt to open up the field of questioning that my current endeavours relate to, namely the question concerning the technical and the human. And in this regard I will look into how technics can be said to constitute, as Stiegler phrases it, “the unthought” of the history of occidental philosophy (IT1: ix). In connection to which the ancient and traditional perspective on the essence of the human and the technical is important to take heed of. Therefore, by drawing a rough sketch of the occidental tradition’s first approach to and questioning of technics, as laid out by the forefathers of philosophical reasoning Plato and Aristotle, I will present some of the reasons for holding that this tradition has from the very first neglected and hierarchically subjugated technics in regards to what characterizes us as human beings. Secondly, the general direction of what has become known as the philosophy of technology will be outlined, focusing specifically on its historical and industrial origination, and how the emergent field first approached the topics of humanity and technicity. Diverting roughly into two streams of investigation – stranding on the shores of two traditional disciplinary embankments – that can be subsumed under, firstly, the banner of engineering and, secondly, that of the humanities, I outline a problem within the emergence of this field concerning a divide into two general approaches and cultures. Finding this split to be a product of not thinking of the coupling between existence and technics as originary, I will third and lastly argue for the necessity of a new approach that does not emphasize the human subject to the neglect of the technical object, and vice versa. For an exclusive focus upon either “the what,” in the case of the engineering approach, or “the who,” in the case of the humanities approach, of the question sidesteps the real issue, namely the equiprimordiality of the two. For apprehending the human as subject and technical structures as a grouping of objects obscures the intertwined and entangled interrelationship between them.

Over the following sections I will, in this regard, attempt to answer the following questions: How has technics been suppressed and remained unthought throughout the history of occidental philosophy and in what way does this question relate to the one faced by philosophical anthropology? How and why did a philosophy *of* technology emerge in the 19th and early 20th century and what limited its conceptualization of the human-technics coupling? What is, at any rate, a philosophy of technology and how should such a philosophy relate to the various technical objects and technologies it both thinks *of* and indeed thinks *through*? And, finally, can a path beyond the entrenched divide between technics and philosophy – between *the technician* and the philosopher – be established by going through and indeed beyond the limits of phenomenology in the form a technically attentive post-phenomenology?

Before heading out on this philosophical venture I will like, however, to point out why I find this undertaking to be a necessary one, specifically as concerns the arguments I am forwarding and how they relate to the project and

contents of Stiegler's *Technics and Time, 1: The Fault of Epimetheus*. Firstly, I find the genealogical narrative I present in the following to be necessary due to Stiegler's rather undetailed account of how ancient Greek thought has instigated a habitual suppression of technics within the occidental tradition. An adequate tracing of the epochal configurations of this suppression is also lacking, something his central claim, namely that technics is the "unthought," would seem to demand. Secondly, offering such a genealogical account appears to be necessitated by Stiegler's own philosophical trajectory, as his thesis on the equiprimordality of *anthropogenesis* and *technogenesis*, and the coupling of humans with technics that results from it, would seem to entail a deep relationality between the history of philosophy or ideas and the history of technologies and technical objects, specifically as the latter is found to constitute the shifting condition of possibility for the former. Thirdly, while I argue that Stiegler's conceptual rethinking of the human and the technical constitutes a promising path forward for alleviating the divide between technics and philosophy, one does not encounter in his writings much by way of significant engagements with concrete technical object nor an attentiveness towards their specific epochal organization. In this regard, I will open up a dialogue between Stiegler's approach and the postphenomenology of Don Ihde over the course of the final pages of this chapter. As part of which I will provide an outline for how a post-phenomenological approach can provide a path beyond the divide between technics and philosophy. An approach that Stiegler's philosophy provides in spirit and in theory, if not always in its performance.

2.1 The philosopher and the technician: *Theoria* and *praxis*, *epistēmē* and *tékhnē*

The conceptual oppositions established between humans and technical objects, between persons and things – philosophers and "technicians," theory and practice, the animate and the inanimate – is, as Roberto Esposito has argued, "actually the outcome of a long disciplining process that ran through ancient and modern history, molding them in its course" (2015: 1). The separation of these concepts, and the supposed absence of contamination between them, was not established nor enforced within the domain of *praxis* (crafts, arts, rhetoric, and politics etc.). The technical – and with it the body, as markers of the concrete and specific – was excluded, rather, by and within "legal and philosophical thought, which, generally speaking, has aimed to eliminate [their] specificity" (Esposito 2015: 4).

And indeed, from out of the very beginnings of the history of occidental philosophy, the knowledge and competences of bodily and technical *praxis* has, chiefly with the thought of Plato and his subsequent followers, been opposed to the realm of theoretical knowledge (*theoria*) and its mode of knowledge-acquisition. An activity envisioned in Plato's two dialogues *Meno* (80e-86b) and *Phaedo* (72e-84b) as a recollection (*anamnesis*) through intellection of the foundational and immaterial ideas or forms (*eidos*), in contrast to the deficient mode of attention and penetration found with the habits and automatisms through which we grasp and handle things in our everyday working lives. This being precisely the kind of engagement with one's surroundings that was seen as structuring the lives of common working people in the ideal constitution of Plato's city in *The Republic* (II 370b-374, III 414d-16b, IV 421-2a, 428b-f, VI 493-94a).¹ For under the spell of a habituated captivation with the sensible appearances of things, the ordinary worker's practical skill and competence was limited to the concrete specificities of his or her craft (*tékhnē*). This made the practical worker –

the *technician* – unable to penetrate to the real theoretical questions that underscored his or her own existence, which called for a radically disinterested and disengaged outlook. An inaccessibility due to, among other factors,² the structure of the technical life as such. Not merely, then, a result of the compartmentalization of occupations and the ensuing specialization required of workers within the city (*polis*), but a product of that life's very reliance on, as well as production of, technical objects or things. For technical and sensible objects in structuring the existence of workers by way of habituated chains of operations did not only allow for and make possible such technical and practical activities, but also simultaneously prescribed, indeed necessitated, a continual repetition of such operations in the processes of production or bringing-forth (*poiesis*) typical of manual and technical labour.

In Plato's dialogue *Phaedrus*, one finds an elucidation of this state of affairs in the belief that technical and externalized memory, in this case alphabetic writing, in its function as an aide to memory – as a material “reminder” (*hypomnēsis*) – exerts a negative influence upon us by propagating and enforcing a captivation with sensuous things; with what constitutes, in this view, the mere copies of more original immaterial forms (274d-77a). By not, in other words, channelling our attention inwards and towards the ideal – by not activating the living memory of “the word which is written with intelligence in the mind of the learner”, but merely presenting us with the dead and “external characters” of what is invisible and primordial (276a, 275a) – everyday occupational chains of operations – like the work of a builder, and the material tools employed in such practice, like hammers and nails – were, in extension of this, not merely grasped as a position opposed to a more originary point of view, but was seen as constituting a genuine hindrance for its attainment. For Plato, as Stiegler writes; “Hypomnēsis [being reminded] is *technic in general*. It is as opposed to *anamnēsis* [recollecting] as body is to the soul (2007: 24). Only a disengaged and introvert recollection, intermittently embodied and maintained with hardship by a select few trained professionals, were, therefore, on the basis of this opposition, viewed as penetrating to the locus of unconcealed truth; the realm of the ideas or forms reached by way of our intellect (*nous*).

In this connection, a disparity was established from the first “between the head and the body”, specifically between the *theoria* of the intellect and the soul, on the one hand, and the *praxis* of the body and the technical, on the other; sowing the seeds for a body politic on par with “the ancient metaphor of the ‘two bodies of the king’” (Esposito 2015: 14). In Plato's case this disparity motivated the differentiation of the classes of people (*demoi*) within his ideal city (*Kallipolis*), namely the different functional roles given the philosopher-king(s), the auxiliary defenders, and the common workers (artisans, farmers and traders) (II 369d-76d, III 389b-90a, 414-417b).³ Such a setup was, concordantly, intimately related to the binary oppositions established between reflection and captivation – between the supposedly non-technical and the technical – springing from out of the disparity established between the soul and the body. Plato intimates at least as much when he in *Phaedo* remarks that “those who [like the philosophers] care for their own souls, and do not live in service to the body, turn their backs upon all these men” (82d) who have “the same beliefs and pleasures as the body”, in as much as such men are “*compelled to adopt*. . . the same habits and mode of life” that their bodies “says are true”. Such men are by way of their captivation with the sensuous and corporeal unable to “depart in purity to the other world” and will thereby “always go away *contaminated* with the body” (83d, ca.). The soul and intellect of the philosopher, it is clear,

must not be contaminated by the lowly influences dominating the lives of the *compelled* and *captivated* commoner. This disparity and oppositional, indeed hygienic, boundary between “head” and body, between philosopher and technician, is founded upon a set of value ascriptions formed by way of a *hierarchical* structure, which accords a low value and place to what constituted the intellect’s – and by implication the properly human’s – *other*:

In Aristotle’s *Politics*, we find an explicit articulation of this correlation, linking instrumental function with instrumental value, when he states that “if something is capable of rational foresight, it is a natural ruler and master, whereas whatever can use its body to labor is ruled and is a natural slave” (1252a31-3). The labour of the body is thus linked to slavery, while the rational foresight of the intellect is seen as positioning one as a natural master. Both the body at work and the technical object put to use are judged as *instrumental* in this regard. For as Aristotle makes clear,

“Some tools are inanimate. . . and some are animate. The ship captain’s rudder, for example, is an inanimate tool, but his lookout is an animate one; for where crafts are concerned every assistant is classed as a tool. So a piece of property is a tool for maintaining life. . . [and] a slave is a piece of animate property of a sort, and all assistants are like tools for using tools [*organon pro organon*]” (1253b27-32).

There is a connection, then, between the body and the tool in terms of the value ascribed to each as objects of use.⁴ A connection further explicated in a remark made in the *Eudemian Ethics* where Aristotle states that “the body is the soul’s tool born with it”, and that “a slave is as it were a *member* or tool of his master”. This entail, since a tool is comprehended as “a sort of inanimate slave”, that the body is a slave to its master by virtue of its instrumental function for what directs and oversees its operations, namely the understanding of the soul, in regards to which both technical objects and bodies, even one’s own body, are viewed as mere instruments, parts and members (*organon*) (1241b18-23, ea). It is clear, then, – as Giorgio Agamben argues in his recent book *The Use of Bodies* – that according to Aristotle “the soul is to the body as master is to slave” (2014/16: 4). Likewise, technical objects are grasped and positioned, to use a phrase penned by Borges, as “slaves who never say a word”, being what takes the place of, and stands in for, the bodily labour of slaves whenever opportune and technologically possible (2000: 277). Bodies and technical objects are both judged in this way as *organa*, as instruments utilized as slaves for the benefit of someone or something else. Such objects are, therefore, ideally mastered by the soul of the self-articulating person and determined by the intellect of the philosopher or ruler in the city, since bodies and things are valued as insufficient technical objects working like automatons in their servile position as *members* or *limbs* meant to serve knowledgeable and self-sufficient human subjects acting autonomously.

An instrument – inanimate, like the tool of the artisan, or animate, like the assistance rendered by the unskilled labourer as a speaking tool (an *instrumentum vocale* as the Romans called it) – has from the first been judged and apprehended, then, “not first and foremost [for] *what it is* but rather [as] *what someone has*. It is a possession to which nobody else can lay claim”, being “*in the hands of* anyone who possess them” (Esposito 2015: 18, ea). The relationship between, on the one hand, instruments (technical objects or things) and instrumental being (technically dominated forms of life) and *truly* human persons or subjects, on the other, are construed as being, in line with early philosophical and legal thought on the subject, ultimately “one of instrumental domination”. Indeed, within philosophy and the legal tradition persons and things – subjects and objects, humans and technics – have from the very start been defined in contradistinction to each other since a “thing is a *non-person* and a person is a *non-thing*” (Esposito 2015: 17, ea). A

categorical distinction that unquestionably relates to the qualities ascribed to each of them. For a human person is precisely *someone*, rather than *something*, by virtue of partaking in what constitutes the characteristic mark of the human, namely a capacity for rational thought and autonomy; of self-possession and self-articulation. While the sensuous captivation and repetition of operations that, by also characterizing the non-human and non-person in the form of the animal, became associated with the instrumental value of the technical tool and the sensuous body, since both signified the absence of intellection, along with the presence and dominance of repetitious automatisms. A manual labourer captivatedly occupied with the operations that constituted the various automatisms of his or her working life, was in this way linked to the animal in apparently lacking the reflective and intellectual knowledge sufficient for the status of person.⁵ By being linked to the tool and the animal, the manual labourer thus became *transparent* and its function could, given its role as independently insufficient, only be ascribed and ascertained within a larger political organization that was governed by “a head”. One that, by having cultivated or having been endowed with the capability of discerning the overall picture, could organize a hierarchical structure through which it could be freed from the contamination brought about by the facticity and determinacy found with the manual and technical tool, which functioned merely as that organism’s “hand” or “body”. The ascription of such a low significance to technical objects relates, then, in the final analysis, to the hierarchical placement of the technicians themselves, especially those assisting in the process, rather than overseeing it.⁶ The question concerning technics being, in this regard, from the first intimately intertwined with that concerning the character and mark of the human; with the question grounding philosophical anthropology.

Relatedly, on the topic of technical objects, it should be noted that they were apprehended in ancient Greek thought, more generally construed, as crafted in the image of nature (*physis*) and life (*bios*), as being, in other words, imitations of the organic.⁷ Tools were apprehended, then, like Plato’s characterization of the written word, as an “external character” and a mere lifeless imitation of the living; in Plato’s example the living word inherent in the nature of the intellect. In this regard, technical objects were ultimately twice removed from the essence of what is; firstly, as imitations of the structures of organic life, and secondly, as copies of the ideal forms. Technical objects counted, therefore, within the overall cosmological constellation and hierarchy, for little more than derivative phenomena of something more fundamental and essential, signified by the categories of form and matter, and their combination in life. This marginal significance is perhaps best explicated in a famous passage – quoted by Stiegler in the general introduction to the first volume of his *Technics and Time* series (TT1: 1) – of Aristotle’s *Physics* (II. I) where Aristotle sets up a foundational opposition between the technical and the natural, between the inorganic and the organic that – like the disparity between body and soul, practice and theory, technician and philosopher – proved profoundly influential.

According to Aristotle living beings, thought of as organic compounds of matter (*hylē*) and form (*morphē*), contain within themselves principles of movement and change that lifeless inorganic substances do not. For even if technical objects were made, like organisms, for specific functions meant to satisfy particular goals or purposes (*telos*) in accordance with their given design, this purpose originated from a blueprint and was designated by someone – the human artisan – exterior to the technical objects themselves. The principle origin (*archē*) and evolution of technical objects

and artefacts was not, therefore, understood to spring from out of an inherent property or immanent potentiality. For defined as things merely subjected to movement and change by way of an external cause the technical and artificial were not accorded any depth, and thus were seen as transparent and unproblematic in their lack of any self-movement and animation in the absence of an inert complex or disposition (*Physics* II. I 192b-193b). As functional, yet lifeless, technical objects occupied, in this way, a somewhat peculiar middle position between the living and the dead. Being ultimately placed in the category of the inanimate due to the external origination of their principles, entailed a judgement of such objects as deficient viewed up against the fullness of life, in relation to which the artificial was metaphysically and thus categorically opposed. In extension of this the essential nature of the human, as a highly complex organism, was conceptualized as differing categorically – being associated with life, and thusly with the actualizing movement (*kinēsis*) and work (*energeia*), in the fullest sense, of a natural potentiality (*dynamis*) – from the inorganic and inanimate nature that characterized artefacts, which were perceived as in themselves passive and external supplements circumstantially attached to, and made use of by, their handlers in accordance with these persons’ inert potential for movement. Having thus no movement of their own, technical objects were not accorded any degree of autonomy, neither in connection nor in contradistinction to the user, owner and producer of such things; the human subject or person.

This hylomorphism formulated by Aristotle relates – as it concerns the divide between the organic and inorganic, organisms and artefacts, form and matter – to points made above concerning the correlation between instrumental functioning and the ascription of an instrumental value; of being apprehended and positioned as a mere means to an exterior end. For as the important French *philosophe de la technique* Gilbert Simondon acutely observed:

“The technical operation that *form imposes on passive and undefined matter* is not only the operation abstractly envisaged by a spectator who only sees what goes into the workshop and what leaves it again without understanding the process as such. It is essentially an operation that is ordered by someone free and carried out by slaves. . . . The active character of form and the passive character of matter correspond to the transmission conditions of the order, which presupposes a social hierarchy. . . . The difference between form and matter, between soul and body, reflects a city that consists of citizens and slaves” (1964/2005: 51, in Hörl 2015: 5-6).

In other words, the metaphysical picture Aristotle draws of the work of the world – of the ordered structure that make up the measure of the *kosmos* – is connected to the opposition between philosopher and technician, between the soul and the body; between the mastery of intellectual foresight and the captivated and slavish automatism of bodily, technical and operational labour. According to this schema the slave is the very antithesis of the philosopher, since it is paramount, as both Aristotle and Plato sees it, for the philosopher to break free from the demands weighting upon the worker. For in order to take up the disinterested position of the philosopher one must, as Plato writes in *Sophist*, escape from the discrediting and mercantile wage labour falsifying the teachings of the Sophists (231d-e, see Mortensen 2013: 166-7).⁸ The opposition and hierarchical order between technician and philosopher can, along these lines, also be seen as a result of socioeconomic conditions. For the independence of the philosophers from bodily labour – from the chain of production that compels one to act as an instrument used *in order to* achieve given results – rests on an enabling condition, namely economic independence (see Reale 1987: 151). Indeed, Max Scheler argued that “the Greek institution of slavery was what enabled philosophers such as Aristotle to view the natural world in terms of teleological forms rather than merely as an instrument to human ends” (Zimmermann 1990: 158, citing Scheler 1924/80: 92). The hierarchy between

philosophers and technicians installed at the origins of occidental philosophy – at the origins of “metaphysics” – is related, then, to the class hierarchy of the ancient Greek city (*polis*); with the freedoms allotted to the life of the aristocracy, on the one side, and the conditioned lives of the working classes, on the other. Simondon, historically situating the metaphysics of Aristotle in the above passage, emphasizes this state of affairs, which is of importance, not least of which due to the influence of his hylomorphism, which having obscured technics by neutralizing the body and the technical as instruments and mere means for actualizing inert potentialities “has shaped the entire occidental practice of describing concrete physical, psychical, and social processes”. With the result that, as Erich Hörl rightly observes, “these processes are [still] primarily modeled as anti-technical” (2015: 5).

In summary, then, one can remark that, while concrete technical objects, practices, and indeed technical practitioners and assistants, had specific roles and purposes as subordinate parts – crafts and craftsmen, labourers and tools – within the overall structure and aim of the ancient Greek city (*polis*) and its constitution (*politeia*), as being instrumental for attaining the prescribed goals of a political and rational animal, the knowledge attained by the philosophers of this state of affairs, and their theoretical insights into the general order and beauty of the *kosmos*, was apprehended, crucially, as being of an inherently non-technical nature. For the kind of knowledge that philosophers sought after, wisdom (*sophia*), was not perceived to be a result of a technical practice related to a different *sort* of craft – not, then, the product of a different *technique* – but as the fruits of a faculty and an activity of an entirely different metaphysical *kind* or nature. Being thereby conceptually uncontaminated by the technical, a radical distancing by philosophers and their dialectics from the rhetorical techniques of the Sophists was facilitated. The very admittance of and cultivation of the techniques of language, which was seen to “pervert the essence of language”, being precisely what brought about the danger and inherent corruption of such *technical* sophistry (Sebbah 2015: 9, see also Stiegler 2007: 22–4). In this way, technical competences and practices – ultimately all varieties of technicized and sensuous modes of life – became designated as *the other* of the life of the philosophers, while technical objects themselves were deemed to be objects unsuited for the loving pursuit of wisdom that the life of the philosopher entailed. As previously touched upon, technical objects, practices, and at times even the human ‘technicians’ handling these objects and cultivating these practices, were thereby ascribed an instrumental value of a varying degree, and had to be opposed to the highest aspirations of the life that characterized humanity. The highest actualization of this potential was the figure of the philosopher and the activity of pursuing wisdom through intellection,⁹ as the philosopher;

“conceives of himself as the exemplary human, in the sense that the human *would be* the being who constitutes or gathers meaning, as the being of *logos* [to speak, to gather]. But the realm of technique presents itself as the other of meaning, because *operativity*, as an organization that is regulated, which is to say already functioning to carry out the production of results, is in opposition to the giving or the assemblage of meaning which, as such, does not produce results” (Sebbah 2015: 9).

Technical practice being regulated and structured through an organization of technical objects that calls for a result-directed response – for an operation – is then, as the quote from Pierre Ducassé that opened this chapter indicated, precisely *what* rejects “in man all that makes of him a philosopher” according to this classical view (1958/2014: 28).

Tékhnē, a term encompassing all the crafts and arts as well as their specific skills and competences – which

sought results and was based on regulated chains of operations – was, then, ultimately opposed to *epistēmē*, or at least as it subsequently became primarily associated with the mode of *theoria*, and its intellection, and not *praxis* and its practical knowledge (see Parry 2014). The one typifying the knowledge sought after by the philosopher, the other being what the ‘technician’ trained for and cultivated, these two groupings of knowledge and their respective seekers were antagonistic from the start. An antagonism that much later, with the industrial revolutions, underscored the differences of approach and doctrine found with the two initial attempts at establishing a philosophy of technology – the one springing from out of the humanities and the tradition of occidental philosophy, the other taking flight off the wings of the entrepreneurial spirit embodied by engineers and industrial pioneers of the late 19th and early 20th century – to be detailed shortly.

In connection to this originary denunciation of technics as a subject for philosophical reflection, Don Ihde has argued that prior “to contemporary philosophies, technologies played at most background, illustrative, or epiphenomenal roles in philosophy” (2010a: 2). This neglect of, and initially marginal role allotted, technics is not merely an oversight. It goes deeper than that. For, as Stiegler argues, “at its very origin and up until now, philosophy has *repressed* technics as an object of thought” (TT1: ix, ea). Having been repressed, technics has not just been sidestepped, but scapegoated in order to avoid inquiring into whether or not technics and its emergent technicity in fact is a condition for the very possibility of thought and philosophy, as well as the shifting ground structuring the horizon through which, so to speak, thought thinks and humanity *is* (Stiegler 2012a/15: 159-61). A scapegoating which is deeply connected to the idealization of humanity and its capacity for intellection, and which opened up an illusionary pure route of escape away from the contingencies of technical and bodily habit. In this way, technics became from the earliest separated from the field of philosophical reasoning, and given a mere secondary role in definitions of the human found in traditional philosophical anthropologies. For based upon the cosmological hierarchy of being and knowledge found in ancient Greek thought, conceptualizations and sentiments formed sediments that inspired the articulation of highly influential philosophical anthropologies in post-Hellenistic thought, notably that of the Christian doctrine of the fall and original sin (Stiegler 2007: 22-4), and that later, with the onset of modern occidental philosophy, played into the full-blown dualism of Descartes. A philosophy that opened up an abyss between *everything* extended (*res extensa*) – and hence also everything technical and corporeal – and *everyone* ensouled and non-extended (*res agitata*), which were grasped as being incorporeal and non-technical (see SZ: §§19-21).¹⁰

By way of a reductive take on the Neo-Platonic renderings of Plato’s teachings and an appropriation of Aristotle that neglected the terms “animal” (*ζῷον*) and “political” (*πολιτικόν* – “of the *polis*”) in his definition of the human as a rational *and* political animal, “the human” became not just a unique species and mode of being, but took on the form of an aspiration or ideal alien to the animal world. An ideal established and judged primarily through the prism of the intellect (see SZ: §10 and Simondon 2004/11: 52-78). For as an intellect *endowed* with speech and reasoning, although of a non-perfect and mortal kind due to the finitude of human existence as created by and situated below a supreme immortal being, the *character* of the human was of a kind different from all other species of life and orders of things, which lead to a radical form of human exceptionalism that actively repressed *what* risked contaminating the ideality of the

human; body and technics. This state of affairs spring, as I have noted above, out of the disjunction and opposition established between humanity and technicity, which is inextricably linked to the one operative between the value of a cultured being and the instrumental status of an animal cultivated and enslaved. Simondon phrases it well when he writes that; “Culture is a disinterested repository of values, while technics is an organization of otherwise indifferent means towards ulterior ends; culture becomes a kingdom of ends, while technics tends to be a kingdom of means that must sustain a being under the authority of the kingdom of ends; culture has domesticated technics like an enslaved species” (1965/2015: 18). Any meaning or significance was thereby denied technics, since being categorically removed from the sole world capable of creating, and worthy of receiving, meaning – human culture – meant classifying the world of technics as meaningless in its instrumental *transparency*; as *something* directed by the authority of *someone* exterior to it.

The sketch that I have drawn above is, however, clearly an overly simplified picture of the early history of philosophical interest in and enquiry into the relationship between humanity and technicity as it concerns the ancient Greeks. I will note, in this connection, a few counterpoints to this story. Firstly, and with regards to Plato, it should be noted that he in his late dialogue *Timaeus* describes the Demiurge as an artisan who like a sculptor creates the universe from out of bare uniform matter by imitating the forms (28a). A myth that, arguably, can be seen as constituting a cosmological and mythic doctrine of originary technicity (Bradley 2011: fn166). And what is more, does not Plato in *Phaedrus* discuss the nature of writing, and along with it all technical implements, as a *pharmakon* – as a drug that can function both as a toxin (the loss of memory) and a remedy (the increased capacity of an expanded and exteriorized memory) – justifying one to, on the contrary, hail him as a thinker who grasped the inherent danger, if not promise, that any technical invention might bring about upon its implementation (274e-77a, Derrida 1982, Stiegler 2007)? Secondly, with regards to Aristotle, does he not state that technical objects in some cases extend beyond nature by constituting the functional completion of what they imitate (*Physics* II.VIII 199a15), while he in his *Politics* contemplates what a machine – an automaton – might mean for his politics and, indeed, metaphysics (1253b33-54a)? And lastly, should not Aristotle by way of his emphasis of the role of *praxis* in his practical philosophy, as well as his emphasis on the body in “On the Soul” (1957), rather be viewed as an ally, as he after all was one of the influences – if not the chief inspiration for – Heidegger’s *Sein und Zeit* and that work’s call for an engaged philosophy that takes seriously the significance of everyday life, even for philosophical and ontological investigations (see Volpi 1988, and Kisiel 1995: 331-2)?

Nevertheless, technical objects have according to the classical view, originating with the ancient Greeks, no formative influence upon the human and its being *as such*. A state of affairs, due not only to this view’s primary definition of the human as a rational being, but resulting also from its devaluation of technics, itself stemming from the fact that the technical object, thing or artefact “was divided from itself as soon as it was rooted in a transcendent idea, as Plato did, or in an immanent foundation, as Aristotle did. In both cases, rather than corresponding to its singular existence, the thing was suspended from an essence that goes beyond it, whether located outside the thing or situated within it” (Esposito 2015: 8). Looking beyond the specificity of concrete technical objects – of passing over the technical and material workings of such things, as well as the embodied practice made possible by and undertaken with them – in order to

locate a uniform essence that goes beyond them can, in summary, be seen as the first manner in which occidental philosophy tackled the question concerning technics. In this regard, and as it concerns technics, the metaphysical picture was drawn exclusively, as we will later see in more detail, in terms of who (the human artisan) and how (craft), and not with what (the instrument – the tool and the body) formations of character and practice take shape and are concretized; *what* ultimately opens up the possibility for both the practitioner and the practice cultivated was not, in other words, called attention to. Emphasizing the human subject above and beyond, in this way, the things through which this subject becomes what and who it is, lead ultimately to an indifferent attitude – not fully habituated by the Greeks, as the points raised above indicate – towards matters regarding technics. An indifference founded, as Ducassé has noted, “upon an error: the supposed “neutrality” of technics” (1958/2014: 33). This indifference, brought about in other words by the non-relevance or insignificance of the technical, propagated the habituation of a silence, within philosophy and legal thought in general, concerning the significance of the techniques, tools, and materials – indeed the overall technical and techno-logical structure – that, in not being neutral and *merely* supplemental, enabled and grounded these practices and disciplines by constituting their very possibility of existence and continued development and transformation.

In regards to the above-mentioned points of contention faced by the narrative I have offered in the preceding – points ultimately levelled against any reductive interpretation of ancient Greek thought on the subject – I want to note that these points do not, as I see it, falsify this narrative, but point, rather, towards the highly ambiguous nature with which philosophy first raised and answered the question concerning technics. An ambiguity found in the writings of philosophy’s founding fathers, Plato and Aristotle, and since habitually passed over. For the “theory of technology that has dominated philosophy for more than 2000 years” situates, from the first, technics in a peculiar position and role by apprehending “the technical artefact [as] a *prosthesis* (*pro-thesis*, literally, that-which-is-placed-in-front-of) to nature, thought and the human”. This position and the significance it entails for technics is, on the other hand, repressed since the prosthesis is admitted “no formative or reproductive power of its own”, its value in being utilized depending entirely “upon who or what happens to wield it”, which leads to the aforementioned indifference (Bradley 2011: 5).

It is worth mentioning, in this connection, that the term used by the ancient Greeks in order to designate such prosthetics, and that I highlighted in regards to Aristotle’s discussion of the tool and the slave above, is *organon*. This term encompasses, interestingly enough, both what is placed and what places things before us, since as Ivan Illich has noted: “The word *organon* means both this pencil which I am holding in my hand, and the hand which holds it. My hand without the pencil and my hand armed with the pencil are both *organon*” (Illich & Cayley 2005: 73). Both the hand handling and the pencil handled are classified as useful things and as members of a larger structure governed by a distanced and non-contaminated centre; the soul or intellect of the person and the ‘heads’ of the city. This non-differentiation between the body and the technical object as things of use relates to the arguments forwarded and the investigations undertaken in the following chapter, as it finds deep resonances in the discussion of the early Heidegger and the palaeoanthropology of André Leroi-Gourhan, in regards to which the ancient paradigm concerning technics and the human forms an historical and philosophical backdrop. In any case, having situated the technical object as a pro-thesis

the question concerning technics and its role is opened up in full force by the ancient Greeks, since technics is *placed in front of*—placed before— the concepts it is, on the final analysis, found to be categorically opposed, and both chronological and hierarchically posterior to— hence the aforementioned ambiguity. For Plato and Aristotle’s questioning of the status of the technical and its relationship to the human bears witness to, by having raised the question and offered responses to it, an alertness to the necessity of addressing and giving attention to matters concerning technics— to technical practice, technical objects, and in general techno-logical structuration— if only to, in turn, facilitate a subsequent devaluing of its significance, and ultimately a perceived cancellation of the possible issue at stake for philosophical reasoning, by allotting, as I have detailed above, the technical no formative or fundamental role in the overall scheme of things.

It is, therefore, true— as the remark cited by Stiegler in the opening of this chapter intimated— that the ambiguity of the placement given technics or the technical, and the role it entails for the very coming into being of the human and the possibility of and condition for thought and philosophy itself, remains almost entirely to be thought. One can, on the other hand, find numerous attempts throughout the more recent history of philosophy at both establishing a field of inquiry for, and undertaking specific enquires into, this prosthetic role and the significance of the technical in general, either under the name of a “philosophy of technology” or under the umbrella of “philosophical anthropology”. Both highly unstable and diverse constellations, as we will see, as I now turn to a brief elucidation of some general aspects of the development and direction of the philosophy of technology. A task that is necessitated by what motivated— and still motivates— such philosophical endeavours, namely the historical and technological upheavals that the successive industrial revolutions entailed, and the continued relevance of the various responses that these new approaches to understanding technics in turn formulated when faced with such a radically altered technical situation. Responses that, while departing to some degree from the ancient paradigm, at the same time repeated its underlying silence and fault; the forgetting of technics and its exclusion from philosophical questioning, which still characterize both our everyday and reflective understanding of both ourselves and our surrounding world.

2.2 Engineers and humanities scholars: Two general approaches to the philosophy of technology

In raising the question “what is the philosophy of technology?” one might be lead to think, on the basis of the definite article of that question, that this field of questioning constitutes a subdiscipline within philosophy. If that is, or is gradually becoming the case, it is undoubtedly a highly heterogeneous one, spanning a wide array of methodologies concerning how best to approach the object of study supposedly delineating the field (see Kroes 1998, and Franssen et. al. 2015). What, more precisely, constitutes the object of study— what technology or, as I prefer to phrase it, technics *is*— is a matter of dispute, and even the possible implications such considerations might have for the characteristics of the being capable of raising such questions— the human— remain deeply contested. This heterogeneity and disciplinary instability, stem in part from the very phrase “philosophy *of* technology”, which can “mean two quite different things”, for;

“When “of technology” is taken as a subjective genitive, indicating the subject or agent, philosophy of technology is an attempt by technologists or engineers to elaborate a technological philosophy. When “of technology” is taken as an objective genitive, indicating a

theme being dealt with, then philosophy of technology refers to an effort by scholars from the humanities, especially philosophers, to take technology seriously as a theme for disciplined reflection. The first child tends to be more pro-technology and analytic, the second somewhat more critical and interpretative” (I3: 17).

In light of this, as the American philosopher Carl Mitcham has described in his impressive history of the philosophy of technology entitled *Thinking through Technology: The Path between Engineering and Philosophy* (1994), it is no wonder that the various responses to the historical call, so to speak, of tackling the question concerning technics did not result in a subdiscipline, much less a unified field of study and thought. For many different traditions, with backgrounds from various scientific and humanistic disciplines, were eager to tackle this “new” question in accordance with vastly different aims and methodologies in the second half of the 19th and the first half of the 20th century. A heterogeneity, which inevitably led to approaches whose engagement with concrete technical objects, techniques and technologies, as well as their mode of questioning the technical as such, differed radically.

Reducing the multifarious nuances of the general trajectory of this development into the establishment of two overall approaches and cultures, Mitcham speaks of, firstly, an “engineering philosophy of technology, which emphasizes analyzing the *internal structure* or nature of technology, and [secondly a] humanities philosophy of technology, which is more concerned with *external relations* and the meaning of technology” (I3: ix, ea). These two approaches for thinking about and *through* technology will be briefly sketched out in the proceeding. A sketch that necessarily will be, as was the previous one incomplete, even somewhat reductive. In offering this sketch, however, my aim is not limited to setting the stage for the more focused questioning of the relationship between technics and the human in the following chapter, as I intend to further shed light upon the deep-seated antagonism operative between philosophers and technicians, as well as the philosophical underpinnings for which this differentiation has been made. I do so because this long-standing state of affairs functions as a genuine hindrance for any attempt made at articulating a philosophy truly capable of thinking through the human-technics relationship anew. In this connection, I will firstly detail the two general approaches to establishing a philosophy of technology in regards to when, and indeed how, an explicit attempt was first made at forming such a subdisciplinary field, an elucidation of which I will provide in what follows.

The engineering approach must in this context be looked at first, as it is deeply connected to the historical origination of the purposed name of, and motivational force behind, the field of questioning now under consideration. This origination is commonly attributed to the neo-Hegelian philosopher and German-émigré Ernst Kapp, as he is noted as the first philosopher to have published a book purporting to launch technology, or rather technics (*Technik*), as a proper subfield of philosophical reflection. A field aimed at articulating, quite radically, a truly *techno-logical* philosophy (I3: 20-1, and Ihde 1990: xi). *Grundlinien einer Philosophie der Technik* published in 1877 did not, however, find a large readership. The central thesis of the work that technical objects function as what Kapp called “organ projections” – as extensions of organic organs – does, on the other hand, find more than a faint echo in mid-twentieth century investigations on the topic.¹¹ Notably Marshall McLuhan, in his widely read and popularized book *Understanding Media: The Extensions of Man* from 1964, argued for a position comparable to the one held by Kapp. A position summarized by one of the primary claims of that book, namely “that all technologies are extensions of our physical and nervous systems to increase power

and speed” (McLuhan 1964/94: 90).¹² In addition to partly prefiguring such later developments, one can also find in Kapp’s thinking certain motifs later prominent within the German school of philosophical anthropology, such as the idea that the human is a *Mängelwesen*, which Arnold Gehlen held and popularized (1940/2009, T3: 24).¹³ Kapp’s thought provides, in this regard, a fruitful point of departure for shedding light upon the philosophy of technology, and its relation to philosophical anthropology. I suggest, therefore, due to Kapp’s role as the originator of the term and a highly original, if neglected, thinker in his own right, that we take a closer look at his thinking, especially as it concerns the development and trajectory of the two general approaches mentioned above, and especially the engineering approach.

Examining claims made by Kapp as early as the 1870s reveals, in this connection, two aspects of not just his thought, but of philosophy’s engagement with technics more generally, especially as it concerns certain common assumptions grounding 19th and 20th century arguments for an *extensive* role for technics. In the following passage from *Grundlinien* one can identify something of both these aspects:

“The intrinsic relationship that arises between tools and organs, and one that is to be revealed and emphasized – although it is more one of unconscious discovery than of conscious invention – is that [1.] in the tool the human continually produces itself. [2.] Since the organ whose utility and power is to be increased is the controlling factor, the appropriate form of a tool can be derived only from that organ. A wealth of spiritual creations thus springs from hand, arm, and teeth” (1877/1978: 44-5, cited in and translated by Mitcham T3: 23-4).

According to Kapp, then, the human continually produces itself by way of its tools. This quite radical point relates his thought to another pioneer within this field, namely his contemporary Karl Marx,¹⁴ with whom Kapp shared both a political affinity and a deep attention towards concrete technical objects and inventions (T3: 21-2).¹⁵ Such sentiments situate, moreover, Kapp’s central thesis contextually in a period experiencing the rapid and successive transformations brought about by industrialization.¹⁶ A technical situation that Kapp unashamedly embraces when grounding his techno-logical philosophy, embodying thereby the optimism more typical of an engineer (*Techniker*) as opposed to the decidedly pessimistic outlook espoused in the writings of many 20th century philosophers, Jacques Ellul’s *The Technological Society* (1954/64) being one influential example. This optimism of Kapp’s, and indeed the engineering approach to the philosophy of technology more generally, reflects both the prosthetic model of technical objects and systems, which in Kapp’s case is found with his theory of organ projection, and the times during which the project of a technological philosophy – a philosophy for which technology constitutes the subject – was first formulated. For matters concerning technology were increasingly the object of academic interest and enthusiasm during this period, as is apparent in, for instance, ideas emerging in the US at the time,¹⁷ which the following quote from Emerson is indicative of: “Man is a shrewd inventor, and is ever taking the hint of a new machine from his own structure, adapting some secret of his own anatomy in iron, wood, and leather, to some required function of the work of the world?” (Emerson 1856/1994: 94).

Such an understanding of technical objects as inorganic extensions of the organic held by both Kapp and Emerson does, however, echo the first discussions of technical practice and technical objects we encounter in the history of occidental philosophy; specifically, ancient Greek thought on the subject and especially Aristotle’s conceptualizations. The role of technics has, on the other hand, with Kapp and the industrial epoch not only become far more pronounced, but is grasped as being in an intrinsic relationship with the human, where it before was explicated as extrinsic and thus

judged as *simply* supplementary.¹⁸ The significance Kapp admits technical structures gives rise, in turn, to a newfound interest and attention afforded specific technical objects, techniques and technologies that have structured epochs of the past, as well as those that structure the present and will, one can speculate, characterize those of humanity's future; the subtitle to Kapp's book being after all *zur entstehungsgeschichte der cultur aus neuen gesichtspunkten*.¹⁹ Throughout the breath of this book one, therefore, encounters analyses of such things as telescopes and telegraph cables, stoves²⁰ and hammers – even hands as they are characterized as humanity's primordial tool. With Kapp, and other early 20th century proponents of an engineering philosophy of technology such as Peter Engelmeier and Friedrich Dessauer,²¹ one can thereby identify an important “shift in *perspective*.” For these pioneers, and Marx along with them, “begin to discern a focal role for *materiality*, particularly the materiality of technologies or produced tools, machines, and their organization in relation to human cultures” (Ihde 2010a: 6). Some philosophers begin, in other words, to include and give weight to analyses of the *internal structures* of any given technical object, ensemble and system, since competence of, and attentiveness towards, such technicalities are now apprehended, and indeed emphasized, as necessary prerequisites for adequately grasping the history and development of human existence. The prosthetic model of technical objects, as *the first of two aspects* typifying the engagement philosophy has had with technics in general – as we saw with the ancient Greeks and their conflation of the human body and the technical object under the concept of *organon* in the previous section – has, then, with the engineering approach to the philosophy of technology taken on a new importance – if not form – in that the use and material specificity of technical objects are now admitted to be a central factor, as opposed to a neutral one, in the historical configuration and development of human existence and its environment.²²

Such a shift in emphasis and attention is arguably a result of the following phenomenon described by Ducassé: “The appearance of something decidedly new in human behavior more often than not changes the *current* meaning of the word “technique” in all of the corresponding fields and sometimes beyond” (1958/2014: 32). That is to say, a change to the techno-logical structuration of our lives, and concurrently our behavior, will occasion a transformation of the sense we attach to concepts concerning the technical, which would correspond to what has changed in our surroundings.²³ In the case of the engineering approach to the philosophy of technology one witnesses the immense influence of the first two industrial revolutions. For with the invention of the external steam and internal piston combustion engine, with the invention of the telegraph and the subsequent telephone, with our harnessing of electric power – and with the then revolutionary rapid pace with which new technical inventions were invented and implemented – our understanding of, the meaning we associated with, and what we perceived to fall in under the realm of the technical were opened for change, and the philosophies that corresponded to traditional understandings of such concepts were, likewise, ripe for upheaval. However, it was really only after massive industrialization that terms such as ‘technology’ and ‘technics’ could be recognized (Ihde 2015: vii), as these significations “did not actually come into widespread use until the early decades of the twentieth century and mostly after World War II.”²⁴ In other words, ‘machines,’ ‘dynamos,’ and ‘industrial arts’ were terms that preceded terms such as ‘technology’ and ‘technics’ and not the other way around (2010a: 8).²⁵

In light of this, one could suggest that the establishment of a new thought concerning technics and the human-

technics relationship can in actuality only be undertaken as *a response to* such a shift – to such a destabilization and rupture – and thereby only comes to pass, so to speak, as an afterthought (*après-coup*) *after the fact*. In other words, only after a transformation has taken place, which techno-logically breaks up or destabilizes the platform through which the previous order of meaning has been erected, maintained and transmitted – such as the invention of writing, the printing press, the steam engine or the photographic camera – can a new conceptualization be established, as it opens – by way of an upheaval of the habitual – a new space of possibility that makes the ground upon and through which one questions, again questionable. Thus, one can speak – in a sense similar to the one associated with the notion, introduced by Gaston Bachelard, of an *epistemological break* or *rupture* that dissolves the epistemological obstacles previously in place (1938/2002) – of a *technological break* that upsets and *destroys* the grounds *upon* and *through* which technical practices, of both reflective and manual varieties, are cultivated, namely the techno-logical structuration that underline an historical epoch and its characteristic *ways* and *means* of doing things.²⁶ A technological break is, in this sense, a techno-logically effected *epoché* akin to the distancing method practiced by Husserl and the phenomenologists. In contradiction to this individual and philosophical practice, a technological break is, however, an *epoché* of a technical or *instrumental* epochality – of the technical systematicity or structure – of an historical epoch’s practical ways and technical means (IT1: 245). Such breaks do not, on the other hand, in and of themselves breakdown the conceptual frameworks already installed, which having been erected on the grounds of a technical edifice that has been altered, now have been destabilized, but not *deconstructed*.

For notice, in regards to *the second aspect* evidenced in the passage quoted from above, how on Kapp’s view the entire impetus of the development, or indeed production, of the human – a production based on the posited intrinsic relation between technics and human existence – is centred on the organic organ and its systematic unity in the form of the human body in its function as “the controlling factor” of that development (1877/1978: 45). The artificial tool is conceptualized as an extension which, however significant its allotted role, merely increases the utility and power of what ultimately controls and predates it. The role of technical objects becomes subjugated, in this way, yet again to the form of an already existing, and seemingly ahistorical model found with the human, which in regards to both its body and mind is extended by way of technics, but ultimately not transformed. The production and implementation of technical extensions is, what is more, apprehended as being largely unproblematic, at least in terms of the ground and impetus of this development, since the human engineer is seen as being in control of the process of extending the body and power of humanity through industry, either consciously or unconsciously, on the basis of the assumption that the extensions are by definition literally *true to form*. In this way, Kapp’s conceptualization still offers a non-historical essence or ground *for* the human, even if technical objects, systems and practices are admitted a productive role in forming the narrowly historical production *of* human existence – a central significance, to be sure, but certainly not a fundamental one. In summary, then, the invention and implementation of technical objects and systems is grasped by Kapp and other early proponents of such an engineering philosophy of technology as being instrumental for the progress of a human species and an occidental humanity that in and of itself pre-exists any techno-logical structures. Since it is the human subject that, while it invents itself through them (the first aspect), nevertheless, is in control of the progressive evolution of both itself

and its world (the second aspect). For ultimately, as Philip Brey has noted, in regards to both Kapp and McLuhan, “all technologies are analyzed as amplifications or accelerations of functions originally performed by the unaided human organism, that take over or supplement these functions”, and hence technics is not thought of as originary, but – as with Aristotle – as supplemental and developmental, albeit the specific properties and workings of technical objects and systems are now seen as meaningful, indeed crucial, for this process (2000: 60).

Simondon grasped this two-sided nature of the intellectual developments of the late 19th and early 20th century well when he in the introduction to his *On the Mode of Existence of Technical Objects* from 1958 wrote that the present culture is: “unbalanced because, while it grants recognition to certain objects, for example to things aesthetic, and gives them their due place [*droit de cité*] in the world of meanings [*monde des significations*], it banishes other objects, particularly things technical, into the unstructured world of things that have no meaning but do have a use, a utilitarian function” (1958/80: 2, cited in Hörl 2015: 3).²⁷ In other words, while serving an important instrumental function, technical objects are still not seen as being meaningfully transformative, but are grasped as being extensively developmental and utilitarian. In this Simondon observes that the ancient paradigm is still operative, since the shifts in techno-logical structuration – evident in the successive *technological breaks* of the 19th and 20th century – are still apprehended on the model of “ancient culture incorporating as dynamic systems artisanal and agricultural techniques of earlier centuries,” whose base is founded “on the experience of man working with tools” (1958/80: 7). It misses – “through the forgetting or constitutive exclusion of technical objects” – the truly *techno-logical* character of the new lifeworld brought about by industrialization and the situation it situates one in. A modern and industrial lifeworld that was populated by technical objects that throughout the last century and into our own became increasingly “more active and automatic, not to mention “smarter,” [as well as] more and more immersed in our environments, informing our infrastructure, processing our experiences and backgrounds, and operating [in the case of information processing systems] in new micro-temporal regions, which are all characteristics of the face and logic of [what Erich Hörl has called] cyberneticization” (Hörl 2015: 3).

What this suggests, in this context, and specifically in regards to what limits and grounds a position such as the one held by Kapp, is that a certain dissonance is operative within the philosophical anthropology underlying this philosophy of technology. One that springs from out of the attempt to grasp the new space of possibility brought about by the successive technological breaks found with the new configuration of this *technological* condition, within the confines of a traditional conceptual framework or paradigm constructed as a response to a former *technical* condition, specifically that of man working with tools in this case. A framework that is often named “the anthropological-instrumental definition” due to its claim that the technical is merely instrumental in effectuating human ends (Ihde 2010a: 18). For while the ground structuring existence, chiefly within the Occident, had shifted as a result of industrialization and machination over the course of this period, the conceptualization of technical objects and systems as, at bottom, means to non-technically and autonomously-designated human ends remained operative. Which suggests that culture – and with it philosophy – ultimately lags behind transformations made to its baseline structures, and concordantly that we as thinkers are only capable of truly reflecting upon the significance of concrete techno-logical transformations of our

lifeworld and the ensuing upheavals of the habitual and instrumental structures through which thought is practiced and knowledge cultivated after the fact of their occurrence and our experience of them.

It is important to note, in this regard, that the technological and historical situation in which the question concerning technics took on urgency, was also perceived to be, as Max Scheler put it in 1924, “the first time period in which the human being has become fully and totally ‘problematic’; the first time period in which the human being no longer knows who he or she is, but also does not *know that* he or she does not know” (1976: 120).²⁸ The emergence of philosophical anthropology as a subdisciplinary field of investigation can thereby, like the emergence of philosophies of technology, be thought of as kinds “of thought arising in times of crisis” (Apostolopoulou 1992: 49).²⁹ The late 19th and early 20th century attempts at rethinking both the human and the technical can thus be construed as responses to a perceived crisis of meaning and culture, which in turn appear, partly, as consequences of a destabilization of traditional orders of both concepts and things brought about by the technological breaks of the industrial revolutions. In other words, the historical necessity of readdressing the question concerning technics simultaneously necessitated readdressing the question concerning the human. The two poles of this crisis – the technical “object-pole” and the human “subject-pole” – did, however, seldom intersect in discourse, in spite of their increasingly visible and intimate composition.

N. Kathrine Hayles in her book *How We Became Posthuman* sheds light upon why this was, and indeed partly still is, the case, indirectly revealing the nature of the philosophical anthropology latently underpinning positions such as Kapp’s, and concurrently the dissonance found within it, by calling attention to a highly representative passage from a work published well into the twentieth century, specifically *Man the Tool Maker* by the British archaeologist Kenneth P. Oakley from 1949.³⁰ The quote in question makes the following assertion: “Employment of tools appears to be [man’s] chief biological characteristic, for considered fundamentally they are *detachable extensions* of the forelimb” (1949: 1, ea). Commenting on this statement by Oakley, Hayles writes the following: “The kind of tool he envisioned was mechanical rather than informational; it goes *with* the hand, not *on* the head. Significantly, he imagined the tool be at once “detachable” and an “extension,” separate from yet partaking of the hand” (1999: 34). As was intimated concerning the second aspect of philosophy’s typical engagement with technics, by situating technical objects and systems as *detachable* extensions, the relationship between technics and humanity could, therefore, not be thought of as equiprimordial, but only as enforcing and enhancing, or alternatively degrading and destroying, what fundamentally preceded it. Technological structuration was apprehended, then, as a developmental, rather than transformative figure in human history, both cultural and biological. Oakley’s position, and by extension Kapp’s, do point, on the other hand, and in regards to the first aspect, by way of their joint “construction of the tool as a prosthesis” and their appreciation of the significance of the tool by occupying just such a position, “forward to the posthuman” (1999: 34). A configuration of the human brought about, proposedly, by having “entered into the new territory of the technological condition”, rather than the former paradigm of “the technical condition,” which was successively incorporated and embodied throughout the latter half of the 20th and first decades of the 21st century through information technologies (Hörd 2015: 2).

The term “posthuman” employed by Hayles brings to light the role played by the specific techno-logical

structuration of a particular epoch in framing both the question concerning technics and the human, as well as the significance – or the lack thereof – technics is admitted within an epoch, even as far as contemporary thought is concerned. For, while I find the notion unhelpful, even at cross-purposes with the reasons behind its coinage – most notably due to its tentative suggestion that we as “posthuman” have somehow passed beyond what most naturally or originarily has typified being human (existentially, historically, even biologically) – the notion does, on the other hand, if somewhat paradoxically, illustrate Simonodon’s claim that “every age creates a new humanism that corresponds in a certain way to its circumstances” (1958/2005: 101, cited and translated in Hörl 2015: 3).³¹ The contemporary technological condition does, however, clearly constitute a decisive shift from the one Hayles names – problematically – “the epoch of the human” (1999: 34), which she associates with Oakley, and by extension with Kapp. This epoch, which predates the emergence of cybernetics and the implementation of complex information technologies, typically judged technics through the prism of one of two dominant conceptualizations of the human; as either *Homo faber* (“man the maker”) or *Homo sapiens* (“wise man”). This implicit divide within anthropology – philosophical or otherwise – has grounded how thought in general has typically conceptualized technics throughout the 19th and indeed the 20th century, the depth and significance of which I will return to when detailing the palaeoanthropology of André Leroi-Gourhan in section 3.2. For now, however, it is important to observe that this divide underlines the differences of doctrine and methodology found between the engineering and humanities approach to philosophical reflections on the role and essence of technology. The former emphasizes the internal structure of specific technologies and technical objects as *extensively* significant by portraying the characteristic mark of the human as being located in its very relationship with technical structures, specifically in their use and production. The latter has, more often than not, emphasized the autonomous nature of an animal endowed with rationality, language and foresight; characteristics that, as I showed in the previous section, have traditionally been viewed as uncontaminated by the perceived determinacy of technics, but which the humanities approach, in light of the many upheavals of the period, complicates to a certain, if not sufficient, degree.

Turning now to the humanities philosophy of technology, specifically to a very brief outline of an aspect of Lewis Mumford’s theory on technics and humanity – a prime exemplar of the humanities approach that justifiably proved highly influential in the first three quarters of the last century –, which was first articulated in his much-read *Technics and Civilization* from 1934, and subsequently revised and reworked in many later publications. In his late two-volume work *The Myth of the Machine* (1967, 1970) Mumford insisted, as Mitcham summarizes, in a differentiation illustratively of the divide operative between the approaches, “that although the human being is rightly engaged in worldly activities, he or she is properly understood not as *Homo faber* but as *Homo sapiens*. It is not making but thinking, not the tool but the mind, that is the basis of humanity” (I3: 42).³² Making is here positioned in opposition to thinking, tool in opposition to mind, worldly activities in contradistinction to the pursuit of wisdom as echoed in the contrast set up between *faber* and *sapiens*; between the manual and the wise. The philosopher, as in the traditional perspective, thus serves as the very embodiment of what most fundamentally differentiates and characterizes the humanity of our way of being. All important for Mumford, in this regard, is what he perceives to be our “unique agent of interpretation, language.”

which he juxtaposes to the realm of technics and that ultimately sets us apart from all other modes of life (Mumford 1950: 2). Interpretation and hermeneutic activity are seen, in this way, as being “incomparably more important to further human development than the chipping of a mountain of hand-axes”, since the human being “is pre-eminently a mind-making, self-mastering, and self-designing animal” whose processes of making, mastering and designing him- or herself fundamentally spring from out of mind, expressivity and knowledge, rather than the contrast group of the manual and unreflective hand, so to speak (Mumford 1967: 2, 9, cited in T3: 43).

A similar, and highly complex, take on the relationship between the human and the technical, which also laid the grounds for the humanities approach, if within a different hermeneutic community, is found with José Ortega y Gasset’s writings on the topic.³³ As with Mumford, Ortega believes we live an invented life, which is one that is “invented as the invention of a novel or a work of the theater,” and that, as invented in such a way, constitutes “what a person calls human” (1939/72: 296).³⁴ Such a truly human life is, however, invented through the process of an inner individual invention.³⁵ As Mitcham makes clear, such an “[i]nner invention precedes and provides the basis for external invention” – for technics. On the other hand, Ortega does hold – as, indeed, does Mumford – that the human is a technical being, as he conceptualizes humanity and the human individual as being an invention made by means of technics. However, the origin of humanity’s self-inventiveness, and indeed freedom, is found, as Mitcham explains, with the idea, according to Ortega and Mumford alike, “that the human being is not part of nature but has an *idea*, and *interpretation* of nature”. The human – as opposed to the myth Ortega constructs of a natural prehuman species existing without technics³⁶ – is, while employing tools in shaping its *externally* invented environment, “essentially what the Latins called *eligen*. . . that is “intelligent”” (T3: 47). For on the traditional humanities view the human is *before* anything else an intelligent, interpreting, selective animal, that while existing with technics and operating in a constructed technical environment, directs the developments of this world from out of an inner principle.

The two different methodologies with which, and the two respective cultures on the basis of which, the crisis of the industrial and technological epoch was approached created thereby two, or rather reinforced two pre-existing, humanisms; one technical and manual (*Homo faber*), the other philosophic and intellectual (*Homo sapiens*). Both can, in this regard, be seen as responses to a crisis of sense and meaning brought about by the technological breaks evidenced by the disruptive and transformative stages of the industrial revolutions. However, the two humanisms in question, while emphasizing different terms in the operative dichotomies between internal and external – intellect and body, reflection and reflex, autonomy and automaticity – were nevertheless difficult to clearly oppose as such. For were interpretation, intellection, and invention – the various acts and practices of shaping and making sense of the world – not to be reckoned as techniques both generationally transmitted and individually and collectively exercised with the aid of technical objects and technologies? And if this were to be admitted, could not the intelligence of human life and the wisdom of the philosopher – the very *sapiens* said to characterize humanity – be said to come to life and expression only *through* and on the basis of techno-logical structures, thus making it possible to straddle the positions of the two cultures and their respective humanisms? In any case, the technological condition under, through and within which one was

situated in increasingly more techno-logically intricate, complex and experientially non-transparent ways throughout the 20th century made an insistence upon an opposition, rather than the conceptualization and questioning of a possible composition, of the relationship between the human and the technical difficult to uphold.

There are, however, other important factors to take heed of when confronting this new-found interest in technical matters throughout the modern and industrial epochs, especially as the emergence of philosophies *of* technics or technology is concerned. For, as Heidegger has argued, technics is “entrenched in our history” (GA 54: 126/1992: 86) in such a way that what animates this project – what constitutes the background upon which it is raised – cannot solely be located in terms of “technological” and “historical” developments narrowly understood as “a mere sequence of events”. Indeed, for Heidegger the appearance of modern industry and technology cannot be grasped on the basis of what a *historiological* enquiry – of what the historian and his or her report, which “touches only the foremost of the foreground” – would be able to reveal on its own (GA 45: 36, 42/1994: 35, 40).³⁷ Any worthwhile attempt at gaining insight into what Heidegger calls “the “metaphysical” essence of technology” – a task that is “historically necessary if the essence of Western historical man is to be saved” – will, on the other hand, require, as far as is historically and existentially possible, that the motivating and guiding background lying behind the transformations that “occurred in the relation of Being to man” with the invention and implementation of modern technologies, is brought out of forgetful concealment and into the open clearing of a reflective disclosure (GA 54: 126-7/1992: 85-6).

In order to briefly elaborate upon this, I now turn to a rather sweeping claim made by Heidegger in his 1942-3 winter course on Parmenides. One made, more precisely, in regards to questions concerning philosophical anthropology and the role of technics and history. Heidegger states the following: “All anthropology, the philosophical as well as the scientific-biological, understands man as the “thinking animal”” (GA 54: 100/1992: 68). A statement that is subsequently related to a speculative retracing of the history of metaphysics, quoting in this connection the following passage from Oswald Spengler’s *Man and Technics: A Contribution to a Philosophy of Life*: “The character of the free beast of prey, in its essential features, has been passed on from the individual to the organized people, *the animal with one soul and many hands*.” Spengler adding by way of a footnote: “And, be it added, *one* head, and not many.” (Spengler 1931/2: 34, Heidegger GA 54: 101/1992: 69).³⁸ According to Spengler, then, leaving aside the political aspects of this statement,³⁹ technical objects extend the power and force of the human animal to the point of endowing it with a multitude of hands – with a vast array of extensions or tools. While, on the other hand, the subject – for Spengler a collective people (*Volk*) – remains endowed with one unitary point, namely its one head and soul; with, in other words, it’s one thinking, directing and organizational centre. The philosophical anthropology implicitly underlying Spengler’s thinking on technics being therefore one that – like the ancient Greek and traditional humanities position detailed above – posits man as being first and foremost and indeed *before* anything else a thinking animal. This thought, evident in Spengler by way of the above-mentioned quote, springs, as Heidegger sees it, from out of a metaphysical source, which can be seen as a deep-current underlying and animating how the present appears to us historically; animating in Spengler’s case his *Lebensphilosophie*, which according to Heidegger “thinks history . . . in a history-less way” (GA 54: 168/1992: 113). Most importantly for

my current concerns is that Heidegger finds within this underlying historical-metaphysical development – of which Spengler is representative – that “a curious situation arises” wherein philosophy becomes splintered into objectively delineated subdisciplines or fields.⁴⁰ For when language and the words with which we speak appears to us as being “one faculty among other” and, moreover, as “one of man’s possessions, just like eyes and ears, sensations and inclinations, thinking and willing”, philosophy, according to Heidegger, is lead into a process of specialization based upon the specific object of its inquiries in such a way that “the philosophy of language,” [becomes] parallel to the “philosophy of art” and the “philosophy of technics.”⁴¹ This splintered and compartmentalized approach to human existence and its history misses, however, like the historiological approach of the typical historian, what Heidegger finds to be the crucial historicity (*geschichtlichkeit*) of humanity’s endeavours as a being in, and to a large part of, a specific world of things and tasks; of, indeed, tools and techniques (GA 54: 102/1992: 69, tm.).

Heidegger, however, in connection to his understanding of the essence of technics in his later thought, finds “modern mechanical technology” to function merely as “the “metaphysical” instrumentarium of such a transformation, referring back to the hidden essence of technology that encompasses what the Greeks already called *tékhnē*” (GA 54: 127/1992: 86). They are the means by which our grasp of ourselves and our world is obfuscated, as well as the tools with which knowledge is compartmentalized into specialized domains concerned with what now appears to us as mere objects and possessions. In other words, technological developments are not *in concreto* to be seen as the root cause behind the destabilization of everyday environments under industrialization, but rather as symptoms of a deeper ailment that goes beyond the specific technicalities of the technical domain. For Heidegger, the many transformations made to our technical structures over the course of the industrial revolutions do not, therefore, primordially bring about the uprooting of traditional conceptual frameworks within philosophy and science. The very appearance of technicist positions optimistically embracing the technological developments of the times, such as that of Kapp’s, spring, then, not first and foremost from out of changes to our technical environment according to Heidegger. But emerge, on the contrary, on the basis of “a hidden essence of technology” – more precisely, from out of an underlying history of metaphysics – that projects a “complete technical organization of the world” founded upon its leading “metaphysics”, like the ones espoused by “Leninism” and “Bolshevism”.⁴² “That the Russians, e.g.,” as Heidegger states, “are always building more tractor factories is not *primarily* what is decisive, but, rather, it is this, that the complete technical organization of the world is already the metaphysical foundation for all plans and operations” (GA 54: 127/1992: 86). This statement reflects the position espoused in *Die Frage nach der Technik* that “the essence of technics is nothing technical” that Stiegler launches his philosophy as a negative response to, and that I will severely criticize in section 3.3. (1954/77: 35). For now, and in regards to advocates for a truly *technological* philosophy such as Kapp, and indeed the engineering approach along with him, it must be noted that they do, as Heidegger speculates, call for an actualization of “the drive for technological progress”⁴² that would be able to free any worker – any slave – from the captivity of technical and manual labour by overcoming humanity’s “dependence on raw nature.” For Kapp envisions a project requiring;

“the colonialization of space (through agriculture, mining, architecture, civil engineering, etc.) and of time (through systems of communication, from language to telegraph). The latter, in its perfected form would constitute [as Kapp saw it] a “universal telegraphics” linking world languages, semiotics, and inventions into a global transfiguration of the earth and a truly human habitat” (T3: 22-3).

For Heidegger it is precisely this technicist worldview, and the guiding metaphysics he finds to underlie it, that implicitly – by way of its limited disclosure of the world as instrumental for human progress – grounds and animates the act and advent of formulating engineering “philosophies” of technology.⁴³ Philosophies that, more often than not, “pretend as if “technology” and “man” were two “masses” and things simply on hand”; as if they were, then, separate objects of knowledge for a non-contaminated knower (GA 54: 102/1992: 69). And it is, in summary, partially as a result of this pretension that a dissonance arises between the radical technicist agenda animating such philosophies and their implicit anthropological views of what it means to be a human being. For engineering philosophies of technology do not really grasp what is at stake, if they treat the technical and the human as two different kinds of entities uncontaminated by the others presence. For while Kapp and the engineering approach admit that there is an intrinsic relationship between technical objects and human bodily organs, they nevertheless view this relationship through the prism of the traditional anthropological-instrumental paradigm, which can only incorporate technics as significant in connection to the body and its operations, and not as *meaningfully* transformative of the life of the mind, the intellect and the philosopher – as, in other words, *with the hand*, but not *on the head*, to echo Hayles – and thus, by extension, outside of the sphere of what traditionally has marked us as being human; the intellectual knowledge and control found with our characteristic *sapiens*.

Concerning Heidegger it is worth noting that he adds, in line with his understanding of technics as a symptom of an underlying metaphysics structuring how the world discloses itself to us, that it is “as if the way Being itself appears and withdraws *had not already decided* about man and technics, i.e., about the relation between beings and man and hence about the hand and the word and the unfolding of their essence” (GA 54: 128/1992: 87, tm. ea.). In regards to this statement, which appear to deny a truly *technical impetus* to techno-logical transformations, and as concerns Heidegger’s thoughts on technics more generally, it should be noted that, while Heidegger is associated, and rightly so, with the humanities approach to the question concerning technics, his reflections on the essence of technics are not aligned with the humanistic positions of, for instance, Mumford and Ortega as they were briefly outlined above. The very divide between the engineering and humanities approach is rather one that can be found, as I see it, within Heidegger’s own thought, especially the relationship and supposed break between his conceptualization of technics in his early period, notably in *Sein und Zeit*, and the orientation encountered in the works of his later period after *die Kehre*.⁴⁴

Suspending such a discussion and elucidation for the proceeding chapter, I will now turn to the divide as such and how Stiegler’s approach might work to bridge the gap between the humanities and engineering approach. This is a path I find promising, since Stiegler’s conceptualization of the human-technics coupling encourages and indeed necessitates that a dialogue be opened between thinkers and practitioners, disciplines and methodologies, situated on either side of the divide. In fact, this very divide, which I have unearthed over the course of two preceding sections, can convincingly be argued to spring from out of their mutually antagonistic relationship, and concordantly their unwillingness to think and conceptualize the coupling between human existence and technics as an originary one. In this

regard, it is important to take heed of the fact that one is not obliged to choose between either exclusively following the engineering approach's emphasis on the internal structure of specific technical systems and objects, or the humanities approach's emphasis on the external meaning supposedly attached to the technical. For apprehending the perspectival split between the cultures of engineering and the sciences, on the one hand, and the cultures animating the traditional humanities, on the other, as an inevitable disjunction – as a divide between “two cultures” that rests on an essential difference – will only further obscure our grasp of both technics and humanity alike.

Unfortunately, on par with the mutual antagonism still in place between philosophers and technicians, this divide is often taken for granted, even celebrated – functioning as a point of cultural and occupational identification as Ducassé observed in the late fifties (1958/2014) –, and which the following experience shared by the philosopher *and* computer engineer Yuk Hui, a former student of Stiegler's, illustrates, and indeed analyzes, quite well;

“When you go to a conference or a talk on humanities and technology, you always hear people quoting C.P. Snow's thesis that in modern society there has been a breakdown of the communication between humanities and sciences. This gap between two cultures seems to be fully legitimated as common sense: in humanities, people are glad to admit that they don't know technology, as if it is such a natural thing; and in the field of technology, people tend to think philosophy is too far away [from] their lives, and they tend to read pop sociology books like ‘Tipping Point’. But in fact, there are no two cultures, but only one, which is the gap itself” (Hui 2011).

The gap – the dichotomy and animosity between the two – is, as Hui reflects, what animates both. In the overall scheme of things one should, therefore, perhaps grasp them as forming *a single culture* unwilling to tackle the question concerning technics at its core, specifically as it relates to the question concerning the human. For any conciliatory project that seeks to transcend these entrenched and antagonistic ways of raising and answering these questions will have to take into account *both* the internal structures of technical objects and technologies *and* the external historical meaning these objects and systems have for the being who employ and rely upon them in, and indeed for, its existence. In other word, one has to grasp technics and humanity as a conjunction rather than a disjunction, and – as Stiegler argues – avoid categorically *opposing*, for instance, the calculative time of the clock and the technical object to the internal time consciousness of a human subject as if the former contaminated the purity of the latter. Indeed, such an opposition amounts to a repetition of the ancient Greeks devaluation and denial of the specificity and relevance of technics; a repetition that will lead, concordantly, to a similar neglect of the technical from the field of philosophical questioning and reasoning.

In summary, one can note that the two general approaches to the philosophy of technology responded to the historical necessity of readdressing the role and significance of technics from two sharply different perspectives. Perspectives that are still largely apprehended as oppositional – the one perceiving technics through the optics of the technician, the other through the intellectual reflection of the philosopher – and that, as such, still occlude our grasp of the true depth and significance of the techno-logical structuration that characterize our lives. For while the engineering approach privileged the historical changes made to our material condition and the actual workings of technical objects and systems, the approach typifying the traditional humanities focused upon a spiritual transformation. Having, for the purposes of this section's discussion, and with respect to the specified scope and chosen emphasis of this thesis paper, shown by way of my preceding reflections why and how the engineering approach to the philosophy of technology, at least as it initially sprung to being, carries with it a certain dissonance in its conceptualization of humanity and technics.

The main task for the preceding reflections will be to suggest that the humanities approach to the philosophy of technology will have to be supplemented by insights gained through the perspective taken by the engineering approach. Stiegler's philosophy has proven to be fruitful territory in this regard, as it is articulated by way of a number of dialogues with, and inevitable departures from, established schools and methodologies that are firmly localizable within the humanities approach; notably deconstruction, hermeneutics and phenomenology. I will over the course of the following section attempt to compare, but not align, Stiegler's project – and indeed my own endeavours in critically engaging with it – with what Don Ihde calls postphenomenology and its material hermeneutics. For the approach to the philosophy of technology – and beyond – that this self-identified “phenomenological materialist” embodies resonates in certain respects with Stiegler's overall aims, as well as the legitimation and motivation behind his practice as a philosopher of technology or technics (Ihde 2010b: iii-iv).⁴⁵ By briefly spelling out some points of contact and divergence between Stiegler and Ihde, I will in what follows outline the contours of what a conciliatory and unified approach to questioning and engaging with technics might look like for the philosopher. The promise of such an approach, as I see it, lie with its attempt at establishing a thought *after* and *beyond* classical phenomenology – whose limits will be briefly detailed below – that, by both engaging with and acknowledging the significance of the techno-logically transformed nature of our contemporary lifeworld, opens up a path for the philosopher to reflect upon and think *through* technics anew.

2.3 A technical mentality: Towards a post-phenomenological path beyond the divide

In the preface to *The Phenomenology of Perception* the French phenomenologist Maurice Merleau-Ponty insists, against the tradition and Saint Augustine in particular,⁴⁶ that;

“Truth does not merely “dwell” in the “inner man”; or rather, there is no “inner man,” man is in and toward the world, and it is in the world that he knows himself. When I return to myself from the dogmatism of common sense or of science, I do not find a source of intrinsic truth, but rather a subject destined to the world” (1945/2012: lxxiv).

By encountering this insistence upon the worldly and situated nature of human existence in the thought of Merleau-Ponty and the tradition of phenomenology more generally, this philosophy and its methodology appears to be the most natural of allies, as well as an important source of inspiration and conceptual clarification, for the investigations, aims and aspirations that have so far been laid bare. But, while this is obviously partly true, there are nevertheless qualifications to this narrative that have to be called attention to, specifically when taking stock of classical phenomenology's approach to technics and especially its lacking grasp of the workings of specific technical objects and technologies. Before doing so, however, I would like to call attention to a crucial contribution made by phenomenology and its phenomenologists, which relate to that tradition's key concepts of ‘lifeworld’ and ‘being-in-the-world’. For when beings are related to their world, and bodies to the things that surround them, the approach of phenomenologists like Merleau-Ponty gives, in the Italian philosopher Roberto Esposito's words;

“the interchangeable object back its character as a singular thing. From this angle, when things are in contact with the body, it is as if they themselves acquired a heart, leading them back to the center of our lives. When we save them from their serial fate and reintroduce them back into their symbolic setting, we realize that they are a part of us no less than we are a part of them” (2015: 11).

Ihde calls this the “interrelational ontology” of phenomenology, which holds that “the human experiencer is to be found ontologically related to an environment or a world, but” according to which “the interrelation is such that both are transformed within this relationality.” Within the framework of classical phenomenology and as far as the writings of Edmund Husserl are concerned, “this is, of course, *intentionality*.” As Ihde makes clear, in “the context of [Husserl’s] *Ideas*, and *Cartesian Meditations*, this is the famous “consciousness of _____,” or [put differently, the thesis that] all consciousness is consciousness of “something” (2009a: 23). This is no doubt a central insight, and an important first step away from the dualistic and disengaged philosophy of the early modern period, but as far as technics is concerned Ihde contends “that the inclusion of technologies introduces something quite different into [the] relationality” that the phenomenological tradition as a whole, albeit with key differences between its various branches and historical expressions, is united in advocating for. Indeed, Ihde’s central suggestion is that technologies can be seen as “the means by which “consciousness itself” is *mediated*”, and that by playing such a role “may occupy the “of” [that characterizes our intentionality] and not just be some object domain” (2009a: 23). The inclusion of and emphasize upon technical objects and technologies in the general framework of phenomenology may, in this way, complicate its conceptualization of, as well as the methodology and focus it employs in detailing, the human-world interrelationship.

There are, however, crucial differences between the Husserlian account – and with it the classical conceptualization of the methodology and tenets of phenomenology – and the descriptions and conceptualizations one encounters in the writings of both Heidegger and Merleau-Ponty. Without going into these differences in any detail here, I will merely note that both these thinkers question and problematize to a varying degree Husserl’s phenomenology in regards to its usage of the terminology of early modern epistemology – such as the binary couplings of subject and object, internal and external, body and mind – as well as his usage of the notion of ‘ego,’ which relate to their critique of the lack of a sufficiently practical and situated description of our existence as being *in* and *of* a specific historical world (Heidegger) and the neglect of the significance of our own bodies in forming embodied relations with this world (Merleau-Ponty)⁴⁷ encountered in Husserl’s work. The very usage of early modern terminology could even be seen, as Ihde contends, as what ultimately “doomed classical phenomenology to be understood and interpreted as a “subjective” style of philosophy”, while also constituting a central factor in its initial neglect of the role of technics, and the peculiar absence of concrete descriptions of technical objects and systems within phenomenology more generally (Ihde 2009a: 9-10). For it is a known fact that as far as Husserl and classical phenomenology is concerned, one finds “few references to technologies at all.” Indeed, the closest Husserl “comes is in his recognition that measurement practices [lie] at the base of the origin of geometry” (2009a: 20); a recognition that was later emphasized by Derrida and Stiegler in their respective deconstruction and revision of Husserl’s description and conceptualization of internal time consciousness.⁴⁸

In regards to the neglect of technics within the framework of classical phenomenology it should be noted that this recognition of the technical origins of geometry is, on the other hand, as a part of the overall schematic of *The Crisis of the European Sciences and Transcendental Phenomenology*,⁴⁹ accompanied by Husserl’s analysis of the increasing “technicization of mathematical thought by algebra in terms of a technique of calculation” (IT1: 2). A process of *becoming technical* that

Husserl apprehended as beginning with Galileo and Descartes, and that he found to give “rise to an arithmeticization of geometry that [as Husserl writes] “leads almost automatically to the emptying of its meaning”” (TT1: 2-3, quoting Husserl 1936/70: 41). For in the case of the technical procedure of “algebraic calculation,” Husserl finds that “one lets the geometric signification recede into the background as a matter of course, indeed one drops it altogether; one calculates, remembering only at the end that the numbers signify magnitudes” (1936/70: 44-5).

This transformation of geometry through calculation subsequently gives rise to the wider transformation of the world in mapping out how things appear to us, since Husserl, as Stiegler summarizes, finds that “the technicization of science” – in blinding the scientist to the actual figures that lie behind *the formal abstractions* with which he or she calculates – will, in the absence of “a refoundation of rational philosophy,” lead “to the technicization of the world” (TT1: 3). And this because knowledge and science with the coming of modernity becomes subjected to a gradual domination by a technical procedure – by a calculating method – that gives rise to the technicization of thought itself, leading us away from the actual primordial roots of our knowledge found in the worldly engagements of everyday life (James 2012: 64). For Husserl, it is, therefore, ultimately a case of a pre-technical interiority or ideality – in this specific case mathematical thought, held to be anterior to the numerical, as being prior to the tools with which it thinks – that with the advent of calculation becomes subjected to a techno-logical projection and ordering. Husserl, in other words, thereby neglects his own recognition of the technical measurement practices found at the origin of geometry, since it is, as Stiegler argues, by way of *another* technical practice and procedure, namely calculation, thought of as the essence of modernity, that Husserl eventually locates what “drives Western knowledge down the path that leads to a forgetting of its origin, which is also a forgetting of its truth”, that is the “crisis of the European sciences” (TT1: 3).

One could argue, in this connection, that Husserlian phenomenology, in being a refoundation or “regeneration” of modern rational philosophy” with the explicit goal of establishing philosophy as a rigorous science (i.e. as transcendental phenomenology), can retrospectively be grasped as a response to this perceived crisis – as was noted, in a similar fashion, with regards to the philosophy of technology and philosophical anthropology in the prior section – and concordantly as a reaction to the increased dominance of technical procedures within the human, natural and social sciences, as well as the popularity enjoyed by positivist and naturalist metaphysics, over the course of Husserl’s career (Granel 1976: v, quoted in TT1: 4, and Husserl 1911/2003). Classical phenomenology took on the form of such a response by introducing an alternative approach and methodology that attempted to go beyond the calculative and technical procedures increasingly dominating not just the mode of research typifying the sciences, but also our everyday stance towards the world under modernity. An approach, which sought to transcend “the natural attitude” that Husserl found to characterize how we ordinarily and uncritically relate to things and events as facts, straightforwardly and self-evidently “there” (1913/82: 5). Relatedly, the modern scientist and the positivist philosopher described the world from “the natural theoretical attitude”, which, by sidestepping the question of how such a factual attitude was possible in the first place, made both blind to the presuppositions animating their own operations and empirical investigations (1913/82: §50).⁵¹ Hence, due to the perceived philosophical *naïveté* of both the modern sciences and our everyday

“natural” mode of being, the complexity behind the appearance of something *as* something – the intentionality of consciousness – was left critically underexposed. Seeking to rectify this state of affairs, the phenomenologist “brackets” (*epoché*) the presuppositions of this uncritical – and hence *unphilosophical* – attitude and thereby “suspends” his or her interested pursuit of concrete goals that structure the worldly engagements of our everyday lives. In this way, the phenomenologist embodies another and different attitude whereby, as Husserl describes, one stands “above the world, which has now become. . . in a quite peculiar sense, a phenomenon”, which opens up the possibility for an inquiry into *how* things first appear and are given to us in our lived experience, as opposed to an enquiry into *what* factually is located in front of us (1936/70:152).⁵¹ Phenomenology’s central credo of returning “to the “things themselves”” can be viewed, in this regard, as being aimed at precisely combatting the objectification or positivization of *what* appears – of avoiding turning things into *mere* thing, and by extension existential space into *container space* – that the process of technicization and formalization, by supposedly leading us to forget our origin and truth by blinding us to the transcendental conditions of our existence, were perceived to propagate (Husserl 1900/2001: 168).

The attempted regeneration of modern rational philosophy that Husserl sought to set in motion, and the manner in which this attempt was formulated and advanced, reflects the divide devised by Wilhelm Dilthey – a key influence upon Husserl and the phenomenological tradition in general⁵² – between *Naturwissenschaften* (the natural sciences) and *Geisteswissenschaften* (the human sciences) in the late 19th century (1883/1989). For while Husserl sought to transcend the limits of these two scientific cultures by establishing phenomenology as a “rigorously scientific philosophy” that critically questions the transcendental conditions and presuppositions that makes both scientific knowledge and the scientific perspective possible (1911/2003: 293). His project nevertheless emerges, as Roman Ingarden has observed, from out of his “critical attitude to European philosophy in its *factual form*” (1963/75: 8, *ea.*, see also SZ: 45-8). Husserl’s approach to technics does not, in this way, reflect upon the work – the technical operations – undertaken by modern-day technologies nor their materiality and specificity, which in turn makes an involved dialogue with the sciences found to be undergoing a process of *technicization* difficult to engage in (IT1: 3).⁵³ This neglect of and distancing from the technical and the factual, amounts to an exclusion of the technical aspects of technics from the descriptions of classical phenomenology, which is, ultimately, partially a result of the apprehension of this modern transformation as, first and foremost, a *spiritual* one and hence a phenomenon of *inquiry* for the newfound science of “spirit” (*Geist*). And not, then, in contrast, a transformation constituting a proper object of study for the then dominant hypothetical-deductive method, “self-interpreted along positivist lines from Comte to Carnap,” that was grasped as a totally different mode of *enquiry* aimed at observing our surrounding world of nature, which was seen as opposed and alien to, yet methodologically encroaching on the field studying, the meaningful human realm of culture and society (Ihde 2003: 18). As concerns my current endeavours, one can in this regard call attention to the fact that the approach of the *Geisteswissenschaften*, which Husserl and the classical phenomenologist can be squarely situated within, did not trade in the kind of *technicalities* that the predominantly German engineering philosophers of the late 19th and early 20th century – trained both in the tradition of the humanities *and* the natural sciences – emphasized and called attention to. Indeed, the German and Continental

scientific divide that Ihde refers to as “the Diltheyan divide” (2003: 17-8), which resonate in the British and Anglo-American “two cultures” divide famously described by C.P. Snow in the late 1950s (1959/2012), can ultimately be related to the long history of opposition and animosity between technicians and philosophers reaching all the way back to the origins of occidental philosophy – with Plato and Aristotle – as was detailed in the first section of this chapter.⁵⁴

Specifically, in Husserl’s case, one can trace such a relationship with the ancient paradigm to his thought that the process of technization, by demanding a calculative – as opposed to a reflective – engagement with the objects of scientific practice, produces a loss of memory that blinds the sciences of Europe, as noted above, to their own origin and truth, which the science of phenomenology sets out to describe and elucidate. This diagnosis echoes, as Stiegler remarks, “Plato’s *Phaedrus*” and its “staging of the conflict between Sophist and philosopher,” which pits the technical and “external” reminders of the former *against* the intellectual and “internal” remembrance of the latter, by holding that the process of becoming technical and operational – by being constantly reminded (*hypomnēsi*) – when succumbing to the blinding automatism of calculation “risks contaminating all memory, thereby destroying it” (TT1: 3).⁵⁵ For reasons such as these, Stiegler finds that Husserl’s “thinking about technological modernity and temporality mark the culmination of the history of philosophy’s repression of technics” and that, as such, has to be revised (James 2012: 65).

It is worth pointing out that Heidegger did not follow his mentor in seeking to refound rational philosophy, and hence did not adopt its terminology and operative dichotomies – not even in an attempt, like Husserl, at *inverting* their meaning – but opened, notably with the existential analytic of *Sein und Zeit*, for a deeper attention to, and engagement with, technics. That is not to say that the analysis of calculation found in Husserl does not find a resonance in the work of Heidegger – on the contrary, it is a crucial part of his thinking concerning technics, science and modernity. In certain respects, the student’s work even functions as a precursor to the late work of his mentor on this score. For as Stiegler notes “the technization of knowledge remains at the heart of the Heideggerian reflection on the history of being” which holds that “*ratio* [signifying *reason* as the Latin rendering of *logos*] appears, in its essence, to be given over to calculation” in the age of technology and modernity (TT1: 4-5). One can detect, in this connection, two levels of Heidegger’s reflection upon technics that roughly follow the common construction of an early and a late period in Heidegger’s thought. Levels that, moreover, as I will detail in the following chapter, constitute respectively the opening and subsequent closure for thinking of existence as primordially technical in the development of Heidegger’s thinking. For as was the case with Husserl, Heidegger’s thought is also grasped as constituting the culmination of occidental thought’s repression of technics by Stiegler. His writings, as with Husserl’s recognition of the measurement practices underlying the origin of geometry, offer, on the other hand, “resources for examining a more ‘originary relation between the human and the technical, *qua a phenomenon of temporality*” (James 2012: 65, quoting TT1: 43). Because of this, it becomes paramount for both Stiegler and Ihde alike, to revise and revisit the tradition of phenomenology, especially the writings of Heidegger due to the opening for thinking about the human-technics coupling – if not specific technologies and technical objects – in his early writings. An engagement, also due to the influence Heidegger’s thought has wrought by way of his status as “a major thinker at the origins of the late modern philosophy of technology” (Ihde 2009a: 20).

Before detailing Ihde's approach to revising phenomenology through a new attentiveness to technologies, and how it connects with Stiegler's project, I will note the significance of historical and technological changes in animating this development as one that takes place *after* phenomenology. For while it is obvious that Ihde's thought by passing through its conceptualizations, descriptions and general methodology "owes its roots to phenomenology", he apprehends his postphenomenology as "a deliberate adaptation or change in phenomenology that reflects historical changes in the twenty-first century." Now, while it is uncontroversial to state that philosophy is not undertaken in a bubble, as it is, by *taking place* in a world that shapes it, not beyond the influence of history. Ihde contends that philosophy is equally not beyond the influence of techno-logical transformations, as it is only through the technical means of any historical world that thought can come to *expression*. Philosophy, therefore, "changes or must change with its historical context" and ought to reflect upon its changing historical and *techno-logical* circumstances (2009a: 5). Ihde's attempt at reforming the framework of phenomenology, can, in other words, be seen to spring from out of the techno-logical transformations that have taken place since the early post-war era, most notably as an attempt animated by the revolutions in information processing technologies witnessed since then. Ihde, at any rate, finds these successive techno-logical transformations to be what "*produces* [his] attempt at modifying classical phenomenology into a contemporary postphenomenology" (Ihde 2009a: 8). Therefore, as was the case at the turn of the 19th century with the invention of the light bulb, the telegraph, the telephone and the cinematograph, we – with the inauguration and nearly global implementation of digital information technologies and the vast dissemination and ubiquitous presence of the "smart" devices that keep us connected to the interconnected networks of *the World Wide Web* – can be said to be experiencing a new *technological break* and epochal *disruption*. One that opens for a new reflection on the significance and role of the technical, as well as the material specificities of the technical objects and technologies that underline the specific techniques that currently characterize our everyday lives, having destabilized and disrupted the platform through which our lives previously were conducted and our conceptualizations – including the descriptions offered by classical phenomenology – were articulated.

It is in the context of such changes that we today are witnessing a rekindled emphasis on, and interest in, the workings and functioning of technical objects and technologies akin to the forgotten philosopher engineers of the past. A veritable "return of the repressed" can be said to have taken place where the pre-thinkers (*Vordenker*) of technics like Ernst Kapp are being, and have been, reread and afforded new attention, particularly within the distinctive field of German media studies. A process of rediscovery and reorientation that already began in the early seventies with the writings of the first Berlin school of media studies and a young Siegfried Zielinski, and that came to its possible highpoint with the second Berlin school and the hugely influential writings of Friedrich Kittler in the eighties and nineties, specifically with the book *Grammophon, Film, Typewriter* (1986/99, Ernst 2016b: 31-33).⁵⁶ With this work, and in light of the disruptive effects of the implementation and dissemination of information technologies experienced at the time, Kittler calls for a project that sets out to trace an ambitious "technical history of signs" in order to establish "an alternative 'media history of Europe'" (Sale 2015: 59 and Kittler 2009: 29). The tracing of such an alternative *techno-logical* media history signals a welcome and necessary departure from the *geisteswissenschaftlichen* route taken by the traditional humanities, as it

sets one on a path towards articulating empirical histories of technics by seriously engaging with concrete technical object and technologies in their actual active and “living” operations. An undertaking that could lead one to take a more nuanced, multidimensional position with regards to technics; one that is attentive to the technicalities of specific technical and technological objects, ensembles and systems, as well as the material conditions of their invention and development.

How, on the other hand, the technical and material relate to the existential and “spiritual” should also be taken heed of and be given sufficient attention if a unified approach to technics is to be established. An attention that neither the likes of Kittler nor Ernst provide, which is unsurprising given that neither of these thinkers see themselves as forwarding a unifying project or approach to questioning technics, with Kittler going so far as to state in the preface to *Gramophone, Film, Typewriter* that: “Media determine our situation” (1986/99: xxxix). Such a stance, as it echoes the technological determinism of the engineering approach, could lead to a neglect of the opposite end of the divide, namely of the cultural and the social, as it approaches technologies and artefacts in an explicit attempt, recalling the title of a work edited by Kittler in 1980, at expelling “spirit” or the human from the humanities (*Austrabung des Geistes aus den Geisteswissenschaften*).⁵⁷ For when technologies and artefacts are perceived through the “cold gaze” of Kittler’s *Medienwissenschaftler* or Ernst’s media archaeologist – both following the lead of modern day recording technologies like the photographic camera, specifically how such an archival medium captures “the past coldly” by chemically registering the physical traces of rays of light – it is a perspective embodied and advanced “in contrast to [the] painterly animation and historical animation” in whose warmth the humanities draws breath (Ernst 2013: 47, ca.).⁵⁸

While strategically effective in, empirically informative by, and scientifically and philologically⁵⁹ appropriate for grasping moments when media, most notably recording technologies, themselves “become active “archaeologists” of knowledge”, such a perspective does not, and cannot, constitute a unified approach to the question concerning technics, as it leaves the human, in Ernst’s case intentionally,⁶⁰ out of the equation (2013: 55). Left to its own devices such an approach would therefore amount to a positivizing of technics, resulting in a loss of “a broader sense of the existential stakes” involved in how the workings of technical objects and technologies “tie in with the form of life that is the human” (Mitchell & Hansen 2010: xiii-xiv). In doing so, it at the same time neglects the ways in which techno-logical structuration affects this form of life on a corporeal level by rejecting the prosthetic thesis that was briefly touched upon above with regards to Kapp and the ancient Greeks. For what is lacking is not just an *ethos* of implementation with a view towards a conception of the good life in a techno-logically configured and saturated world. A political problematization of how technical inventions inform larger socio-cultural structures, and the subsequent formulation of a veritable *politics of memory* through which those with the power to disrupt said structures are opened for critique, will not in and of itself be enough either (IT1: 276). For an attentiveness to the elemental and multifarious embodiment relations that are formed in the intertwining of beings with their world is absent, as these technicist thinkers do not and cannot describe *how* a blind man, for instance, perceives and relates to his milieu through the inorganic extremities of his cane, for which the descriptions of phenomenologists like Merleau-Ponty are rightfully praised (1945/2012: 153-5).

Nevertheless, the recent rediscovery of long neglected philosopher engineers like Kapp and the resurgence of

a technically attentive philosophy found with figures such as Wolfgang Ernst and Friedrich Kittler is a highly refreshing phenomenon. Since their narratives, and the technicist perspective they eminent from, run counter to not just the phenomenological approach of Husserl and Merleau-Ponty, but also the sociological approach dominant in the second half of the 20th century, which sprung chiefly from out of the critical theory of the Frankfurt School and especially the writings of Theodor Adorno. Whose emphasis on social concerns occluded, in part, a view of technics and technologies in their concrete technical workings,⁶¹ and lead, at least for a time, to a systematic neglect—even within Germany—of the materiality and specificity of technical objects and technologies, as Adorno’s sociological critique of mass culture and technological power proved increasingly influential throughout the post-war era (Ernst 2016b: 32).⁶² The textual or “linguistic turn” inaugurated by way of the hugely influential texts written by Jacques Derrida and other prominent poststructuralist thinkers at the close of the 1960s are also opened for critique in this regard, as they are found to insufficiently break with the perspectives operative within the traditional humanities. As one does not, according to Ernst and indeed Stiegler, encounter notable engagements with concrete technical objects and technologies over the course of their still largely handwritten pages (Ernst 2016b: 32-3, Derrida 2001/5: 20, Derrida & Stiegler 1996/2002).

Returning to the phenomenologists, it is important to note that while Ernst, Kittler and other prominent German media scholars, are highly influenced by figures such as Heidegger and the phenomenological tradition generally, their critique of this line of thought—and relatedly their critique of the deconstructionist, hermeneutical and Critical Theory traditions as well—revolve around what Kittler has called “the phenomenological circumvention of technology and science” (1996/2006: 47). For the phenomenological tradition’s attempt at protecting “the ‘spirit’ of the humanities from the encroachment of cybernetics” and Heidegger’s adoption of “an increasingly dismissive attitude towards actual developments in science after *Being and Time*” is related, Kittler finds, to what ‘phenomenology’ primarily signifies (Sale 2015: 53).⁶³ Which is, as Heidegger phrases it in his Freiburg lectures held in 1958, “a *methodological conception*” that does not “characterize the *what* of the object of philosophical research as subject-matter, but rather the *how* of that research” (2008: 50). This attitude towards the world, is thereby contrasted to enquires into the *content* of what is thrown-opposite us (*objectum*), which in being undertaken in order to attain “knowledge of the objective order” are characteristic of what Heidegger termed the theoretical attitude (*Theoretische Einstellung*). This being precisely, like Husserl’s construction of a “natural theoretical attitude” (1913/82: 5), a comportment towards things that the perspective of the phenomenologist was construed as being radically differentiated from, relating ultimately to the phenomenologist’s neglect of technics in its technical and material concreteness. This is so, moreover, since the increased dominance of the theoretical attitude, by being grasped by both Husserl and Heidegger alike as endemic to the forgetting of primordial and ontological questioning, was linked to a perceived technicization of thought and thinking itself towards the ontic, as was briefly touched upon above. But, while one by embodying such an attitude neglects to ask *how* we are always already involved in relations towards what appears before us, one has to ask: Is not a valuable insight gained when one, unlike the phenomenologist, goes beyond the *interface* and phenomenal *surface* of technical objects and technologies? When one, in other words, decenters the *face* and spirit of the human and focuses, instead, upon its operational opposite?

For while Heidegger never opened the cabinet of his Grundig music and radio apparatus, the technically attentive philosopher engineers inspired by his philosophy, have insisted on the necessity of doing so. Simondon must be emphasized as a key pioneer in this regard, as he was already in the 1950s removing both the concrete and abstract covers blinding philosophers to the ontological significance of the work of such things as the electron tube, which for the traditional humanities scholar was hidden, so to speak, echoing Hegel's phrase from *Phänomenologie des Geistes*, in "die Nacht der Substanz" or, rather, in "the inner night" of the machine (Ernst 2016a: 14-5).⁶⁴ While this certainly is not the case with the German school of media studies, such an undertaking could be construed as a revision of the framework of phenomenology, calling upon the phenomenologist and humanities scholar to include an emphasis – echoing the title of Simondon's doctoral thesis – on the mode of existence of technical objects, both in connection and contradistinction to human beings.⁶⁵ For a philosopher of technology is, taking Simondon as an example;

"also someone who thinks about the relations of thought – philosophical thought – to technology. It's someone who thinks technically, develops a technical thought, and practices a technical thinking. . . . A philosopher of technology would thus be someone in whom thought and technology enter into a relation, which would not leave the philosopher unaffected. A philosopher of technology operates, in other words, just as much on technology as s/he operates on thought, and on her- or himself. It's in this way that s/he can be said to develop something like a *technical mentality*" (De Boever 2014: 12, ea).

A philosopher of technology is, then, a thinker who breaks with the traditional confines erected between the theoretical and the practical, the transcendental and the empirical, and the respective attitudes (*Einstellungen*) found to characterize them. This entails a viewpoint that aims to transcend the disjunctive emphasis upon either the content of *what* is held before us as objects of use or *how* this placement is animated by an organization that counts as the condition of possibility for the concrete appearance of objects. A conjunctive perspective emphasizing the interrelationship between "the how" and "the what" might, in turn, lead one to entertain the possibility of another opening for questioning *who* we are as human beings, in which the philosopher – the one who questions and gathers meaning as traditionally embodying the human figure *par excellence* – is no longer curiously sanctioned off as being unaffected by techno-logical structuration.

In regards to phenomenology, this perspective entails that the role played by technics – by technical objects, ensembles, systems, and technologies – in making possible our acts of questioning and the means of their transmittance, and the way changes and transformations to our techno-logical structuration reconfigures the condition for and situation under which such acts of questioning and thinking are undertaken, has to be emphasized as significant for the essential and originary elements of the phenomenological method itself. Foundational elements that Heidegger detailed and summarizes as part of his lectures on *Die Grundprobleme der Phänomenologie* held in 1927, as follows;

"The conceptual interpretation of being and its structures, that is, the reductive construction of being, necessarily implies a destruction, or, in other words, a critical *de-construction* [*Abbau*] of the received concepts which are at first necessarily operative in order to go back to the source from which they were drawn. . . . The three fundamental elements of the phenomenological method: *reduction, construction and destruction* are intrinsically dependent upon one another and have to be founded in their mutual belonging together. Philosophical construction is necessarily destruction, that is to say, *de-construction*, brought about by way of a historical return to the tradition, *to what has been transmitted*; this does not in any way mean a negation of the tradition nor a condemnation obliterating the latter but, on the contrary, a positive appropriation of this tradition?" (GA 24: 31/1982: 23, quoted in Volpi 1988/96: 33, tm. ea).

To this outline offered by the early Heidegger there should be added a comprehension of how technics structure – as techno-logically *structuring* – the existential baseline of these three elements on the basis of being precisely what phenomenology returns to and what the phenomenologist employs in making this return; as being, recalling the topic of

section 2.1., the technical *hypomnēsis* that opens up the possibility for philosophical *anamnēsis*. Technics is, then, in brief, the *structure* through and with which *red-uction*, *con-struction* and *de-struction* is primordially opened and historically reconfigured. On the basis of this contention, ontology and phenomenology gains an ontic and material basis that *exceeds* what is traditionally understood as influencing the mind and thinking of the philosopher – the thoughts of his or her peers and the thinkers preceding his or her writings – that is traditionally studied within the history of philosophy and ideas. In this way this framework calls attention to the role and significance of technics and techno-logical transformations; of how, more specifically, the invention and implementation of, for instance, writing utensils, writing blocks, and written languages are not small historical events that merely alter the basis *on which* thoughts are expressed. For technical objects and systems are not *mere* means to be used in order to express what is originally hidden in an inner complex or depth. In other words, in being instruments technical objects are not purely *instrumental*. Rather, technics as being formative of our *equipmentality* or *instru-mentality* structure *how* thought thinks, while techno-logical transformations affect thinking by changing *what* thought thinks with and through. In this way, as will become clearer in the following chapter, “the head” or intellect of the philosopher is, so to speak, not outside the influence of his or her manual and technical “hand”.

Having investigated the divide between technicians and philosophers and the associated opposition between engineering and humanities philosophy of technology throughout the breadth of this chapter, and while doing so made the point that it obscures one from thinking about technics as being originally intertwined with human existence and thought, I find it pertinent to ask how one might actually go about reconciling this entrenched conflict and start working towards dissolving the deep-seated oppositions that animate them. For how can a philosopher engage with technics and develop a technical mentality? How can one avoid the traditional construal of technics as merely an oppositional and determining structure viewed up against the human and its cultures? Specifically, how can one accomplish this through phenomenology when the classical approach of its founder fails to adequately engage with concrete technologies and technical objects? How, specifically, are one to revise and refocus phenomenology as a post-phenomenology in light of our contemporary technological condition and the transformations that mark our epoch and historical lifeworld?

The development of a thinking concerning technics that goes both through and beyond phenomenology is one that Ihde finds to have taken place over the course of the last thirty years or so with the “empirical turn,” evident as he sees it, first and foremost, within American philosophy of technology, which due to its increasing influence, in turn, has gradually shifting or “turned” the paradigm operative in the field as such towards empirical engagements (2009a: 20).⁶⁶ This development or “turn” has three central characteristics or steps. Firstly, the attention of the philosopher of technology shifted from an emphasis upon technology *as such* and the transcendental conditions underlining the coming into being of technics, towards an empirical engagement with concrete technologies and devices. Secondly, the romanticism or nostalgia typical of the classical approach to technics – embodied in the traditional humanities approach – and its subsequent pessimistic or dystopian interpretations of technics were rejected in favor of a descriptive approach to new techno-cultural constellations and human-technics compositions. Third and lastly, one moved away from taking technical objects and their evolution for granted, and rejected the notion of an entirely autonomous general figure

referred to under the ambiguous general term “technology,” opting, rather, for analyses of the specific developments and transformations of concrete technologies and technical objects. Identifying in the process various actors and social forces implicated in their eventual formation and implementation, this approach resulted in an advocacy for the thesis that technics and society co-evolve (2009a: 21-2). Crucially, for Ihde these steps entail that the philosopher of technology is lead to “step away from a high altitude or transcendental perspective” towards “an appreciation of the multidimensionality of technologies as *material cultures* within a *lifeworld*”, which constitutes a step, as he sees it, towards “the style of much “science studies,” which deals with case studies” (2009a: 22).⁶⁷

One way for the philosopher and humanities scholar to respond to the contemporary technological conditions under and through which we currently live would be, then, to undertake descriptive and empirical case studies of specific technical objects, technologies and technological developments, as well as analyzing how these technical matters play into and affect societies and social developments.⁶⁸ However, the postphenomenological approach sketched by Ihde, by predominantly opting for such concrete engagements rather than the high-altitude perspective of the traditional humanities, could risk narrowing the philosophical field of practice and research as far as technics is concerned. Indeed, this approach and its case studies, if taken to be squarely *opposed* to transcendental questioning by being named both a “nonfoundational *and* nontranscendental phenomenology”, could ultimately signal an abandonment of the wider project of making philosophy come to terms with its own technicity and historicity (Ihde 1993: 7, ea). For with his embrace of the case study, Ihde arguably embodies the theoretical attitude (*Theoretische Einstellung*) that, as was detailed above, typifies the engagement with things characteristic of not just scientific practices, but also, one could argue the sciences studies that Ihde seeks to emulate, which are first and foremost associated with the tenets laid out by Bruno Latour and actor-network theory. This shift of emphasis and focus away from the transcendental is related to an appeal to utility made by Ihde in regards to his critique of Heidegger’s perspective and construal of a non-technical essence of technics. Specifically, as an approach whereupon “*every technology ended up with exactly the same output or analysis*”, which, therefore, in line with Ihde’s general pragmatism on these matters, is *useless*, since “it has *no utility*” (2006: 271, 272).

Now, while this certainly is a valid and important point – it being hard to argue against, for instance, Graham Harman’s similar critique that “the problem with [Heidegger’s] analyses is not their pessimism, but their monotony” (2009: 112) – Ihde’s alternative suggestion could, on the other hand, fall prey to a myopic presentism, especially when viewed up against the current hostile climate – critically so, as far as the humanities are concerned both within and outside of the university – towards speculative thinking. The current demand for impactful research, whose impact has to be both measurable and utilizable as it is to be measured and utilized in the short term, by and within societies and economies driven and steered by the logics of late capitalism – by, in other words, neoliberalism – is especially toxic in this regard. As such logics of calculability, efficiency and profitability endanger the longer circuits – the deep-historical trajectories – of speculative thought, now at risk of being short-circuited, especially within such “applied” fields as the philosophy of technology.⁶⁹ In this connection, while he shares Ihde’s critique of Heidegger’s essentialism in regards to technics, Stiegler does not, for that reason, reject a more general – in his case, like Derrida, a quasi-transcendental (Roberts

2005) – perspective when detailing the interrelationship or intertwinement of humans with technics. On this score Stiegler and Ihde do in fact part ways quite profoundly (Preester 2010: 342). Leading some commentators of the former to describe his thought as post-phenomenological (with a hyphen) – as passing through and coming after the tradition of phenomenology – in contradistinction to the prior elaboration and specific makeup of the general tenets of postphenomenology formulated by the latter (James 2013: 77 and Crogan 2014: 89).

For, while Ihde holds that his postphenomenology – as “a non-subjective phenomenology” attentive to the materiality of concrete technologies – seeks to explain the interrelationship of humanity with technics as one that goes “all the way down” (2010b: 45). He nevertheless lacks, as Dennis Weiss has argued, a proper engagement with philosophical anthropology (2008), which is partly due to his naturalistic reluctance to fully partake in speculations regarding the transcendental and deep-historical role of technics and what that might mean for the human. Ihde could, in this connection, be seen to insufficiently *inquire* into whether and how, in line with Heidegger’s philosophy, ontic technical objects and technologies can be said to “mediate” on an ontological level how being reveals itself to us. For the attitude Ihde takes towards the world in his enquires into specific technologies and technical object, specifically by approximating “the theoretical attitude” as described by Heidegger, he takes on an attitude that “phenomenology cannot assume”. Phenomenology, both classical and post, cannot arguably be understood, in this connection, “as a theoretical science regarding a specific domain of objects, since it simultaneously investigates the relation that has to be enacted in order to make objectivity possible” (Zwier et al. 2016: 323). Focusing upon concrete technologies and technical objects, which the empirical turn calls for and the methodology and practice of Ihde’s postphenomenology adheres to, is arguably insufficiently empirical in this regard, at least if its case studies were to stand on their own, for to be empirical;

“in the phenomenological sense would mean to take heed of what is most nearby, which is to say of the relation between being and thinking that is usually overlooked and taken as self-evident. This gives rise to a question that takes inspiration from both postphenomenology as well as Heidegger, and involves a renewed encounter between the two. On the one hand... *postphenomenology is susceptible to the critique that it is not sufficiently empirical, since it overlooks how its own method is technically mediated.* On the other hand, *we can adopt (but must also adapt) a postphenomenological line of inquiry and ask whether Heidegger takes sufficient consideration of concrete artifacts* (Zwier et al. 2016: 330, ea).

One could, then, respond to the criticisms raised by the postphenomenologists by arguing from a Heideggerian perspective that their approach neglects, like the attitude of the scientist and technologist critiqued by the classical phenomenologists, to sufficiently account for *how* their investigations and questionings of specific technologies and technical objects are made possible in the first place. In stepping out of the *useless* domain of classical philosophy, the postphenomenologist, as he or she moves ahead at a heightened pace with the hope of becoming *useful* in a world accelerated by technological means, could risk neglecting to adequately reflect over his or her own position and the condition of possibility from out of which his or her case studies are conducted. In the pursuit of *utility* the *uselessness* at the heart of traditional philosophical self-reflection could, in other words, be lost from sight, which would constitute an unfortunate blindsight towards one’s own practice. However, on the other hand, it is equally clear that the transcendental route, here associated with Heidegger, cannot and should not be left to its own speculations, as this would risk embodying a comparatively “useless” hyperopic distance towards material, empirical and political realities that we are currently faced with and that have characterized our collective past. For the transcendental has to be weighted up against

the realities and modes of existence of the concrete technical objects and technologies animating our political moment and the contemporary configuration of our everyday, as it is these technicalities that initially open up the space of possibility animating the thought of both classical and post-phenomenology. It has to, in other words, be viewed up against the technical nature of our social memory, in such a way that one does not, in line with Ihde's suggestions, "avoid looking, phenomenologically and empirically, at specific technologies," and, in turn, avoid the traditional construal of "a "one-size-fits-all" essence of technology overall" (2012: 330). Only by so doing, I would argue, can the philosopher of technology work to attain what Simondon called a technical mentality, operating just as much on thought as on technology. The German philosopher Max Bense aptly captures the sentiment animating this position when he writes that: "We must interpret, describe, explain, depict, represent, express, evaluate, affirm, and negate the things that we are suspicious of and that should be familiar, habitable to us". Bense goes on to suggest that such a critical and attentive practice concerning technical objects, technical systems and technologies "is the only way to evade their oppression" and one could add, echoing Simondon, that this also constitutes the only path forward for giving technics its due place in the world of meaning and culture, specifically by, on the basis of such descriptive scholarly practice, establishing a politics of memory, as Stiegler has been a vocal advocate for (Bense 1998: 124, quoted and translated in Hörl 2015: 6, TT1: 276).

In light of the existing delineation of the field one could, however, question whether or not labelling Stiegler a philosopher of technology is a mistake, at least if this designation is understood narrowly as consigning Stiegler to be indexed as a contributor within a neatly compartmentalized and delineated field. For while Stiegler's philosophy obviously relates to questions raised within different approaches to the philosophy of technology – like the postphenomenological approach of Ihde – and indeed constitutes an important contribution to such a field, categorizing his thought, contribution and project as a philosophy *of* technology could risk misconstruing "the scope and ambition of the *Technics and Time* trilogy taken in its own right and, more generally, that of his increasingly prolific output" (James 2012: 61). A scope that, in fact, explodes the boundaries often erected to specify and delimit the questions raised by and within the field (Smith 2013: 96). I would suggest, that this necessitates, not that Stiegler's thinking should be categorically differentiated from the philosophy of technology, but rather that this field as it is currently delineated should broaden its horizons in order to fully encompass the scope of the question concerning technics and the many ramifications that results from truly thinking through how thought is only possible through what does not think, namely technics.

Such a unified approach to technics, as I have sketched it here, resonates with the media aesthetical approach of Norwegian media scholar Liv Hausken. Specifically, with her attempt at establishing a perspective that transcends the divide operative between explorations of media and technology that emphasize, on the one hand, the experiential dimensions of such objects and structures and those that, on the other, excavate the non-human technical logics (techno-logy) of their operations;⁷⁰ a perspective that, in turn, necessitates a radically multidisciplinary research agenda (Hausken 2013). Stiegler's philosophy offer a fruitful conceptual framework and institutional response, if not a proper phenomenological practice, for both justifying and commencing with such communal work, as I will now briefly elaborate upon, while also noting a few consequences of embodying such a perspective on and approach to technics as

concerns the praxis of philosophy, and the location, role and situation of the philosopher in regards to such matters.

Firstly, however, I will detail Ihde's vision for the philosopher of technology, who he believes should embody what he calls the research and development (R&D) role and locate him- or herself "in the equivalent of the officers' strategy meeting, before the battle takes shape" (Ihde 1999: 46). The philosopher should, in other words, be where "technologies are taking developmental shape," specifically he or she should be found "in think tanks, in incubator facilities, in research centers." For only "then can truly "new" and emerging technologies be philosophically engaged" (2012: 332), and a thinking concerned with future developments, and not just the "past or actually in-place phenomena" be articulated according to Ihde. Such a deployment of the philosopher of technology does not exclusively focus, as the typical mode of the applied ethicist, on determining "what is the best allocation and fairest distribution of systems already in place or of effects already established", but aims, rather, to transcend this applied position, which is found to perform, in effect, a "triage or ambulance corps" job after the battlefield is already strewn with the wounded and dying" (2003: 7). The general point being that philosophers of technology, and philosophy more generally, "may come "too late" to technologies" as they "too often undertake their reflections *after* the technologies are in place" (2012: 332). In short, according to Ihde, philosophers come too late to the game for their contributions to be predicatively useful and effective in matters concerning technics. This call for engagement with technologies and, crucially, the techno-scientific community, echoes Ihde's critique of the traditional humanities as offering – in the case of Heidegger and others – more often than not, useless and monotonous analyses as far as specific technologies are concerned, which leaves much to be desired in terms of opening up and seizing upon routes for action and intervention. Stiegler can, in certain respects, be seen to construct a similar role for the technologically attentive philosopher, albeit the differences between the two are, as already indicated, quite deep and ultimately, quite revealing as far as the role of the philosopher is concerned.

Identifying himself as an activist and "his philosophy as a politically activist thinking committed to uniting thought with struggle and actions" (James 2012: 77), Stiegler describes his own philosophical practice as one that is "*boning weapons*" by assembling "an *arsenal of concepts*" from out of the increasingly vast network of questions he pursues; intending in doing so, that his books "*assist in conflicts*" animating our political moment and contemporary situation (2005/15: 2). The conceptual weapons, initially forged in his *Technics and Time* series, form the philosophical impetus from out of which he, over the course of the last decade, has established a technical research center (*Institut de Recherche et d'Innovation* (IRI) founded in 2006 as part of the Centre George Pompidou's Department of Cultural Development), a political association (*Ars Industrialis* founded in 2005) and an open-access school (*Ecole de philosophie d'Epineuil-le-Fleuriel* founded in 2010). These initiatives reflect a stance towards research and education that, in a twofold manner, seek to transform our contemporary reality, while simultaneously generating knowledge of such transformations (Pene et al 2014: 59). Stiegler's later work, specifically after 2005, has embodied, in this connection, an action research approach, whose practice differs in certain respects from the classical academic activity of research, as well as from the more foundational perspective of his earlier publications (2012b: 17 and Crogan 2010a: 134).⁷¹ For with regards to technics and the contemporary technological formation, Stiegler holds that one cannot fully grasp what is at stake nor eventuate

transformations of the status quo if one – even as a philosopher – does not also engage in the actual production of technological structures; if one does not, for instance, as Stiegler does as part of his work at IRI, develop software and technical platforms in collaboration with industrial companies and public institutions. There is, in short, no “outside” position as far as technics and technologies are concerned. As Stiegler writes, in accordance with his own terminological preferences: “It is impossible to ‘know’ individuation. . . without *pursuing* this individuation, without *transforming* it, for example in inaugurating thereby a new attitude, which is philosophy through acting?” (2009: 6).

The researcher and the research he or she undertakes is, in other words, implicated with, embodied in and affected by the technical means – the techniques, technical objects and technologies – that he or she thinks *through*. Transformations of the technical and techno-logical infrastructure or platform through which thought, both scientific and humanistic, is opened up and made possible, does have a decisive impact upon research according to Stiegler. Such transformations should not, then, be left to the machinations of corporate market forces and the strategic maneuverings of global information-technology firms, such as Apple, Facebook or Google, which seek to maintain and enlarge their monopolistic dominance (Smicek 2017). But are, and should be understood as being, the site of political struggles that even the philosopher has to attend to, and concerning which Stiegler hopes to mount institutional responses; both by way of his own initiatives – both educational and industrial – and by assisting and influencing public institutions and NGOs at the national, continental and global level (Stiegler 2013b and Pene et. al. 2014). For if the university, and in this context the philosopher of technology, does not produce and propagate knowledge of new technologies, particularly the digital information technologies dominating our contemporary cultural and social existence, a gap emerges – whose emergence is related to the gap between the cultural humanities and the technical sciences noted by Yuk Hui and cited above – that the market inevitably comes to fill; a market, which does not have the collective interest in mind, which is not motivated by a political project or reason, but that is animated and driven, rather, by the prospect of private gain and capital profit, which propagates the exploitation of human beings and the deindividuation of persons and societies.

Ihde’s vision for the philosopher of technology, and indeed his practice as one, does not, in comparison, adequately problematize and draw attention to the political aspects underlying both matters of technological change in general and specifically the questions he himself raises. His own practice as far as technological production is concerned links up, in this connection, with existing research agendas, and hence more or less uncritically aligns itself with the technologists’ unfortunate ties to monetary and private interests, which are habitually passed over when emphasizing the specifics of technologies to the neglect of the realities and existences they are seen to “mediate”. Alternatively, one could forge new associations, build new institutions and form new research agendas from out of a political and ethical motivation and reasoning, cultivated on the basis of the act and produce of critical and speculative thinking undertaken by the philosopher of technology as envisioned by Stiegler. Indeed, viewing “a philosophical *xyning*” as “necessarily *also* a *doing*” – *theoria* as “always also a *praxis*” (2003/09: 6-7) – and philosophy “as an act that must always engage the collective to which the philosopher belongs” (Crogan 2010a: 135), Stiegler goes so far as to state that philosophical discourse that fails to undertake such an engagement constitutes, ultimately, “nothing but chatter.” While certainly overstated and

polemical, this sentiment reflects Stiegler's view that "[t]he question of philosophy is first of all that of *action*" and its practice therefore irreducibly performative and political; a performance that, moreover, is conditioned by the technical instruments with which acts of thinking are accomplished (2003/09: 7). One route of contribution opened to the philosopher in relation to technics, and especially in relation to the technologist, after having been thoroughly situated in relation to the means with which he or she thinks, is arguably, then, as Ducassé somewhat archaically phrases it;

"to extract the simultaneous meaning of man and his technicity from a brief and sometimes furious contact with technicist transformations and human contradictions; the meaning both of man and of his technicity. Delivering the latter once and for all from the silence of abstract controls, philosophical genius proffers a militant and painstaking analysis in place of the deceptive harmony in impersonal organizations" (1958/2014: 36).

In regards to such a role and ideal for the philosopher of technology, the postphenomenology of Ihde – if undertaken in exclusion of, and in opposition to, a broader speculative view and a committed political and ethical standpoint – is in danger of narrowing the scope of the philosophy of technology to that of an *enquiry* into specific and concrete technical objects and technologies and their uses. And could, in so doing, tend to habitually neglect the background conditions of these technologies, including the political and ethical aspects of technological changes and transformations; not to mention the techniques that go into any grasp of what constitutes the good life; of what – echoing the title of a recent publication of Stiegler's – ultimately makes life worth living (Stiegler 2010/2013, Zwier et al. 2016: 331). Such inquiries call for, and indeed require, a more political route, which is willing to construct speculative narratives and trajectories.

However, against Stiegler and with Ihde, I do, on the other hand, find the former's engagement with concrete technical objects and technologies, as evidenced by way of both his philosophically foundational writings such as his *Technics and Time* and *Symbolic Misery* series (2004/14, 2005/15), and his more recent political and activist publications, to be severely lacking. For while his conceptual and philosophical framework is worked out through an engagement with phenomenology, hermeneutics, and philosophers of technology such as Gilbert Simondon, Stiegler's appropriation and critique of these thinkers and traditions is not accompanied by a reformed attentiveness towards the specificity of concrete technical objects and systems. For, while such attentiveness is indeed called for on numerous occasions throughout Stiegler's writings, one nevertheless does not encounter many, if any examples of it being practiced in them (see Gratton 2014). This is arguably a result of Stiegler's deeply Heideggerian perspective, which focuses upon upon "the always already," and as such tends to privilege the origination of general processes and modes of being over and against the specific configurations and transformations that these processes, modes and beings have gone through. What, in other words, is weighted as philosophically pertinent in Stiegler's manner of argumentation appears, therefore, to be merely the start and endpoint of a technical and historical trajectory, and not, then, a careful retracing of the many singular epochal configurations that lie between them. In fact, one can detect a certain impatience with genealogical and historical work in Stiegler writings, which is deeply ironic as his philosophy necessitates the carrying through of an involved dialogue between, most especially, the study of the history of technics and the history of thought. This is a necessity, moreover, since Stiegler, by way of his appropriation of Leroi-Gourhan's palaeoanthropological thesis on hominization, holds that *anthropogenesis* is equiprimordial with and mutually constitutive of *technogenesis*, as I will be detailed in the next chapter.

What, in other words, I am arguing for is that Stiegler's perspective ultimately tends to follow the traditional emphasis upon technics in the singular, indeed technics *as such*, over and against the multiplicity and multidimensionality of technics in the plural, which the tenets of his thinking in fact criticize. For while Stiegler in no way takes the evolution of technical objects for granted, and profoundly rejects the thesis of a homogenous and entirely autonomous general figure of "technology" held by such philosophers as Jacques Ellul (1954/64). He does, nevertheless, tend to neglect to identify the role played by the technicity of, for instance, such contemporary devices as the touchscreen smartphone, and the specific political actors and social forces involved in its implementation and our adaptation to it. In light of this, Stiegler does not to a sufficient extent step down from the "high altitude or transcendental perspective" of the tradition, which having taken the view from above, so to speak, has precisely levelled down the differences between specific technical objects and epochal techno-logical frameworks (Ihde 2009a: 21-2). But, one might object, is not the absence of such engagements and phenomenological descriptions in Stiegler's writings perfectly excuseable due to the division of labour between technicians proper and scholars within the humanities? For what is actually gained from such concrete and empirical engagements, and could one not merely appropriate the work of other disciplines and fields of study in this regard? Why, in other words, should the philosopher understand technics *in concreto* and not just in the abstract?

Well because, as I have argued throughout this chapter and will elaborate upon in the following, the philosopher, like any other existant or human being, is not situated outside of techno-logical structuration, indeed thinking itself constitutes a technical practice that is made possible by certain mnemotechniques and certain technologies of memorization; such as the practices of writing and the mnemotechnologies of written languages. This position holds, in fact, that transformations and disruptions of the techno-logical baseline structure deeply affect how we are thinking, what we are thinking about, and indeed even who we are as thinkers. The concrete development of critical tools for critical thinking is a process, then, that the philosopher of technology should, therefore, take part in. And by so doing, he or she would work towards practically breaking down the traditional lines of demarcation that opposes and separates critical thinkers from technical workers, philosophy from technology, and *epistēmē* from *tékhnē*. Today it is, therefore, a matter of establishing such research initiatives as, for instane, the *digital studies* practiced at the *Institut de Recherche et d'Innovation* (IRI), with the aim, as the institute states as its overall intention, to participate;

"in the development of new forms, devices and technologies to address the public, to facilitate contributions and collaborative critique; to provide solutions for editorial and social interaction in the domains of culture and knowledge. To achieve this, IRI both theorize and formalize the relevant technologies and the social practices they induce, as well as develop contributive applications, especially in and around the cultural, research and education domains, but also more generally as technologies for amateurs."⁷²

The research program laid out by this centre is admirable, and indeed sorely needed when tackling the current state of the university, as well as the space of possibility opened for public discourse, in regards to contemporary information technologies and how they are currently implemented and exploited by private interests. While this centre is founded, and previously lead, by Stiegler, the attentiveness towards, and engagement with, specific forms of hardware and software evidenced by the centre's various projects, is absent, at least in part, from his theoretical and philosophical reflections. If, however, the philosopher should cultivate a technical mentality, as envisioned by Simondon, then this

apparent division of labour between what Stiegler does as a critical thinker, specifically the focus and perspective of his works in philosophy, and what is undertaken by the initiatives he has been pivotal in establishing, would have to be problematized and a balance would subsequently have to be established. In this regard, opening a dialogue between the thought and practice of Stiegler and Ihde would constitute a step towards establishing a post-phenomenological path beyond the divide running throughout the history of occidental thought between technics and philosophy, and their respective figures and practitioners, namely the technician and the philosopher. Such a dialogue would, moreover, also be helpful in finding common ground between Anglo-American and French philosophies of technology.

In summary, then, while his critique of Heidegger's and in general the humanities tradition's neglect of the specificity and materiality of concrete technological structures is necessary and important, and relate to the critique I will forward in the following chapter, Ihde, by not adequately engaging with such questions as concerns the originary intertwining of human beings with technics – by, in other words, neglecting to take heed of the relationship between philosophical anthropology and the question concerning technics – risks passing over the wider picture of humanity *and* technicity. A state of affairs that also leads to the absence in Ihde's writings of a critique of the position of the philosopher as traditionally being situated as the human *par excellence* by transcending the bodily and technical aspects of existence. In other words, the narrow emphasis on *what* concrete technologies do could, ultimately, put one at risk of neglecting the question concerning *how* such an enquiry is at all possible – an inquiry that characterizes philosophy as phenomenology according to Heidegger (2008: 50) – that in turn could lead one to pass over the question concerning *who* is raising both of these questions; the figure of the philosopher and the human. A critical engagement with both the concepts of the human and the technical is necessary, then, in order to properly readdress the question concerning technics as it appears to us through the contemporary technological formation. The lack of a phenomenological attentiveness to concrete technical objects and technologies, and the carrying out of phenomenological descriptions of them, that one encounters in both Stiegler's early and more recent work was, however, found to necessitate the opening of a dialogue with, and indeed a partial move towards, the practice of Don Ihde as concerns the philosopher of technology's grasp of the specificity of technical objects and technologies. What is needed, in other words, is a unified approach where the perspectives of the engineering approach, and its contemporary transformation in German media studies, and the humanities approach, chiefly that of phenomenology and hermeneutics, are brought together. Such a unified approach and perspective is, at any rate, what I understand to be the promise of a post-phenomenological path capable of moving beyond the divide operative between the two approaches, one that, moreover, works to mitigate the antagonism and opposition still in place between technicians and philosophers; between technics and thought. This being an opposition that, as I have detailed, is deeply related to who we still understand ourselves to be as human beings.

3 The hand of technics: Rewriting philosophical anthropology as a philosophical techno-logy

“Every technical gesture engages the future, modifies both world and man, as the species whose environment that world is. The technical gesture does not exhaust itself in its utility as means; it leads to an immediate result, but also provokes a transformation in the environment, which rebounds onto living species, man included.” Gilbert Simondon (1965/2015: 19).

After having outlined a path forward for the philosophy of technology in the form of post-phenomenology and detailed the ways in which the occidental tradition has habitually passed over and neglected to question the role and significance of technics, having devaluated the technical from the very start, I now turn towards the main figures in my argument for a new approach to thinking about who we are and what makes us who we are as human beings. Now, while laying the groundworks for such an approach throughout this chapter I will also, specifically by focusing upon Heidegger’s contribution to questioning technics in connection, but nevertheless not in conformity with, the reading given of it in Stiegler’s early writings, work to further problematize the ways in which philosophy has traditionally both questioned and conceptualized the relationship between the human and the technical. In this regard, the proceeding chapter asks if one can establish a philosophical anthropology that avoids the pitfalls of both anthropologism and rationalism, and hence contests and combats oppositional and binary thinking, while still giving expression to the singularity of human existence. The “contestation of oppositions must not”, then, as Stiegler asserts, “eliminate the genesis of differences” (IT1: 163).

In the following section 3.1 I will offer a reading of the existential analytic of the first division of *Sein und Zeit* and in particular the third chapter entitled “*The Worldliness of the World*” (SZ 1927/2010: §§14-18). I will thereby relate the existential analytic and its thematization of techno-logical structuration to questions faced by philosophical anthropology and argue that Heidegger’s early thought constitutes an opening for thinking of existence as originally technical; an opening that prefigures, as I see it, to a large extent the main charge of Stiegler’s account in *Technics and Time, 1*. In section 3.2 I then radicalize what I find to be an underdeveloped sketch in Heidegger’s early thought by situating his existential analytic up against the empirically researched narrative on hominization offered by the French palaeoanthropologist André Leroi-Gourhan in his two-volume work *Gesture and Speech* (1964/93), specifically as it is read and appropriated by Stiegler. In this connection, Heidegger’s understanding of “primitive” Dasein will be criticized in relation to the central thesis of Leroi-Gourhan’s palaeoanthropology and Stiegler’s philosophy, namely that an exteriorized technical memory characterizes and differentiates the form of life that we call human. Section 3.3 turns to the late Heidegger and criticizes both his insistence upon the non-technical nature of the essence of technics and his related call for a disengaged role for the philosopher in regards to matters concerns techno-logical transformations. I will argue, in this regard, that a shift has taken place, or at least a specification of an earlier ambiguity, from the promise of Heidegger’s early *descriptions* to the *judgement* of the logic of modern technics encountered throughout his writings after the turn (*die Kehre*), specifically from the early 1930s and onwards (see GA 9/1993: 231-2). The emphasis upon the mundane and everyday in his early period has, in fact, been replaced by a totalizing perspective upon technics as a *metaphysical instrumentarium* in his later writings, resulting in an idealization of “the hand” of the artisanal craftsman. The question arises, then, whether or not there is

anything left worth salvaging from his later writings when rethinking the coupling between existence and technics.

Now, over the course of this third chapter I will, in other words, engage at length with both the early and late thinking of Heidegger. In connection to his controversial status and questionable reputation in light to his political association with Nazism in the 1930s and his explicit antisemitism, I would, therefore, like to clarify some of my reasons for doing so. Firstly, I find Heidegger's enormous influence upon modern philosophy of technology, specifically as concerns his understanding of the relationship between technics and the human, to necessitate such an engagement, especially if a unified approach to technics is to be established (Ihde 2009a: 20). Secondly, by engaging with both his early and late thought the differences between the engineering and humanities approach to the philosophy of technology can be more concretely spelled out, since Heidegger's thinking implicitly problematizes both these approaches and cultures. Thirdly, Heidegger's relevance for both the positive and negative aims of Stiegler's philosophy and project with his *Technics and Time* series makes his thinking hard, if not impossible, to avoid. Fourth and lastly, by engaging with Heidegger's early work I will attempt to further situate both Stiegler's and my own endeavours in regards to the traditions of hermeneutics and phenomenology, and in the process also further my argument for a methodological limit within the latter tradition, which necessitates a move beyond it, specifically towards a post-phenomenological approach.

For in contrast to the thought of the late Heidegger, Stiegler's philosophy, by building up and radicalizing aspect of the early Heidegger and by emphasizing both the practical and technical, gives weight, as I will argue in section 3.4, to the *technicity* of our everyday being-in-the-world. My overall suggestion being, in this regard, that his philosophy is able to clear a new path for philosophical anthropology by way holding that *anthropogenesis* coincides step by step with *technogenesis*, and hence that the *anthropos* is intimately intertwined with technics. This position bears, moreover, the promise of reframing philosophical anthropology as "a philosophical techno-logy", understood here as a *logos* of *technē* (Stiegler 2013: 164, tm.). In the process of forwarding this argument I will call attention to how technics has always been intertwined with knowledge, language and humanity, and the conditions underlying the very possibility of formulating and grasping such concepts. Section 3.4 will, in this connection, summarize the promise of Stiegler's philosophical techno-logy by retelling the ancient Greek myth of Prometheus and Epimetheus – his lesser known and often forgotten brother – as it holds a central place in Stiegler's early philosophy. A myth and a retelling that I comment upon, as it concerns what Stiegler finds to be the originary forgetting of technics and the technological means of remembrance – that itself, like the figure of Epimetheus, is forgotten by the occidental tradition – over the course of the closing pages of this chapter.

Before heading down this path for thinking, however, I would like to briefly point out how my endeavours differ from Stiegler's own, whose reading of and chosen emphasis upon Heidegger's writings differ to a significant extent from my own. Firstly, since his reading is given in relation to his overall argument it is undoubtedly somewhat hasty at times. Notable, in this regard, is his critique of the early Heidegger's understanding of the instrument and "the hand" in *SZ*, which I find to be overly harsh and one-sided. Secondly, my reason for engaging with Heidegger and Leroi-Gourhan differ to a not insignificant extent from Stiegler's, as I am interested in questioning, in distinction to Stiegler, the role of the philosopher vis-à-vis the technician, due to my argument that mitigating the divide operative between them is

an essential part of the task of rethinking technics and human existence. Thirdly, I will argue that Stiegler's attentiveness to the concrete and specific falls short in a manner highly similar to Heidegger's own shortcomings. In brief, I argue that the former inherits the latter's distanced, formal and heightened perspective, which is epitomized by the refrain of "the always already" common to both philosopher's writings. Fourth and lastly, I will suggest in closing that this fault of Stiegler's approach, namely that it does not criticize and step out of the perspective of the classical philosopher, necessitates a move beyond it in order to establish a post-phenomenology truly capable of thinking *through* technics anew.

3.1 The early Heidegger: Technics and 'the hand' in *Sein und Zeit*

As is well known the practical life of the everyday and its object-oriented practice occupies a central place in Heidegger's complete corpus of works, but in the existential analytic of *Sein und Zeit* (1927/2010)¹ its significance is perhaps most prominently emphasized, in that our primordial way of being-in-the-world as existents is traced to the everyday way in which we take care of our always already given environment (*Umwelt*). Now, in making the point that Heidegger's early thought opens up the possibility for thinking of humanity as originarily technical, one has to call attention to the fact that the early Heidegger avoids speaking of 'the human' and 'humanity' directly. Opting instead for the term 'Dasein,' which in the German vernacular signifies quite simply 'existence,' while a literal translation would render it, more in keeping with Heidegger's strategic intentions, as "there-being" (*Da-sein*). This choice of phrasing signals a break with the central position occupied by the human subject throughout the history of Western metaphysics, which Heidegger attempted, somewhat naively as he later admitted, to *destrue* by way of his philosophical writings (GA 15/2003: 78).² For 'Dasein' is not necessarily coextensive with the notion of 'human being,' at least as the notion is traditionally understood, even if a number of Heidegger scholars have substituted and translated 'Dasein' with exactly this signification.³ This is unfortunate, since what Heidegger finds to differentiate Dasein as a way of being is, in short, that it is "related understandingly in its being towards that being [Sein]" (SZ: 52-3). And this is a relation that one *comes to be in* – as, for instance, a child comes to grips with its immediate surroundings – and that, moreover, as a phenomenological formal mode of being, itself *comes to be* and is opened for *historical* and *techno-logical transformations* – as it is not, in other words, given *sub specie aeternitatis*. In this way, the signification 'Dasein' signals that the mode of being, or rather *becoming*, that characterizes this being is invented, and both constructed and destructed, by means both exterior and other to it; by, in other words, the technical means of its surrounding world. The early Heidegger can, as I will detail in what follows, be found to partly prefigure in this way Stiegler's position, which holds that the human is invented by what it invents.

In any case, by employing the term 'Dasein' Heidegger sought to forcefully distinguish his own thoughts on what is – on ontology – from the "metaphysics" of thinking of the human in strictly biological terms, while equally attempting to distance his project with *Sein und Zeit* from traditional onto-theological thinking, which clearly opposed the concept of 'subject' from that of 'object' (SZ: §10). In other words, Heidegger sought to differentiate his perspective from those holding, respectively, that the human was to be construed as an object of study for a positivist enquiry of *Homo sapiens* and its genus *Homo* within science, or, on the flip side, as the ideal introspective centre and subject from out

of which speculative inquiries securing the exceptional status of the human and its humanity – with its culture and spirit – could be excavated and expressed within the traditional humanities. Now, central to Heidegger’s attempt at de-structuring the history of Western metaphysics and of avoiding both the subjectivism and objectivism that problematically separates either the human from its world or the world from the human, is his analysis of *how* Dasein comports itself and *who* Dasein always already finds itself being in its practical dealings with *what* it encounters in its everyday environment. Section §15 of *SZ* entitled “*The Being of Beings Encountered in the Surrounding World*” is of special importance in this regard, as it emphasizes the significance of the practical and technical organization of the world into which Dasein is thrown and with which it has to familiarize itself. Especially notable, in this connection, is Heidegger’s description of how we encounter things taken care of in our everyday environment as things that are lit up to us as being ‘at hand’ (*Zubandensein*). For by naming things of use as beings *at hand*, and our contrasting encounter with beings, wherein what appears before us is not lit up as being available, but merely present, as being ‘on hand’ (*Vorbandensein*),⁴ Heidegger not only emphasizes the peculiar at-handedness (*Zubandenheit*) with which Dasein grasps and utilizes things in practical dealings, but also invokes a generalized concept of ‘the hand.’ And in light of Heidegger’s carefully chosen wordings, which often signify strategic reversals and ways of leaping into new paths of thought, one ought not to let this general middle term – ‘the hand’ (*die Hand*) – found in both modes of encounter remain unquestioned.⁵ It being clear, from the phrasing of these conceptually coupled terms, that between the encounters with both what is brought near and what is held before us – what is at hand and on hand – there is the figure of ‘the hand.’

In order to draw out the significance of this general conceptualization of handedness as ‘the hand’ and what it entails for Heidegger’s understanding of technics and existence, one should first get a grasp of how it is first introduced in §15. In doing so I will attempt to elucidate how our everyday environment, as it relates to and is made up of technical objects and systems, actively organizes our being-in-the-world and subsequently our concrete orientations as beings that orientate themselves in and towards a world of technical objects and techniques. For could it not be said that just as much as the handler handles the tool, the tool, in turn, places the handler in the position of its handling, and thus provides the tool-user not just with his or her means of operation and production, but also his or hers anticipatory and corporeal directionality? If so, this would entail that technical objects act (*handeln*) on the human actor in the course of the actors’ acting with what he or she acts, which would mean that “the what” and the technical rebounds onto “the who” and the human. Spelling out the promise of an initial opening for thinking about existence as originally technical and *instrumental* – that, in other words, who we are as existents is inevitably related to what we are occupied with in taking care of our surroundings, others and ourselves – found with the thought of “the hand,” worldliness and *things of use* or equipment in the existential analytic that make up the first division of *SZ* will thus be the subject of what follows.

Now, “[t]he beings encountered in taking care” Heidegger names “*useful things [Zeug]*” in accordance with what he finds to be the mark of their being, namely their utility or usefulness in completing operations and tasks (*SZ*: 68).⁶ These useful things are, as Heidegger sees it, embedded in a referential whole of significance and are, therefore, defined functionally as “something in order to . . .(s)” (kinds of “serviceability, helpfulness, usability, handiness [Handlichkeit]”)

that together make up any given whole of things made use of (*Zugganzzeit*) (SZ: 69). In this sense, as parts of overall organizations, there are only individual useful things in a derivative sense for Heidegger. For when one, say, walks into an office in the mode of careful practice one does not add up the individual utensils in order to identify the room as appropriate for one's current undertaking. The room is, on the contrary, always already familiarized in its wholeness of reference when skilfully coping in practical dealings. For in completing the task at hand, say writing a handwritten letter, one encounters pen, paper, envelope, desk, lamp, etc. in its familiarized layout as a whole compartmentalized room that is taken care of *in order to*, for instance, write handwritten letters. "On the basis of this an "organization" shows itself," in this case a room maintained as an office, on the grounds of which any individual useful thing, such as a pen, then appear for Dasein as what it most intimately is for this being, namely as it figures as part of a configured and compartmentalized existential space in, through and with which it acts, dwells and thinks in its everyday life. The systematic interrelation of a space is, in this way, always already established and disclosed "before the individual useful thing" on Heidegger's account (SZ: 68-9). Phrased differently one could say that the organized interrelated whole that constitutes the existential space of Dasein comes before the appearance of any individual technical object, and hence *informs* and structures the very appearance of that thing as *a useful thing*. In this regard, the implementation of any technical invention has to be made in relation to an already laid out organization; in other words, any invention has to find its place in the ecology of things.

Dasein, while being in such an attuned (*befindlich*) accommodation to a familiar world, which involves activities or handlings already habitually incorporated, *grasps* things by way of what Heidegger calls *circumspection* (*Umsicht*) (SZ: 69). When being in such a mode of circumspect practice the peculiar handiness in which, for instance, tools (*Werkzeug*) are gripped *as* tools is withdrawn from cognition. Dasein is rather completely occupied in the work in which the entire referential and organizational structure is contained as a background determination; what Heidegger calls the works *what-for* (*Wozu*); how, for instance, "the clock is *made for* telling time" (SZ: 70, ea). The everyday world of Dasein contain, therefore, a specific layout (*Auslegung*) that one encounters and experiences in the always already given material and technical organization that, in being an interpretation of the existential field of experience – filled with technical objects and projected projects –, is continually cared for in the gradual laying out of this world's projected schematics over the course of work. Now, even if this structure does not appear to Dasein *as* such, it being after all a background determination, that in line with Heidegger's terminology can be said to contain within itself an *Als-Struktur* (an "as-structure") that discloses to Dasein, although unwittingly, a materially and practically enclosed horizon that constitutes its everyday world, the maintenance required in taking care of and developing this configured world is, however, not done blindly or without knowledge. This is evident in that Heidegger conceptualizes handiness (*Zuhandenheit*) as "the ontological categorical definition of beings as they are "in themselves" (SZ: 71). And as a definition of beings, handiness must be understood as a seeing of something *as* something, indeed as things are *in themselves* – as they phenomenally appear in and through practice – by being where, and working as, they are wont to. For as Heidegger states our "closest kind of dealing [Umgang]" is this kind of "handling, using, and taking care" which contains and transmits "its own kind of "knowledge" [Erkenntnis]" (SZ: 67). This knowledge, like all other forms, is viewed by Heidegger as a mode of discovery, but, as pre-

thematic, non-reflective and in a certain sense as acquired unconsciously, this disclosure of the world in its handiness is acknowledged by Heidegger as being a primordial (*ursprünglich*) mode of knowledge-acquisition and transmission.

The at-hand encounter, and the knowledge its enactment embodies and involves, constitute, in this way, the privileged site of heritage and tradition, specifically by grounding the processes of cultural transmission and connection – of cultivation – between and within generations as part of socio-cultural communities (see Stiegler 2008/10 and 2010/13). This mode of encounter is, moreover, historically made concrete in techno-culturally specific configurations. For as Heidegger writes, “depending upon the way we are absorbed, innerworldly beings that are brought along with their constitutive references are discoverable in varying degrees of explicitness and with a varying attentive penetration” (SZ: 71). The knowledge cultivated, and the orientation thus maintained, varies and shifts, then, in accordance with the degree to which useful things absorb or captivate us. The specific functioning, implementation and overall affective impact of things made use of can, therefore, work to capture and limit our attention through prescribing practices that we non-reflectively take as our own, adapt to, and hence habituate and automatize. However, the reverse is also true, since the techno-logical configuration can also open up new and different horizons and possibilities. This state of affairs is due to the ways in which useful things – or, more generally put, of how technical objects – and the overall formation of Dasein’s practical and technical surroundings significantly *in-form* how one happens to handle, use and take care of oneself and one’s social, technical and non-human others within any culturally, historically and technically specific constellation of the world in and towards which one exists. The formation of Dasein’s surrounding world shapes, then, this being in relation to what it takes care of, *with what* it, in other words, employs in taking care, and the specific operations and level of activity and interaction this layout of care-taking calls and allows for. In this the at-hand technical milieu constitutes an externalized *social memory*, which, in always already preceding and exceeding Dasein itself, is what first structures this being and, so to speak, gives it its *default position* by being the place or site onto which it is thrown.

This would mean that, as Stiegler holds, in an appropriation and radicalization of this aspect of Heidegger’s thought, that “a tool is, *before anything else*, memory” (IT1: 254, ea.). This suggests that “forgetting is inscribed” in an historically and technically shifting externalized social memory, due to what can be called Dasein’s *instrumentality* or *equipmentality* as an existent living in, towards and indeed with and through the affordances of, and possibilities opened by, its surrounding world (IT1, 4). In this way, the ways and means of forgetting and conforming – and equally, one could argue, of remembering and reforming – are historically and technically concretized in the always already given configuration of Dasein’s surrounding world and the specific *dis-closure* opened by and through it. This is the case, moreover, since it is in its concrete everyday dealings with specific useful things at-hand, and through the techniques habituated and cultivated by way of the cultural practices of taking care undertaken with them, that Dasein first finds itself individuated and *positioned*. And as a position towards being that Dasein is *primordially given* by being thrown into an already laid out and structured historical and technical world, this individuation is one Dasein embodies *by default*. It is not, then, a position erected from out of an inner complex or depth located within a self-sufficient and non-supplemented human subject, as it is not one established on the basis of an initially non-situated and autonomous individual initiative.

Rather, it is a comportment towards being that is *given by the place*—at the same time cultural, historical, material, social and technical—in which Dasein first finds itself, and towards which it is radically dependent and *exposed*.

Calling attention to how Heidegger describes Dasein's encounter with the materials underlying the useful things with which it takes care, will allow me to briefly elaborate upon this point as it figures in *SZ*. For as being situated in, and positioned as part of, the specific layout of its everyday work-world, Heidegger finds Dasein to discover itself as a producer and the beings unlike it as products over the course of the process of manufacture or bringing-forth (*poiesis*). In this disclosure, useful things are discovered not only by reference to their *what-for* or use value, so to speak, but also by reference to the *whenceof* (*Woraus*) of their materials. In this regard, one discovers that "production itself is always a *using of* something for something." And according to Heidegger this something shows itself as things "which in themselves do not need to be produced and are always already at hand" when encountered in such a situation. For when produced, tools such as hammers refer to what they consist of, namely "steel, iron, metal, stone, wood" etc. Through the disclosure of the work-world of production, "nature" is, in this way, primordially discovered "in the light of products of nature." The forest, for instance, is encountered in this way as "a forest of timber," the mountain as "a quarry of rock," the river as "water power" etc. For Dasein, then, in its encounter with things the process of their manufacture, nature is disclosed as naturally produced products encountered along with Dasein's everyday environment as needed in the work-world of production (*SZ*: 70). Nature is thereby seen as an accessible (*zugänglich*) "*surrounding world of nature*" that surrounds what is already made available through the workers' labour (in the form of "having some definite direction on paths, streets, bridges, and buildings"), which Heidegger calls the *public world* of the everyday (*SZ*: 71). As living in, through and under such a configuration, or phrased differently as situated under such a positioning setup (*das Gestell*) as the later Heidegger will call it, which is both historical and technical, and that quite obviously takes its experiential basis from the Fordist and Taylorist industrial mode of production prevalent in mid-1920s Germany, Heidegger famously asserts that nature "as what "stirs and strives," what overcomes us, entrances us as landscape, remains hidden" (*SZ*: 70).

That this character of nature evades discovery, as it is replaced by the discovery of nature as naturally produced products, is inscribed, in this way, in the technical memory of the culture and society in which industrial production *takes place*. It is inscribed, in other words, in the space of the factory, it is affected through the temporal structure of the operative sequences of the assembly line, and finally it is maintained by, say, the practice of welding and the experiential horizon of a labourer using a blowtorch to weld a steel frame. Now, as concerns how nature is disclosed to us in the contemporary world, one could mention, in this regard, the temperature regulation of our air-conditioning systems, the temporalization that comes with the body metrics of the Fitbit, and the spatialization of the touchscreen smartphone like the iPhone with which we roam public streets and forest paths alike. How both individuals and collectives are related to what they use, and through this relationship how they are situated in relation to their non-human others, and relatedly how they then become disposed towards what lies beyond the familiarised and habituated milieu in which they dwell and with which they cultivate projects, is, then, to a significant extent inscribed in their technical surroundings.

Any historical, material and technical configuration of Dasein's world, and concordantly the historical, material

and technical logic underlining this always already laid out structure, affects, therefore, Dasein's being *existentially* according to Heidegger. This rather awkward term is differentiated from the foundational *existentials* that characterizes Dasein's being as an existent across historical and technical specificities, and that hence characterizes it transcendently as a phenomenological formal structure of being. The *existential* modification of Dasein's being can be construed, in this connection, as an inescapable filling of the formal structure through the regionally specific set-up of the always already given "there" ("Da" – as in Da-sein) that this being is primordially thrown into (*geworfen*) in its facticity (*Faktizität*) as an existentially limited and finite being (SZ: §38). In summary, then, the everyday world functions as the ground onto which Dasein is primordially thrown, and which as such bestows upon it a given heritage and tradition through the useful things – the technical objects and structures – and the practices – the habituated techniques of cultivation – that facilitate the transmittance of an exteriorized social and technical memory. This always already laid out world, and the exteriorized memory that underlines it, *informs* in this way Dasein with a past it itself has not lived, but that nevertheless marks its being on an elemental level as *what* first orientates it and thus structures *who* it is by opening up *a* world; one that, therefore, is not primordially its own, as its possibilities are not first and foremost of Dasein's own individual making and control.

Now, what is perhaps most conspicuous about the at-hand environment after taking up such a phenomenological and neutralizing perspective on the world, as we have positioned ourselves in here following Heidegger, is how inconspicuous and transparent things, with which our habitual practices are both (pre-)formed and performed, appear to us in our everyday encounters. Importantly, for Heidegger, it is precisely *what* is placed in front of us (the prosthesis) – the thing that is at hand – that initially evades our cognition. For as Heidegger observes: "What everyday dealings are initially busy with is not tools themselves, but the work" (SZ: 69). As being at work with the at-hand what we fail to take notice of and reflect upon is both the role played by "the what" – by the technical prosthesis – and the procedures and operations performed by the *technical individual* – to use a term introduced by Simondon (1958/80: 68) – undertaking the work. An individual that in the examples employed by Heidegger typically is an artisanal craftsman (*Handwerker*) or artist when positive (see GA 5/2002b and GA 7/1954) and an industrial labourer when framed negatively (see GA 54/1982: 124-5 and GA 5/2002: 57-72). In summary, then, the words conjoined to form Heidegger's term for the habitual encounter of everyday life – 'the at-hand' – designates the orientation within which some things and some actions, varying in accordance with the cultural, historical and technical situation under question, are habitually forgotten and passed over in habit. However, both what is *placed* before us and what *places* this in front of us – the prosthesis and the hand, "the what" and "the who" – are primordially forgotten in their mutually constitutive organization in the existential configuration of the at-hand encounters that make up our everyday lives. Calling attention to the prostheticity of human existence when reading the Heidegger of SZ situates his thinking, in this regard, quite close to Stiegler's, as the following quote is indicative of: "By prosthesis, we understand (1) set in front, or spatialization (de-distancing [*é-loignement*]); (2) set in advance, already there (past) and anticipation (foresight), that is, temporalization." In fact for Stiegler, as I will detail later on, in a radicalization of what has been stated so far concerning Heidegger's existential analytic and the technical object of use; "The prosthesis is not a mere extension of the human body; it is the constitution

of this body *qua* "human" (the quotation marks belong to the constitution)" (IT1: 152, tm.).

To understand this connection we must retrace how Heidegger conceptualizes Dasein as a being characterized by a directionality (*Ausrichtung*), which springs from out of its way of *being-in* (*In-Sein*) its world as a being that brings things close to it in its careful orderings; or in accordance with Heideggerian terminology, as a being that de-distances (*entferndes*) (SZ: §23, 108). In "constantly de-distancing" Dasein can, however, only change its "de-distancings" in such a way that, strictly speaking, it can only bring near (*erfassen*) or touch (*anfassen*) and not hold near (*befassen*), in a thematic sense, what in actual fact is nearest to it. For what constitutes "the between" of what Dasein de-distances; "the farness from itself of what is at hand, is something Dasein can *never cross over*" (SZ: 108). Being radically other than the things it cares for in its environment, Dasein can only momentarily glimpse this distance as an *ontological distance* through an extra-ordinary world-collapsing disclosure found in existential breakdown and radical anxiety according to Heidegger (SZ: §40). In the everyday, however, any mediate transfer of meaning is apprehended as immediate, since signs such as tools, words and directional signs are covered over *as* signs when operative in fully immersed coping (SZ: §17). In this way, what is closest to us, then, is simultaneously what is hardest for us to retrieve. What constitutes our practical foreground, so to speak, is actually what first and foremost is existentially given to us as a pre-thematic and non-problematic background.

When analysing the underlying structure of the at-hand encounters of our everyday being-in-the-world Heidegger is, therefore, reaching out towards the limit of what is graspable, namely the pre-thematic initial *grasp* on things that as a *grasp* of these things – as a pre-reflective "definition" of them – opens up an existential orientation that is sustained in the always already constituted, but nevertheless shifting, layout that *is* Dasein's world of sense and meaning filled with prearranged structures of signs and things. This being – as its technical social memory – the very grounds upon which Dasein is individuated and with which it finds, maintains and transforms its "there", means that it is also only on the basis of such a structure that thinking and anticipation, and of necessity Heidegger's own extra-ordinary ontological query and its resulting concepts (*Begriffe*) or existentials, are *made* possible. In the everyday, on the other hand, it is precisely in the practice of non-reflectively traversing the primordial distance – the ontological difference as laid out by Heidegger – between Dasein's kind of being (*Sein*) as *ontological* (as organizing and knowledgeable) and the beings (*Seiende*) that it cares for, which for Heidegger are "mere" *ontic* things, wherein one finds Dasein's regional dwelling place as an *ex-istent*.

In its *ontic* way of being, then, in order to briefly elaborate upon this point, Dasein *stands out* ("ex") as a being whose *experiences* are in and of its world, towards which this being is radically *exposed* as it is only through this world it can come to *expression*, come to, in other words, its own and become individuated. The "there" of Dasein can, therefore, be said to be laid out by way of Dasein's own existential practice of familiarizing itself with its surrounding; of, in other words, "de-distancings" and bringing the world towards it. Now, this is, crucially, a practice that is only made possible and made concrete by the means Dasein employs in carrying out this work, namely technical objects and technologies.

It is, however, typical for Dasein, by being in-formed by the already inscribed – by what is offered up by the material and technical formation of its world as its background orientation – while carefully re-inscribing through re-forming it's thus gradually shifting surrounding world, to take its always already *worked-out* and habituated "second-

nature” as it’s first. In doing so, Dasein typically neglects to notice and take heed of the ontological difference that differentiates it from beings unlike itself, specifically by not questioning its own mode of being, since it does not appear as a problem for it, at least not in a thematic sense, when it goes about its everyday business in a world thoroughly familiarized. The existential structure that Heidegger claims to have identified through phenomenological analysis and philosophical speculation is, in this way, left critically unrecognized. A habitual blind-sight that can lead one, moreover, by falling in with the majority – by doing what one (*das Man*) typically does as informed by *adaptive* and *unthinking* responses to our specific historical moment and situation (see §§25-7) – to miss the space of possibility actually opened by the circumstances Dasein finds itself situated in. As a result, one thereby habitually *pass over* and hence *pass up* the possibility for *characteristic expression* as both individual persons and collective cultures and societies by not reflectively *adopting* as one’s own what one inherits. Dasein has, in this way, an existential tendency to fall into conformism and inauthenticity – to, in other words, forget itself and its surroundings, and the open structure that underlines it – and subsequently fail to grasp the space for becoming and invention actually opened to it by its place of being. This shifting space of possibility is one that, on the other hand, the authentic life – as *self-responsible* – appropriates and makes its own. The concrete circumstances for and the specificity of one’s fall into inauthenticity and the possibility for a subsequent authentic reorientation will vary, therefore, since the means of and ways for both *forgetting* and *remembrance* are inscribed in Dasein’s techno-logical world.

These points can be seen to offer an existential explanation for why being (*Sein*) for Heidegger had not been thought throughout the so-called history of Western metaphysics and relatedly why technics for Stiegler has continually been passed over and suppressed throughout the history of occidental thought. For, on this view, what is placed before us and encountered at-hand embody the position of what is most primordially unthought; of *what* is grasped in a grip but not initially in a *Begriff*. Indeed, the possibility of the latter will necessarily rest on the pre-established opening embodied by Dasein’s grasping *tékhnē*. Since before any reflective return to the phenomenal object in a thematic sense appears as a possibility, the layout of the as-structure underlying the various practices of our everyday must always already have been – as historically and technically made, maintained and transmitted in specific configurations – set in place and in motion. A point based, ultimately, on the contention that the space of possibility – *the hermeneutical circle* and its horizon – that this structure opens and simultaneously delimits constitutes what, on the basis of which, a reflective and thinking *epistēmē* can take form and finds expression with; as, moreover, *the place* whereupon thought can find its conditions of possibility precariously satisfied, as articulated by Heidegger with his notion of the clearing (*Lichtung*) (SZ: 133).

That the possibility of thought, and indeed “truth” as it is understood by Heidegger, is opened up by the practical and technical background with which Dasein takes cares of its environment becomes clearer when we take a look at the on hand (*das Vorhandene*) encounter with things. For the disclosure of something as merely present, and hence unavailable, is opened by experiences of breakdown, obstinacy, and resistance – when one experiences that things are not working as they should or when things of use are “out of place” and not to be found. When the shaft of a hammer breaks down, for instance, one notices both the hammer as something of its own – as something *apart from* the activity we perform with it – and, at the same time, as something *a part of* a larger organization of things we make us of in order

to accomplish our tasks – say, of assembling a system of IKEA-shelves. In absence and failure, the useful thing takes on a problematic character and emerges as something to be dealt with thematically; as something to be evaluated, fixed, and replaced and so on. However, we also habituate ways of dealing with situations such as these. We learn how to repair what is broken and where one can find or acquire a replacement if the need for one should arise. For a halt in practical activity – a hindrance encountered in both production and play alike – does not necessarily constitute a break in one’s everyday flow, since responses to specific breakdowns and forms of resistance are habituated over time.

Shifting one’s attention towards things used in acts of communication – to signs and symbols, linguistic or otherwise – does not radically alter this state of affairs. For one could argue with Heidegger that also the investigative and theorizing *praxis* that characterizes the at-handedness in which the on-hand is dealt with in mere looking (characteristic of the practices found in investigative and fact-based dealings like those undertaken in the natural sciences) is framed within a habituated environment constituted by things made us of (SZ: 69). In other words, philosophical thought and science inevitably *take place* in a certain mode of everydayness as well. Indeed, more often than not it habitually “travels” down familiarized paths for thinking, as thinking seldom is thoroughly *pathbreaking*. For even in working to *clear the way* for a transformation of “*the understanding of being* guiding” the everyday, Dasein does not find itself in a position that situates it outside of a disclosing enclosure; outside of a world. For one can only reorientate oneself from out of the orientation one already finds oneself being in. Likewise, an organization has to be always already given for a reorganization to be opened up as a possibility. And any transformation of our situation has to come from out of an “internal” and always already traced culturally, historically, and technically situated position (SZ: 361, see Brandom 1992).

Returning to Dasein’s primordial familiarization with its at-hand and technical milieu, detailed above as Dasein’s directional de-distancing in circumspect heedfulness, one should note that this practice, and the underlying background structure that facilitates it, also draws up the directionality of right and left according to Heidegger. For as he briefly states, in connection to his well-known disclaimer regarding the spatialization of Dasein’s corporeality as containing “a problematic of its own not to be discussed” in SZ, this spatialization of the corporeality of Dasein is nevertheless said to be “also marked out [*ausgezeichnet*] in accordance with these directions” (SZ: 108). Notice the term *ausgezeichnet* employed here by Heidegger. The living body (*Leib*) of Dasein is literally drawn like a sign with the directionality of the world in which it is embedded.⁷ One could argue, then, that there is a circumscribed bodily figuring of Dasein’s corporeality continually effected through both the practice of care and the specificity of things cared for in its everyday work environment as detailed in §15. Notably a configuring of Dasein’s “hand” as it is functionally formed by way of an inscriptive signification by the surrounding technical world and its practices. A process that is neither purely anthropological nor biological, but rather an ontological characteristic of Dasein’s being as one inhabiting a world that simultaneously inhabits it. What is placed before “the hand” influences, then, both the act of handling and the hand handling the thing before it. This *drawn* nature of corporeality points to a process of inscriptive signification, which the technical in a sense initially dictates (*diktieren*) and that Dasein always already is thrown into. In this specific case, one could think of the inscriptive signification found with the configuration of the industrial production typical of the mass urban

populace of mid-1920s Germany, which forms the contextual experiential basis for Heidegger's existential analytic in *SZ* (Dreyfus 1992). One could say, in this regard, that Dasein and its technical "hand" is subsumed in a process of bringing forth (*Her-vor-bringen*) by way of the technical organization of its day and what the referential whole of significance calls for in relation to the various projects that are projected on both an individual and collective level.

This point is emphasized by Heidegger when he notes that the work of Dasein "is cut to his figure [auf den Leib zugeschnitten]; he "is" there as the work emerges" (*SZ*: 71). The work is, in other words, quite literally cut to the living-body of Dasein. In line with the technical structure in which, and techno-logical structuration through which, Dasein is positioned and put to work, "the hand" will in this sense also be marked out in different ways in relation to the involvements Dasein and its living body is inscribed in by way of the operational chains it is absorbed in when embodying the "there" of its familiarized work environment.⁸ In this regard, Heidegger reveals quite deep affinities, often overlooked or downplayed, with Marx and Engels in the thought that the work works on the worker's body through an intercourse between tool and tool-user inherent in operational sequences. Changes of which could have deep-seated consequences for Dasein's individuation or historical lack thereof, specifically in the form of falling in with the captivated mass of *das Man*, which always remains a possibility and into whose anonymity one can always return.⁹

It should be noted, in this regard, that the industrial technics of Heidegger's time likewise mirror an industrial ethos, which underlines the sentiment and overall project of then contemporary investigations into the on-hand constitution of beings both like and unlike ourselves. This state of affairs is especially clear in, for instance, the case of Fredrick Winslow Taylor's plan for managing the human labourer as part of an industrial chain of production in his *The Principles of Scientific Management* of 1911 and the vision for domesticating and *humanizing* the natural world one encounters in the thought of many engineering philosophers of technology, such as Ernst Kapp discussed in the previous chapter. The disclosure of the on-hand, then, should also be seen in relation to its cultural and technical situation. One that is, moreover, opened up by an *organological horizon* characteristic of the specific technical configuration and its technical logic and logistics (Stiegler 2004a/14, 2005/15). When such a horizon is transformed this, in turn, can motivate the construction of new practices for scientific and philosophical investigation and speculation, as well as the fabrication and making-available of new resources for scientific enquiry and philosophical inquire, as touched upon with the notion of *technological breaks* in section 2.2. In this way, and as I have insisted throughout this thesis, "the head" is not beyond the influence of "the hand" and the cognitive and intellectual is not positioned at a remove from the bodily and technical. Indeed, on the basis of what has been said one can glimpse a possible opening, found in Heidegger's early thought and the first division of *SZ*, for retracing the role in which any given technical and techno-logical configuration of our surroundings affect the configuration of our handiness and therefore also our embodied being-in-the-world.

In this connection, the *in-scriptive*, *instru-mental* and *techno-logical* structuring detailed above, which as a thematising of Dasein's situated being-in-the-world might be able to unearth another layer of significance in Hölderlin's verse "...poetically dwells man upon this earth" (cited in Heidegger GA 7/1977: 34), points ultimately, to an *expressivity* inherent in the organization and orientation of the existential being of even "primitive" Dasein. Heidegger does not really

tackle this problematic, but rather attempts to persuade the reader of the difference between enquires into beings which we find in the sciences – in this case the study of the human found in anthropology and biology – and the inquiry into being, which constitutes the ontological undertaking Heidegger wanted to embark on with *SZ*, and the wider, never-completed project that this work was meant to function as the opening divisions of (*SZ*: §11). Stiegler, however, attempts to do just that in *Technics and Time, 1* by relating the thought of the early Heidegger to that of the palaeontology and palaeoanthropology of Leroi-Gourhan, as will be detailed in the following section. For the purposes of this section, however, it should be noted that Heidegger – as he delays and defers, as was noted above, an investigation into the spatialization of Dasein’s corporeality – states in §28 that: “What we have set forth so far needs to be supplemented in many ways with respect to a full elaboration of the existential *a priori* of philosophical anthropology” (*SZ*: 131). With the Heidegger of *SZ* one can, therefore, identify the promise of not only a phenomenology of Dasein’s corporeality to come, but also the prospect of a philosophical anthropology to be elaborated. The existential analysis of Dasein and its organized and organizing environment – being simultaneously result and condition – formulated in this work constitutes, nevertheless, a step on the path towards a new philosophical anthropology (Dastur 2000: 121-2).¹⁰

A path announced, but never pursued by Heidegger, due perhaps to a hesitation on his part brought on by the tenets of classical phenomenology and the inherent limits of its approach to technics, as was touched upon in section 2.3. At any rate, Husserl found this direction of Heidegger’s thinking, as Françoise Dastur has noted, to be “a betrayal of the phenomenological standpoint and a downfall into anthropologism” (2000: 120).¹¹ A point of critique that Heidegger might have taken seriously as he – in stark contrast to notable German contemporaries such as Walter Benjamin – remained remarkably silent on the positive ontic materiality and technical specificities underlying our encounter with things either on-hand or at-hand. For even though he states that ““there are” handy things, after all, only on the basis of what is on hand” Heidegger has very little to say about the effects of the changing material constitution and functional workings of technical objects on anything other than a heightened, formal and speculative level (*SZ*: 72, tm.). His early adherence to Husserlian phenomenology could, therefore, have led him to view any investigation of the materiality of our technical surroundings with suspicion, as being *superficially*, perhaps even philosophically dangerous endeavour, since an explicit emphasis on the ontic could be at risk of committing the pitfalls of (when regarding the human) anthropologism, (when life) biologism, (when technics) technologism and so on (*SZ*: §10); the first and last of which Husserl both explicitly and implicitly charged Heidegger with (Husserl 1989: 164/1997).¹²

In this connection, while Heidegger focuses upon the ontic being who’s way of being is *ontological*, and which he names Dasein, his silence on matters concerning the ontic constitution and workings of specific technical objects and technologies, which populate and indeed work to organize the surrounding world of Dasein, could be seen to reveal certain limits inherent in Heidegger’s early thinking on technics. Limits that are related to those touched upon in section 2.3, and which were seen to necessitate a move beyond, but nevertheless through, classical phenomenology, towards a post-phenomenological approach. An approach that *explicitly* emphasizes and gives weight to the technical workings of technical objects, systems and technologies in their role as in-forming and structuring the opening that constitutes the

horizon through which Dasein or human existence becomes who and what it is; a position merely *implicitly* articulated on a philosophically *beigebtet* and non-concrete and non-specific level in the writings of Heidegger's early period. And as I have previously outlined, such a new and conciliatory approach gestures towards both the practice and thought of the engineering philosophy of technology, broadly construed, and contemporary technically attentive philosopher engineers, while retaining much from the analysis and descriptions offered by the humanities philosophy of technology and the thought of Martin Heidegger, which as concerns his early period straddle the division between the two approaches.

However, one does find scattered remarks throughout *SZ* that mention specific technical objects, and which in doing so call attention to how techno-logical transformations impact the configuration and *place* of Dasein's being-in-the-world. For the purposes of my argument here I will only highlight one such remark, made concerning the radio, which brings to the fore some of the potential of Heidegger's thought concerning technics and the significance he admits to techno-logical transformations. The passage goes as follows: "All kinds of increasing speed which we are more or less compelled to go along with today push for overcoming distance. With the "radio," for example, Dasein is bringing about today a de-distancing of the "world," which is unforeseeable in its meaning for Dasein, by way of expanding and destroying the everyday surrounding world" (*SZ*: 105). In regards to this passage, I will make three brief observations, all made with a view towards rounding off this section and summarizing the arguments made within it.

Firstly, by connecting the technology of radio communications with his concept of de-distancing, Heidegger is indicating that not only technical objects literally close to hand and that quite self-evidently involve embodiment relations, but also large scale telecommunication technologies function prosthetically in their ability to bring things near. This point relates to a theme detailed in section 2.2, specifically to the prosthetic account offered by the early engineering philosophers of technology such as Ernst Kapp. For whom, for instance, the telegraph was grasped as an extension of our nervous system. Now, while Heidegger does not explicate the corporeal and organological aspects of human prostheticity, his choice of *Zubandenheit*, as well as the middle term incorporated in it (*die Hand*), in naming the way in which we deal with and take care of things in everyday praxis, does indeed indicate a deep interrelationality between tool and tool-user, technical object and technical individual; between, then, technics and existence in his early thought. This also brings to mind Aristotle and the ancient Greek notion of *organon*, which, as noted in section 2.1, does not differentiate between bodily organic organs or extremities – like our hands – and inorganic technical objects or artefacts, such as hammers, as things of use. Relatedly, the early Heidegger can be read as holding that Dasein's worldhood constitutes an "enlargening of the body" by means of "non-living organs" and hence that Dasein, in this way, is *primordially* prosthetically related to its exterior, since the organic and bodily is seen to compose with the inorganic and artificial to form an organized milieu in, with and through which acts of expression, invention and thought are historically and technologically made possible, which is precisely what Stiegler finds *Sein und Zeit* to have shown (2011c: 232, 278n4).

However, the ambiguity found with the ancient Greek understanding of technics and specifically with its notion of *organon* – in signalling, yet suppressing, that existence is essentially prosthetic – is one that is partially repeated in the developments and transformations of Heidegger's thought, specifically by way of the initial opening and subsequent

closure for thinking of human existence as originally technical found in respectively his early and late thought, as will be touch upon in section 3.3. In any case, by emphasizing the significance of the everyday and practical as what first structures our way of being, Heidegger takes up anew fundamental themes that the ancient Greeks first thought through and provided answers to; answers that have been decisive for the paths occidental philosophy have taken ever since. Important for my purposes here, is how Heidegger's early thought both relates to and departs from the ancient Greek understanding and hierarchical devaluation of technics. For as with the engineering approach to the philosophy of technology, the technical and practical has with Heidegger been acknowledged as having a primordial role and as being of a fundamental significance for the individuation of human existence; or, put differently, his thought acknowledges that technics grounds the facticity involved in Dasein's way of being as an *existent* that finds itself always already situated in a world that pre-exists and exceeds it. With Heidegger, then, the human does not fall away from an original and pure interiority; it does not *become* technical, rather its *becoming* is techno-logical, as it is always already structured by a technical milieu that rebounds back upon it. This position signals a crucial turning point for philosophy's questioning of technics as it opens up the possibility for thinking of human existence as primordially technical in a manner far more philosophically complex than that articulated by 19th century philosopher engineers like Ernst Kapp. For Heidegger's early thought, by appraising and appropriating aspects of the occidental philosophical tradition preceding it, breaks to a certain extent with this tradition and opens up a path for grasping the originary technicity of human existence and memory.

Secondly, in commenting upon the acceleration accompanied with the implementation of modern telecommunications technologies Heidegger states that we are not fully in control of such speed increases. In fact, Heidegger holds that Dasein is more or less *compelled* to adapt to such transformations, which dictate the rhythm and flow of our everyday lives, both at work and off. Heidegger suggests, then, that transformations made to our technological structuration – to the technical and practical structure of our surrounding world – effect changes to Dasein's existential temporalization. For the pros-thesis is not just always already in place, but equally sets in place what is subsequently to take place; in other words, the technical and corporeal prosthetic *achunus* in relation to our existential and cultural *delay*. Now, while the observation that the radio *compels* one to adapt to its acceleration could, in certain respects, be seen to echo Plato's description in *Phaedo* – as detailed in section 2.1 – of how the body and those who live in service to it are “*compelled to adopt*. . . the same habits and mode of life” that the directions of the body dictate, with the result that men captivated with the sensuous and corporeal “always go *contaminated* with the body” (83d, ea). Heidegger, on the contrary, views this “contamination” as originary and primordial, since Dasein is always already thrown into a world that precedes and shapes it, since this world is one that it has to find its footing in; having no other choice than to familiarize itself with it and direct itself towards it. This is, at least, indicated by certain passages of *SZ*, which suggests that Dasein's living body is *dhann* in relation to the situation it embodies through the practices it cultivates as placed in a specific technical working environment. Crucially, Dasein's reflections and thoughts are also suggested to be only able to come to expression with and through the technical instruments and systems – with the pen, the word and the language – in, through and with which it is able to communicate and socialize. Dasein is, then, compelled to “go along with” and adapt

to its environmental conditions to a varying degree; indeed, it has to transform along with what has been transformed in the world that in-forms it (SZ: 105). Sufficiently disruptive transformations can effectively destruct, in this way, the structure and environment that Dasein has habituated and previously taken for granted. Transformations of this kind are ones that individually Dasein has limited control over and subsequently has to adapt to, not least of which due to the way in which such transformations are capable of altering the baseline structure through which Dasein communicates and operates with other existents. In other words, transformations made to the de-distancing or bringing near of “the world” effected by modern technologies, such as the radio, are capable of altering both how individuals and collectives become individuated and how these individuals and collectives then subsequently relate to one another as persons and societies.

Third and lastly, when Heidegger writes that the de-distancing of Dasein’s world “is unforeseeable in its meaning for Dasein, by way of expanding and destroying the everyday surrounding world”, he not only calls attention to the capacity of techno-logical transformations to destruct the organization of Dasein’s surrounding world, but also admits that what this destruction might mean for Dasein’s existence is – at the very least at the time of writing – unforeseeable. For as a break with, and indeed a breaking up of, the then familiarized and habituated surrounding world by way of the technological operations of the radio – specifically as a result of its capacity to bring near the sounds of persons and worlds located at a distance and previously phenomenally unavailable to Dasein – the experiences gained and cognitive capacities attained through the means available by way of the previous technical organization of Dasein’s surroundings appear to be, at least initially, insufficiently able to fully grasp what this new situation might ultimately entail for both Dasein and its world. This admittance not only situates Heidegger’s thought in a historical and technological context – in this case in Germany in the mid-1920s, before Goebbels’ insistence upon the massive popular dissemination of the *Volksempfänger* radio apparatus in 1933 through which Hitler’s speaks were broadcast to a mass audience (Ernst 2013: 56) – but also, and more radically, it situates thinking as such in relation to its technical circumstances; indeed, it is found to be made possible by what thinking thinks with.

This is not least of which due to what these transformations are seen to ultimate aim at, which for Heidegger is at “increasing speed” – and, one might add with Marshall McLuhan, “at increasing power” – by bringing the world effortlessly nearer to us; in other words, by making it come to us and not us to it (SZ: 105, McLuhan 1964/94: 90). The disruptions – the speed increases, the spatial displacements, the making obsolescent of ways and means of living and working – that techno-logical transformations, such as the invention and implementation of radio communication technologies, effect in regards to both Dasein’s existential spatialization and temporalization can, in this regard, reveal for thought, in the final instance, the *equiprimordially* of thinking and technics. For since Heidegger holds that “the meaning pervading the technical world hides itself”, the meaning and consequence of decisive and disruptive transformations made to this technical world could also be taken to be largely unforeseeable (GA 8/1966: 55, tm.). The *breakdown* of Dasein’s technical practice and the *breakup* of the previous configuration of the technical system through and with which these practices were habituated, does – as a *technological break* or, differently put, as an epochal technical *epochē* – open up a new vantage point from which technics can be rethought, due to the fact that the habitual and technical becomes

problematic and questionable. The coming into being of such a new vantage point is not dissimilar in *kind* to the one opened by more concrete forms of technical breakdown and malfunction as described by Heidegger and briefly detailed above. It can be grasped, in other words, as a more general, i.e. generational and epochal, breakdown that is akin to the place, albeit far more limited, opened for reflection and thinking by one's initial experience of having, for instance, the shaft of one's hammer shatter while nailing together and assembling flat packed IKEA-shelves.

Before heading on to the next section, something should be said, however, concerning the reading I have offered in the preceding of the existential analytic and the hand of technics, so to speak, as laid out in the first division of *SZ*. Firstly, I should note that I have chosen to read the descriptions of Dasein's everyday encounter with things at-hand as constituting *the* primordial way that Dasein relates to its world, and hence have argued that the structuring role of technics is irreducible and hence that no outside position or route of escape can be found and embodied. This is, however, not the only option available when reading this aspect of Heidegger's early thought. For, as Hubert Dreyfus has noted, with Heidegger's early thinking concerning technics one encounters the "profound ambiguity" of *SZ* when viewed in its published totality (1992: 179). For on the basis of the second division Heidegger's descriptions of the everyday mode of existence of Dasein and its technicity, can be read as descriptions that solely concern Dasein's inauthentic and, if you will, fallen comportment towards being. As one in the second division finds descriptions, differentiations and formulations that seem to close off, even contradict, the opening for thinking about existence as primordially technical that one at the very least can excavate from out of the first. The differentiation established in later chapters of *SZ*, between the facticity of the everyday and historical world into which *inauthentic* Dasein is primordially thrown and what Heidegger's characterizes as Dasein's subsequent *authentic* comportment towards being found in anticipatory resoluteness (*Entschlossenheit*) towards one's own death (*SZ*: 305-10), is especially problematic in this regard, since the specific characteristic of this difference forms an at best uneasy relationship with the existential analytic. The descriptions offered in the third chapter entitled "*The Worldliness of the World*" (§§14-18) are especially at odds with this differentiation, as the authentic comportment to being appears to involve a temporality located outside of the facticity found with the techniques of everyday life and the means – the technical objects, systems and technologies – with which Dasein takes care of itself, as well as its others and its surroundings. In this way, the very possibility of Dasein being authentic, specifically in the form of embodying an anticipatory resoluteness towards its own-most possibility in death and its essential finitude in inevitably dying – as what Heidegger calls Dasein's *being-towards-death* (*Sein zum Tode*) –, seems not to spring *from out of* technics, but rather to persevere as a possibility *in spite of* techno-logical structuration, which merely obfuscates this fact and functions *solely* as a hindrance for Dasein attaining this authenticity (*SZ*: §§51-66).

A reader emphasizing aspects of the second division when reading *SZ* could, in other words, find some textual support for holding that Dasein, according to Heidegger, only truly becomes individuated if it *distances itself* from the world of technics and facticity, as this world appears to make one inevitably fall in with the many and hence lead one towards deindividuation by way of a repetition of habituated practices.¹³ The continued performance of which then appear to be precisely what makes one *forget* and *fail to remember* one's own finitude as a mortal being awaiting death. In the final analysis,

who Dasein is in its authenticity can thus appear to precede the organization of what Dasein *factually* first finds itself occupied with and thrown into, since its being-towards-death is what *actually* (*eigentlich*) differentiates Dasein as something of its own, and that as such can be seen to *in actuality* come before Dasein's fall into facticity, which one subsequently can come to *realize* and *return to* in a flash (*augenblicklich*) *remembrance* of what everydayness has covered over (SZ: 338).¹⁴ Authentic temporality, in being described as the anticipation of an deferred event that is uniquely Dasein's *own*— that is uniquely *mine*— and that in *not yet having happened* relates Dasein to its truly singular temporality as existing towards its own end, appears to go against, in this way, the analysis of the first division in which Dasein was characterized as a being in, of and directed towards its world, which was found to be irreducibly technical in some sense.

Now, if accurate, this would amount to a suspension of the critical potential of the existential analytic, as it would not be able to avoid the subjectivism and privileging of a distanced and non-supplemented human subject found with the tradition it sought to destruct. For such a subject would be reintroduced by way of Heidegger's notion of an authentic temporality if his description of it— if only for an instant— opens for the possibility of *release* from the facticity of the material and technical “what” for an authentic individual human “who”. In summary, this reading takes the facticity of Dasein's everyday existence, and the positioning framework (*Gestell*) of its technical objects and systems, to amount to an initial fall away from an *actually* originary authentic temporality. A fall that results from the idiocy of technical forgetfulness due to the *calculated* and *programmed* nature of inauthentic “worldly” and “public” temporality as evidenced in the automatic timekeeping of the clock, the plan of the calendar, and the timeslot of the radio. The differentiation between inauthentic and authentic temporality, and inauthentic publicness and authentic individual resoluteness, can be taken to reintroduce, in this way, the traditional opposition between the technical and the human, the automatic and the autonomous, the practical and the reflective, which would amount to a repetition of the ancient Greek understanding of technics as a contaminating and corruptive influence found in Plato and Aristotle, as detailed in section 2.1.

Such a reading finds partial support in the fact that the Greek term *tékhnē*— a word that is of immense importance for the later Heidegger (GA 7/1977)— does not figure in the original edition of *SZ* at all. In this connection, Dreyfus makes the point, specifically by highlighting the difference between Heidegger's descriptions of artisanal craftsmanship encountered in his later work *What is called Thinking* (GA 8/1968) and the descriptions found in *SZ*, that “in spite of the manual implications of *Zuhandenheit*, in all the discussions of hammering there is no mention of hands. There is, in fact, no place for a “fitting response”” (1992: 177). And this because, as Dreyfus sees it, the learned hand of the artisanal craftsman (*Handwerker*) and the *tékhnē* he or she embodies have no place in the existential analytic, which according to him only describes Dasein's inauthentic comportment towards being and specifically one embodied in the context of a specific technical situation, namely that of industrial technics and the position typified by, for instance, an industrial labourer. If understood in this way, the existential analytic analyses and reveals, in regards to the human and the technical, a mere *instrumentalization* or *technicization* of “the hand” as a tool for the enveloped, captivated and dazed (*benommen*) being-in-the-world characteristic of Dasein in the striving of its everyday life. For Stiegler, as Patrick Crogan notes, Heidegger would thereby ultimately fail “to think the instrument adequately, in the way that would be adequate to

the critical potential of his own analysis of *Dasein's* equipmental being” found in the first division (2010b: 95).

Indeed, this failure relates to the ambiguity of especially Heidegger’s early thinking concerning technics, as he does not specify whether or not *the technical* and *instrumental* constitute the primordial horizon through which one thinks and exists or merely effects an *instrumentalization* or *technicization* of thinking and existence in the modern era characterized by automatic, computational and industrial technologies. On the other hand, this failure also reflects the ambiguity inherent in modern technologies themselves, as being what constitutes both the obstacle and chance for thought by opening up a new vantage point through breakdown and disruption. Interestingly enough, in this connection, Heidegger does actually mention *tékhne* ones in *SZ*, specifically by way of an appended footnote added in 1952, precisely in relation to his description of *Dasein's* at-hand encounter with things. In the footnote in question, the late Heidegger, who seemingly employs the term in an effort at rebuffing his earlier reading of the ancient Greek notion of *pragmata*, seems to partially identify *tékhne* with *artistic interpretation*, which would appear to strengthen Dreyfus’ argument (*SZ*: fn68). But, while, the late Heidegger, as will be detailed in section 3.3, privileges handy technical objects that need a skilful human hand for their functioning, and which are often associated with the traditional techniques of artisanal craftsmanship, I would suggest that *tékhne* and ‘the hand’ are not necessarily idealized notions within Heidegger’s early thought. Indeed, since the former term does not figure in *SZ* proper, and the latter notion is latently and implicitly, rather than explicitly, present throughout that work, this aspect of Heidegger’s later thought is as of yet not specified, while the idealization and privileging of traditional human-technics relations is not, at least fully, carried through as far as the framework of the existential analytic and Heidegger’s early thought more generally are concerned.

I therefore agree with Mark Sinclair that “no negative value judgement concerning equipment” is to be found “within the framework of fundamental ontology” and the project of *Sein und Zeit* (2005: 252). And in this connection, as should come as no surprise given the reading I have offered above, I cannot agree with Dreyfus’ assertion that Heidegger does not invoke ‘the hand’ when discussing the at-handedness with which one encounter and use things such as hammers in everyday practice. For to miss the invocation of ‘the hand’ in Heidegger’s notion of *Zubandenheit* leads one not only to misstate his early philosophy of technology, but also to misconstrue the role of the body in this regard. Indeed, Dreyfus’ assertion that “the body is not essential” in Heidegger’s philosophy (1991: 137), does not sit well with the latter’s commitment to the primacy of skilful coping (Cerbone 2013: 132). For the encounter with what is at-hand cannot simply be one way of relating to things among others, and specifically not just the mode of encounter that characterizes our everyday and uncritical attitude towards our surroundings, because related to the notion of *Zubandenheit* is the prostheticity of *Dasein* as an *existent*. This ontic being and its ontological way of being is, on this view, essentially inessential and perpetually incomplete, since it is structured by its technical and prosthetic supplements, which would mean that the elementary is supplementary when it comes to *Dasein*, and relatedly to the human being.

Siegler names this the instrumental condition of existence. The human, in this way, becomes who and what it is through, and indeed as a result of, the process of an instrumental maieutic, as will be detailed shortly (IT1: 206). What Heidegger fails to grasp, or at least specify, in the second division of *SZ* is, in this connection, that the authentic

temporality of Dasein's anticipatory resoluteness towards its own end cannot be differentiated in kind from the technical and worldly temporality of, for instance, the clock. Since, and in line with the descriptions offered in the existential analytic, the "inner" compose with and finds itself through the "exterior" – as the self is interrelated with the always already laid out world in, through and with which it *is* and *comes to be* – ultimately means that technics plays a constitutive role in opening up the possibility for existential temporality *as such*, as human temporality is originally techno-logically constituted. So, while this path for thinking is opened by the existential analytic, it is one that Heidegger himself never really pursues, which in turn motivates Stiegler's subsequent appropriation and critique in *Technics and Time, 1*.

Stiegler does not, however, fully acknowledge his actual inheritance from Heidegger and denies that the early thought of the latter really constitutes a genuine opening for thinking of existence as originally technical. For Stiegler holds that Heidegger's early thinking cannot accommodate the fact that the organization of the technical has a "*dynamic specificity*" of its own. Finding that for Heidegger, technics "will have done nothing but follow the logic of the temporal fall into historical forgetting of being *qua* the actuality of the forgetful and dissimulating attitude of concern." And hence he finds that the organization of technics "will never have had the least *properly* unconcealing quality. In Heidegger the *what* has no other dynamic than that of an inversion of the "authentic" dynamic of the *what*" (TT1: 244). The reading I have given above of the first division of *SZ* would, however, suggest otherwise. So, while I acknowledge some quite foundational limits to his early thinking concerning technics I cannot agree with Stiegler when he writes that Heidegger, "always thinks tools as (merely) useful and instruments (merely) *as* tools, and he is as a result incapable of thinking, for example, an artistic instrument as something that *orders* a worlds. Now here, less than ever can the needed analyses of "utilizing" correspond to utilitarian concern; here, more than ever, with instrumental implementation as such, the working of the world takes place." (TT1: 245).

I would argue that Stiegler here conflates the early with the late Heidegger. For while he is completely correct in stating that the systematicity of modern technics constitutes "the fulfillment of metaphysics" for the late Heidegger (TT1: 244), and hence that the technical inevitably leads into forgetfulness and has no role to play in and of itself *as* technical in his later writings, this is as of yet not specified and deeply ambiguous in the early writings of Heidegger, and especially as it is presented in the third chapter of *SZ* (§§14-18). For if one reads the early Heidegger as I have done in the preceding, which I contend has at the very least some textual support and argumentative merit, one encounters a thinker quite similar to Stiegler, whose reading of *SZ* appear to be somewhat biased in connection to the use he makes of it as part of his overall narrative and argument in *Technics and Time, 1*. The project Stiegler forwards with his *Technics and Time* series can, in this regard, be seen as a radicalization of elements traceable to the early Heidegger. However, this radicalization has far reaching consequences and leads to a very different understanding of the significance of actual technical objects and systems, and implicitly also that of the role of the philosopher in regards to his or her techno-logical surroundings.

In summary, then, I have argued throughout this section that with the existential analytic Heidegger can be read, at least if select passages and sections are emphasized in one's reading of it, as I have done in the above, to have opens up a path for rethinking the human-technics relationship. One that, moreover, clears the way for Stiegler's subsequent rewriting of philosophical anthropology, which attempts to define the character and mark of the human and its *being* as a philosophical techno-logy, which seeks to articulate the *logos* of *tékhnē* that animates and structures human

becoming, as formulated in *Technics and Time, 1*. Specifically, Heidegger's early thought does this by grasping, or at the very least by implicitly suggesting, that the grip of "the hand" is *the* primordial way, and the hand itself *the* primordial thing of use, that characterizes the mode of being for beings such as ourselves, which means that the hand of technics, so to speak, is what primordially makes possible the becoming or differentiation process that we call human existence. The conceptualization of technics and 'the hand' found in *SZ* and how it opposed philosophical dogmas concerning the centrality of thought over practice, and how it thereby emphasized the philosophical centrality of the everyday, practical and technical, will be of aid over the coming sections in my efforts at elucidating Stiegler's arguments for an originary technicity to human existence as it relates to, and partially springs from out, the philosophizing palaeoanthropological investigations and speculations of André Leroi-Gourhan, which I now turn to.

3.2 Leroi-Gourhan and the tool as memory: *Anthropogenesis and technogenesis*

"So it was thanks to the manner in which our bodies are organized that our mind, like a musician, struck the note of language within us and we became capable of speech. This privilege would surely never have been ours if our lips had been required to perform the onerous and difficult task of procuring nourishment for our bodies. But our hands took over that task, releasing our mouths for the service of speech." Gregory of Nyssa *Treatise on the Creation of Man* (379 A.D., quoted by Leroi-Gourhan in GS: 25).

With his two-volume work *Gesture and Speech*, first published in French as *La Geste et la Parole* in 1964 and 1965, André Leroi-Gourhan sets out, as "he never hesitates to start down the most speculative paths" (IT1: 84), to present nothing less than "a synopsis of evolution from fish to computers" (Chazan 2004). It is, however, only aspects of this synopsis, specifically as concerns technics and hominization, which I will focus upon in the following. The first two chapters of which are especially important for the purposes of this section, as Leroi-Gourhan criticizes as part of the first the image of ourselves that the transcendental perspective of the occidental tradition and its metaphysical definitions of the human have established. This critique is subsequently grounded in the second chapter by way of Leroi-Gourhan's investigation of the development and relationship between the brain and the hand. The arguments and claims that Leroi-Gourhan articulates throughout this book, and first establishes and introduces in these two opening chapters, finds a deep resonance in Stiegler's thought, as evidenced by his lengthy engagement with *Gesture and Speech*, as well as the two volumes of *Évolution et techniques* (1943, 1945),¹⁵ found in the second and third chapter of *Technics and Time, 1*. Indeed, Leroi-Gourhan also influenced Stiegler's doctoral supervisor Jacques Derrida and his pathbreaking book *Of Grammatology* published in 1967 (1997).¹⁶ Therefore, while Leroi-Gourhan's writings have gained only a limited readership in the Anglophone world, due in no small part to the fact that few of his works have been translated into English, in France "he has left a powerful imprint on anthropology and beyond. . . on par with that of Claude Levi-Strauss" (Chazan 2004, see Audouze 2002). But, unlike Levi-Strauss, and indeed Leroi-Gourhan's doctoral supervisor Marcel Mauss, "Leroi-Gourhan never produced a succinct work that distils his key ideas", rather, "his critical concepts are found buried in encyclopedic works", of which *Gesture and Speech* is, as far as his conception of technics is concerned, perhaps the most important (Chazan 2004). Owing to this fact, Stiegler finds that the intellectual legacy of this work "still remains to be assumed today, either by paleoanthropology or by philosophy" (IT1: 84). However, if one were to accept the challenge of doing so, one would face the challenge of grappling with the fact that "much of the data presented in *Le Geste et la*

Parole is no longer valid in light of ongoing archaeological research” (Chazan 2004). A fault – while not uncommon, and perhaps even inevitable as far as empirical science is concerned – that can make it difficult, at least for an untrained eye, to spot which specific sets of data that have since become obsolete. And relatedly, questions concerning whether or not Leroi-Gourhan’s arguments are affected by these developments are not easily resolved. A difficulty that, in light of the encyclopaedic nature of his writings, as well as the fact that he draws on extensive fieldwork and numerous empirical studies of skeletal remains and recovered artefacts from different periods of hominization, only increases.¹⁷

A partial consensus has, however, emerged in contemporary investigations concerning these matters, which finds, in harmony with the core of Leroi-Gourhan’s thesis on hominization, that what “the palaeontological and archaeological records demonstrate is a general synchrony between technical and cognitive evolution, a complexification in tool stereotypes accompanied by a growth in brain size and in particular expansion of the cortex” (Johnson 2013: 37-8). In other words, Leroi-Gourhan’s account of what he calls ‘technical evolution’, while finding its empirical basis in now partially obsolete data sets, is not in any way outright falsified and invalidated as a result of this. Additionally, his central concept of the chain of operations (*chaîne opératoire*) and the conceptual framework his writings provide in relation to technics, is an aspect of his thought that “contemporary prehistoric archaeologists draw heavily [upon, in order to] recognize the dynamic process of tool manufacture and use” (Chazan 2004). In any event, it should be noted that Leroi-Gourhan, by setting out upon such a speculative endeavour – which perhaps palaeoanthropological investigations and studies of prehistory inevitably constitute to a certain and historically and technologically contingent extent, due to the irreducible scarcity of available empirical sources –, does raise and attempt to answer a number of philosophical questions whose relevance and urgency transcend the historical, scientific and technical limitations, narrowly understood, of the data and tools then available to him. Indeed, Leroi-Gourhan questions the very origin as such, “including the origin of the human,” which according to Stiegler, echoing Heidegger, “cannot be sustained by a simple, historical style of investigation”. Something more is needed, as it is not merely “a question of uncovering traces of what was at the beginning” (TT1: 96). Nevertheless, while empirical investigations and the search for archaeological evidence cannot tell the whole story, it is surely important to be aware of the fact that palaeoanthropology and the study of prehistory have taken significant steps since Leroi-Gourhan’s time, as a result of which parts of the terminology employed throughout his writings will undoubtedly appear, from the standpoint of these disciplines, as rather archaic and somewhat outdated.¹⁸ Stiegler does not call attention to this fact, and should be faulted for not adjusting Leroi-Gourhan’s terminology when detailing the latter’s palaeoanthropological narrative for the purposes of his own philosophical argument (Johnson 2013: 50-1n). With these reservations in mind, however, I will now turn to an elucidation of Stiegler’s reading of Leroi-Gourhan’s investigations of the coupling between humanity and technics as it is laid out in *Gesture and Speech*. An elucidation that, therefore, will emphasize the aspects of this encyclopaedic work that resonates with and are appropriated as part of Stiegler’s project with *Technics and Time, 1*, as such I will unfortunately have to forgo a more in-depth reading that more fully would be able to do justice to the immense complexity and sophistication of Leroi-Gourhan’s thought, as well as its rather unconventional, and possibly controversial, radically interdisciplinary nature.

In the opening chapter of *Gesture and Speech* Leroi-Gourhan sets up a contrast group in relation to his own position by way of his critique of the ““cerebralist” theory of human evolution” that he finds Jean-Jacques Rousseau’s anthropology, as it is outlined in *Discourse on the Origin and Foundations of Inequality Among Men* (1775/1973), to be a highly instructive and historically influential example of, and of which he offers the following summary:

“By imitating animals and by reasoning, the “natural man,” *endowed with all the present human attributes but starting from scratch in terms of technical equipment*, gradually invents everything within the technical and social order that will lead him to the present-day world. This picture, extraordinarily simplistic in its form, remarkably well employed to demonstrate the point that material progress is a blind alley, still survives...” (GS: 10, ea).

Rousseau presuppose, in this regard, that what makes us who we are as human beings is best explicated by constructing an origin story which locates the very nature of humanity as being outside of the facticity and contingency found with humanity’s subsequent *fall* into technics and cultivation. As part of this fictional origin story Rousseau thereby “presents an original humanity fully formed in body and mind but lacking both the ‘arts’ of culture and the structures of society” (Johnson 2013: 37). Rousseau’s idea that the original and natural human’s “confirmation... have been at all times what it appears to us today, that he has always walked on two legs, and made use of his hands as we do” (1775/1973: 52) constitutes, in this way, “a “cerebral theory” since the hands are empty and the body naked.” A position such as this will inevitably also hold that the essence of the human, by “arriving in one stroke as it is today but without technology, before culture, before deferred nature, is not constituted by his history” (IT1: 143). Stiegler clarifies this point as he summarizes Rousseau’s approach, by extensively quoting from the *Second Discourse*, in the following manner:

““And how shall man hope to see himself as nature made him, across all the changes which the succession of place and time must have produced”—accidentally—“in his original constitution,” his essential constitution, “and distinguish what is fundamental in his nature from the changes and additions which his circumstances and the advances he has made have introduced to modify his primitive condition” as culture, facticity, technicity? “The human soul... has changed in appearance so as to be hardly recognizable” [Rousseau 1775/1973: 43]. This is what must be affirmed in the first place: that there is a full, pure origin, followed then by alteration, corruption, impurity, the fall. The nature of man is not in the way he changes. There is, there has to be, a nature of man before change” (IT1: 106).

Constructing such a non-historical and non-technical origin for the human is emblematic of the traditional approach to questioning and defining human beings that Stiegler names *transcendental anthropology*, which radicalizes elements of the ancient Greek devaluation and suppression of technics as I outlined in the previous chapter (IT1: 84).¹⁹ Stiegler identifies Rousseau’s approach as being a prime exemplar of such a transcendental anthropology since it initially sets “aside the ‘facts’ in order to explain the passage from the state of nature to the state of culture” (Johnson 2013: 37). Transcendental approaches do this, moreover, by claiming “to have the right, over against their facticity, to relate a fiction on the origin of man,” which supposedly finds support by appealing, in Rousseau’s case, to purely transcendental and “originary evidence that can still be heard through the voice of pure nature.” Their argumentation rests, therefore, “on a perfectly clear divide between the empirical and the transcendental” (IT1: 84). A divide that the investigations of *Gesture and Speech* call into question, as Leroi-Gourhan “starts from the facts of evolutionary sequences... and begins his narrative of human evolution with the pre-human”, which amounts to placing “the animal before the human” and “the anatomical before the cognitive” (Johnson 2013: 37). Reversals such as these suggest that a break has been made, not only with Rousseau, but with the traditional approach to questioning the human and the technical found throughout the history of occidental philosophy. Leroi-Gourhan’s approach could even be seen to constitute, in this connection, a break with *all*

traditional anthropological thinking, at least if one agrees with Heidegger that “all anthropology, the philosophical as well as the scientific-biological, understands man as [before anything else] the “thinking animal”” (GA 54: 100/1992: 68).

For the inner, intellectual and cerebral cannot, according to Leroi-Gourhan, be situated at a remove from the world of the habitual, historical, material, social and technical. As contingent and open for reprogramming, a theory of the hominization should not locate the mark of humanity in “the sphere of the permanent stars”, so to speak, and thereby fix the defining character of this being in an essence not open to change and transformation. For Stiegler, Leroi-Gourhan’s anthropology thereby undermines, “and perhaps even makes obsolete”, the categories through which a conceptualization of the human such as the one offered by Rousseau – which fixes the human essence *sub specie eternitatis* – makes sense. Specifically, as it undermines the oppositional pairs of “ends and means, subjects and objects, nature and culture” through which, among others, the denunciation of the technician and the suppression of technics found with the occidental tradition was made possible. Indeed, by undermining these oppositions and problematizing and reversing the traditional divide between the empirical and the transcendental, Leroi-Gourhan’s thinking destabilizes the very opposition between being and becoming (IT1: 91). For while Rousseau’s transcendental approach and cerebralist theory totally ignores becoming as such, since it erects a teleological end point that “is totally constituted from the origin”. Leroi-Gourhan attempts to demonstrate the opposite, namely that the human *is* constituted by its history, which is at the same time cultural, natural and technical, by establishing, firstly, “an essential link between the upright skeleton, technics, language, and society, and next by approaching technology as a singular zoological reality” (IT1: 143). In this way, as hopefully will become clear by way of the following, Leroi-Gourhan’s anthropology, which in this regard “is an exception”, is relevant and of interest to Stiegler as far as “he apprehends anthropology *as* techno-logy” (IT1: 93).

In other words, as far as he is capable of thinking of human beings as existents who become who and what they are through and with what surrounds and exceeds them – with the material and technically configured and laid out world in which humans take care – and hence as far as he is able to construct a discourse that can give expression to the *logos* of *techné*, Leroi-Gourhan significantly paves the way for Stiegler’s project, which precisely sets out to rewrite philosophical anthropology as a philosophical *techno-logy*. Indeed, what is at stake for Stiegler is to think the invention of the human “independently of all anthropologism” (IT1: 135). And since Leroi-Gourhan works within the empirical sciences and undertakes empirical research, however speculative some of his extrapolations might be and however outdated some of the empirical data he draws upon now might appear, his “work on the prehistory of technology can be said to provide a natural-historical grounding for and validation of Stiegler’s thesis concerning the co-determination of the human and the technical” (Johnson 2013: 36). This empirical and natural-historical grounding is one Stiegler’s project actually needs if it is to constitute something other than, and something more than, a *purely* transcendental anthropology.

Now, a central aspect of Leroi-Gourhan’s account is his weighting of motility “as the significant feature of evolution toward the human state.” The significance of which – and, relatedly, the anatomical makeup of bodies – is one traditional palaeontologists “have not been aware of” as it, perhaps due to the dominant influence of traditional philosophical anthropologies, “came more spontaneously to them to characterize humans by their intelligence”. The

first concern of these palaeontologists has therefore “been with the preeminence of the brain” as the seat and origin of this intelligence. This “cerebral” view of evolution” now appears to be mistaken, however, as “there would seem to be sufficient documentation to demonstrate that the brain was not the cause of developments in locomotory adaptation but their beneficiary” (GS: 26). In light of this documentation Leroi-Gourhan suggests, against the position of cerebralists like Rousseau, that “the brain has in fact only a secondary role” in the process of human evolution; it is an organic consequence, rather than a root cause of the process of hominization leading to *Homo sapiens sapiens* (IT1: 174). For, “In the progression of the brain and the body, at every stage the former is but a chapter in the story of the latter’s advances. We cannot cite a single example of a living animal whose nervous system preceded the evolution of the body but there are many fossils to demonstrate the brain’s step-by-step development within a frame acquired long before” (GS: 47).

Neither Leroi-Gourhan nor Stiegler are making the point that the brain or the cognitive is insignificant in this regard. The brain or intellect *does* obviously have a role, but according to them it can no longer be seen as the director and controller of its own development, but has to be situated as one element among others of a larger overall apparatus. And as the brain itself is seen as a result of a long evolutionary process of environmental interaction, the coming into being of intelligence and cognition has to be related to a wider network of entities than the narrowly cultural and to a larger spectrum of life than the easily recognizably human (IT1: 145). In fact, Leroi-Gourhan and Stiegler are quite simply stating the fact that the anatomical *frame* has to come before the cognitive and cerebral *framework*, so to speak, and that the skeletal and corporeal as such *advances* beyond the nervous system and hence is what *first* sets the stage for the work of acquiring knowledge and skill, and as such opens a space of possibility for the attainment of intelligence: “for we know that a humanly constituted body existed long before the evolution of the brain had been completed” (GS: 70).

In this way “mobility, rather than intelligence, is [found to be] the “significant feature”” of the evolutionary process, with life in general being characterized as “the conquest of mobility” (IT1: 146, 17). The human is thereby no longer, as constituting one form of life among others, afforded the metaphysically curious status of being originally “a spiritual miracle that” – as a being situated outside of becoming – “would suddenly belong to an already given body, in which the “mental” would be grafted onto the “animal””. Indeed, as far as this particular evolutionary trajectory is concerned, Leroi-Gourhan finds that “the human does not descend from the monkey” by way of some process of complexification or development springing from out of the cerebral.²⁰ For the homininan body,²¹ as Stiegler writes following Leroi-Gourhan, “is *functionally* different from that of primates: in question is *another branch of the tree of evolution*. The psychic has its roots in a specific general physiological organization; it is first of all a state of the body – but it is not that alone” (IT1: 144, ca). It is not that alone, due to what the anatomical and physiological organization of the homininan both opens a space for and temporally *sets moving and advances*, namely what Leroi-Gourhan calls a *technical evolution* that while constituting a rupture *in* life, by no means entails a break *with* life (IT1: 163). After all, Stiegler characterizes technics, in this evolutionary context, as “the pursuit of life by means other than life” (IT1: 17).

Thinking of human evolution as having a technical component, in this way, is a thought that is arguably more readily available to us today. Not first and foremost due to the increased data set now available to palaeoanthropologists and palaeobiologists for constructing theories on human evolution, but, as such an evolutionary technical trajectory to

human becoming would entail a deeply intertwined relationship between human existence and technics, it is perhaps a stipulation more recognizable to us, and hence one more easily acceptable to us, due to the numerous technological breaks and transformations that have taken place over the course of the last few decades with, most notably, the invention and implementation of advanced information processing technologies and the emergence of new biotechnological opportunities, such as genetic engineering. For as Leroi-Gourhan succinctly states, in regards to the horizon through which the cerebralist theory and the traditional transcendental approach was established and became dominant: “Our eyes see only what they are prepared to see” (GS: 12).²² And the conclusion Leroi-Gourhan does reach, is one that the tradition would find particularly hard to swallow. Even we – as receivers of this tradition, as still being, to a large extent, believers in radical forms of human exceptionalism and deeply anthropocentric worldviews – would quite possibly find it difficult not to divert our eyes away from ourselves. For, as Leroi-Gourhan exclaims, we “were prepared to accept anything except to learn that it all began with the feet” (GS: 65).

For the central argument on which Leroi-Gourhan’s thesis is made is in actuality, as he himself admits, partially captured by the quote from Gregory of Nyssa that opened this section, since the key for Leroi-Gourhan – as it was for this sainted Christian bishop writing in the 4th century A.D. – is bipedalism. Indeed, the very “situation of the human, in the broadest sense,” is found “to be conditioned by erect posture” (GS: 19). For the evolutionary event of standing on one’s own two feet constitutes a simultaneous freeing of the hand from its locomotive function and the face from its grasping function, which, in turn, opens for the possibility of attaining fine motor skills through the coordination and manipulation of one’s hands, eyes and tongue. What Leroi-Gourhan calls an organism’s *anterior field* (*champ antérieur*) – “a ‘balance’ or equilibrium” that is achieved at each stage of evolution due to “the polarization of certain organs”, specifically between those “organs dedicated to locomotion and the forward-facing organs dedicated to orientation and prehension” – is thereby transformed by this new posture (GS: 28, Johnson 2013: 37).

Relating to Leroi-Gourhan’s above mentioned reversal of the anatomical before the cognitive – the manual before the reflective, the body before the brain, and the hand before the head – is, in this connection, his contention “that the development of nervous systems to ‘control’ the operations of the anterior field is secondary to the development of the skeleton, the mechanical infrastructure which articulates movement” (Johnson 2013: 37). Crucially, the transformation of the organism’s mechanical infrastructure brought about by erect posture – as having altered the “general economy of its mechanical and motor system” – is one “whose logical consequences are technicity and the forms of sociability they immediately imply” since, “the hand [in this way] will necessarily call for tools” – for moveable organs – while “the tools of the hand [at the same time] will necessarily call for the language of the face” (IT1: 144, 145) as they constitute “twin poles of the same apparatus” (GS: 20). For Leroi-Gourhan, then, in order to elaborate: “The freedom of the hand almost necessarily implies a technical activity different from the apes, and a hand that is free during locomotion, together with a short face and the absence of fangs, *commands the use of artificial organs, that is, of implements*: Erect posture, short face, free hand during locomotion, and possession of moveable implements – those are truly the fundamental criteria of humanity” (GS: 19, ea).

This new technical activity of handling artificial organs, having been made possible by the attainment of erect posture, is precisely what Leroi-Gourhan finds to eventually lead to the large brain and cerebral cortex associated with

Homo sapiens sapiens over and against, for instance, the far smaller brain of *Australopithecus*, which lived some 4 million years ago. The importance of this, at least as philosophical anthropology is concerned, is that the process of hominization is not found to begin nor to be the result of a fully-formed human intelligence, as was the case with Rousseau's "natural man", but enters a new phase with the strange figure of an early homininan with a very small brain, but with hands filled with simple flint tools. According to Leroi-Gourhan an evolutionary break has thus occurred, one he identifies with the coming into being of, what was then perceived to be the first known tool-user, *Paranthropus boisei*, which lived in Eastern Africa during the Pleistocene epoch from about 2.4 to 1.4 million years ago,²³ due to the technical activity, albeit incredibly limited, this being was capable of practicing through the construction, maintenance and use of, most especially, simple flint bifaces. Indeed, from that point onwards, as Gerald Moore summarizes: "The ensuing history of 'hominisation' is a direct result of the use of tools to manage our environment" (2013: 22). It is, in this way, that the prostheticity and technicity of the coupling between the homininan form and specific technical objects is found to *advance* a technical evolutionary trajectory, which finds its basis, therefore, in the specific material allowances and functional possibilities of the homininan's technical objects. In other words, the technicity opened by the joint *instrumental* formation of, so to speak, the hand and the handle, the actor and the stage, the tool-user and the tool, is what is decisive.²⁴

The instrumental coupling between tool-user and tool is, in other words, what constitutes the crucial element, as it propels the process of hominization forward in an entirely new evolutionary trajectory through the prosthetic "secretions" of the anthropoid's body and brain" in the form of technical objects, or, differently put, artificial and moveable organs (GS: 91). For by way of their function as exteriorizations of the skeletal, nervous and cerebral system, the simple technical objects handled by our terribly ancient ancestors gradually shortened the immense jaw and large "anterior tooth row" inherited from the great apes (GS: 67). Specifically doing so, due to the fact that by means of these tools food could now be prepared, which would lessen shewing time and lower the energy expended on food intake, while more high-nutrition animal foods would be possible to catch, which would be necessary as "brain tissue requires 22 times the energy of skeletal muscle" (Garman 2012). As concerns the biface and this stage of human evolution, its function would be, then, as, for instance, an externalized tooth (shewing) and as an external enhancement of the potential power and violence inflicted by the hand (cutting, pounding).²⁵ With the gradual shortening of the jaw it is, in short, "as though the brain had come gradually to occupy the anterior territories [of the skull] as these became free from the mechanical stresses of the face" and, as a result, it is through the practices opened by technical objects of these primitive hominians that "the convexity of [the skull gradually] opens up literally like a fan" (GS: 76). In this way, Leroi-Gourhan's evolutionary narrative finds that the very "corticalization of the human brain is made possible by the development of technics, or non-corporeal organs for living" (Moore 2013: 22). The prosthesis cannot, then, simply be tossed aside as a mere extension circumstantially attached to an already fully formed and active human body, but rather – as was noted in the previous section and by now hopefully somewhat clarified – for Stiegler "it is the constitution of this body *qua* "human" (the quotation marks belong to the constitution)" (IT1: 152, tm). Alterations made to the milieu *in which* and *with which* the homininan body operates and takes care rebounds back onto and transforms, therefore, the

cerebral and skeletal infrastructure; both of which, in light of this, have to be understood as having a technical history. Thus, Stiegler and Leroi-Gourhan agree with Simondon, and the quote of his that opened this chapter, that, “Every technical gesture engages the future, modifies both world and man, as the species whose environment that world is. The technical gesture does not exhaust itself in its utility as means; it leads to an immediate result, but also provokes a transformation in the environment, which rebounds onto living species, man included” (1965/2015: 19).

As part of the process of hominization the transformations provoked by the technical gesture operate, however, on a timescale that spans “countless millennia during which [the homininan’s] industry remained unchanged”. For between the *Australopithecus* and the *Neanderthalian* tools evolved so slowly that as Stiegler writes, “one can hardly imagine the human as its operator, that is, as its inventor; rather, one much more readily imagines the human as what is invented” (IT1: 134). In light of this Stiegler asks rhetorically, “Do we not see, in this original human, that “human nature” consists only in its technicity, in its denaturalization?” (IT1: 148) Can one throughout the process of hominization really identify a unity in which an essence of *the human* can be identified? Or is there, on the other hand, no “other permanence, in the vital phenomenon described. . . than the fact of technicity?” (IT1: 149). And if so, would not the origin of the human be nothing but a *default of origin* and its being be originarily inessential and technical? Answering the latter two questions in the positive, Stiegler advances the thesis that “the birth of the human *is* the appearance of technics” and hence that the human and the technical in a sense invents each other (Van Camp 2011: 72). The argument advanced is, then, following Leroi-Gourhan’s lead, that anthropo-logical becoming or *anthropogenesis* is mutually constitutive of techno-logical becoming or *technogenesis*. If such a thesis were to be accepted, it would entail that any questioning of the human – any anthropology, philosophical or otherwise – would have to be less about opposing the technical from the human and the idiomatic, than of describing and questioning their interplay.

This interplay concerns even our expressive or symbolic capabilities, since, as Stiegler summarizes, “technicity *qua* exteriorization implies an organic link between hand and face – between gesture and speech – which presupposes a shared competence, “zones of association” where the relations between cortical zones are redistributed” (IT1: 149). And since, as Leroi-Gourhan asserts, “neurological experiments have demonstrated that the zones of association that surround the motor cortex of the face and hand are jointly involved in producing phonetic or graphic symbols” (GS: 88), it would seem that, due to the continuity of the general makeup of the homininan’s anterior field – of the continued technicity opened by the freeing of the hand and the face by erect posture, and the connection immediately established between them through the technical gesture – that the process of exteriorization “must also have engendered language”. Starting with, at least, *Paranthropus boisei* there must, in other words, “have been the possibility of speech” (IT1: 149). The emergence of the symbolic, and with it reflection and abstraction, does not, then, take place in stages *as such*. Rather, what constitute “subject” and “object” construct each other in the same technical gesture that constitutes the practical enactment of the coupling of tool and tool-user. Leroi-Gourhan, therefore, finds his argument to have established that

“as soon as there are prehistoric tools, there is a possibility of a prehistoric language, for tools and language are neurologically linked and cannot be dissociated within the social structure of humankind.” In fact, then: “The organic link appears to be strong enough to justify crediting the Australopithecinae and the Archanthropians with language at a level corresponding to that of their tools” (GS: 114).²⁶

Leroi-Gourhan's description of hominization can be read as being inherently paradoxical in this regard, since "the interior" is said to be constituted in the very act of technical exteriorization, which would mean that act does not proceed from out of an already established interiority. This is what Stiegler finds Leroi-Gourhan's critique of cerebralism, in the final instance, to entail. The reluctance of the occidental philosophical tradition to address the relationship between technics and existence – in this case, represented by the approach typified by traditional transcendental anthropology and the cerebralist theory of human evolution – has left this possible conceptualization – that "interior and exterior are. . . constituted in a movement that invents both one and the other" – critically underexplored (IT1: 142). This is, however, precisely what Stiegler's project is centred on, as he finds the co-constitution of interior and exterior – of human and technics – to be one wherein "neither one precedes the other," and hence, as is crucial, "neither is the origin of the other, the origin being the coming into adequacy [*con-venance*] or the simultaneous arrival of the two" (IT1: 152). Which means, stated in material terms and in regards to the advancement of the cerebral cortex, that the cortex is informed by the tool just as much as the tool is informed by the cortex; indeed their mutual constitution coming about as if they were reflected back onto each other by way of a mirror. In this way, and as was mentioned concerning the immensely slow speed with which the evolution of primitive tools and the cerebral cortex advanced, the process of invention is not simply of the human's own making, but springs from out of "a singular process of structural coupling" between the homininan and the materiality of its tools (IT1: 158). Between the figure of *Australopithecus*, or at least that of *Paranthropus boisei*, and our most recent ancestors within the genus *Homo*, and hence during the entire process of hominization, one could, in this connection, argue that "the coupling flint/cortex, living matter/inert matter, will be elaborated, [only] when a double plasticity will be woven, where the hardness of mineral matter will both inform and be informed in the fluidity of "spiritual" immateriality (which is still matter, a mode of being, differing and deferring, of matter)" (IT1: 142).

This structural coupling constitutes what Stiegler calls an *instrumental maieutic*, which is what, so to speak, gives birth to the human by means of technical objects and the technical gestures they make possible. The dual sense of the term maieutic should be called attention to in this regard, as it for Stiegler serves to name the invention or bringing forth of the human not merely by way of its etymological root in the ancient Greek word for midwife (*maia*) and things pertaining to midwifery (*maientikoi*), but also as it refers to the dialectics of the Socratic method of the *elenchus*, whose questions and answers are meant to elicit or give birth to knowledge and critical thinking. This duality of sense is important, as the mirror, if you like, of the instrumental maieutic does something akin to the *elenchus* of Socrates, but rather than eliciting knowledge of *theoria* and the logics of argumentation and reasoning, it can be seen as a maieutic of *τέχνη*, if you will, which is advanced through the trial and error of fabrication and invention. For as Leroi-Gourhan spells out in regards to his history of the development of hand axes: "In the making of anything is a *dialogue* between the maker and the material employed" (GS: 306, ea.). In this regard, the instrumental maieutic that forwards hominization is made up of "a succession of 'mirror stages'" related to the specific makeup of the technical milieu that characterizes each given stage of the process. Transformations of the early homininan's technical milieu – i.e. the very gradual complexifications of the tools or *instrumental stereotypes* that populate them – is, then, what brings about this succession of mirrors, since tools

such as the flint biface constitutes the surface, so to speak, through which this mirroring can occur. The central question is, in this regard, that of memory and what more specifically makes both generational transmittance and the evolutionary process of hominization possible. In this connection, Stiegler asks;

“where is the memory of the stereotype kept, if not in the material trace of the stereotype in which the preexisting tool itself consists, repeated, duplicated by its “maker” and guiding the latter much more than being guided by him or her? In this sense, the archaic cortex and equipment are codetermined in a structural coupling of a particular sort [that, in the first instance, was flint]” (TT1: 158).

It is in light of observations such as these that Stiegler concludes that a tool is “before anything else, memory” due to its role and function as a technical exteriorized memory through which life, and in particular human life, can advance by means other than life (TT1: 254). This memory, as it constitutes an organized, but nevertheless, inorganic form of matter, is named an *epiphylogenetic* or *techno-logical* third memory, as distinguished from the primary *genetic* and secondary *epigenetic* memory already familiar to any student of life.²⁷ The process of hominization can be described, in this way, as a process of *epiphylogenesis* rebounding back onto the *genetic* and *epigenetic* levels – onto the *germen* and *soma* – and their respective evolutionary programs, understood phylogenetically, and the specific individual configuration of a human and its being, understood ontogenetically. In regards to the earliest hominians Stiegler, therefore, contends that their way of life, while immensely foreign to contemporary human beings, was nevertheless “already govern by epigenesis as epiphylogenesis, that is, by an epigenesis that the flint support conserves” as it already was *informed* by an exteriorized, and hence technological memory (TT1: 142). This is in fact the crux of Stiegler’s argument, namely that “the human achieves self-reflexive consciousness through its manual engagement with the material world” (Johnson 2013: 38).

The advent of the technical and the human does not, however, constitute a “transition from a fully programmed living being to a being guided by no program whatsoever,” as that would merely reinstate the miracle thesis of humanity’s ascent held by transcendental anthropology at a different level, instead it marks “the transition from a genetic program to a techno-logical or. . . *epiphylogenetic* program” (Van Camp 2011: 70). This suggests that the coupling between technical objects and the body of an hominian animal, by inaugurating a techno-logical evolutionary process, also marks “the hominids’ departure from *purely* biological evolution” since the “impermeable “barrier” between *germen* and *soma*, genetic memory and the memory of the individual nervous system,” is *techno-logically* broken by the perseverance of technical objects that inform these biological programs (Moore 2013: 22, ea). Techno-logical programming is, then, a break *in* life, but not *with* life, as was noted, since it adds something to the differentiation process that we call life, and hence does not depart from vital differentiation processes altogether. The human is, in other words, both animal and technical at the same time, and hence not simply either. It is, then, a technical animal, and hence not an animal to which a technical prosthesis has been grafted onto as if to free it from the determinism of genetic programming. Indeed, Stiegler seems to speak of the human *qua* animal and of consciousness *qua* technics.

It should be noted that Stiegler’s primary interest is not, in fact, the being we call human in this regard. His focus lies instead with the structure of experience opened when a being enters a mutual constitute relation with technical objects. As Stiegler himself states, he is interested in how technicity opens up a form of life that is temporal, and that hence “has to decide what it is to become (and it so happens that this form of life is still called man today)” (2003, 158).

However, while Stiegler sets out to clarify what differentiates the form of life that is characterized by temporality, anticipation and directed action from that of other animals and other ways of being by way of his investigation of technics, he is not oblivious to the fact that, for instance, some of our closest genetic ancestors, like the chimpanzee and the Pan genus more generally, have been observed to use primitive tools and hence to be able to habituate certain techniques and technical gestures as well (see Pruetz & Bertolani. 2007, Carvalho et. al. 2008, and Mercader et. al. 2007). This need not, however, constitute a decisive blow for Leroi-Gourhan's palaeoanthropological argument and narrative, who, having written *Gesture and Speech* before studies on tool-use among chimpanzees had been published, could have been unaware of this fact. Stiegler responded, at any rate, as part of an interview conducted in 2004, to this potential problem for his thesis on the mutual constitutive relation between *anthropogenesis* and *technogenesis*, as follows:

"If you would object to me that certain large apes also have cultures, then I would say that I am willing to accept them as members of the world which starts with the human – in other words, as embryonic fabricators of this third type of memory. I would most certainly allow them to enter human history. As a matter of fact, that is the reason why they are so close to us" (2004b: 49, trans. in Van Camp 2011: 77).

Like Heidegger before him, with his choice of the locution 'Dasein' instead of 'human being', Stiegler therefore prefers to talk about 'the who' and 'the what' rather than 'the human' and 'the thing' as he attempts to problematize the traditional oppositional pair consisting of, on the one hand, an active and autonomous 'subject' possession an interiority, which the traditional signification of 'man' or 'human' connotes, and, on the other, a passive and automatic 'object' that is purely given by its exteriority, which is a position both the machine and the animal have traditionally been categorically placed in, at least as far as philosophical anthropology is concerned. However, if we accept as false and illusionary the way in which traditional and transcendental philosophical anthropology have treated the animal as a homogenous category – and how this traditional approach, as a result of this, has effaced the actual singularity and multiplicity of animal life – we are still left with the challenge of figuring out what constitutes the singularity of the human animal, which also no longer can be characterized homogeneously as having an essence that can be settled and defined once and for all. Indeed, as Stiegler succinctly puts it, "the contestation of oppositions must not eliminate the genesis of differences" (IT1: 163). The mutual constitution of *anthropogenesis* and *technogenesis* being one such generator of differentiation in the web of life, I therefore do not agree with Arthur Bradley's critique that Stiegler's incorporation of chimpanzees into this technological differentiation process is indicative of a tendency to violently "absorb every apparent exception into the narrative of hominization" (2006: 98). One could, in fact, reply that Leroi-Gourhan's notion of 'program' instead constitutes a "non-anthropocentric concept that does not take for granted the usual divides between animality and humanity" (IT1: 137).

Derrida's implicit critique of Stiegler's thesis, as regards the human-animal distinction, in *The Animal Therefore I Am*, on the other hand, of a more subtle character, as Derrida holds that the occidental tradition has established the superiority of the human over against the animal, not from out of a superior faculty, but rather on the basis of humanity's originary fault or lack, which he believes is best explicated with the Greek myth of Prometheus and Epimetheus (2008: 45); a myth that Stiegler himself uses to heuristically summarize his position, as I will come back to in section 3.4. Derrida thereby charges his former doctoral student, as does Derridean scholars like Ben Roberts (2005) and Geoffrey Bennington (1996), with having repeated the very core of the anthropocentrism inherent in the occidental tradition,

albeit in a more sophisticated dressing, by demarcating the singularity of the human by way of a distinction between *epigenesis* and *epiphylogenesis* and the technicity operative between them. While it is difficult, as Derrida would be the first to admit, to avoid the twin pitfalls of biological reductionism and positivism, on the one hand, and metaphysical humanism and rationalism, on the other, when negotiating what constitutes the anthropological limit of what is and is not human, I cannot see that Stiegler easily falls into either trap, nor, for that matter, the snare of anthropologism. And this because, in brief, his thinking is not interested in tracing lines of demarcation or limits for categorization and classification, but rather it is occupied with detailing processes of differentiation and individuation, and the singularity of said processes.

Stiegler could actually, in this connection, be seen to take on the challenge of thinking *existence*, whoever might count as *existents*, more seriously than Derrida, especially due to the manner in which this challenge is currently presented to us in the form of the Anthropocene; the dawn of the new age of the human. A situation and an epochal transformation that necessitates not just that one initiates efforts at reorientation in regards to one's animal other, as well as a new valuation of the ecosystems that surround us and through which we breath and find nourishment, but equally it calls for a reorientation of who we ourselves are and who we might have become in light of our role as the significant geological impactor on the total Earth system.²⁸ The critique offered by Derrida could, in fact, be turned on its head in this regard, since Derrida's thesis of the radical powerlessness of humans and animals alike seems to beg the question of how we have arrived at our current *techno-logical* and *anthropocenic* destination if not by means of technological power and hence through technological transformations of the environment (Derrida 2008). Transformations of which, that we as individuals might to a certain extent be powerless in the face of, but that we nevertheless bear responsibility for, as our *way of being* is what has brought this epoch *into being*. Indeed, the seeming absence of differentiation between forms of life and ways of living in Derrida's thought, and the risk of falling into a kind of *continuumism* which results from it – a fall that, either through caution or hesitation, would precisely constitute an elimination of a genesis of differentiation (in this connection, technics) in an effort at combatting oppositional and binary thinking²⁹ –, is precisely what motivated Stiegler to write *Technics and Time, 1: The Fault of Epimetheus* (1994). For if human beings are also, as Heidegger found animals to be, “poor in world” and hence also, to a certain extent, an irreducibly *programmed* and captivated (*benommen*) being – if the human, in other words, “does not have unmediated access to the world either” – “then the specificity of the human program [of its way of being poor in the world] still remains to be thought” (Van Camp 2011: 69-70). A specificity that, as found with technics, constitutes the unthought of the occidental tradition, as was detailed in the previous chapter.

How, then, does the instrumental maieutic “of what is [still] called ‘humanity’” specifically differentiate this way of being from other forms and processes of differentiation? It does so, as has been noted, by constituting an *epiphylogenetic* memory, which allows for the transgenerational transmittance of specific operational and cultural programs. Operations and programs that the technical simultaneously make possible, being what facilitates the attainment of cognition, knowledge and consciousness *as we know it*. For, as mentioned, the maieutic works through the play of fabrication and invention in a manner similar to the *elenchus*, since it *in-forms* technical competences and skills by way of a repetition of what has come before; of what has already been laid out. The inherent *logistical* and operational problems of which, are

then subsequently encountered through breakdown and obstinacy, which as a result make the already habituated take on a problematic character. This has an evolutionary, as well as existential and temporal, significance, since what is transmitted in this regard contains a program or *syntax*, which thereby can elicit and structure technical practices beyond the death of any individual technical practitioner, whose competence and operative temporality is thereby not *epigenetically* lost, but perseveres by way of the *epiphylogenetic* exterior memory of the technical object and technical milieu in, through and with which the practitioner has practiced, and which as such *exalts* him or her as an individual. The significance of this is, to put it mildly, far reaching for Stiegler who writes the following in a passage that merits extended quotation:

“there is a history of techno-logical possibilities of anticipation—which is the history of the different mirror stages in which humanity reflects itself, and this is how that reflection takes place. This is the whole question of time, apprehended on the basis of the techno-logical problematic of artificial memory, always the memory of the human *qua* already-there. The already-there is the pre-given horizon of time, as the past that is mine but that I have nevertheless not lived, to which my sole access is through the traces left of that past. This means that there is no already-there, and therefore no relation to time, without artificial memory supports. The memory of the existence of the generations that preceded me, and without which I would be nothing, is bequeathed on such supports.” (TT1: 159)

On the basis of this assertion by Stiegler, and in regards to the reading of Heidegger offered in the previous section, I will argue that “primitive” Dasein, as described by Heidegger in §11 and §17, cannot be differentiated *in kind* to the one described in the third chapter of *SZ* (§§14-18). For it would appear that a being such as *Paranthropus boisei* or even *Australopithecus*, by the fact that it was able to produce and work with such useful things as flint bifaces, which as technical objects are capable of surviving the death of any individual hominin user and producer, and hence can constitute a technical exteriorized memory through which society and culture—even a “pebble culture” (GS: 90)—can develop, maintain and pass on a heritage and tradition, would exist in anticipation, and hence be temporal in Heidegger’s sense, as the very fact of technical practice would seem to entail an anticipatory existential structure like the one described in the existential analytic. For as Leroi-Gourhan makes clear, by making and using choppers or bifaces these beings would have had to possess an ability to deliberate, order and plan, since “the operations involved in making a tool anticipate the occasion for its use and the tool is preserved to be used on later occasions” (GS: 114, see also GS: 97). The process of tool manufacture and use of, by involving operational steps in a practical chain that is enacted in order to, for instance, bring forth a specific instrument, say a biface, from the raw materials it consists of, in this case flint, presupposes, therefore, a certain kind of anticipation and intentionality from the very first.

The existential temporality opened to Dasein, and for which this ontic mode of being is characterized as ontological on Heidegger’s view, is found, thereby, to be intimately intertwined with what Leroi-Gourhan calls the sequence or *chain of operations* that structure this being’s technical practice. This is so, moreover, since the enactment of such chains constitutes the very “acting out in time of knowledge and skill” in which the tools employed function as materializations and facilitators “of the interaction between humans and their environment.” And, as argued for in the previous section, it is through technical practice with useful things at-hand that the ontological category of the on-hand is first experientially opened, and from whence it is ultimately derived. Hence, in summary, the technical gestures enacted in specific chains of operations are fundamentally ambiguous, as they are “at once individual and collective, concrete and abstract” and, one could add, both probable and improbable, programmed and unprogrammed, by being based on a

“syntax” – on a “learned patterns of behavior” (Chaez 2004) – that “imparts both fixity and flexibility” to the technical practitioner through the delimited space of possibility opened by the tradition transmitted by way of technics; by way of, in other words, an exteriorized technical memory that, in this way, functions as the basis for sociality and culture. For, as was detailed above, this “operating syntax” is paralleled in language and the symbolic (GS: 114).

Heidegger, however, explicitly denies this in §17 of *SZ* when he writes that the use of signs characteristic of “primitive” Dasein “remains completely within an “immediate” being-in-the-world” and hence “for primitive people the sign coincides with what it indicates” as “the sign has *not yet* become free from that for which it is a sign.” This means, according to Heidegger, “that signs are not discovered as useful things, that ultimately what is “at hand” in the world does not have the kind of being of useful things at all” for “primitive” Dasein (*SZ*: 81-2). One is lead to believe, on the basis of such a description, that the being of “primitive” Dasein is akin to the captivated animality that Heidegger describes as “poor in world”, since it does not have access to the *as-structure* (*Als-struktur*) that characterizes Dasein’s being as ontological, and hence lacks what makes Dasein a being for whom its own being constitutes a task to be decided upon (GA 29 & 30/1995: 271). Heidegger can be read as, therefore, denying so-called primitive peoples, and with them the beings situated at earlier stages of hominization, the opening that makes existence – that makes *being-there* – possible. One could even ask if “primitive” Dasein at all possesses “the hand” that was found to characterize the everydayness of Dasein, since the things it encounters does not have the character of being useful things at all, since this primitive being is completely captivated (*benommen*) and hence also completely incapable of reflection (*Besonnenheit*) according to this view. Arguably this exclusion of “primitive” Dasein posits a human without humanity akin to Aristotle’s highly problematic construction of a natural slave, since the bodily and technical *captivity* of the primitive’s being is determined by its mindlessness – as it cannot orientate itself, and hence cannot *find itself* through reflection, abstraction and symbolic activity – being totally dominated by the use of its body through technical activity to such an extent that there appears to be no space opened for escaping its slavishness. Does such a primitive being even *exist* then? Does it *die* or simply *perish*? For what path is actually opened to it for grasping its own finitude, and hence for being temporal?

Heidegger seems to entertain the possibility that it does not, and indeed cannot grasp, its own being and hence be individuated, when he writes that; “Perhaps this ontological guideline (handiness and useful things), too can provide nothing for an interpretation of the primitive world, and certainly for an ontology of thingliness” (*SZ*: 82). In this regard, one wonders: When does the mode of being called Dasein come into being? When does the opening for reflection take place and what makes this opening possible? Is a certain techno-logical structure necessary for beings to perceive something *as* something? If so, what would primordially open for the appearance of the “as such” for beings that, before this appearance, are found to be completely captivated and determined? With the brief remarks Heidegger makes concerning the poverty of world of “primitive” Dasein in *SZ* one detects the subterranean return of the metaphysics of the onto-theological tradition and the decoupling of intellectual reflection from technical captivity; for how can the former spring from out the latter by way of anything other than a spiritual miracle? On the other hand, Heidegger writes in 1929 that more “original than the human is the finitude of Dasein in him” and states in §11 of *SZ* that “primitive

Dasein also has its possibilities of noneveryday being, and it has *its* own specific everydayness” (GA 3: 229/1997: 160, SZ: 51). Again, one encounter the ambiguity and inexplicitness of Heidegger’s early thought; an ambiguity, however, that is specified over the course of Heidegger’s late period as will be detailed in the following section.

Before doing so, however, I will note how Stiegler finds Leroi-Gourhan to have made a comparable mistake to the one described above in regards to Heidegger and his understanding of “primitive” Dasein, albeit in the opposite direction, so to speak, since the pitfall the former arguably commits is positivism through empirical anthropology and for the latter it is metaphysical humanism through transcendental anthropology. For both, however, the mistake consists in granting, according to Stiegler, the human a “second origin” in which intellection proper is introduced at a later stage than the technical and its techniques, which would entail that thinking and technics are not originally constituted in a single stroke. For as Leroi-Gourhan writes: “The emergence of tools as a *species characteristic* marks the frontier between animal and human, initiating a *long transitional period* during which *sociology slowly took over from zoology*” (GS: 90, ea). Leroi-Gourhan’s understanding of *technogenesis* could, therefore, be read as “*essentially* of zoological origin” (TT1: 156), since according to him “tools were still, *to a large extent*, a direct emanation of *species behavior*” in the case of hominians like *Paranthropus boisei* (GS: 97, ea). Originaly technicity and techno-logical evolution is, then, to a large extent determined by the genetic instinct of conservation and not to any kind of existentiality akin to Dasein’s everyday mode being as care (*Sorge*) described by Heidegger. This would mean, ultimately, “that archaic humans will finally not have been fully human, and thus not humans at all” (TT1: 157). For “as in Rousseau, in Leroi-Gourhan *Homo faber* is fundamentally only an animal” (TT: 162). What counts as fully human would only be brought into being with the coming of a second origin, in which something is *added* from outside of the technical and its techno-logical structuration. From *somewhere* else, then, arrives a nontechnical, reflective and symbolic intelligence (TT1: 156). But from whence does it arrive? What in Leroi-Gourhan’s narrative can explain the emergence of a non-determined creative intelligence from out of what now appears to be a technicity forwarded by genetically programmed *species behavior*? In other words, like the *aporia* of Heidegger’s descriptions of “primitive” Dasein, one is lead to ask: “How is such a great interval bridged?” (TT1: 162).

The problematic distinction and transition between the figure of *Homo faber* and *Homo sapiens* is thus reintroduced, according to Stiegler, by way of Leroi-Gourhan’s positing of a purely technical intelligence up against the emergence of a later symbolic one. He would thus also reinstate the traditional oppositions between the unreflective manual hand of technics and *tékhné*, on the one side, and the reflective head of spirituality and *epistémé*, *logos*, and *sophia*, on the other, that I found to characterize the underlying philosophical anthropology of, respectively, the engineering approach and the humanities approach to the philosophy of technology. In Leroi-Gourhan’s case this would, however, be a highly strange thing to do, as it would contradict his original intention of furnishing a theory of *anthropogenesis* corresponding point by point to a *technogenesis* (TT1: 45). And stranger still it would entail assigning “a determining role—so severely criticized earlier—to the brain” as it functions as the chief operator and instigator of the coming into being of this second origin (TT1: 157). Nevertheless, Leroi-Gourhan does state, as Stiegler quotes him, that with the Neanderthal: “we witness the first upsurge of *new aptitudes of the brain* that both counterbalance and stimulate technicity... The *reflective intelligence*, which not only grasps *the relationship between different phenomena* but is capable of *externalizing a symbolic representation* of that relationship, was the ultimate

acquisition of the vertebrates. It cannot be conceived of before the anthropoid age. . . This all happens, *on the plane of "gratuitous" intellectual operations*, as if the gradual development of the frontal and prefrontal areas entailed a *progressively growing faculty for representation?* (GS: 107, quoted in TT1: 162, Stiegler's emphasis).

The problem of introducing such a second origin is the interval or gap that it opens between *technogenesis* and the arrival of what truly constitutes an *anthropogenesis* in the form of symbolic intelligence. Leroi-Gourhan concedes that language and the symbolic is already found with the coming into being of technicity, but it is limited "to a simple *play of technical symbols*. As if a symbol could be "simply technical" (TT1: 165). However, if there is language, as Stiegler writes echoing Saussure, there has to be signs "that are not simply signals. . . [and] a sign that is not a signal is a symbol designating a generality, a conceptual class, always already an "abstraction," and not a unique and singular referent – for in that case there would have to be as many signs as there are realities to designate. . . A "concrete language" is therefore a contradictory concept" (TT1: 166). In this way "a language cannot be conceived that is not immediately an idiomatic differentiation" (TT1: 155). And hence, due to the deep connection between hand and face – between technics and language as forms of *expressions* – that Leroi-Gourhan himself described in the form of the neurological link between tool and language (GS: 114), "the new organization of life" that characterizes what we call human life, and which Stiegler calls *epiphylogenetic*, must already be in place with exteriorization; with "life organizing the inorganic and organizing itself by that very fact" (TT1: 163).

Is, however, Stiegler's criticism of Leroi-Gourhan really fair? After all *Gesture and Speech* is ostensibly a work of palaeontology and palaeoanthropology, which more often than not would entail a difference of perspective, interest and emphasis between Leroi-Gourhan's investigation of and enquire into the developmental stages of hominization and the highly philosophical inquiry and outlook of Stiegler and his philosophy of technology.³⁰ In this regard, while I agree with Stiegler's criticism regarding the positing of a difference between a purely technical and a subsequent symbolic intelligence, I do find his seeming disregard for the developmental and emergent to be problematic, even worrying. For in his search for the essential and originary, Stiegler loses sight of the concrete and specific; of what, in other words, is differentiated in the differentiation process he describes. Indeed, as was noted in the previous chapter, Stiegler comes off as a rather impatient reader in this regard; one that, it would seem, does not rejoice in the multiplicity of investigations found within the bindings of a radically encyclopaedic book such as *Gesture and Speech* and its account of the evolution of such things as axes and swords, jaws and cortices. Ultimately, then, Stiegler's reading of Leroi-Gourhan seem, as Christopher Johnson has argued, "temporally flat, characterised rhetorically by its repeated reference to *Zinjanthropus*-Neanderthal as a singular evolutionary sequence" (2013: 42). This can be seen as a result of Stiegler firmly Heideggerian perspective, whose interest lies in the always already, the as such, and the ontological, rather than the ontic.

In order to return to the problematic of genetics and species behaviour in regards to *epiphylogenesis*, it should be noted that Stiegler is quick to point out that while a new form of differentiation has been inaugurated with the coming into being of this techno-logical differentiation process, genetic differentiation does not in any way seize being operative, but continues to co-determine the process of hominization. The crucial point, however, is that the genetic "on longer governs" (TT1: 157), as "technical differentiation presupposes full-fledged anticipation" from the first tool-user onwards. And as such the birthing of this form of life is simultaneously the birthing of death, as Heidegger understood it, since

“such anticipation can only be a relation to death” (TT1: 163). In this regard, a *purely* empirical study of hominization is, in and of itself, insufficient, as it cannot raise the transcendental question of the origin and of temporality, for which transcendental speculation is necessary. Leroi-Gourhan acknowledges as much, not just implicitly by way of his highly philosophical corpus of works, but also explicitly by way of a remark made in *Évolution et techniques*, as part of which he writes that “the paths of paleontology cannot be traveled by the paleontologist” (1943: 22, quoted in TT1: 50). When addressing the conjoined questions of technics and existence the empirical and the transcendental cannot and should not, then, be categorically and methodologically separated, as that would inform a disciplinary divide, rather than shed light upon the ways in which the empirical and material “what” *informs* and grounds the possibility of the transcendence of “the who.” The study of existence and technics – of the conjugation of technics and time – demands in this regard a transcendental reflection that is empirically responsible, which thereby grasps the necessity of studying the history of the compositions of the two. In other words, one has to study the combined history of *anthropogenesis* and *technogenesis*.

In summary, then, and as have hopefully become clear by way of the preceding, if there is a technical evolution of human life this will entail that a techno-logical structuration is necessarily involved in the configuration and constitution of existence from the very first. Human beings are thereby irreducibly technical beings, even if the earliest configurations of this existent – which would not qualify as being biologically *Homo sapiens sapiens* – undoubtedly constituted a radically different existential frame and worldly milieu than the contemporary world with its complex technical objects and technologies. The prosthesis, and with it the process of differentiation Stiegler calls *epiphylogenesis*, does not supplement for an originary loss, however, as one might perhaps be lead to believe, for there is in fact *nothing* to lose as there is nothing but a de-fault of origin, as I will detail in section 3.4. With the coming into being of an exteriorized memory and the *logos* of *tékhnē* that it makes possible and transmits, something is nevertheless *added*. For through the prosthetic an originary complex is formed in which the exterior and interior comes to be in an initial composition, wherein neither arrives before the other. The existential structure is, therefore, constituted by an originary technicity found with the process of *exteriorization* according to Stiegler. The meaning and significance of the passage quoted from *Technics and Time, 1* in the preceding section on the early Heidegger, the existential analytic and ‘the hand’ will hopefully now appear, on the basis of what has been stated over the course of this section, in a clearer light, for by *prosthesis* one reads; “(1) set in front, or spatialization (de-distancing); (2) set in advance, already there (past) and anticipation (foresight), that is temporalization” (TT1: 152). This is, in short, what the two first sections of this chapter have described and argued for through the thought of the early Heidegger, Leroi-Gourhan and the first part of Stiegler’s *Technics and Time, 1*. The next two sections will shift our attention towards the late Heidegger and the second part of Stiegler’s book in respectively section 3.3 and 3.4. As part of which I will criticize Heidegger for holding that the essence of technics is nothing technical and detail how such a view leads him to construct a distanced role for the philosopher in regards to technics. Concerning Stiegler, in contrast, I will argue that his philosophy clears a promising path for thinking about existence as originally technical as a result of which the relationship between the transcendental and the empirical, as well as the role of the philosopher vis-à-vis the role of the technician, has to be rethought, as the pure opposition between thinking and technics is undermined.

3.3 The judgement of technics and the hand as idealized figure: The late Heidegger on the essence of technics and the role of the philosopher

In the second part of *Gesture and Speech* Leroi-Gourhan ends a chapter entitled “Gesture and Program” by pointing out that technicity today has, in a certain sense, become “demanualized” (GS: 255). For “now that the age of the axe is past” the machine has to a large extent replaced the human tool-user as the technical individual operative in the contemporary industrial chain of production, meaning that the hand of industry is no longer necessarily a human one (GS: 308). This latter development is not to be mourned according to Leroi-Gourhan, in contrast to the late Heidegger, as the preceding “Age of Steam” was possibly “the age of the cruelest enslavement of the manual worker” (GS: 247). The former development, that technical practice has become less handy, is, however, something Leroi-Gourhan finds troubling even for our neurological makeup, since he contends that: “The dwindling importance of the makeshift organ that is our hand would not matter a great deal if there were not overwhelming evidence to prove that its activity is closely related to the balance of the brain areas with which it is connected.” In this regard, for Leroi-Gourhan not “having to “think with one’s fingers” is equivalent to lacking a part of one’s normally, phylogenetically human mind” and hence what he terms “the regression of the hand” constitutes a problem for the dawning information age of his time (GS: 255).

Describing such a “fate of the hand” might appear somewhat antiquated and old-fashioned to us today in light of the fact that we employ our hands and fingers or *digits* when handling, for instance, our touchscreen smartphones and tablets or playing in front of our televisions with gaming consoles such as the Nintendo Wii (see Crogan 2010b). For are we not witnessing in this connection a return and resurgence of “the hand” and handy forms of interaction, now moved onto the digital realm? For has anything really changed from the situation of chopping down trees and harnessing wood with manual hand axes to chopping down pixelated trees scattered across the virtual playfield of the game Minecraft with the touch of one’s fingers onto the screen of a tablet? Naturally things are not as they were, notably the technical skills involved and the character of those skills are profoundly different. Concerning the topic of this section and the thought of the late Heidegger, what interests me in this regard is the possible parallel one can trace between, on the one hand, the current *programmatics of gesture* concerning how one adapts to and incorporates the ways and means of doing and making things through the implementation of such devices as the touchscreen smartphone or tablet, and what Leroi-Gourhan called “the “Taylorization” of gestures” found with the industrial production process of the assembly line, on the other.

For could not the introduction and implementation of contemporary devices, and especially the way in which we have adapted to them, be said to affect a complete “technical deculturation” where one through the anonymity of a mass produced technical object, and through the *uncharacteristic* technical operations dictated by it, find ourselves technological deindividuated? Are we not, like *the industrial worker*, today analogically required to “perform parts of sequences measured at the rhythm of the machine, [whose] series of gestures. . .excluded the worker as an individual”, when we conform to the rhythms dictated to us by way of the measured sequences of operations that our usage of our mobile touchscreen smartphones entail? Is, in other words, not *the consumer* also excluded thereby as an individual (GS: 253)?

In the late 1960s Heidegger acknowledges that with the invention and implementation of radically new

modern technical objects and technologies “*modern man finds himself henceforth in a fundamentally new relation to being*” (GA 15/2003: 62). Modern human beings are, however, ignorant of this transformation as they are unaware of who they have become as a result of it, as Max Scheler already noted in the 1920s (1976: 120, GA 15/2003: 62). This would suggest that transformations of our technical framework *achieves* beyond our cultural and societal frame, which in this sense is *delayed* in relation to the acceleration of its technical baseline structure in a manner that resembles and is related to the way in which the corporeal was found to advance in relation to the delayed development and response of the brain and the cognitive in the technical evolutionary process described by Leroi-Gourhan and detailed in the previous section.

However, for the late Heidegger this new relation to being is so drastic and so grave that “there reigns a complete forgetfulness of being, a complete concealment of being” under such a techno-logical framework. In this regard, Heidegger revealingly suggests that the human “does not hold technics *in his hand*.” Rather, the human has become “its plaything” (GA 15/2003: 63, tm. ea). Technics has, so to speak, run amok and taken over the steering wheel when leaving the proximity and technical competence of “the realm” or anterior milieu of the human hand. However, the wheel was never something humans had control of in the first place, since technical objects and technologies have never been understood as mere means or instruments for Heidegger, while the significance of technical practice has never been limited to being solely one human activity among others in his philosophy (GA 7/1977: 4). The anthropological-instrumental definition of technics that was described in section 2.2, while possibly *correct*, sidesteps, therefore, entirely what Heidegger is after in his late period, and specifically when he questions the essence of technics in his 1954-essay “Die Frage nach der Technik” (GA 7/1977). For remembering that Heidegger described how both forgetting and illumination are inscribed in an always already laid out techno-logical structure into which Dasein is primordially thrown in *SZ*, what is of the essence of the question concerning technics for the late Heidegger is *how* technics is related to knowledge and the ways in which the world “shows itself” through a *disclosure*, in the sense of a delimited *dawning* or opening. Heidegger is interested in describing, then, how modern technics discloses and reveals the world in his time. In the following I will detail how this techno-logical disclosure of the world places modern human beings in a new relation, as Heidegger describes it in some of his writings from the early 40s to the early 1970s.

At first glance, “as one may surmise” by the passages quoted from above, it should come as no surprise that the revealing of modern technics constitutes “*unfavorable*” circumstances, to put it mildly, for human reflection and thinking according to Heidegger (GA 15/2003: 51). Indeed, with the implementation of machine technologies and the advent of modern human existence the ground upon which thought is made possible and through which it takes form appear to be completely eviscerated, and paths for genuine thinking seem, therefore, to be decidedly closed off, even to the point where language no longer can preserve its truth and lead one into unconcealment through reflective disclosure. For in the modern world, as one is structured by a totalizing technical logic, one is thoroughly captivated. In fact, according to Heidegger one is a *captiv*e, “a slave to the forgetfulness of being” (GA 15/2003: 63). For under what Heidegger calls *das Gestell*—understood as a technoscientific framework that positions one as part of a techno-logical organization and an instrumentalist project—true individuation as a resolute self, as described in *SZ*, becomes nearly

impossible (GA 7/1977). For this way of revealing is characterized by Heidegger as a challenging forth (*Herausfordern*) of the world, in which all things show up as resources to be utilized. The appearance of products of nature through the process of bringing-forth (*Hervorbringen* or *poiesis*), as it was briefly described in *SZ*, has in this way gone through a transformation. For in this new situation of bringing near and setting-forth (*her-stellen*) nature, and the materials of which the products of industry are made, now appear merely as a homogeneous standing reserve or stockpile of resources (*Bestand*). The ontological framework of modern technics discloses and shows us, then, the world in an ontologically *indifferent* light, which in turn also makes us indifferent to the ontological difference between ontic instruments or tools and ontological existents, i.e. human beings. Indeed, “the greater the challenging of nature, the greater the challenge man imposes on himself” (GA 15/2003: 75). The revealing of nature as standing-reserve mirrors, therefore, the revealing of our own nature, so to speak. For the late Heidegger, the question concerning the human and its way of being is, in other words, deeply connected to the question concerning technics, as it was for the Heidegger of *Sein und Zeit*.

The configuration of the technical and the human in the modern world is, however, one that institutes a precarious situation in which, as the late Heidegger notes in 1969, “the human is challenged forth to comport himself in correspondence with exploitation and consumption; the relation to exploitation and consumption requires the human to *be* in this relationship” (GA 15/2003: 62-3). The mode of being described in *SZ* as the deindividuated mass comportment typical of *das Man* – of what *one* does – can, in this connection, be taken to resemble a slave or serf in regards to the technical logics and logistics this submerged being is unreflectively captivated by, and as such by *being* in this comportment he or she is indeed also *held captive*. The configuration of *das Man* is also techno-logically and historically shifting, then, but according to the late Heidegger it reaches a radical nihilistic endpoint with the coming of the information age, and with it the radical self-production of the human through technical means (GA 15/2003: 77).

Now, as concerns the possible parallel to be drawn between this state of affairs and the current condition characterized by, for instance, the gestural programmatic of our touchscreen smartphones and the many associated *smart devices* we use to interact with one another through *the World Wide Web*, I will elaborate upon how, more specifically, human beings have become slaves to modern technics according to the late Heidegger, by way of his analyses of the typewriter, the radio and the *business* of modern language use. In drawing this parallel my intension is not to praise Heidegger’s brief comments upon specific technologies as being in any way prophetic. By relating his assuredly antiquated critique of such things as the typewriter to technical objects dominant in our time my aim is, rather, to present Heidegger’s case from a more contemporary perspective, and thus better bring to light what ought to be salvaged from his conceptualization of technics, on the one hand, and what decidedly should be criticized and abandoned, on the other. Before doing so, however, the central thesis of Heidegger’s late period – that the essence of technics is nothing technical – will have to be further elucidated at some length due to its highly problematic ramifications.

In the opening pages of “Die Frage nach der Technik” Heidegger states his apparently paradoxical position by way of the following sentence: “the essence [*Wesen*] of technics is *by no means* anything technical” (GA 7/1977: 4, tm). When questioning technics one does not, in other words, ask *what* technics is, for the way in which technics endures and

stays technical over time does not have anything to do with *the means with which* technics holds sway. In other words, the way in which “[t]echnics *is* entrenched in our history” does not have its origin in facts such as that “the Russians, e.g. are always building more tractor factories”. The factual and technically operative is not primarily what is decisive;

“but, rather, it is this, that *the complete technical organization of the world* is already the metaphysical foundation for all plans and operations and that this foundation is experienced unconditionally and radically and *is brought into working completeness*. Insight into the “metaphysical” essence of technics is for us historically necessary if *the essence* of Western historical man is to be saved” (GA 54: 127, tm. ea.)

The specificity of concrete technical objects and technologies, and the way in which they are socioeconomically implemented, is not primarily, then, what the late Heidegger aims to address and respond to when raising the question concerning the essence of technics in an age influenced by machine technologies. Two questions announce themselves in this regard. Firstly, what role does in fact the technicity of technics have for the late Heidegger? And secondly, what role can and should the philosopher take when confronting the prospect of the complete fall of “Western historical man” into forgetfulness and nihilism, specifically as concerns technics and the role of “the technician”?

In reply to the first question, I would first like to note that Heidegger held that “technics itself is a contrivance [*Einrichtung*], or, in Latin, an *instrumentum*” (GA 7/1977: 5, tm.). *Instrumentum* signifies, in this connection, the function and capability of technical objects and technologies as something that can build up or arrange. Technics in the plural is, therefore, in line with the equivocal meaning of his concept of *the framework or setup (Gestell)*, *that which is set up* and *that with which* and *through which we set upon* the world in challenging it forth as standing-reserve as modern humans. What is it, then, that the technologies characteristic of industrial and mechanical production ultimately set up, in this regard? Heidegger’s answer is; a metaphysics. Indeed, these technologies are merely what *install* a latent thought pattern or attitude that in fact brought about their invention and implementation in the first place. Heidegger elaborates upon this point by stating that;

“technics understood as modern, i.e., as the technics of power machines [*Kraftmaschinentechnik*], is itself already a *consequence* [*Wesensfolge*] and not the *foundation* [*Grund*] of a transformation of the relation of Being to man. *Modern mechanical technics* [*Maschinentechnik*] is the “metaphysical” instrumentarium of such a transformation, referring back to a hidden essence of technics [*verborgenes Wesen der Technik*] that encompasses what the Greeks already called *tékhnē*. Perhaps the transformed relation of Being to man, appearing in technics, is of such a kind that Being has withdrawn itself from man and modern man [*neuzeitliche Mensch*] has been plunged into an eminent oblivion of Being” (GA 54: 127-8, tm.).

In other words, modern machine technologies are the contrivances – the instrumentarium – with which a hidden essence of technics, in the singular, going back to the ancient Greek notion of *tékhnē*, is brought to its working completeness. The origin, *Grund* or *archē* of the technological framework is, in other words, ancient and “in no way the product of *human machination*” (GA 15/2003: 74, ea.). Hence, rather than springing from out of human technicity and technical practice with technical objects – as it is not a product of human *instrumentality* or *equipmentality* – it is the technological framework as a metaphysics projecting “the complete technical organization of the world” that animates and *imposes* the *instrumentalism* of the *kind* of human (“*welche Art Mensch*”) that in modern times sets out to master and control technics through instrumental means, including themselves as *instruments* in the chain of production (GA 54: 127-8).

The essence of technics as a positioning framework (*Gestell*) is indeed for Heidegger “the most extreme form of the history of metaphysics,” as it sets out to effect “the self-production of man and society” in the form of Marxism – “the thought of today” –, which as leading one into “the most extreme nihilism” constitutes for the late Heidegger the

“destiny of being” in the epoch of *orderability* and *calculation*, as he states as part of a seminar in Zähringen in 1973 (GA 15/2003: 74, 77). In this connection, I will not detail Heidegger’s quite peculiar reading of Marxism, in what counts as his sole extended engagement with Marx, as the *metaphysical*, rather than political, harbinger of nihilism and consumerism through what Heidegger calls its twin imperatives of progress and the fabrication of ever-new needs (GA 15/2003: 73). I call attention to it here merely in order to clarify and strengthen my argument that for the late Heidegger modern technologies and concrete technical objects count as the mere ontic instruments through which an *ontological* technological order is installed. For “to guard philosophy from political thinking” as Heidegger here suggests, would not only betray “a refusal to think historical inscription” it would also, and “perhaps above all, [betray] a refusal to think material inscription” and along with it *what* technics actually is (Beardsworth 1995). For the materiality and technicity of technics is, at best, of a secondary importance when techno-logical transformations are understood to be essentially the bringing-forth and into completeness of the metaphysics of the occidental tradition. In fact, the history of technics, and indeed the history of technological politics (Heidegger mentions Marxism, Leninism and Bolshevism), would in this case be highly impoverished, as it would constitute the mere concretion and materialization of the history of metaphysics (GA 54: 127).

If this were the case, the study of technical object and technologies would be of little importance to the philosopher of technology as its origination and animating principle would lie with the metaphysical superstructure and not the physical *infrastructure*. One is, therefore, lead to conclude that for Heidegger the technicity of the technical object is inessential and not really what matters, since the logic behind the invention and implementation of the technical as such appear to be nothing technical. After all the origination of the contemporary techno-logical situation according to the position of the late Heidegger is in the final analysis Plato and Aristotle, rather than, say, a complex of various political, social and technical actors (see Zimmermann 1990). Regardless of the analysandum the analysis will, in other words, stay the same and produce the same monotonous conclusion as Graham Harman has pointed out (2009: 112). Every techno-logical development, every transformation, every form of exploitation and immiseration, is a working out of what was primordially instigated in its essence with the writings of the ancients. Heidegger’s implicit philosophical anthropology is, then, thoroughly transcendental as it entirely sidesteps the factual and empirical. Therefore, as was the case with Rousseau and the voice of nature, everything is already there at the origin. From thereon out the track is set for a gradual fall into blinding forgetfulness. At the end of whose tunnel human beings can no longer hear the call of being; the act of listening having finally been made impossible by the hustle and bustle of the machine and the modern city. The schema of Rousseau’s and Heidegger’s narratives is, in other words, highly similar, if not exactly the specifics of the stories they tell. In summary, then, concerning the significance of the technicity of technics, for the late Heidegger technics is in *the first instance* philosophical and not technical, transcendental and not empirical, ontological and not ontic.

In reply to the second question raised above concerning what the role of the philosopher might be when confronting this techno-logical immiseration, I would like to relate a little-known fact about “Die Frage nach der Technik”, namely that it grew out of lectures held in 1949 and 1950 for audiences consisting largely of technical workers and engineers (*die Techniker*) (I3: 257). What Heidegger thought the central argument of these talks might impart on such

an audience is unknown. For as must have perplexed the engineers in attendance, it is not this or that technical object, this machine, that technology, which is of the essence when addressing the modern condition. Rather, it is *the technical attitude (der technischen Einstellung)* as such, which springs, as described above, from out of the metaphysics of the occidental tradition. It is this metaphysics, then, that reigns, dominates and positions, and not the human engineers and technicians in attendance and the technological production and technical practice they oversee or undertake. In this regard, I would argue that Heidegger's sole avenue for action and intervention is to address and reform *the language* and attitude in, through and with which the technical is found to hold sway, which would be an intervention into the conceptual ecology of Western metaphysics, so to speak, and not an intervention into the technical ecology of things. What, then, is Heidegger asking of these engineers and technicians if not, in the final analysis, for them to become philosophers?

Now, following the argumentative tread of the previous chapter and the preceding sections, it should perhaps come as no surprise that I partially agree with Marx's famous saying, that while; "The philosophers have in different ways only *interpreted* the world; it is a matter of *transforming it*" (1888/1969: 15, tm.). This is a partial agreement, first and foremost, because a genuine opposition between an interpretation and a transformation of the world cannot be established, as Heidegger correctly notes when commenting upon this proposition as part of a seminar held in Le Thor in 1969 (GA 15/2003: 52). I would, however, raise the question with Marx and to Heidegger of what can and in fact does bring about transformations of interpretation? What, in other words, is capable of transforming the historically given configuration of the existential and phenomenological structure through which a thing appears *as* something for Dasein? As I have already noted, for Heidegger it is an ontological framework, in this case that of Western metaphysics, that animate such techno-logical transformations, since the technical *logos* is a product of metaphysical thinking. The calculative logic of the machine or computer appears to be a mere epiphenomenon, in this regard, of something more foundational and originary; as, indeed, the *erschöpfung* of an originary non-technical *logos* of *τέχνη*. In order to elaborate upon this as concerns the role of the philosopher, the context in which Heidegger engages with Marx should be noted.

For what Heidegger wishes to discuss with his fellow philosophers at this seminar in Le Thor – a young Giorgio Agamben being among its participants – is how a metaphysical language can "become a non-metaphysical language". Two general conditions are quickly identified: "(1) 'Inner illumination.' [and] (2) 'Favorable external circumstances'" (GA 15/2003: 50). Returning to the latter condition shortly, I will firstly look at the former, which Heidegger states will require "that being itself announces itself, or otherwise put, that the Dasein unfolds what *Being and Time* termed an "understanding of being"" (GA 15/2003: 51). A condition that Heidegger in 1942 saw as unfulfilled, as he found no *place* for such an understanding to *take place* in the modern world, even stating that "man can now no longer, or in the first place cannot yet, ponder the question raised in *Being and Time* as it is raised there" (GA 54: 128). The central question for Heidegger, namely the question of being, is in this sense not disclosed – it is, indeed, *out of the question* – for modern human beings; including people living in 1969 as Heidegger found them to be mere playthings of *die Technik*.

In this connection, Heidegger quite reasonably asks: "What practical consequences are to be drawn from this

state of affairs? In other words: What remains for the thinker to do?" His answer, as summarized by the participants of the seminar, is highly revealing in regards to the topic at hand:

"The current seminar already presents a kind of response, and, Heidegger says, "that is why I am here." It is a matter for a few of us to untiringly work outside of all publicness to keep alive a thinking that is attentive to being, knowing that this work must concern itself with laying the foundation, for a distant future, of a possibility of tradition – since obviously one cannot settle a two millennia heritage in ten or twenty years" (GA 15/2003: 51).

Now, while I appreciate the significance and necessity of transforming the conceptual framework through which the world becomes intelligible to us, and specifically how such an endeavour can be undertaken by way of the scholarly collaboration of a group of thinkers in the form of, for instance, a seminar such as the one held in Le Thor in 1969, I find Heidegger's renunciation of and disdain for a more engaged, technical and worldly approach to be worrying. For by locating the sole hope of warding off the supposedly grave danger of modern technics in the practice of a select few philosophers, and indeed the origination of this danger in the thought of a select few ancient philosophers, Heidegger does not seem to accredit much worth or relevance to the technical *as* technical. Is not Heidegger, like the tradition he criticizes, also domesticating technics and turning it into a kind of thought in this regard, specifically one that he as a philosopher and humanities scholar can analyse, describe, judge and understand without having to leave the comfort of both his study and his field of study? For what need is there of looking *outside* when the essence of technics is found to spring from such philosophically familiar territory as ancient Greek philosophy? As technics is found to be essentially nothing technical the response to its toxicity, so to speak, will have to be made at the same level of what the danger essentially is, which is metaphysical, and hence the attempt is made at articulating a non-metaphysical language that can escape the logic of technics. The ethos would, then, appear to be, echoing a statement made in Heidegger's essay "The Age of the World Picture", to belong to *being* and yet, amidst *beings*, remain a stranger (GA 5/2002b: 72).

This sentiment precisely encapsulates what the late Heidegger found to be the ideal attitude towards the world of modern technics and that he referred to under the signification *Gelassenheit*, which can be translated as "detachment" and whose etymological roots suggests that one is "to "let go" of the things of the world and cling to the things of God." One is, in other words, called on "to be *in* the (technological) world but not *of* that world, there in body but not in spirit" (Rojcewicz 2006: 214). The philosopher is, then, summoned to let go of technical objects, while also letting technological transformations go on, as he or she distances him- or herself from the lure of calculative thinking through which people "plan, research, organize, operate" and so on (GA 12: 46). The philosopher, then, has to position him- or herself outside of all result-directed activity and set aside the interests of ordinary and practical living. Indeed, the philosopher has to be, in an entirely classical fashion, *useless* in order to avoid thinking in terms of the technical and calculative attitude of *das Gestell*. A uselessness that relates to Heidegger's messianic hope as evidenced both by way of the above-quoted passage from 1969 and his famous statement made to *Der Spiegel* in 1966 in which he asserted that;

"philosophy will be unable to effect any immediate change in the current state of the world. This is true not only of philosophy but of all purely human reflection and endeavor. Only a god can save us. The only possibility available to us is that by thinking and poetizing we prepare a readiness for the appearance of a god. . ." (1976/81: 57).

Heidegger's privileging of the ontological perspective *over and above* that of acquiring knowledge of ontic beings, and relatedly his classical insistence upon the *uselessness* of speculative thought, is not a novelty of Heidegger's late period as

it is both articulated and practiced by way of his early writings as well (see SZ: 52). The way in which it is specified in his later writings would, however, appear to reinstate the highly problematic opposition and hygienic boundary between philosophy and the philosopher, on the one side, and technics and the technician, on the other, as I outlined in regards to ancient Greek philosophy in section 2.1. For, in accordance with Heidegger's late position, what is the age of modern technics essentially the age of, if not the age of the completion of Western metaphysics? And if so, what need is there, then, for the work of the technician? What role, echoing Heidegger's descriptions of the technical worker, can a mere tool play when it is the plaything of a *logos* that escapes the *tékhnē* of its grasp? Is not Heidegger, in this regard, taking refuge in a traditional understanding of the role of the philosopher vis-à-vis the technician? A refuge that, moreover, would reinstate the hierarchical devaluation of technics and technician alike, as, indeed, many of the above-quoted passages bear witness to a certain indifference of their own, namely towards the people dominated by modern technics. An indifference that arguably results from the late Heidegger's totalizing perspective – his view from above – when questioning technics predominantly in the singular and as an attitude, rather than an exteriorized and material memory.

This perspective arguably blinds him to the plurality and multiplicity of not just technical objects and technologies and the space of possibility they actually open for, but even to the plural character of the technicians found to be *held captive* in the assembly line of the industrial factory. For the picture of the modern human that emerges from Heidegger's later writings mirror, to a not insignificant extent, the descriptions given of the world-poor animal and the pure sensuous and technical captivation of “primitive” Dasein. This apparent equivalency between the animalistic and captivated, on the one hand, and industrial and mechanized technical practice, on the other, also echo the conceptualization of the essence of the human found in ancient Greek philosophy, as was also described in section 2.1. For the philosopher yet again takes on the position of the human *par excellence* as he or she lets go of the technical world, which “presents itself as the other of meaning, because *operativity*, as an organization that is regulated” (Sebbah 2015: 9). Attempting to avoid or at least mitigate the contamination affected by technical operations and the regulation of technical practice Heidegger's practical response to modern technics is then, in summary, retreat, detachment, and a thinking that has no practical applicability.

Returning, in this connection, to the second condition for the construction of a non-metaphysical language, Heidegger immediately identifies “two grave processes” in need of examination, which are both highly illuminating and revealing in regards to his privileging of the metaphysics of language *over and above* the technicity of the technical:

“a) The decline and impoverishment of language itself, which is entirely obvious if one compares the neediness of spoken language today with the riches of language still recorded by the brothers Grimm in the previous century. b) This triggers a reverse movement that aims at setting the standard of language in the possibilities of computer calculation. The danger here lies in *the fixing of language outside its natural possibilities of growth?*” (GA 15/2003: 51, ea).

Now, concerning these processes and the kind of being we have become in an age dominated by mechanical, informational and computational technologies, Heidegger notes that this being in its attempt, as one might say, to “get” technics “spiritually in *hand*” and hence of trying to master and control the technical, loses the very character of “the hand” that grasps skilfully and understandably (GA 7/1977: 5). This being “a hand” that is in touch with the material *with which it manipulates* as well as the material *of which* it brings things forth. Quite obviously, the figure Heidegger has in mind is

the artisanal craftsman. For through his or her *careful* practice, things at-hand can be encountered in their characteristic obstinacy, and the technical objects with which he or she crafts, as well as the materials of which the products of this craft are made, can appear as meaningful and singular. In this way, the craftsman comes into contact with the *character* of the tools and materials he or she works with, such as wood or steel, in a way that, for instance, my recent assembly of a set of IKEA-shelves, or for that matter the industrial labourer's manner of producing its prefabricated components, might not. In other words, with the implementation of modern technologies a point of contact is thereby lost, which for Heidegger, in relation to the accompanied logic of the invention and self-production of both self and society, in the final instance entails that: "Strictly speaking, there are no longer objects; only "consumer goods" at the disposal of every consumer, who is himself situated in the market of production and consumption" (GA 15/2003: 74). It appears, then, that the danger Heidegger identified in regards to the necessary external conditions for the establishment of a non-metaphysical language are decidedly unfilled, indeed this task seems an impossible one, as language is found to have been totally *fixed* outside of what Heidegger calls "its *natural* possibilities of growth" (GA 15/2003: 51, ea.) Now what are these natural possibilities of growth and how is it possible for a language to be *fixed*? Does not fixity always come with flexibility? Analogically, is not the fixity of the human skeleton what makes possible the flexibility and mobility of the human arm?

In any case, this transformation of how human beings relate to the world deeply affects thinking; indeed, it shakes and disturbs the very *grounds* of its possibility. For as Heidegger ponders; "Perhaps thinking, too, is just something like building a cabinet." But one might ask; what kind of cabinet, what kind of building, and indeed what kind of builder? Does Heidegger's analogy between thinking and building include the production of such thing as his Grundig music and radio cabinet? And does his analogy between the thinker and the builder include the industrial labourer assembling this radio in one of Grundig's German factories? Indeed, how significant is it for him that the components that his radio consists of, and through which it functions, are brought to light? Does a reflection over the technicity of such technical devices also constitute a necessary building block in the process of bringing-forth a new non-metaphysical house for thinking, i.e. in constructing a new language and conceptual framework? Heidegger's answer, it would appear, would have had to be no. For as he goes on to assert, in raising the question *What is Called thinking?* in the 1954-book that bears it as its title, "thinking is a craft, a "handicraft"" (GA 8/1968: 16). Therefore, in light of Heidegger's above-quoted assertions, a builder of radios, an engineer tinkering with electron tubes or transistors, and a thinker like Simondon who articulates the significance of said builder, radio, and tube, is not what Heidegger has in mind. This is, however, somewhat puzzling, for if thinking is also technical by being a craft are not the techno-logical structures through which thought can think necessary to take heed of and even intervene in if possible? If thought is a craft is not the thinker a special kind of "technician"? And as such, is not the thinker also obliged, if he or she is to be a good craftsman, to fashion quality tools and have respect for the means of his or her craft? Is not the philosopher also, then, called forth to develop critical tool for his or her critical thinking, rather than retreat and disengage from the operative world of technics?

What is crucial for my purposes here, in this regard, is to clarify what Heidegger specifically means by the hand of craftsmanship. For, while craft "literally means the strength and skill in our hands" this is not what is *of the essence*. In fact,

the essence of the hand has nothing to do with what it is as a bodily organ, just like the essence of technics was seen to have little, if anything, to do with what it is as technical and material, for as Heidegger writes;

“the hand’s essence can never be determined, or explained, by its being an organ which can grasp. Apes, too, have organs that can grasp, but they do not have hands. The hand is infinitely different from all grasping organs – paws, claws, or fangs – different by an abyss of essence. Only a being who can speak, that is, think, can have hands and can be handy in achieving works of handicraft” (GA 8/1968: 16). In fact, the essentiality of the hand is found to lie in its connection to “the word” as “the hand’s gestures run everywhere through language” (GA 8/1968: 16). It would appear, however, that the interrelation between hand and word is not equiprimordial (*gleichursprünglich*). For the hand, as Heidegger writes in 1942, “sprang forth only out of the word and together with the word.” Subsequently, by way of a remark reminiscent of his assertion that technics is not something human beings strictly speaking *have*, Heidegger states that the human “does not “have” hands, but the hand *holds* the essence of man, because *the word as the essential realm of the hand is the ground of the essence of man*” (GA 54: 118-9, ea.). In this way, Heidegger holds that the essence of the human as a being that questions its own being – as a being that organizes, reflects and thinks through its *there* – is historically held in the relation between the hand and the word or, differently put, in the relation between gesture and speech. But, in contrast to Leroi-Gourhan and Stiegler, this coupling does not seem to have a technical evolutionary history that, *in the first instance*, also would involve a technical body and a truly *technical* techno-logical framework. The hand, as mentioned, rather springs from out of *the word*. Now, while certainly somewhat obscure in its meaning, I take this singular signification to signify the expressive means through which the organization of an as-structure is formed in general; in other words, the linguistic signs of a particular language or a particular mode of expression are not what is essential. The word in the singular, as differentiated from plural *words*, signifies, in this way, the very house of language in, through and under which human beings are capable of dwelling (GA 9/2008: 271).

Of note, in this regard, is that such an ontological as-structure, and the coupling of gesture and speech in which it is held, is an opening towards the world that animals cannot possess due to their world-poor status. The manner in which Heidegger differentiates between animal and human can appear, therefore, to draw up a categorical line of demarcation, which would amount to the establishment of a miraculous second origin, in which the human becomes human not from out of a technical and corporeal complex, but as a result of a manner of seeing the world – of the appearance of the *as-sub* – springing from out of a manner of handling, which is a manner of thinking for Heidegger. For while “a hand never *originates* from a paw or a claw or talon” what is essential for the late Heidegger is not that humans, unlike animals with paws or claws and the like, have acquired a pair of hands and a set of fingers that are capable of complex fine motoric manipulations. What is crucial, on the other hand, is how the hand handles itself, as it is this handling that makes it a hand that touches being and that saturates the hand with thinking *through and through*, for all “the work of the hand is rooted in thinking” (GA 8/1968: 17). However, the thought pattern that animates the hand of technical modernity is one that appropriates things as objects to be utilized, as the human of today acts as if it “has” hands and “has” technical objects under, so to speak, its intellectual “thumb.” Guided by the projected organization of occidental metaphysics “the hand” and the orientation of its careful and skilful practice is, in this way, eviscerated and lost, and the modern human falls into complete forgetfulness and oblivion at the moment when technical objects, and the

ensembles they are part of, themselves become *animated* as automatons with the dawn of machine technology. With such things as the typewriter, the hand, as an essential realm and idealized figure, is withdrawn, perhaps even lost.

The regression of the hand that Leroi-Gourhan spoke of is, in other words, fatal for the human as an organizing and thinking being. A deep ambiguity is found, in this regard, in the thought of the late Heidegger, specifically as concerns the hand's regression as entailing an absolute fall away from a supposed human essence, which is particularly evident in his critique of the typewriter, which he formulated in the *manuscripts* prepared for his lecture course on Parmenides held during the winter semester of 1942-3. As part of which Heidegger writes, no doubt by hand, that "the typewriter makes everyone the same" as it homogenizes the technical framework through which we express ourselves. For by dictating with a *typeset* the writer writing with a typewriter no longer writes with *character*; as the individuating marks of penmanship disappears from view and are concealed through the homogeneity of a *presset* font. In short, by dictating *into* a machine one is, in turn, also dictated *by* it. And hence, in order to frame this interrelationship as a collective problematic, a culture that types is simultaneously also a culture that is typed. For in a world where writing on a typewriter is considered standard, regardless if one were to still write by hand and be faithful to one's setup of pens and pencils as Heidegger was, a hand-written letter will nevertheless appear as "an antiquated and undesired thing" as it "disturbs speed reading" (GA 54: 118-9). The mechanical inscriptions of the typewriter transform, in this way, the relation between hand and word in a manner that surpasses the given preferences of individual persons. With the implementation of the typewriter a new inscriptive and gestural program for how people express themselves through writing is thereby installed, indeed a program or manner of use that the typewriter itself imposes upon us and whose temporal rhythms and gestural syntax, so to speak, is different from the one preceding it, specifically as it entails a marked speed increase.³¹

This acceleration of the practical ways in which modern human beings express themselves is one that the late Heidegger finds to be symptomatic of how modern technologies withdraw "from man the essential rank of the hand" (GA 54: 125). Now, what Heidegger here thinks of as the essence of the human found with the relationship between "the word" and "the hand" which the typewriter is supposed to *tear* us away from and deprive us of, comes off as highly obscure to me (GA 54: 119). What presence is it that the techno-logical framework of the typewriter withdraws from us and that a different technical setup still *holds* open? Heidegger's assertion that modern technical objects and technologies function as instruments of metaphysics offers a clue in this regard. For the implementation and mass dissemination of mechanical writing apparatuses such as the typewriter is one Heidegger finds to explicate for us and instil in us the turning of the word into a mere formation and thing of language. Language is then disclosed as being one "of man's possessions, like eyes and ears, sensations and inclinations, thinking and willing" (GA 54: 102). Indeed, the typewriter is a part of the process that "degrades the word to a means of communication" (GA 54: 119). A degradation that also propagates "the neediness of spoken language" that Heidegger contrasted, as noted, with "the riches of language still recorded by the brothers Grimm" (GA 15/2003: 51, ea). A certain nostalgia for the oral storytelling traditions of the previous centuries and an accompanied disdain for the new means, modes and practices of expression that characterize the mid to late 20th century is hard to miss in this regard. For while, the technical configuration of hand and pencil is

accredited with an opening for, and one might suspect even a furthering of, the *natural* and *organic* possibilities of growth for expression and language, as particularly a possibility *held* in the interrelationship between skilful hands and characteristic words, the then new configuration of hand and typewriter installs, on the contrary, an *industrial* and *inorganic* dictation that furthers the decline of language and the degradation of the word. Heidegger does not grasp, in this connection, that any techno-logical structure is a configuration that both opens for and closes off certain possibilities, and as such one cannot be *totally seized* and *totally fixed* when living under a techno-logical framework, even that characterized by self-moving machinery. Indeed, the invention and implementation of the typewriter in precisely increasing the ease of use and efficiency with which we write surely had some beneficial effects as well, even for artistic and expressive purposes, which writers such as William S. Burroughs would surely testify to, while secretaries would surely appreciate the mitigation of sore thumbs. However, one should not minimize the initial destructive effects of such things as the typewriter upon the existing expressive practices associated, for instance, with penmanship and the art of letters.

I would argue, in this connection, that Heidegger in his later period conflates the instrument and the technical object with an *instrumentalist* attitude and worldview. This conflation leads to his privileging, as evidenced by the above-quoted passages, of a decidedly low-tech and *hunchy* configuration of “the hand” as what is capable of *holding* the essence of what we most essentially are as human beings, which subsequently is lost to the kind of being that we have become through techno-logical transformations that, ultimately, emanate from out of the essence of occidental metaphysics. In this connection, the existential and phenomenological *analysis* and *descriptions* of *SZ* have been replaced with a culturally conservative *judgement* of modern technics in general, which is forwarded from a position distanced from and disinterested in *what* technics is as an externalized memory. In this way, the late Heidegger positions himself on one side of the antagonism between technophiles and technophobes in regards to modern technologies. In fact, he appears to judge modern machine technology on the basis of a former technical condition, namely the situation of man working with tools, in a fashion similar to the one discussed in regards to early philosophy of technology in section 2.2. Technics has, however, like the culture it supports, always been regulative of both our thinking and practice as it *informs* our way of being, but when technics becomes *animated* with the coming and implementation of the automaton it disrupts the tradition of, for instance, the artisanal craftsman and with it the image of ourselves that relates to such handy technical practice. Heidegger appears to be unwilling to think of the human as essentially inessential in this regard, as he opts for a conservative position critical of the implementation of modern technologies *as such*. A critique that, as has been noted, is forwarded on the basis of an essentialist position. This technophobic judgment, moreover, alters and specifies, in certain respects, the ambiguous sense of the general term of ‘the hand’ as encountered with the notion of *Zuhandenheit* in the existential analytic, at least in accordance with the reading given in section 3.1. For, while the late Heidegger still finds techno-logical structuration to be crucial and the coupling between technical objects and human existence to be foundational, it is a structuration and a coupling that machine technologies appear to break and which he, in this connection, no longer grasps as being fully *instrumental*, rather finding it to be emblematic of an *instrumentalist* attitude.

Returning, for a moment, in this regard, to the absence of the notion of *tékhnē* in *SZ* from the perspective of the

late Heidegger, one might find more plausible the claim that the analysis of the third chapter of the first division, as Dreyfus has suggested (1992), describes a constellation of bringing forth that *prescribes* an inauthentic comportment to being, whereby the industrial production process constitute a configuration of “the hand” in which technical capacities, skills and levels of mastery – in short, *τέχνη* – is lost as the work of the industrial labourer is *dictated* and *typed in*, so to speak, rather than having been authentically *characterized* and *handwritten* through craftsmanship (GA 54: 118-9). Ought, then, the reading given of division one of *SZ* in section 3.1 be characterized as a creative misreading, i.e. if one’s aim is to construct a unified Heideggerian thesis on technics? I do not think it warrants such a designation, since too great a gap exists between the analysis of the everyday in *SZ* and the idealization of “the hand” of the craftsman and the denunciation of modern technics of his later writings to make such an attempt at unification feasible.³² In fact, how significant the analysis of Dasein’s worldliness and everydayness actual was for Heidegger is not obvious in this regard. For while he in the second division of *SZ* finds his account of useful things to constitute an “essential gain (*wesentlicher Gewinn*)” (*SZ*: 352), he goes on to state a few years later, by way of a footnote to his 1929-essay “On the Essence of Ground”, that this part of *Sein und Zeit* (§§14-24) “remains of subordinate significance” (GA 9: 155/1998: 370).

Andrew Feenberg has argued, in this connection, and specifically in regards to Marcuse’s reading of *SZ*, that Heidegger actively sought to distance himself from what actually constituted a deeply techno-logical thinking of his own, specifically as articulated with the existential analytic. Now, Heidegger’s sole mention of Marcuse in the *Gesamtausgabe* does in fact indicate as much, since it describes Marcuse’s reading as follows: “Reversing Hegel’s idealism in his own way, Marx requires that being be given precedence over consciousness. Since there is no consciousness in *Being and Time*, one could believe that there is something Heideggerian to be read here! At least Marcuse had understood *Being and Time* in this way” (GA 15/2003, 52). In fact, the absence of a privileged consciousness above and beyond *praxis* in *SZ* and its emphasis upon the worldly and technical as opening the place in, through and with which we primordially relate to being constitutes the very core of the promise of Heidegger’s early thought in regards to technics. It being, ultimately, what connects his early thought to the engineering philosophy of technology, and figures such as Marx and Kapp, and what, relatedly, separates him from much classical humanities philosophy of technology. This early Heidegger is, however, as Feenberg correctly points out, one that “the later Heidegger rejected and concealed” as he vehemently denied that being can be “understood through the model of technical making” and proceeded to project this later understanding “back onto his early work” (2005: xiv). On the other hand, one can detect some aspects of this promise, ironically enough, even in Heidegger’s later writings, and specifically by way of his damning judgements of specific technical objects; the extraction of which might be helpful in drawing out what is still worth salvaging from his thinking concerning the technical despite his political adventure with Nazism and the explicit nature of his anti-Semitism.

For while I profoundly disagree with the essentialism of Heidegger’s late period, and especially the thought that the interrelated essences of hand and word – of gesture and speech – are decoupled and seemingly irreparably broken with modern technics, his analyses of such things as the typewriter do forward some interesting points. Specifically, *how* Heidegger imagines the *typing* affected by the typewriter to take place is noteworthy, as this transformation is grasped as

being “one of the main reasons for the increasing *destruction* of the word” (GA 54: 118, ea). And as a *destruction* of the structure of “the word” worked out through technical means this involves a *disruption* of our cultural orientation and the symbolic milieu in, through and with which we express ourselves. The late Heidegger’s analysis of the typewriter suggests, then, that any implementation of sufficiently disruptive technologies can work to propagate disorientation and deindividuation. In the case of modern mass-produced technical objects, such as the typewriter, a wide-spread adaptation and dissemination of new prosthetic implements can, in this way, homogenize the framework with and through which spatialization and temporalization takes places to a radical extent. Now, if this is accurate the prostheticity of our existential technicity also opens for the possibility of extreme technical monoculturalization. And it is precisely such a process of monoculturalization and homogenization – if not indeed a complete “deculturalization” altogether – that I believe is what concerns and worries Heidegger when he confronts the question concerning technics as it relates to the question concerning the human over the course of his later writings. Specifically, I believe this concern factors into the hostility with which he approaches the typewriter and why, as I now turn to, the radio appears so destructive to him.

In Heidegger’s notebooks from 1941, published as the so-called *Schwarze Hefte*, one encounters numerous notes on the radio, specifically in the fifteenth of the books entitled “Überlegungen”. As with the typewriter Heidegger believes the radio is symptomatic of how one’s own – one’s *idiot* – is today *found* “within the order of the masses” and that, therefore, the idiom of modern human beings “is the same,” since everyone “is reciprocally affirmed” through the same means. Indeed, Heidegger goes on to state that with the radio: “One finds oneself everywhere in one’s ownmostness, which however belongs exactly to everyone.” Heidegger observes, in this connection, “that for every howsoever insignificant a “concert,” each and every violinist and trumpeter is to be called out by first and last name” (GA 96: 265, trans. in Babich 2016: 75). Using a more contemporary signification one might say that Heidegger’s point is that everyone in modern techno-logical society is “personalized” by way of the very same devices, the very same communication platforms and through the very same expressive practices, and hence that the personal as such has *become personalized* as a result of a homogenized techno-logical environment and not from out of any individual initiative. Ironically, then, it is individuation that is at risk with both the notion and process of “personalization” today. Framing this as a collective problematic, as I did in the case of the typewriter, one might say that a culture likewise becomes *cultivated* and *culturalized* by way of the very same cultural technologies, such as the radio, tending towards the formation of a single monoculture. By transporting the radio’s announcement of every single musician of the symphony orchestra to a more contemporary scenario could it not be said, analogously, that every single individual is likewise announced and broadcasted on social media platforms such as Facebook in a manner that makes one find oneself everywhere in a manner similar to everyone by performing certain sequences of operations that likewise everyone enacts.

The gestural programmatic of the touchscreen smartphone is, moreover, one that the device itself imposes upon us, as was the case with the typewriter according to Heidegger. A use that, moreover, is reduced to the movement of one’s fingers onto a screen, somewhat akin perhaps to way in which the use of the hand for the industrial worker over the course of automatization was, in many cases, eventually reduced to that of an index finger pushing buttons (GS:

255). This reduction of the use of our hands to our digits or fingers in the ways in which we currently interact with our screens even has neurological consequences as Leroi-Gourhan already suggested in the mid-1960s, which are as of yet largely unknown. There have, however, been done studies that suggests that smartphone use alters, for instance, how brain and thumb interact (Gindrat et al. 2015) and that text messaging with smartphones and touchscreen tablets like the iPad trigger new types of brain rhythms (Tatum et. al. 2016). In regards to the “Taylorization” of gesture described by Leroi-Gourhan (GS: 253), one should therefore mention that the use of a contemporary device such as the touchscreen smartphone is more radically *measured* than were the case with the mechanical typewriter. Indeed, every single “pinch”, “rotation” or “swipe” movement of our fingers is registered in order to gain information of the user base of said device. The purpose being, for instance, to improve the device by launching a new iteration or perhaps the aim is to increase revenue and profit by selling the data to a third-party like an advertiser or, perhaps more sinisterly, to a health insurance company. These forms of programmatic interaction with our touchscreen smartphones are, moreover, patented by firms like Apple (Heather 2009). This means that our very manner of use and habituated practice with devices such as the iPhone, of which at least 700 million copies have been sold, are then associated, even on a corporeal level, with a brand (Ingraham 2015). The gestural programmatic of the touchscreen smartphone is, moreover, incorporated more or less globally, for as Don Ihde has pointed out, “the cell phone may come close to being the early twenty-first century’s almost universal technology. Social scientists claim that *95 percent of the global population today has access to cell phones!*” (2012: 328). All these cell phones are obviously not smartphones, but nevertheless a substantial amount surely is. Adam Greenfield aptly sums up the role of the touchscreen smartphone, as well as the analytic, conceptual and critical work still left to be done in connection to it, when he writes, in his recent book *Radical Technologies: The Design of Everyday Life*, that;

“This is our life now: strongly shaped by the detailed design of the smartphone handset; by its precise manifest of sensors, actuators, processors and antennae; by the protocols that govern its connection to the various networks around us; by the user interface conventions that guide our interaction with its applications and services; and by the strategies and business models adopted by the enterprises that produce them. These decisions can never determine our actions outright, of course, but they do significantly condition our approach to the world, in all sorts of subtle but pervasive ways. (Try to imagine modern dating without the swipe left, or the presentation of self without the selfie.) Fleshing out our understanding of the contemporary human condition therefore requires that we undertake a forensic analysis of the smartphone and its origins, and a detailed consideration of its parts” (2017)

The possibilities of socialization and interaction that such devices, as they give access to contemporary social media platforms like Facebook entail, in other words, that the self-making and self-referencing described by Heidegger is now available virtually everywhere and to virtually everyone. Concerning the radio Heidegger, in fact, makes a similar point:

“It isn’t enough that a [radio] device is up and running in every home, on every floor. Each and every “family” member, the servant, the children must have their *own* set [*Gerät*] so to be *everyone* – to quickly and easily know and hear and “be” what every other person is as well. (GA 96: 265, trans. in Babich 2016: 75).

This note was written in 1941 and the radio set Heidegger is most likely thinking of is the mass-produced *Volksempfänger* through which Hitler’s speeches were broadcast to the German *Volk*. The radical potential for deindividuation that modern technologies like the radio made possible is surely, then, not something to be passed over in silence. Heidegger’s comments upon the radio, and relatedly his observations regarding consumerist society as a self-production of both the individual and the collective that produces selves that are, so to speak, *self-same*, and that as *produced* are used and instrumentalized in the process, relates his later thought to the first generation of the Frankfurt School and the

aforementioned Marcuse (1964). This is, then, what is still worth salvaging from the thought and judgment of technics that one encounters in the thought of the late Heidegger. For, as was noted in regards to the typewriter, his judgment of the radio is surely an overly dystopic and pessimistic one, as is by analogy also the one given of the touchscreen smartphone. For was not the radio also a facilitator of new musical and cultural expressions, and in fact should it not be seen, on the contrary, as a veritable democratization of aesthetic experience. Making culture accessible to the many and not just the few by broadcasting, for instance, the type of concerts that Heidegger apparently had little love for? Does not the radio, then, also open up new avenues for individuation, and precisely for those immiserated by being placed and positioned in the industrial chain of production? The space of possibility for expression that the radio brings with it cannot be reduced to simply inducing a herdlike mentality or propagating a mass consciousness, even if the radio also makes such collective formations more easily attainable and manipulated. It is, in other words, the perspective taken that cannot come to terms with the specificity of the technical object and technology in question, as it is entirely focused upon the overall and general picture. So, while Heidegger held that “man is a sign” his thought would have greatly benefitted from more closely looking at how man is concretely drawn in its specific prosthetic formations (GA 8/1968: 9).

As already intimated, like the sociological approach to questioning modern technics and techno-logical society that dominated post-war German academia, Heidegger’s critique of such devices as the radio is, relatedly, also completely blind to the technical side of the possibility for such deindividuation and as well as the ramification the admittance of such a possibility entails. For while their insight into the potential for, and danger of, deindividuation found with the implementation of modern technologies is a highly important one, as it connects to the general point already made that when sufficiently disruptive technologies are implemented they refashion the interrelationship between human beings and their surroundings, and along with it how we become who we are; that they, in other words, restructure the very process of individuation. On the other hand, they do not acknowledge that individuation as such is techno-logical through and through. In this regard, the sociological perspective of, for instance, the Frankfurt School, and the view from above found with the transcendental and highly speculative perspective of Heidegger’s historical narrative of Western metaphysics, while certainly important *to a point*, cannot provide the entire picture, as I argued in section 2.3.

For the possibility of, for instance, everyone having one’s own radio set through which one can *re-ceive* the world, and hence bring the world nearer, or de-distance it as Heidegger phrased it in *SZ*, also has a material, empirical and technical side. Indeed, the radicalization of radio technologies as portable devices, and in fact as techno-logical precursors to the smartphones of today, came with the invention of the transistor in the mid-1950s and the subsequent introduction of pocket sized radios. This communication device remains the most widely disseminated and used in history, as one estimates that over seven billion were produced (Skrabec 2012: 197). Taking the perspective of the technical objects themselves is, as mentioned, a point of view Heidegger is not interested in and openly disdainful of. Nevertheless, philosopher engineers inspired by his work such as Wolfgang Ernst (2013) and Gilbert Simondon (1958/80) have done so, and by taking on a technical perspective told the story of the material aspects and entrepreneurial developments that led from electron tube to transistor; the latter invention being pivotal for the arrival of

our current information society. Such an engagement with the technicity of technics is one I find to be necessary based on my argument and conviction that a conceptualization of technics and how it is coupled with human existence in its historically and techno-logically shifting formations cannot be undertaken without a firm understanding of technical objects, technologies and techniques by way of a study of their evolution and mode of operation or existence, on the one hand, *and* a study of culture, society, and indeed human evolution and environmental adaptation, on the other.

When Heidegger wrote in 1959 that the “meaning pervading the technical world hides itself” he was perhaps thinking first and foremost of its hidden metaphysical essence or how it constitutes our existential background. However, in light of what has been stated above it appears he neglected to take heed of the fact that technics as an exteriorized memory has a hidden dynamic of its own as an infrastructural organization of inorganic matter (GA 13 & 16/1966: 55, tm.). For what lies beyond, for instance, the cabinet doors of his Grundig music and radio apparatus, namely the materials used and the operations of the technological apparatus itself, have material properties and functional allowances that play into the techno-logical transformation – the logic and logistics of *tekhne* – that have led us to become who we are and that form the material and technical history of what constitute our surroundings and infrastructural ground. And as such technical objects are not seen as mere means, but play into, ground and make possible the process of differentiation that Stiegler names *epiphylogenesis*. In this regard, concrete engagements with technical objects and technologies such as the touchscreen smartphone of a more detailed character are called for; Galit P. Wellner’s recent *A Postphenomenological Inquiry of Cell Phones: Genealogies, Meanings and Becoming* being an excellent example of precisely that (2016).

In summary, then, the conservative *judgements* of the implementation of specific technical inventions – in this case the typewriter and the radio – offered by the late Heidegger differ from the phenomenological *descriptions* – however light they may be (Ihde 2011a: 138) – that one encounters in the earlier Heidegger, and specifically in the existential analytic. The idealization of one form of relationality with the world, and the condemnation of another, that one finds traces of in the earlier work, is, in other words, specified and radicalized in Heidegger’s later writings, notably after the so-called *Kebrne* and the lectures Heidegger held in the early 40s, his essays of the 50s and the various seminars he presided over in the late 60s and early 1970s. In this regard, technics has, as Cassirer articulated it, been “brought before the wrong court” by the late Heidegger, as he criticizes *instrumental* and techno-logical being as if it always already had been *instrumentalist* and a product of a toxic metaphysics (Cassirer 2012: 41). On the basis of this, thinking is believed to have to guard itself from its own *instrumentality*, and hence distance itself from the realm of technicity and the work of the technicians. The technological and instrumentalist attitude – for the late Heidegger the origin of technics – is, then, yet again located in ancient Greek metaphysics, as technics signifies first and foremost a mode of disclosure, which is not described as hailing from a coupling that mutually constitute “who” we are with “what” we are acting working and thinking *through*. The opening for thinking of *existence* as originarily technical appear, therefore, to have been closed off in Heidegger’s later thinking, as the driving force for techno-logical transformation is occidental metaphysics and the project of a technical organization of the world that springs from it, specific technical objects being of little importance.

The late Heidegger, as I have argued above, also reintroduces a second origin and commit the same mistake

Stiegler associates with the thought of Rousseau and a *purely* transcendental anthropology that is empirically irresponsible, since, to phrase it in the language of Heidegger, the ontic does not significantly impact the ontological, and hence that the material is immaterial for the transcendental questioning he pursues, whose conclusion, therefore, is that the essence of technics is nothing technical. The thought of the late Heidegger crystalizes, in this way, the pitfalls of the humanities approach to the philosophy of technology, as he speculates by distancing himself from the factual; by, in other words, setting aside the facts on the ground in the workshop and in the industrial assembly line, as well as neglecting to take heed of the empirical technical operations of the machine and the technological apparatus. Indeed, the primordial source found with being (*Sein*), and in whose clearing Heidegger's claims appear to spring, can at times appear similar to Rousseau's positing of a pure call of nature, which is only accessible to the one *who* questions, and hence to the figure of the philosopher. The philosopher again becomes the one who most deeply characterizes us as human being, and hence also whose comportment characterizes, first and foremost, Dasein as a being that *is* its "there" by being cognizant, reflective and quite generally understandably related to its surroundings in which things appear *as* something, rather than nothing, in contradistinction to, for instance, the worldless pebble our primordial ancestors clenched in their hands.

But, concerning these ancestors, perhaps it is precisely this pebble and this clenching, this opening for the appearance of the at-hand and the on-hand through technics, that mutually constitute "the who" with "the what" as they compose and are encountered in the practices and techniques of everyday life. Even for the being that zoology names *Paranthropus boisei*, or more ancient still *Australopithecus*. As Derrida wrote: "The hand cannot be spoken about without speaking of technics" (1987a: 169). And "the hand" is, as has been detailed, simultaneously spatialization and temporalization through the technicity opened by the anterior field and the primordial prostheticity it entails. In other words, the hand clenching a pebble, slamming a block of flint into a rock to form a biface and retaining the thing formed for use at a later occasion, is already intentional, is already a pattern of behaviour and thought formed within the anticipatory horizon of an being that *is* its there. The techno-logical is, in other words, *there* from the very beginning as *what opens up* "the there" of Dasein in the first place through the originary complex that *is* the human-technics coupling and the process of differentiation that Stiegler names *epiphylogenesis* or technical exteriorized memory. One cannot, in this regard, simply fall into a techno-logical condition from a position outside of it, since the condition of being and thinking for our way of being is itself techno-logical. Modern technologies, such as the radio, the television, the camera, the sound recorder, the computer and *the World Wide Web*, transform the relation between this being and its environment by reconfiguring the infrastructural base of that environment. An environment in, through and with which individuals *map out* and familiarize themselves (spatialization through de-distancing) and in, through and with which they organize, plan and stake out a course of action (temporalization through anticipation).

By privileging *die Handwerker* and the traditional set of handy *Werkzeuge* with which he or she practices his or her craft, Heidegger does not only, in this regard, idealize certain techniques – certain "*how*" – and certain technical objects – certain "*whats*" –, he also idealizes a certain human being – a certain *who*. And as indicated, the manner in which he does this is similar to the way in which philosophy has traditionally, and perhaps even habitually, idealized its own figure,

namely the philosopher. For Heidegger sidesteps the very technical condition of his own enunciation and expression, and how technics structures techno-logically even the stranger, the nomad, the ascetic, the privileged aristocrat, and the disengaged academic. This is the radicalness of the techno-logical setup. The technical system that Heidegger calls *das Gestell*, but that he cannot himself fully grasp the ramifications of, at least as concerns his own position as a thinker and a philosopher. For “the *a priori* of philosophical anthropology” that Heidegger envisioned as a necessary continuation and elaboration of the project initiated with the first division of *SZ* can – as will constitute the radical techno-logical historicism of Stiegler’s position – only be established *after the fact* of the history of techno-logical supplementation: of, in other words, the history of technical objects and their systematic interrelation and organization. Only from the *standpoint* of modern technology, and hence after the history of technical evolution and the techno-logical transformations that advances it, can the figure of, for instance, *Paranthropus boisei* appear primitive and naked, and hence be naturalized as part of an origin story constructed on the basis of the insufficient empirical data we now possess. This historicism, which springs from out of the structuring role played by technical externalized memory, is what I will now turn to with the following closing section of this chapter, as it constitutes the core of Stiegler’s reinvention of philosophical anthropology as a philosophical elaboration on the *logos* of *tékhnē*, which as such can be named a philosophical techno-logy.

3.4 The invention of the human: The transcendental and the empirical

I have argued throughout this thesis that changes and transformations made to our technical surroundings are highly significant, as they do not merely enhance or destroy the structures that came before them, but are “capable of changing mentalities, perceptions, ways of life, and even the human body.” Indeed, for Stiegler, Simondon and other likeminded philosophers of technology, it even “carries the seeds of a “new” humanity” (Chabot 2013: 47). Now, Stiegler’s aim with *Technics and Time, 1: The Fault of Epimetheus* is to call attention to and conceptualize how technics constitutes the ground and possibility for human becoming, and hence that *technogenesis* coincides step by step with *anthropogenesis* as was detailed in section 3.2. His project implicitly sets out, therefore, to reinvent philosophical anthropology. Stiegler, however, largely ignores the actual tradition of this predominantly German field, associated with the likes of Max Scheler and Arnold Gehlen. This is due I believe to the way in which his philosophy destabilizes the traditional divide between the transcendental and the empirical. For if human beings have never existed without technics, and indeed never will, this entails that any philosophically speculative account, and hence any inquiry into the *a priori* of philosophical anthropology, will have to taken heed of, and indeed their speculations will have to be supplemented by, an empirical account of the emergence and evolution of both the technical and the human. As Stiegler states; “palaeontology will profoundly affect the anthropological *a priori*, governing at the most profound level the most authentically philosophical questioning” (TT1: 132, tm.). For if palaeontology rules out the possibility of a human being that exists without technics then ultimately nothing can be said of temporalization – of the standing-out, the *ekstasis* – that does not, in the final instance, relate to the structures of technical exteriorized memory and its successive epochal organizations. Indeed one would then, in the final analysis, not be able to fundamentally oppose existential temporalization from what Stiegler terms

epiphylogenesis, which means that the human and its temporalization are structures that are historical and changeable. The originary coupling of the human existent with the technical tool mutually contaminates, in this way, both the empirical and the transcendental thereby “suspending the entire credibility of the empirico-transcendental divide” (TT1: 243).

This contamination and suspension of the divide between the transcendental and the empirical is related, in this connection, to the divide outlined in the previous chapter between philosophers and technicians or engineers. The thesis forwarded in section 3.2 upsets, in this regard, the purity of the oppositions that animate the categorical differentiation of these figures, as well as the forceful distancing of their respective fields of study. Nevertheless, there remains “a seemingly inextinguishable wish to restore purity to the opposition between the transcendental and the empirical”. For the traditional philosopher insists upon upholding this purity in light of what its destabilization puts at risk, namely the preservation of “the transcendental *subject* from any empiricity and empirical history” (Lewis 2013: 60). Such an insistence upon a purity of separation between technics and time – between technician and philosopher – is one aspect of the thought of the late Heidegger that I criticized throughout the previous section, and which I found to relate to how the traditional image of the human mirrors the image erected of the philosopher, specifically as this figure is imagined as part of traditional philosophical anthropologies from the ancient Greeks onwards, as was detailed in section 2.1.

Now, central to this destabilization of the divide between the empirical and the transcendental, and implicitly the divide operative between the technician and the philosopher, is how Stiegler finds, more specifically, that temporalization is techno-logically constituted and how this thesis ultimately sits with the existential analytic of *SZ*. This is part of what I will briefly elucidate and critically engage with in the following. This endeavour will, however, have to go through the myth of Prometheus and Epimetheus, as it is by way of a reading of this myth that Stiegler criticizes the early Heidegger and offers his own existential analytic of sorts. Stiegler’s engagement with this myth is a result of his attempt to avoid the pitfalls of positivism and metaphysical humanism, which he finds respectively empirical anthropology, represented by the palaeoanthropology of Leroi-Gourhan, and transcendental anthropology, represented by the anthropology of Rousseau, to have fallen prey to. For Stiegler both of these approaches are, therefore, insufficient on their own terms, as I relatedly also found the engineering and humanities approach to the philosophy of technology to be in the previous chapter. Both fall victim to, in this regard, what Michael Lewis has called a “mythopoietic machine” through which “Rousseau postulates the existence of a non-technical man at the beginning of the story, while Leroi-Gourhan does the same at the end”. In both cases the origin of the human is “split into two stages” (Lewis 2013: 58).

Having already touched upon how the transcendental approach is in and of itself insufficient by way of section 3.2, the important point to clarify in this connection is how the empirical approach cannot tell the whole story, which for Stiegler is due to the way in which our perspective on, and selection of, the empirical material available to us inevitably constitutes a hermeneutical interpretation, which is necessarily retrospective. This can be called “the transcendentality of the empirical” due to the way in which facts found in, for instance, the empirical history of technical objects and technologies are, as Stiegler phrases it, “*only given against the background of possibilities of interpretation* that are not themselves of the order of facts” (Lewis 2013: 64, TT1: 99). When reaching out towards the limits of what is graspable in regards to

our very origins, facts can thus only be assembled and given meaning from a particular perspective or point of view. In our case this would mean that we can only frame an origin story from out of the perspective of modern technics and the empirical history of technical and prosthetic supplementation that have leads us to this techno-logical situation. It is, therefore, only on the basis of such a technical history and its various epochal stages that the primitive, for instance, can appear *as* primitive and be naturalized. Leroi-Gourhan even states, in this regard, that “a nonhuman observer unfamiliar with the explanations to which philosophy and history have accustomed to us would separate the eighteenth-century human from the human of the tenth century as we separate the lion from the tiger or the wolf from the dog” (GS: 247). The techno-logical situation we find ourselves living under, and indeed through, frames in this way our perspective on our past. Stiegler thereby adopts, in other words, a *particular perspective* when he questions the origin of existence, namely the contemporary perspective brought upon us by way of the technologies that characterize our current surroundings. The *originary technicity* that Stiegler speaks of is, in other words, interpreted from a perspective whereupon technicity;

“names something which can no longer be seen as just a series of prostheses or technical artefacts – which would be merely “supplemental” (or supernumerary) to our nature – but the basic and enabling condition of our life-world. From the watch we wear to the server we log into, we exist pros-thetically, that is to say, *by putting ourselves outside ourselves*. If the classical opposition and hierarchy between thought and technology can no longer be sustained *from this perspective*. . . then it is clear that this insight poses a new and urgent task for any philosophy of technology” (Bradley & Armand 2006: 3, ea).

The perspective of modern technics lends Stiegler’s investigations an undeniable urgency in this regard, while, for instance, the invention and implementation of the complex information technologies that dominate our current techno-logical situation makes possible a new vantage point from which technics can be rethought, as I detailed both in regards to the early Heidegger in section 3.1 and as concerned the early engineering philosophy of technology in relation to the process of industrialization in section 2.2. The technological break or *epoché* of such devices as, for instance, the touchscreen smartphone can, in this connection, transform the perspective with which we meet and interpret our past.

Now, concerning the question of human origination the situation in regards to the factual is especially dire, since the empirical basis upon which any such account is to be established is *in fact* severely lacking. When questioning the human one is, therefore, inescapably *telling stories*, which means that philosophical anthropologists fabricate necessary fictions (IT1: 108). In this lies Stiegler’s issue with the established field of philosophical anthropology as “they do not have an adequate understanding of the transcendentalisation of the empirical” (Lewis 2013: 64). What the discourse of philosophical anthropology risks, in this regard, is to naturalize the default or lack that Stiegler finds to characterize the manner of being of those beings that *exist*. An account of human origination can, therefore, in the final instance, only be mythological, according to Stiegler, since “the transcendental and the mythical *converge* when it comes to the question of man” (Lewis 2013: 55). His reading of “the Greek mythology of technics” will, in this connection, have to be outlined, specifically as it is retold by Protagoras in the dialogue of Plato that bears his name as its title (IT1: 185).

In the version found in *Protagoras*, which Stiegler cites in its entirety and comments upon at length, the brothers Prometheus and Epimetheus are given the responsibility of bestowing characteristic skills and powers (*dynamis*) to the different lifeforms to be created at the origin of the world. Epimetheus insists upon effecting the distribution of attributes and proceeds to do so, specifically on the basis of “a principle of compensation, being careful by these devices that no

species should be destroyed” (320e-1a). After the work has been completed, however, Epimetheus realizes his fault, having “used up all the available powers on the brute beasts” and thus forgotten to assign a power to the human. Prometheus, upon inspecting the work of his not particularly bright brother, thus finds the human to be “naked, unshod, unbedded, and unarmed” (321c). Protagoras, retelling the heart of the story as commonly retold, narrates that: “Prometheus, therefore, being at a loss to provide any means of salvation for man, stole from Hephaestus and Athena the gift of skill in the arts [*ten entekenen sophian*], together with fire – for without fire there was no means for anyone to possess or use this skill – and bestowed it on man. In this way man acquired sufficient resources to keep himself alive, but he had no political wisdom [*sophia*” (321c-d). It is, therefore, as a result of Epimetheus’ fault – his lack of foresight – that Prometheus steals the power of technical skill and the creative fire of the gods. This makes humans deviants, so to speak, as they depart from the equilibrium and tranquillity of the animal kingdom by being at fault; lacking as they do a *specific* power, which Prometheus’ act of theft can merely compensate for. It is as a result of an accident, then, due to the forgetfulness of Epimetheus that this mortal being situated somewhere between the animals and the gods came to be thrown into the world ill-adapted and radically exposed towards its inhospitable environment. The mortals’ sole remedy is thus technics, as they by means of technical skill can progressively *advance* beyond their initially frail frame, eventually having “discovered articulate speech and names, and invented houses and clothes and shoes and bedding and got food from the earth” (322a). This advancement is, however, *delayed* as mortals are premature, since they have to labour with instruments *in order to* advance their lot and *cultivate* their skills. This leads humans to invent, and hence gives rise to religion, speech and politics; practices that, in this regard, are but the effects of an originary “de-fault of origin [*le défaut d’origine*].” For what Stiegler finds to be essential “is the accident, the absence of quality” due to Epimetheus’ fault and Prometheus’ theft (IT1: 193). Indeed, this absence of essence and this fault of *character* is what primordially opens up and makes possible the structure of advance and delay *in the first place*, as it necessitates Prometheus’ theft of technics while it obligates mortals “to work, to *handle instruments*”, to *cultivate* both themselves and the *bios* “hidden in the belly of the earth. . . until, grown old through *care*, they at last pass away” (IT1: 192). The default characterizes, therefore, the incomplete and unfinished *project* that is human existence.

The default of origin that Stiegler describes by means of this myth is, in this regard, also what makes *mortals* of us; what, in other words, gives birth to death by way of our fall from the realm of the immortals. Following Jean-Pierre Vernant’s reading of Hesiod’s versions of the myth in the *Theogony* and *Works and Days* (1979), Stiegler reads this *anthropogony* articulated by this “pre-Platonic, prephilosophical and premetaphysical” world to be simultaneously also a *thematology* (IT1: 185). The myth of Prometheus and Epimetheus appears to Stiegler to constitute a sort of quasi-existential analytic in this regard, which leads him to question why Heidegger does not even mention it as part of his existential analytic. A lack of engagement that, in fact, strikes Stiegler as highly revealing, indeed he argues that this absence was “rigorously necessary” due to the way in which Heidegger described authentic temporality and being towards death.

For, on the one hand, the intertwining of the two figures of *promētheia* and *epimētheia* yields the major elements of the structure of temporality, described as being-towards-death, while, on the other hand, the originary, irreducible rooting of this relation in technicity, which the two figures *taken together* signify, undermines any possibility of placing in opposition authentic time and the time of calculation and concern” (IT1: 186-7, tm).

The way in which this myth stages an existential analytic of “originary technicity” becomes clearer when the names of the two prominent figures of the myth, namely the Titans Epimetheus and Prometheus, are found to respectively signify

forgetfulness as the afterthought of hindsight (*epimētheia*) and foresight as the forethought of anticipation (*promētheia*). For Epimetheus forgets to allot a power to human beings precisely because he is submerged in the technical act of bringing-forth, while Prometheus's foresight makes it possible for him to anticipate his own tragic end as he is chained to a rock and his liver eaten daily by an eagle as punishment for his transgression. *Promētheia* can in this sense be taken to mean a certain worry *in advance*, while *epimētheia* can be grasped as a sort of *delayed* wisdom, arriving after the fact. Together they constitute reflection, a reflection that is in time; Prometheus's liver being a clock just as much as a torment. What Stiegler finds Heidegger to have forgotten in his account of temporality is, then, the one who forgets, namely Epimetheus.

However, this figure is also primordially forgotten and repressed, as he reminds us of what can be termed our Epimethean deficiency, namely our originary reliance upon technical objects – upon prosthetics – as we are individually *insufficient* due to our default of origin. For Stiegler this accounts for the uncanny experience of technics and adds an existential dimension to his claim that technics is “the unthought” of the occidental tradition (IT1: ix), since we retreat from this insight as it serves as a reminder (*hypomnēsis*) of our own finitude; the knowledge of which we always defer in order to go about our business and function in our everyday lives. A deferral that is also facilitated through technics, as Epimetheus himself is forgetful due to being captivated, and hence distracted, through the process of technical practice. What Heidegger has failed to grasp, then, according to Stiegler is, therefore, that Dasein is in and of itself incapable of achieving a “transcendental subjectivity” as it cannot constitute the objects of its own experience without technics; without, in other words, its prosthetics and the externalized memory that supports its world. The individual for Stiegler is hence not to be understood as *the subject*, but rather as a confluence of temporally motivated subject-object relations through which the individual becomes individuated. For it is the exteriorized memory of its surroundings that *fixes* the past for this individual, and hence it is this memory that opens up the always already given possibilities of its individuation.

This conjugation of technics with time is what Heidegger in his later period rejected and denied, but nevertheless first made thinkable with the existential analytic, as I detailed and argued for in section 3.1. A reading that was specifically levelled against Stiegler's rather hasty and biased reading of the existential analytic as laid out in *Technics and Time, 1*. In fact, I find Heidegger's early thought and its problematization of the relationship between the practical, technical and worldly, on the one hand, and the theoretical, reflective and human, on the other, to be what animates Stiegler's very project and philosophy. Nevertheless, his appropriation and rereading of Heidegger does significantly depart from the Heideggerian framework and the academic tradition that followed in its wake. For against Heidegger, Stiegler argues, as noted, that the supplementary is in fact elementary as a result of the originary technicity of existence brought about by our default of origin, which entails that human beings can only relate to time *through* technics. Stiegler, in distinction to Heidegger, thereby breaks out of the inherent limits of the phenomenological method, as he does not view the technical objects “solely in terms of *how* man uses it, but also in terms of *what* it reveals, and indeed what it reveals about man and the constitution of a reflexive subject” (Lewis 2013: 63). Stiegler's radical move is, in this regard, to interpret tools as first and foremost a form of memory, and thereby in terms of time and history.

On the basis of this position, Stiegler holds that the *a priori* of philosophical anthropology is inevitably “stymied

by technicity” as it is only through the prostheticity of the technical that one can have access to the transcendental and establish a relation to time, and relatedly to death. For death “is understood according to a prior understanding of life; death is life when life is also nonlife, is no longer simply life but is pursued by "means" other than life” (IT1: 242). What Stiegler calls *epiphylogenesis* is – as the precondition for the generation of culture and its generational cultivation – therefore the quasi-transcendental condition for our experience of death, which means that only *through* the empiricity of technics can one be *exposed* to the transcendental. The *a priori* of philosophical anthropology is, then, the always already according to Stiegler, which means, ultimately, that philosophical anthropology has been rewritten as a *philosophical techno-logy*.

In this connection, Stiegler asks in reference to Heidegger’s existential analytic, whether or not “the consideration of *τέχνη*, as the originary horizon of any access to the being that we ourselves are to itself, [is not] the very possibility of disanthropologising the temporal, existential analytic?” (IT1: 262). Philosophical anthropology, therefore, becomes philosophical at the moment when it exceeds the limits of anthropology and inquires into the relation between technics and life, as Stiegler himself clarifies: “any residual hint of the anthropological is abandoned through the fact that technology becomes properly speaking a thanatology” (IT1: 187). If this is the case then Heidegger will have failed to escape the snare of anthropologism, since he does not acknowledge, as Stiegler argues and that he found neither Leroi-Gourhan nor Rousseau to have been able to, the equiprimordiality of tool and tool-user; of, in other words, transcendental temporality and empirical historicity. The second division of *SZ* and Heidegger’s understanding of the thanatological temporality of Dasein is, in this connection, what arguably made this thought untenable to him, since it is through radical *introspective* anxiety that humanity’s most authentic (*essentiel*) state of being is *aversed*, and not, then, it would appear through the prosthetics of the world at-hand, which slips away and take on the appearance of what *in actuality* is inessential. And crucially, with the *disappearance* of the at-hand and the always-already “history is likewise eclipsed” (Lewis 2013: 58). Nevertheless, remaining within a broadly Heideggerian framework Stiegler finds technics to be *what* makes possible our relation to time, which means that it is technics that opens up the possibility of individuation and our relationality towards our own end in death; a relation that is not given, then, by nature nor is it warded off from the realm of becoming, but rather is historical and techno-logical. This central significance accorded technics is intimated by way of the end of the very first line of the general preface to the *Technics and Time* series, when Stiegler makes clear that the object of his study – technics – constitutes the very “*horizon of all possibility to come and of all possibility of a future.*” (IT1: ix, ea).

It is clear, then, that human beings lack, in this regard, a *specific* difference and identity before it is individuated through the reflection – the instrumental maieutic – of the technical objects it brings-forth, as was described in section 3.2. The human can, therefore, be said to be invented with what it invents, as the bringing forth of the technical object also brings forth the character of the human in the same stroke. What unifies human beings is, in this connection, merely their original “absence of propriety” or propemess according to Stiegler (IT1: 133). This absence of propriety is supplemented by way of technics, which would mean that ““human nature" consists only in its technicity, in its denaturalization” (IT1: 148). This entails that, as was also noted in section 3.2, that the human like the animal is a programmed being, albeit one whose programs are of a different techno-logical sort. Now, such a programmatic nature

of existence has traditionally been associated with the lowly and slavish, specifically in the form of the manual labourer, as I touched upon in section 2.1. Indeed, Aristotle saw in this figure – and along with it the technicity of the technician’s labour – nothing but a natural slave, who by lacking self-possession had to, in turn, be possessed and domesticated as an object of property. Simondon wrote, in this connection, that “under the authority of the kingdom of ends; culture has domesticated technics like an enslaved species” (1965/2015: 18). One might add to this point, that the anthropology of the philosopher has traditionally done the same, as Aristotle’s position concerning the bodily, the slavish and the technical springs from out of his understanding of the *work* of the human as “the being-at-work of the soul according to the *logos* [*ergon anthropou psyches energiea kata logon*]” (*Nicomachean Ethics* 1098a7). Giorgio Agamben has noted, in this regard, that such a view would entail that there are some human beings – the natural slave programmed by a *logos* of *tékhnē*, if you will – “whose *ergon* is not properly human or is different from that of other human beings” (2014/16: 5). This would suggest that some anatomically and biologically human beings would be excluded from the realm of the *actually* (*eigentlich*) human.

In direct opposition to such a line of thought I would argue that Stiegler’s position concerning human existence could be taken to hold that this being, in and of itself, is *ayon* – the very term Aristotle used to characterize the bodily and technically captivated natural slave – meaning that this being is, so to speak, unemployed, as it is without a characteristic work and proper function (*ergon*) simply by virtue of being human. In this regard, it could be said that the human is *useless* on its own and without its supplements, since it is as Prometheus observed “naked, unshod, unbedded, and unarmed” before being bestowed with the technical arts and the power to invent and create (*Protagoras* 321c). In other words, due to its prosthetic nature and worldly character there is no inert nature that the human is meant to bring to fruition; it is precisely in this way that the human origin is a *default*. For it is by being mutually constituted with the prosthetic technical object or *organon* and hence by being a member of a larger organization and community that one *becomes* human. In other words, it is by way of the specific cultural, historical, social and technical nature of this being’s surroundings, namely the organized inorganic memory that constitutes its always already given default position, that it first becomes differentiated and individuated. The second part of the myth of Prometheus and Epimetheus dramatizes this originary technicity of memory, and hence the techno-logical framework of human existence more generally, quite nicely according to Stiegler.

One could question, however, whether or not this myth really serves the purpose Stiegler intends it to. For did not the first humans lack the political wisdom (*sophia*) according to Protagoras’ narration; a characteristic that, in turn, with the advent of metaphysics was presented as being what primarily made us *human*. These purely technical beings could, therefore, be judged along the lines of the image drawn of the primitive *Homo faber* or the one Aristotle drew of the natural slave as, in a depreciative sense, being *ayon*, since these humans do *not yet* possess the civilized arts and thus, due to the toxicity of Prometheus’ stolen remedy (*pharmakon*), are brought into contest (*eris*) and war (*stasis*) with one another. The coming into being and implementation of the technical arts has thus divided human beings and ravaged human settlements; the domesticated fire of technics having, in this way, exposed the powerlessness of mortals. When faced with this possibility of “the total destruction” of human beings as they self-destruct through war and conflict – a process made possible by their initial fall from immortality, due to the double fault of humanity’s origin, namely the forgetfulness

of Epimetheus and the theft of Prometheus – Zeus sends Hermes to bestow upon all mortals “the qualities of respect for others [*aidō*] and a sense of justice [*dike*], so as to bring order into our cities [*polēon kosmō*] and create a bond of friendship and union [*philius sunagōgōn*]” (322c). In regards to this status of *not yet* being politically wise, Stiegler replies that; “this “not yet” does not imply that there will be two steps to their emergence, a time of a full origin, followed by a fall: there will have been nothing at the origin but the fault, a fault that is nothing but the de-fault of origin or the origin as de-fault” (IT1: 188).

The point Stiegler is making is that these gifts, which are either taken from the gods or bestowed upon us by them, are not purely positive. Rather, they are “there to compensate.” Following the trajectory of this myth humanity is, therefore; “without quality, without predestination: it must invent, realize, produce qualities, and nothing indicates that, once produced, these qualities will bring about humanity, that they will become *its* qualities; for they may rather become those of technics” (IT1: 193-4).

Unlike the figure of the animal in the ancient Greek myth, who is given a positive gift – a characteristic quality and power – and hence allotted a predestination as part of an overall equilibrium, the lot of the human is *tékhnē*, “and *tékhnē* is prosthetic, that is, it is entirely artifice” (IT1: 193). No nature is then subsequently added on to the human in Stiegler’s reading of the myth of Prometheus and Epimetheus. Rather, the existential prosthetic structure is already there with the absence of a *specific* character and propriety brought about by the default of origin. Grasping the relationship between human existence and technics as a prosthetic coupling allows one, in this connection, to express with Nietzsche that the greatness of human life lies in it being “a bridge and not an end”, “an *overture* and a *going under* . . .” (1883: 4/1995: 15). One can, in other words, state, as the heading of the first part of *Technics and Time, 1* ambiguously heralds, that it is a matter of “The Invention of the Human” (IT1: 19). Now, agreeing with the general trajectory of Stiegler’s account, I have also argued over the course of these chapters and sections that this “invention of the human is technics” (IT1: 137). In summary then, the technical and inorganic are what *in-forms* the human and organic through a techno-logical formation that *is* the always already laid out structure into which human beings are primordially thrown and through which they become individuated. This is the case, moreover, since such formations are grasped as being what first opens up a delimited space of possibility for human action and thinking. In short, then, this third chapter has argued that *who* I am and *who* we are as human beings is a process that spring from out of a co-individuation with *what* I am and *what* we are continuously individuating *through*, both practically and materially in the form of a techno-logical evolutionary process that *is* our world of things and practices. Ultimately, then, the very “separation between the human and technics and between society and technics or the technical system” appears to one as being “completely *artificial*” (Stiegler 2011a: 35, ea).

However, in order to grasp our contemporary situation, which would actualize the full promise of such a conceptualization of human existence, one must to a certain extent extend the perspective found in Stiegler’s early and foundational writings, which are, as I have argue, too preoccupied with the overall speculative picture and indeed with the cultural products of a society, *over and against* the techno-logical infrastructure that make possible their production in the first place. For having taken on the perspective typical of the classical philosopher, in this regard, leads Stiegler to partially sidestep the meaning and role of the devices these products are accessible through and consumable on. By not, in other words, engaging in a sufficient manner with the contemporary configurations of the technological environment through which we currently are individuated, Stiegler risks passing over the specificity and material condition that

characterize our current situation and historical moment. Coming close thereby to abstracting away from the concrete ways in which the layers of organization – bodily, social and technical – intersect within the contemporary techno-logical framework and its concurrent circuits of individuation, in his descriptions of our times. Redirecting the focus towards how contemporary artificial prosthetics format or program our situation, which is, in line with Stiegler’s and Leroi-Gourhan’s analysis, open for reprogramming, restructuring, and reinvention, is therefore necessary.

In closing I would like, in this connection, to suggest that Stiegler’s self-described “*archaeology of reflexivity*” necessitates a deeper and more detailed descriptive and phenomenological engagement with concrete and specific technical objects and technologies akin to the practice of the *media archaeologist* Wolfgang Ernst or the technical mentality propagated by the philosopher of technology Gilbert Simondon, who famously investigated the mode of existence of technical objects, as was described over the course of the closing pages of the last chapter (TT1: 140, ea.). This is, in fact, what I take Stiegler’s philosopher to implicitly call for, since his archaeology of reflexivity can only be possible if reflection is mediated and takes place *through* the aid of the technical object, which exceeds and transcends the given individual that reflects by means of it. For as Stiegler himself writes: “The analysis of the techno-logical possibilities of the already-there peculiar to each epoch will, consequently, be that of the conditions of reflexivity – of mirroring – of a *who* in a *what*” (TT1: 237). Neither philosophy nor anthropology is, then, in and of themselves sufficient in order to grasp the being that we still call human. Likewise, as I argued in the previous chapter, the humanities approach and the engineering approach to the philosophy of technology cannot by themselves constitute a unified approach to technical objects and technologies.

Now, Stiegler obviously emphasizes, in this regard, the interrelationship or coupling between “the who” and “the what” by way of his conceptualization of a technical exteriorized memory, but one might still ask if not the technical object and the technologies that surround us also are more than a memory support? For is not the technical also something of its own, to be interpreted, described, explained, depicted, represented, expressed, affirmed, and negated? And is not such a practice, echoing the German philosopher Max Bense, the only way to evade the oppression of techno-logical structuration and their disruptive potential? (Bense 1998: 124, quoted and translated in Hörl 2015: 6). The various initiatives that Stiegler has initiated over the course of the last ten to fifteen years, such as the research centre *Institut de Recherche et d’Innovation* developing software and his political association *Ars Industrials*, have undoubtedly worked towards this goal. And, in fact, the last page of *Technics and Time, 1* calls for the establishment of “a politics of memory” that would think technics in regards to the techno-logical situation of today in order to bring forth measures for action and intervention (TT1: 276). However, Stiegler has very little concrete to say about this politics, especially in his early works. Regarding the conditions of memory today Stiegler, in an altogether stereotypical fashion, enumerates, on the same final page, the following grave circumstances characteristic of the time of its writing, namely the mid-1990s;

“Today memory is the object of an industrial exploitation that is also a war of speed: from the computer to program industries in general, via the cognitive sciences, the technics of virtual reality and telepresence together with the biotechnologies, from the media event to the event of technicized life, via the interactive event that makes up computer real time. . .” (TT1: 276).

What becomes evident by way of passages such as these, which are highly numerous throughout Stiegler’s published works, is that the urgency with which the question concerning technics presents itself also imparts a certain urgency

upon his thought. The carelessness of Epimetheus said to characterize human existence aptly describes, in this regard, the at times careless readings of other philosophers and thinkers, often hasty and impatient, and the barebones analyses of technical objects, technologies and technical practices, which one encounters throughout Stiegler's writings. One is, therefore, justified in asking if his philosophical writings actual perform what they are advocating, namely to thinking *through* technics anew from the perspective of our contemporary technological situation?

Like the writings of Heidegger, Stiegler's books can, in this connection, appear somewhat repetitive, as his readings of philosophers often end in the same critique, namely the positing of a second origin, while his references to specific technical objects and technologies are more often than not made in regards to a wider epochal diagnosis; seldom does his description take the form of an engaged post-phenomenological description characteristic of the likes of Don Ihde. The urgency of Stiegler's philosophy can, in this regard, be said to be twofold. For while his conceptual reworking of the concept of technics is meant to, and indeed can with some justification claim to, assist in contemporary action and political struggle, his numerous publications bear witness to an urgency of their own, as they proceed at a rapid pace through a bewildering number of thinkers and theories, albeit few technical objects and technologies appear in his narratives, if only appearing at the argumentative terminus by way of an enumeration. It is, in other words, as if the speed and acceleration Stiegler writes about in his diagnosis of our contemporary techno-logical situation also rebounds back onto his writings. One is thereby lead to call into question if not Stiegler's "hyper-philosophical" approach, in the words of Élie During, might obfuscate the actual material and technical diversity of the contemporary technological landscape (Stiegler 2004b: 20-1, 24-5). Indeed, some have argued that it blinds Stiegler, as I argued in regards to the thought of the late Heidegger in the previous section, towards the multiplicity of individuals, collectives and cultures as his narratives, more often than not, revolve around deindividuated masses of consumers and devourers of media products (see Gratton 2012 & 2014). Has not Stiegler, then, embodied the classical philosophical perspective, in this regard, and positioned himself above and beyond the world of the concrete, specific and multifarious world of the empirical? And hence is not the division of labour between the oppositional and antagonistic figures of the philosopher and the technician maintained and restaged by way of his foundational philosophical writings?

In conclusion, then, while Stiegler's conceptual framework and his rethinking of philosophical anthropology as a philosophical techno-logy offers a promising path forward for questioning the relationship between human existence and technics. The absence of concrete engagements with specific technical objects and technologies in his writings necessitates, on the other hand, a move towards other more technically attentive approaches, such as Don Ihde's as I suggested in section 2.3, in order to establish a post-phenomenological path beyond the divide operative between the humanities approach and the engineering approach to the philosophy of technology. By so doing, one would also work towards mitigating the habitual hinderance for philosophers in adequately questioning and, indeed coming to terms with, technics and its intimate intertwinement with human existence. This is, at any rate, what I have been suggesting over the course of these pages and its readings, arguments and critiques.

4 Concluding remarks

I have attempted throughout the breadth of this thesis to shed light upon the complex coupling between human existence and technics, and in so doing also retraced the connections between thinking and technology, and elucidated the causes behind and possible remedies for the divide between the oft opposed and deeply antagonistic figures of the philosopher and the technician. The aim has been, in this regard, to readdress and reaffirm the intimate relationship between the question of technics and the question of the human, and to thereby investigate the bonds that exist between the philosophy of technology and philosophical anthropology broadly understood. Given the urgency with which this task for thinking is presented to us today in light of our contemporary situation, characterized as it is by anthropogenic climate change and the *smartification* of our surroundings, I have endeavoured to contribute to the necessary conceptual work of reforming philosophy's conceptual toolbox and of outlining the contours of a possibly new and promising path for rethinking how tool and tool-user, human and technics, the who and the what, are intertwined and interconnected.

The irony of this investigation does not escape me, in this regard, for while I have offered a few brief phenomenological descriptions of human-technology relations and questioned the nature of such relationships, the concrete engagements with specific technical objects and technologies that I have called for over the course of these chapters and sections, have not been carried through by way of this still quite classical thesis in philosophy. There is, in other words, still a lot of work to be done, as a bridge between disciplines and traditionally opposed types of knowledge has only been outlined and proposed and not, in any real sense, worked through. Part of my aim with the preceding investigations, narratives and readings was, in any case, to elucidate and argue for the necessity of doing so, while being unable to offer such an engagement by way of the given scope of this thesis and the chosen emphasis of its topics.

One might be led to question, in this connection, what the philosopher, after having been brought down to earth and situated alongside the technician as a skilled practitioner of the means – the *instruments* and *technologies* – through which his or her competence and knowledge is cultivated and practiced, can contribute with when attempting to understand the *techno-logical* condition in, through, and with which we currently exist. The Italian philosopher Roberto Esposito phrases it well when he writes that “no real change in our current political forms is imaginable without an equally profound alteration of our interpretive notions” (2015: 15). Likewise, the notions with which we think about the technical, by informing the thoughts we have concerning these matters, are highly important to reform and critically question, especially due to the fact that our understanding of technics and technology is intimately related to our understanding of ourselves as human beings. The philosopher is, in this connection, as Pierre Ducassé has stated, called upon “to extract the simultaneous meaning of man and his technicity from a brief and sometimes furious contact with technicist transformations and human contradictions” (1958/2014: 36). Such a role would call for mounting more concrete and specific investigations of the coupling between human beings and techno-logical structures in regards to our current situation, which could, in this regard, form the horizon for new and different research projects still to come.

In closing I will now turn to a brief and rudimentary recapitulation of some of the key investigations, arguments

and critiques that have been given over the course of these pages. Before doing so, however, I would first like to note that the two chapters and overall parts that make up this thesis have questioned the relationship between existence and technics from two different angles. For where the first part tackles the genealogical and metaphysical aspects of this coupling, the second has undertaken an investigation of the human and the technical at a more philosophically fundamental level through its engagement with the theories of Martin Heidegger, André Leroi-Gourhan and Bernard Stiegler. Nevertheless, these parts mirror one another to a not insignificant extent, as they both forward a thesis holding that existence is originally technical and hence call for a unified approach to questioning technics and existence.

Now, firstly, as concerns the first part, and specifically section 2.1, I gave an account of how the occidental tradition has tended to distance its own practice and thinking from technics, and relatedly argued and described how this tradition has hierarchically subjugated the technical, from the very first, specifically as concerns definitions of what essentially defines us human beings. The way in which ancient philosophy has understood technical objects, technical practices, as well as the workers handling these objects and cultivating these practices, was thereby brought to light, specifically as regards the thought of Plato and Aristotle. Involved in this genealogical effort was an investigation of how the figures of the philosopher and the technician, as well as their respective forms of knowledge, have been opposed from one another from the start. I argued, in this connection, that this opposition and antagonistic relationship, which is still operative today, constitutes a genuine hindrance for thinking about technics and existence, specifically within the confines of traditional philosophical inquiry. Secondly, in section 2.2 I detailed how the philosophy of technology first emerged in the late 19th and early 20th century, specifically as concerns the way in which it split into two general approaches that dominated, and indeed still largely characterize, the field, namely engineering philosophy of technology and humanities philosophy of technology. I argued, in this connection, that the divide between these two approaches had deep roots and stranded on conflicting philosophical anthropologies that limited their conceptualizations of the relationship between technics and existence. Third and lastly, in section 2.3 I investigated the possibility of establishing a new approach for the philosophy of technology capable of forging a path beyond this divide. In this regard I described how such an approach can go both through and beyond the limits I found to characterize classical phenomenology and traditional hermeneutics in the form of a post-phenomenological approach similar to, yet departing in key respects from, the one espoused by the American philosopher of technology Don Ihde. I therefore outlined the specifics and inherent promise of a new post-phenomenological approach, meant to be a bridge between the engineering and humanities philosophy of technology, as well as a partial alignment between the thought of Bernard Stiegler and that of Don Ihde, that I argued was capable of reconnecting the study of technics – of technical objects, technologies and technical systems – with the study of human existence, culture and society. Stiegler’s engagement with specific technical objects and technologies was, in this connection, found to be lacking as I criticized his philosophical writings for the absence of any significant phenomenological descriptions. My suggestion was, therefore, that a dialogue be opened between, among others, the so-called “empirical turn” of American philosophy of technology and the approach forwarded by Stiegler.

In the second part and third chapter of this thesis, I investigated and, in part, phenomenologically described

how technics informs and structures human existence. Firstly, by questioning, as part of section 3.1, how the thought of the early Heidegger, as it is laid out in the first division of *Sein und Zeit*, opens for thinking about this form of being as originarily technical; a reading that went against the one offered by Stiegler in *Technis and Time, 1*. Secondly, in section 3.2, I engaged with the palaeanthropological narrative of Leroi-Gourhan and Stiegler's appropriation of it. Agreeing with the general trajectory of this narrative I argued that *technogenesis* coincides step by step with *anthropogenesis*, and hence that human existence is originarily technical, specifically as it is structured by a process of exteriorization that mutually constitute human interiority with the technical objects of that being's anterior milieu. Stiegler's central thesis of an originary exteriorized technical memory, which he terms *epiphylogenesis*, was, in this regard, elucidated and critically engaged with. Heidegger's positing of a "primitive" Dasein was also, in this connection, criticized, as was Stiegler's rather hasty reading of Leroi-Gourhan. Thirdly, by way of section 3.3, I criticized the late Heidegger both as concerns his insistence upon the non-technical essence of technics and his related call for a disengaged role for the philosopher in regards to matters concerns techno-logical transformations. Furthermore, I argued that a shift, or specification of a prior ambiguity, had taken place from the initial promise of Heidegger's early *descriptions* to the *judgement* of the logic of modern technics encountered throughout the writings of his later period, which entailed an idealization of "the hand" of the artisanal craftsman. In this connection, I also critically engaged with Heidegger's analyses of the typewriter and the radio, relating them subsequently to a brief elaboration upon some aspects of the contemporary situation and specifically our use of such devices as the touchscreen smartphone. The occasion for this engagement being my investigation of whether or not anything was worth salvaging from Heidegger's later thinking concerning the coupling between existence and technics, finding in this regard that his insight concerning the radicalized potential for deindividuation found with modern technics was of some merit. Fourth and lastly, in section 3.4, I detailed how Stiegler's philosophy rewrites philosophical anthropology as a philosophical techno-logy understood as a *logos* of *tékhnē*, specifically by way of his reading of the ancient Greek myth of Prometheus and Epimetheus, and relatedly described how he imagines that the human is invented through technics. Furthermore, the way in which Stiegler's philosophy destabilizes the transcendental and empirical was detailed and an argument given concerning how this impacts both one's questioning of technics and human existence. Now, in closing I argued, in a similar vein to the arguments forwarded at the close of the second chapter, that Stiegler's attentiveness to the concrete and specific falls short, specifically in a manner quite similar to Heidegger's shortcomings in regards to his engagement with technical objects and technologies. In brief, then, I argued that the former inherits the latter's distanced, formal and heightened perspective, which is epitomized by the refrain of "the always already" common to both philosopher's writings. This fault of Stiegler's approach, namely that it does not criticize and step out of the perspective of the classical philosopher, and that it is as a result not sufficiently attentive to the specificity of our current surroundings and its technological infrastructure, was found to necessitate a move beyond it in order to establish a post-phenomenology truly capable of thinking *through* technics anew.

Notes

1. Introduction

- ¹ With regards to the term ‘technical individual’, appropriated from Simondon and employed in this thesis (1958/80: 68), and in light of the extension of its reference beyond the divide operative between human and non-human, it is perhaps worth noting the etymology of certain terms currently associated with technical objects and machinery, which previously signified human workers and occupational roles, notably ones associated with assistant positions traditionally held by women. Don Ihde notes that Friedrich Kittler, in this regard, “points out that the term “typewriter” first applied to the woman who typed. Similarly, Peter Galison points out that the first use of “computers” came from physics and astronomy, referring to the women who did the data analysis in these disciplines” (Ihde 2010a: 147n5). In addition to these two examples, one can mention the more familiar etymology of the word ‘robot’ which stems from the English translation of the play *R.U.R.* (“Rossum’s Universal Robots”) from 1920. Karel Capek, the playwright, coined the term from the Czech word for forced worker (*robotník*), which comes from *robot* signifying forced labour, compulsory service, and drudgery. As concerns the connection between the naming and function of technical objects (such as the typewriter and the computer) and occupational roles that often are occupied by women, an early scene in Capek’s play depicts a female robot secretary named Sulla, who, due to the fact that she looks just like a human being, Miss Glory, the future wife of the general manager of the robot factory, mistakes for a person. The general manager pointing this out to his wife-to-be utters the following line whilst laughing: “Sulla isn’t a person, Miss Glory, she’s a robot.” This delineation between technical individual and properly human is related to the hierarchical devaluation of technics in the history of occidental thought, which reflects back onto the ‘technicians’ and their technical practice with technical objects, who are devalued and hierarchically subjugated in line with the practices and objects of their profession, as is touched upon in section 2.1.
- ² An extension of our common grasp of what constitutes the sphere of the technical that Marcel Mauss’ famous article from 1936 entitled “Techniques of the Body” also can be seen as pointing to, by way of both its title – in French “Les Techniques du corps”, a turn of phrase that echoes the usage of the term *la technique* in Bernard Stiegler and André Leroi-Gourhan – and argument (1936/1994). What is more, at the time of publication of the aforementioned article Mauss supervised Leroi-Gourhan’s doctoral dissertation in archaeology, and must be seen as a key inspiration for Leroi-Gourhan’s subsequent two-volume magnum opus *Gesture and Speech*, which in turn influenced Derrida and Stiegler (1964 & 1965/93, see Noland 2009: 93-6).
- ³ There is obviously a deep link between the *techno-logical* process of industrialization and the cultural and political vision for human and civilizational progress through technological development and transformations of the earthen terrain for utilitarian and anthropocentric ends. This connection was, and still to a large extent is, related to a theological philosophical anthropology, which the historians Christophe Bonneuil and Jena-Baptiste Fressoz present in their important book *The Shock of the Anthropocene: The Earth, History and Us* by way of a particularly revealing quote from Saint-Simon, “the herald of what was already called ‘industrialism,’ [who] maintained in the 1820s that” (2013/2016: xi): “The object of industry is the exploitation of the globe, that is to say, the appropriation of its products for the needs of man; and by accomplishing this task, it modifies the globe and transforms it, gradually changing the conditions of its existence. Man hence participates, unwittingly as it were, in the successive manifestations of the divinity, and thus continues the work of creation. From this point of view, Industry becomes religion” (*Doctrine de Saint-Simon* (vol. 2, (Paris: Aux Bureaux de l’Organisateur, 1830), 219, cited and translated in Bonneuil and Fressoz 2013/2016: xii). As Bonneuil and Fressoz make forcefully evident by way of an investigation of the historical narratives underlying the radical exploitation of the earth under industrial capitalism; “We should not act as astonished ingénues who suddenly discover they are transforming the planet: the entrepreneurs of the industrial revolution who brought us into the Anthropocene actively willed this new epoch and shaped it” (2013/2016: xi). The neglected and historically marginal traditions of philosophical anthropology and the philosophy of technology are highly relevant in this regard, and should be taken account of, especially how they construct different visions for what typifies us as being humans, when facing and questioning the techno-logical and historical trajectories underlying the contemporary environmental crisis and humanity’s role in making it come about.
- ⁴ Situating Stiegler’s philosophy in a clear-cut tradition of thought can be a somewhat difficult undertaking, since the large network of sources and interlocutors that he engages with, sometimes at length – such as the palaeoanthropologist André Leroi-Gourhan, the historian of technology Bertrand Gille, the techno-philosopher Gilbert Simondon, phenomenologists like Edmund Husserl and hermeneutical thinkers such as Martin Heidegger, as well as the father of deconstruction Jacques Derrida – makes his own original contributions at times difficult to discern and his position hard to summarize without positioning him in relation to these other thinkers. Clearly Stiegler owes something to what has become known as deconstructionist thinking and especially Jacques Derrida who served as Stiegler’s supervisor for his dissertation confirmed in 1993 at the School for Advanced Studies in the Social Sciences in Paris; a dissertation which later grew into the first volume of *Technics and Time* published in 1994. But while one can obviously trace key

similarities between his theories and those of Derrida, nevertheless, the position of the student deviates in crucial respects from that of the teacher. The break with Derridean deconstructionist thought is evident even prior to the publication of *Technics and Time, 1*, specifically with the disagreement between the two regarding the role of the technical. And specifically, the significance afforded to the given concrete technical lay-out of our lifeworld in regards to the technical practices that our use of language and our acts of thinking necessarily involve, albeit to varying degrees for the two. Indeed, for Stiegler the very constitution of “the human” or “the who” comes to be formed through a coupling with technical objects. On this point Stiegler and Derrida’s disagreement is on clear display in the filmed dialogue between the two held and broadcast in 1993, and subsequently published as a book in 1996 bearing the title *Echographies of Television* (1996). I will not emphasize the affinities and differences between Derrida and Stiegler’s thinking as part of this thesis. It has been thoroughly dealt with in the literature amassing around Stiegler’s corpus, and was a dominant topic throughout the initial reception of his early thought in the mid- to late nineties. For more on the relationship between Stiegler, on the one side, and Derrida and deconstructionism, on the other, see especially Ben Roberts’ article “Stiegler reading Derrida: the prosthesis of deconstruction in technics” (2005) and Stiegler’s own article “Derrida and Technology: Fidelity at the Limits of Deconstruction and the Prosthesis of Faith” (2001).

- ⁵ In the latter half of the 20th and into the 21st century, however, technics became the focal point for numerous philosophical attempts at *deconstructing* traditional conceptualizations of the human, which have become destabilized due to the destruction of past epochal organizations effected by technological transformation, such as, most notably, those brought about by the invention and implementation of complex information processing technologies throughout the period. These deconstructive endeavours have, on the other hand, taken many forms and guises within, among others, such diverse constellations as deconstruction (Jacques Derrida, Jean-Luc Nancy), (post-) phenomenology and hermeneutics (Don Ihde, Peter Sloterdijk, Bernard Stiegler), post-structuralism (Gilles Deleuze, Michel Foucault, Jean-François Lyotard), philosophical anthropology (Arnold Gehlen, André Leroi-Gourhan) and the philosophy of technology and media (Wolfgang Ernst, Friedrich Kittler, John Durham Peters, Gilbert Simondon).
- ⁶ The fourth bearing the subtitle *Symboles et diabolos*, parts of which has been presented as part of Stiegler’s doctoral seminar series at the *École de philosophie d’Épinal-le-Fleuriel*, the open-access school Stiegler founded in late 2010 (James 2013: fn83), and manuscripts from this fourth volume can be accessed upon registration via the webpage of this school; <http://www.pharmakon.fr/>. Stiegler has also spoken of a fifth, and even sixth, volume of the *Technics and Time* series, but these long-promised additions to the philosophical bedrock of his thinking have yet to emerge. A state of affairs, due, one can speculate, to the shift in perspective and political engagement evidenced in his writings, as well as their pace of publication, from 2005 onwards. For more on this see the later portions of section 2.3.

2. *Philosophy and Technics: Human beings and technical objects*

- ¹ For more on this, see Stanley Rosen’s *Plato’s Republic: A Study*, specifically the second part of that book and the fifth and sixth chapters entitled “The Purged City” and “Justice” (2005: 109-170).
- ² I am here disregarding, in regards to the limited nature of the argument given and the narrative offered in this section, concerned as it is with the differentiation between properly human existence and technics, Plato’s discussions of natural aptitudes and dispositions as it concerns the three classes within the ideal city in *The Republic* (II 370a-b, VI 484c-90e, and 494b-96e).
- ³ Whether or not Plato’s ideal city contained slaves, and whether or not we should understand the lowly workers in his city as akin to slaves (433c-d, 469-71c and 590c-d, does at least in part suggest such a reading of the workers as “slavish”), has been a hotly debated topic (see Vlastos 1968 and Calvert 1987 for two contrasting positions), and relates to the question of how one is to understand the relationship between Plato’s politics, psychology and cosmology. It is, however, generally agreed that Plato does not, at the very least explicitly, call for the abolition of the then existing cast of slaves in Athenian society, nor does he problematize it in any of the surviving text we have access to (Vlastos 1968: 291-2). My point regarding the hierarchal ordering of Plato’s ideal city is, however, how that ordering is made possible and carried out on the basis of an opposition between technics and thought, *technicians* and philosophers. How, in other words, that hierarchy relates to the repression of technics in classical thought starting with the ancient Greeks, regardless of whether or not we should or should not name the lowest cast within that hierarchy slaves. At any rate, the designation of slave is explicitly made on numerous occasions in Aristotle’s practical writings, notably by way of his infamous characterization of *natural slaves* as being characterized by the use of their bodies for labour (see for instance his *Politics* 1252a31-3 and 1253b27-32).
- ⁴ In regards to the use one makes of technical objects and human beings as either inanimate or animate slaves – specifically concerning the body of the manual worker, but also concerning the role and possible pitfall of the philosopher since the body *as such*, according to Aristotle, is to be grasped as a tool born with the soul and to be mastered by it – Aristotle revealingly writes the following in the *Politics*: “Therefore those people who are as different from others as body is from soul or beast from human, and people whose task, that is to say, the best thing to come from them, is *to use their bodies* [*he tou somatos chresis*] are in this condition – those people are natural slaves. And it is better for them to be subject to this rule, since it is also better for other things we mentioned. For he who can belong to someone else (and that is why he actually does belong to someone else), and he who shares in reason to the extent of understanding it, but does not

have it himself (for the other animals obey not reason but feelings), is a natural slave. The difference in the use of them is small, since both slaves and domestic animals help provide the necessities with their bodies” (1254b 17-25). Giorgio Agamben comments extensively on passages such as these in his recent book *The Use of Bodies*, the last volume of his long running *Homo Sacer* series, highlighting by way of his close readings the fact that the slave’s sole *ergon* or “work” (often rendered as “function”, which would be misleading in this case) is the use of his or her body, which entails that the slave essentially lacks a particular work or field of competence in being *ergon*; in being useless, unprofitable, and thoughtless on its own, since it occupies the role of a part or member of a whole that it does not itself own, direct or comprehensively understand (2014/16: 5). When Agamben, in chapter 7 of *The Use of Bodies* entitled “The Animate Instrument and Technology”, suggests that the peculiar figure of the slave – in which animal life crosses over to the human, and the organic crosses over to the inorganic – constitutes the original paradigm of technology or the technological life, he relates – as does Stiegler – the question of the human to that of the technical, and further connects both of these questions to the question of life, body and work. The slave of the ancient Greek city, portrayed by Aristotle as an animate slave, even prefigures, as Agamben sees it, the modern machine (the automaton). Indeed, the very possibility of modern technology and its expansion was laid by the abolition of slavery; the animate tool of the human body was replaced by the self-moving and automatic machine (2014/16: 66-79). Agamben is here forwarding a similar argument to that made by Gilbert Simondon in his *On the Mode of Existence of Technical Objects* from 1958, although with a differing conclusion. Simondon writes: “Man has played the role of technical individual to the extent that he looks on the machine-as-technical-individual as if it were a man and occupying the role of man, whereas in actual fact it was man who provisionally took the place of the machine before real technical individuals could be made” (1958/80: 68). For Simondon, then, before its modern invention humans had occupied the role and prefigured the concretization of the machine – the non-human technical individual –, most especially by way of the figure of the slave as a non-specialized manual labourer. Both thinkers emphasize thereby the role of ancient Greek thinking on the subject of technics, and the peculiar significance of the slave that, in a prefiguring fashion, embodied the mode of existence that only later was concretely realized by the machine. However, while it is a matter of the human having provisionally taken the place of the machine for Simondon, who believes that machine technology can work to relieve the human worker from the pre-established paths of psychic and physical individuation leading to strain and structurally imposed proletarianization when being positioned as technical individuals in a wider functionally determined framework, Agamben is convinced that there is a constitutive relationship between slavery and technics, and that it is therefore “not surprising that the hypertrophy of technological apparatuses has ended up producing a new and unheard-of form of slavery” (2014/16: 79). Investigating the points of contact and departure of these two positions – an endeavour that would relate to issues detailed in the proceeding discussion of the engineering and humanities approach to the philosophy of technology in section 2.2. – is, however, a complex undertaking that I naturally cannot pursue here, suffice it to say that as regards the topic of the current section the ancient Greek discussion of human being in relation to technics constitutes a necessary step in order to understand our contemporary technological condition and how we got there, as Agamben’s close reading of Aristotle’s *Politics* and *Nicomachean Ethics* clearly bear witness to.

⁵ The technicity of human existence is thus downplayed, but by relating technics to servitude among the lower classes, or indeed the slaves, does not completely separate the significance of the technical for the constitution of the human. For, as Aristotle makes clear, “anyone who, *despite being human*, is by nature not his own but someone else’s is a natural slave” (*Politics* 1254a14-5, ea). Even though having been judged a tool of instrumental value, Aristotle does not go so far as to call him or her in- or non-human, but associates unskilled technical practice with the lowly in us, bordering on the animalistic. The slave, one could say, is a living being that itself is a tool for maintaining life, and thus even if the slave is animate and human it is a tool and is excluded from, or lacks, humanity. Nevertheless, as Agamben has pointed out, the slave is a necessary prerequisite (in the absence of machines or automatons) for this very humanity, since the slavish use of their bodies makes the mastery of political life possible (2014/16: 3-23, see Myklebust 2016: 156).

⁶ For what makes the craftsman a person and a part of the *demos* of the city is his oversight; his anticipation and foresight of the necessary steps that go into the operative chain performed in order to produce the artefact – the product – of his or her particular craft. It is the chain of operations of his or her limited field that the craftsman has knowledge of, and which thereby makes him or her capable of mastering and controlling the development of this sequence and its specific end result. This oversight – and view towards the form – is what the assistant lacks as a mere tool or instrument, being merely an instrumental part of the overall layout, which has been structured according to a design drawn up in order to produce products. Being totally captivated in this *praxis*, the worker does not possess knowledge of anything general or universal – he does not grasp anything of an overarching significance or importance – as he is tied to the specific and contingent; to his body. Lacking such a knowledgeable perspective, and indeed capacity, leads to the exclusion of the unskilled manual labourer from the *demos*, and denies him or her personhood, being instead a piece of animate property of a sort. It is in, other words, the techniques of our bodies at work that demotes the manual labourer, while the instrumental knowledge of the particular construction processes involved in a specific craft is what promotes the overseeing technician. Even within the domain of the technical there is a hierarchical setup, then, that is based on the different values ascribed to the intellect and the soul, on the one hand, and the technical and the body, on the other. In any case, and in regards to the narrative offered in this section, it is the technicity of the

technician (or as we would quite possibly call such a person today – an engineer or *Techniker* in German) and the technical assistant that demotes them both in the ancient Greek hierarchy outlined in the works of both Plato and Aristotle.

- ⁷ Sentiments of this kind are not limited to Plato, but are also found in some surviving fragments of pre-Socratic thought, notably that of Democritus (fragment D154) and Heraclitus (fragment D112) (see Franssen et al. 2015).
- ⁸ This route of attack aimed at the sophists was, as Giovanni Reale has detailed (1987, 149-56), quite common among the generation of philosophers following Socrates. Aristotle, for instance, writes in his *On Sophistical Refutations* that: “The art of the sophist is the semblance of wisdom without the reality, and the sophist is one who makes money from an apparent but unreal wisdom” (1.165a21). While Socrates, even more strongly, states that “to offer one’s beauty for money to all comers is called prostitution; . . . So it is with wisdom. Those who offer it to all comers for money are known as *sophists*, prostitutes of wisdom” (Xenophon *Memorabilia* 1.6.13). From statements such as these Reale notes that; “It is evident that the chief charges are twofold and of different natures; *a*) the sophistic art is an apparent but inauthentic wisdom and, in addition, *b*) it is professed for the purposes of profit and is not in any way a disinterested love of truth” (1987: 149-50). Reale adds to this summary an important historical observation, which relates these charges to the class makeup and class conflict that characterized the times under which they were formulated. For to “these chief charges alleged by philosophers there must be added those facts circulating as public opinion. Public opinion sees in the Sophists a danger both for religion (as moreover had been seen in the final Physicists) and for traditional morals, since the Sophists had focused their attention on this area. The aristocrats in particular did not forgive the Sophists for having contributed to their loss of power and for having given a strong incentive to the formation of a new class that was not founded on nobility of birth, but rather on personal ability and natural endowment. This was precisely what the Sophists intended to create or, more generally, to systematically educate” (1987: 150).
- ⁹ This valuation of the philosopher as the human *par excellence*, and the language of occidental philosophy as one of the highest forms, or indeed *the* highest form, of expression of its humanity, is also integral to the Eurocentric narratives and colonial outlook embodied in the philosophical anthropologies of even prominent and hegemonic figures within modern occidental philosophy such as Kant (notably by way of his *Anthropology from a Pragmatic Point of View* (1798/2006)) and Hegel (evidenced, for instance, in his remarks concerning Africa in his *Lectures on the Philosophy of World History: Introduction* (1975)). The tendency to view the figure of the occidental philosopher as the pinnacle of human development and/or excellence in relation to what is perceived to be animalistic, slavish and unthinking, could be conceptualized partially in line with what John Mullarkey has called – in connection to the philosophy (or *non-philosophy*, rather) of François Laruelle – as the “philosomorphism” of traditional philosophical practice (2013: 12). As Anthony Paul Smith has phrased it in a review of John Ó Maoilearca’s recent book *All Thoughts Are Equal: Laruelle and Nonhuman Philosophy* (2015), “Laruelle claims that philosophy always harasses human beings” as it “always makes use of the human in order to present philosophy itself” (2017). As part of this tendency, perhaps at bottom partially inevitable (Ó Maoilearca 2015: 208), a certain violence is often directed towards what is placed as the properly human’s *other* – towards other cultures and ethnicities of human beings, towards animals and other living beings, towards things and the working processes of ecosystems – and by extension towards what is positioned as other in regards to what is found to be properly philosophical within a philosophy embodying such a pose towards what it differentiates itself from and legitimizes itself in relation to – like, for instance, philosophy’s habitual and traditional differentiation from, and self-legitimization in relation to, the figure of the technician and his or her techniques and technical objects.
- ¹⁰ The philosophy of Descartes and, in part, the early modern paradigm more generally construed, which also finds a key elaboration in the thought of John Locke, is connected to this narrative since the repression of technics relates, as I have tried to show in the case of Plato and Aristotle, to the idealization of the intellect, and the cognitive in general, as well as the connected hierarchical devaluation and neglect of the bodily extended and technically operative. See Don Ihde’s *Embodied Technics* from 2010 (first and foremost pp. 1-15) for a brief and to-the-point discussion of this connection, especially as it relates to some contemporary notions of, and visions for, technology that neglect the sensory and bodily dimensions of embodied, worldly existence and cognition, and concurrently the originary bond between human existence and technics.
- ¹¹ Stiegler mentions Kapp’s theory of organ projection briefly in regards to other important 19th century intellectual developments as far as technics is concerned, which were formulated in response to the industrial revolutions, most notably the thought of Marx and Engels. In this connection, a reference is also made to the work of the philosopher of technology Alfred Espinas and the book *Les origines de la technologie* published in 1897. In the English translation of the first volume of *Technics and Time*, however, Ernst Kapp’s name is mistakenly rendered as “Gilbert Kapp”, most likely due to an editing error (see TT1: 2). The French original refers to the German philosopher solely by way of his surname: “Kapp développe sa théorie de la projection organique, qui inspirera Espinas à la fin du XIX^e siècle.”
- ¹² Kapp is actually, more or less, as radical as Marshall McLuhan in this regard. Indeed, Kapp prefigures, at least conceptually, many of McLuhan’s famous assertions, like the following made in *Understanding Media*: “During the mechanical ages we had extended our bodies in space. Today, after more than a century of electric technology, we have extended our central nervous system itself in a global embrace, abolishing both space and time as far as our planet is concerned. Rapidly, we approach the final phase of the extensions of man – the technological simulation of consciousness, when the creative process will be collectively and corporately extended to the whole of human society, much as we have already extended our senses and our nerves by the various media” (1966/94: 19). For Kapp

argued as early as 1877, specifically as part of the twelfth and thirteenth chapter of his *Grundlinien*, that both language and the state are to be seen as extension of our mental life or consciousness. What is more, Kapp insisted that the telegraph – the sole electrical apparatus he investigates in that work, and to which he devotes the eight chapter of the book – should be understood as a *literal* extension of our nerves, since the telegraph cables that make possible the signals that transfers this new and revolutionary communication system, are likened to the nervous connections that makeup “the communications system” that is the human body (see Brey 2000).

¹³ This thesis of Gehlen’s does, however, have deep roots within the German philosophical tradition, originating well before the ideas we find in Kapp’s writings on technology, stemming most notably from the thought of Herder (1772/1978), while also finding a resonance, slightly after Kapp, in the later works of Nietzsche, especially *Jenseits von Gut und Böse* (1886/1999: 81). One can even argue that this figuration of the human – as a being lacking definite qualities and a specialized function – reaches back to ancient Greek mythology and the myth of Prometheus and Epimetheus. A myth that – as I will briefly detail in the section 3.4 of the following chapter in regards to Stiegler’s use of it in *Technics and Time, 1* – finds the origin and essence of the human to lie with the creativity and inventiveness made possible by the divine – technical – fire stolen from the gods by Prometheus and given to the non-immortals, i.e. humans, located beneath the heavenly Mount Olympus and the immortal gods.

¹⁴ As concerns the connection and similarity between Marx and Kapp, as well as the possible proximity between Marx’s thinking on the topic of technology and the engineering approach to, and project of establishing a, philosophy of technology, it should be noted that some philosophers of technology, as well as commentators on Marx’s thought, refer to him as an “engineering philosopher”. Such a connection is made, for instance, in an article written by the Russian philosopher Vitaly Gorokhov (2007: 46), who references, in this regard, two German philosophers of technology; Hans Lenk (*Zur Sozialphilosophie der Technik* from 1982) and Günther Ropohl (specifically his introduction to an excerpt of Marx’s *Das Kapital* reprinted in the collection *Nachdenken über Technik: Die Klassiker der Technikphilosophie*).

¹⁵ One should acknowledge Marx’s immense role in the history of thought concerning the technical, and especially the importance of his critique of the traditional view regarding technical inventions and his insistence upon the necessity of studying technical objects, systems and technologies – indeed the very coming into being of the technical (*technogenesis*) – all of which are on evidence in the following quote from the first volume of *Capital*, which Stiegler quotes in full in the introduction to the second chapter of *Technics and Time, 1*: “A critical history of technology would show how little any of the inventions of the eighteenth century are the work of a single individual. And yet such a book does not exist. Darwin has directed attention to the history of natural technology, that is, the formation of the organs of plants and animals, which serve as the instruments of production for sustaining their life. Does not the history of the productive organs of man in society, deserve equal attention? . . . Technology reveals the active relation of man to nature, the direct process of the production of his life, and thereby it also lays bare the process of the production of the social relations of his life, and of the mental conceptions that flow from these relations?” (Marx 1867/1976: 493 n4, quoted in Stiegler TT1: 26).

¹⁶ The publication of Kapp’s book, and with it the emergence of the field of the philosophy of technology, corresponds with the historical period that, at least in a German context, often is referred to as *der Hochindustrialisierung* – the very height of industrialization – that is said to have lasted from approximately 1870 to the outbreak of the first world war in 1914. A period during which some have identified the rupture of a second industrial revolution, in connection to the harnessing of electricity, the invention of the technical capture and recording of moving images and sounds – of the invention of both the phonogram and the cinematograph – and other revolutionizing and disruptive technologies springing forth throughout that period of time. Others have, on the other hand, identified the characteristic mark of the period as lying chiefly with the start of the long, and still continuing, process of the automatization of production (Ziegler 2005: 101).

¹⁷ It is worth noting that Kapp, like Marx, “fell out with the German authorities in the late 1840s” when he was prosecuted for sedition, specifically “for publishing a small volume titled *Der konstituiert Despotismus und die konstitutionelle Freiheit*” in 1849, which lead to him being “forced to leave Germany”. In contrast to Marx, however, Kapp “chose not London (and the British Museum) but the North American frontier.” In other words, Kapp was based in North America at the time of Emerson, and witnessed the gradual industrialization of the North American continent from east to west. On Kapp’s new life as an émigré Mitcham writes the following: “Kapp immigrated to the German pioneer settlements of central Texas and simply shifted his emphasis from inner to external colonialization. As he wrote to a friend at the time, “exchanging comfort for toil, the familiar pen for the unfamiliar spade,” as farmer and inventor he undertook to live (quoting Goethe’s *Faust*) “on free soil with free people.” As such, for the next two decades he led a life of close engagement with tools and machinery” (I3: 23).

¹⁸ The conceptualization of technics found with the ancient Greeks is, however, as was stated in the preceding section, highly nuanced, complicating the historical narrative presented. Notably Plato’s discussion of technical objects and techniques as *pharmacological* – a discussion found in his dialogue *Phaedrus* and briefly discussed in the previous section – can be taken as a counter-point to such a position. Nevertheless, since technical implements – the *pharmaka* – do not concern the originary and truly human as such, but merely humanity’s level of access to, as well as our practices – or lack thereof – for accessing, true theoretical knowledge, technics must still be seen as externalities and contingent *technicalities*, however dominant they are for the lives of the common stock of men, within Platonic

philosophy. This is, at the very least, what a comparison between the technical life of the technician and his tools, on the one hand, and the life of the philosopher and his search for wisdom through a recollection of the ideas from out of an internal and non-technical source, one the other, seems to suggest.

- ¹⁹ A possible English rendering of the title, as well as subtitle, of Kapp's book *Grundlinien einer Philosophie der Technik: Zur Entstehungsgeschichte der Kultur aus neuen Gesichtspunkten* could be, as Don Ihde has suggested (Ihde 2010: 6); "Fundamentals of a Philosophy of Technics: The Genesis of Culture from a New Perspective".
- ²⁰ Interestingly enough, Kapp in his arguments for technical objects being projections and extensions of human organs, explains that the stove functions as an external stomach of sorts predigesting the food by cooking it. As far as anthropology goes, Kapp's reflection on the role and function of the stove finds an echo in a recent palaeoanthropological thesis that is currently gaining popularity, which holds, basically, that cooking sets the genus *Homo* apart from other living organisms, and that it is in actual fact culinary technology, as Ihde prefers to call it (2008), that sets off the evolutionary trajectory towards *Homo sapiens* (see Richard Wrangham's bestseller *Catching Fire: How Cooking Made Us Human* from 2009).
- ²¹ Mitcham discusses both of these figures – the German entrepreneur, inventor, physicist and Neo-Kantian philosopher Friedrich Dessauer and the Russian philosopher-engineer Peter K. Engelmeier – in the first chapter of *Thinking through Technology*, which is devoted to key figures within the engineering approach to the philosophy of technology (see especially T3: 25-33).
- ²² In regards to the role of the environment Mitcham goes so far as to suggest that, by attempting to synthesize Hegel's theory of history with "Ritter's new science of geography", Kapp and his "comparative universal geography" anticipated what might today be called an environmental philosophy." Mitcham goes on to clarify, that; "On the one hand, this work stressed, like Ritter's, the formative influences of geography, especially bodies of water, on sociocultural orders. Rivers, inland seas, and oceans affect not only economies and general cultures, but political structures and military organizations. On the other hand, Kapp's adaptation of Hegelian dialectic called for the "colonialization" and transformation of this environment, both externally and internally" (T3: 21). The reasons for Kapp's emphasis on the environmental embeddedness of culture and human existence could, on the other hand, also be construed as partly emanating from out of his experience in North America, specifically his frontier life in Texas, but also the intellectual climate of that milieu as opposed to the one found and propagated at most German universities at the time. The engineering philosophy of technology, and Kapp's in particular, share, moreover, key points of critique of the history of occidental philosophy and its neglect of *praxis* and technics with the tradition of American pragmatism that saw its early beginnings with Charles Sanders Pierce at approximately the same time, and that was later explicitly articulated as pragmatism with the writings of such figures as William James and John Dewey. Compare, for instance, denouncements such as the following made by Dewey, with the similar focus upon an organism's – in this case the human being's – relation to an environment, both natural and technical, found in the late writings of Kapp: "In the orthodox view, experience is regarded primarily as a knowledge-affair. But to eyes not looking through ancient spectacles, it assuredly appears as an affair of the intercourse of a living being with its physical and social environment" (1917: 7). Even more radically, and with regards to reflections more directly related to a questioning of technics, Dewey, in his later thought, considered replacing the term he used to designate his own position, 'instrumentalism', with 'technology' as he understood the term. See Larry Hickman's book *John Dewey's Pragmatic Technology* from 1990 for a detailed account of this strain of his thinking. Among other points, Hickman writes the following, and provides a quote explicating, this late consideration of Dewey's: "Late in his career, in his 1946 book *Problems of Men*, Dewey unequivocally identified his instrumental method with technology. In an aside that provides a kind of key for understanding his lifelong struggle to articulate his method, he remarked, "It is probable that I might have avoided a considerable amount of misunderstanding if I had systematically used 'technology' instead of 'instrumentalism' in connection with the view I put forth regarding the distinctive quality of science as knowledge" (PM: 291n)" (Hickman 1990: 58).
- ²³ Technical objects and technologies, which might bring about such breaks and shifts when implemented, can also form the basis for philosophical constructions of what Don Ihde calls "epistemological engines". For philosophers and their philosophies have relied on the resources available in their technical environment in constructing artificial situations – in inventing "theatres of the mind" –, which set the stage for the epistemological theories that have underscored and worked to characterize the metaphysics and cosmologies of these philosopher's respective historical and technical epochs. Two notable cases of such a connection might serve to ground this claim. Firstly, the influence exercised by the *camera obscura* on the epistemological models of Descartes and Locke, and secondly, the power and epistemological dominance of the contemporary metaphor that likens the brain and/or the mind and its cognition to the information processing accomplished by our now ubiquitous computers (Ihde 2010b: 7-11). In this connection and as concerns the reasoning behind and the prospects for the notion of *technological breaks*, Ihde notes concerning the analogous relationship between technology and science, that; "Historians of science have a saying: "Science owes more to the steam engine than the steam engine owes to science." For historically, Ihde goes on to state, "the steam engine developed without much explicit use of scientific theory; yet it inspired the ideas of entropy and the second law of thermodynamics." For Ihde, accordingly, it was first and foremost the machine – the steam engine – and its technological make-up and functioning that "suggested the phenomena" and not the other way around (2000). Suggesting thereby that key technological breaks or upheavals – such as the invention and implementation of the steam engine – play into, and

indeed ground, the epistemological possibilities and horizons that the theories of both philosophy and physics spring from out of, and that they on the basis of these technical inventions and implementations subsequently can work to conform, reform or transform their theories as a response or an afterthought (*après-coup*) to, in accordance with the given aims and constraints of the specific cultures and societies within which theories are disseminated and under which scientists operate. In this way, technical objects and technologies, as well as the technical systems they adhere in, are given weight as what historically and technologically clears the ground and make available the resources exploited, so to speak, for both scientific and philosophical revolutions, if you will; as Ihde phrases it: “New waves must respond to new shorelines” (2009b: xii). A topic for another occasion would be to suggest, therefore, that the thesis forwarded by Thomas Kuhn in his *The Structure of Scientific Revolutions* (1962/2012) could fruitfully be supplemented by the insight that technological transformations, and the new technical practices such transformations both make available and possible for the scientist or philosopher, first open up the space of possibility for these paradigm shifts to take place. In short, transformations made to the technical and technological structure alter the very world that both the scientific and philosophical paradigm is based upon. Especially if the very means with which the scientific and philosophic practice of the epoch is undertaken are, at least partially, replaced and changed on the basis of the invention and implementation of a sufficiently innovative and revolutionary technical object or technology. Instances of which might include, for instance, the invention and standardization of such systems as a written language, the tools for tracing such a language’s symbols on a solid surface and the means of disseminating and reading such symbols whence traced. In concrete terms, it would concern the first invention and subsequent implementation of such things as, for instance, the pen, the paper sheet, and the printing press, or, for that matter, the more recent invention, implementation and setup of the personal computer, the keyboard, and *the World Wide Web*. New inventions can, moreover, in and of themselves constitute new starting points for theoretical and experimental queries, as they lead one to ask, for instance, how and why these new technical objects or technologies work and function in both a material and social sense. And as noted above with reference to Ihde’s reflections on the topic, technologies and technical objects are at times in and of themselves paradigmatic as they serve as models or *epistemological engines* for the theories elaborated by speculative thought, as was arguably the case, as Ihde details, with Descartes’ and Locke’s representational theory of perception in regards to the *camera obscura*. An actual elaboration of such a suggestion and its wider ramifications and significance will have to be undertaken elsewhere, but for more on Ihde’s understanding of this role for technological transformations as preceding scientific revolutions, as well as an elaboration of his notion of *epistemological engine*, see his “Epistemology Engines” (2000), as well as the article he subsequently co-wrote with Evan Selinger entitled “Merleau-Ponty and Epistemology Engines” (2004). Ihde’s more recent book *Embodied Technics* also provide insights in this regard (2010).

²⁴ As a search on Google’s Ngram viewer will indicate, the term ‘technics’ occurs in publications in the English language all the way back to the 1820s, but only come into more popular and non-specialized use throughout the 1920 and 30s, for then to peak in the years immediately following World War II, while seeing a sharp decline in occurrence from the late 1960s and onwards. However, when compared with the terms ‘technology’ and ‘technique’ it barely registers at all. In the graph comparing the occurrence of the three terms, notice the sharp upsurge in the occurrence of the term ‘technology’ from the 1950s onwards; an increase in occurrence that apparently peaks around the time of the millennium, and then subsequently declines somewhat over the last ten years or so. When one consults the graph in question, it appears that the term ‘technique’ also saw an increase beginning at the turn of the 19th century, which eventually peaked in the 1980s before steadily declining from there onwards. It should be noted, however, that Google’s Ngram viewer is not an entirely reliable source, since the values assigned to the terms one searches for reflect the occurrence of them in the finite archive of books Google has digitalized through its “Google Books” program. For the graph on ‘technics’ go to: <https://goo.gl/gxIV9D>. For a graph comparing the occurrence and development of the terms ‘technics,’ ‘technique’ and ‘technology’ see: <https://goo.gl/Ho9IHM>

²⁵ In making this claim Ihde references two books written by two influential historians of technology, specifically Thomas Hughes’ *Human Built World: How to Think About Technology and Culture* (2004) and David Nye’s *Technology Matters: Questions to Live With* (2006). Ihde also relates this fact – that the terms we use in referring to the technical first became popular and widely disseminated notions only after a long period of technological revolutions and upheavals – with a similar phenomenon in the terminology related to science, writing in this regard that: “Most historians locate the rise of early modern science in the seventeenth century, but the term “scientist,” for example, was not coined nor did it come into popular use until after 1840! Before that time “scientists” were called *natural philosophers*. Within the Royal Society, in the 1840s, a debate, inaugurated by William Whewell, opened concerning nomenclature leading to “scientists.” One of the arguments related to “economists,” with those preferring “scientists” holding that this was a good parallel to this social science change. Needless to say, in that period there were not yet any “technologists,” although “engineers,” those who practiced the industrial arts, and of course “inventors” could be found.” Ihde then makes a general claim, when stating that: “The implicit suggestion here is that... complex practices and material developments often *precede* the naming process” (2010a: 8). In this connection, it should be noted that Ihde also holds “that *there is a significant sense in which technology may be seen to be both ontologically and historically prior to science*”, going on to specify that he is suggesting that technology “is the *condition of the possibility of science*” (2010a: 56). The position Ihde argues for over the course of the second chapter of his book *Heidegger’s Technologies: Postphenomenological Perspectives* entitled “The Historical-Ontological Priority of Technology Over Science” (2010a: 56-73), is harmonious, in this regard, with my suggestion – following Stiegler, and indeed Freud

- (see Bradley 2011) – that our thinking concerning what makes this thought possible, and that counts as this thought’s very condition of possibility, namely technics or the technical, can only be formed as an afterthought (*après-coup*) responding to a shift or break in the organization of the techno-logical structuration that make up the background with which and through which we both act and think.
- ²⁶ In this regard it should be noted that the concepts of ‘epistemological obstacle’ (*obstacle épistémologique*) and ‘epistemological break’ or ‘epistemological rupture’ (*rupture épistémologique*), which Bachelard introduced in his *The Formation of the Scientific Mind: A Contribution to a Psychoanalysis of Objective Knowledge* from 1938 (2002) served as a key influence for Michel Foucault’s elaboration of the notion of ‘episteme’ in his book *The Order of Things: An Archaeology of the Human Sciences* published in 1966 (1994). Bachelard’s concept of ‘epistemological breaks’ also influenced Luis Althusser, who appropriated and popularized the notion as part of his structuralist reading of Marx in his contribution to the much-read and widely commented upon *Reading Capital*, wherein he argues for such an epistemological break in the writings of Marx, specifically as concerns Marx’s formulation of the science of historical materialism (1965/2009).
- ²⁷ This major work by Simondon, which influenced a number of widely read and highly respected thinkers of the following generation of French philosophers such as Derrida and Deleuze (as well as French thinkers coming to prominence in the 1990s, such as Stiegler), has finally appeared (April 2017) after numerous delays, although sadly too late for the purposes of this particular project, in a complete and authorized translation by Cécile Malaspina in a letterpress edition published by Univocal. This translation, and others with it, will hopefully, by making his writings more available to the English-speaking world, increase the sphere of influence of Simondon’s thinking beyond that of France specifically, and Continental Europe generally.
- ²⁸ The passage from Scheler is quoted, and presumably translated by, Zachary Davis and Anthony Steinbock in their entry on “Max Scheler” in the *Stanford Encyclopedia of Philosophy* (2014), and stems from Scheler’s late essay *The Human Being and History* found in the ninth volume of his collected works (1976). Scheler’s point that human beings themselves, for the most part one would presume, do not know that they no longer know who, and perhaps even what, they are, resonates to a certain extent with the quote, accredited to Maurice Blanchot, that opens the general introduction of Stiegler’s *Technics and Time* series, which goes as follows: “Do you admit to this certainty: that we are at a turning point? – If it is a certainty, then it is not a turning point. The fact of being part of the moment in which an epochal change (if there is one) comes about also takes hold of the certain knowledge that would wish to determine this change, making certainty as inappropriate as uncertainty. We are never less able to circumvent ourselves than at such a moment: the discreet force of the turning point is first and foremost that” (see TT1, 1). The self-assured confidence found in the already given organization of the traditional is destabilized over the course of an epochal change. The turning point opens up a new space of possibility in which what was previously taken for granted has become problematic and that as such calls for a decision (*a krisis*) capable of establishing a new orientation. In such a situation, the appropriateness of a response or judgement is not already given and a path of action not immediately available, as one’s habitual orientation towards one’s surroundings has been broken. The disruptions effected by the technological changes, and their consequent breakdowns of traditional organizations and ways of living, experienced during the period in question – the late 19th and early 20th century – can retrospectively be seen as working to bring about such turning points, in Blanchot’s sense, in which, as Scheler indicates, human *being* and the *ontological*/becomes, although inexplicably or at least non-thematically, problematic for *ontic* human beings.
- ²⁹ Apostolopoulou’s statement is limited to philosophical anthropology, but given his argument and the views on the matter he associates with the main proponents of the German school of philosophical anthropology it is, in regards to what I have stated so far, plausible to assign such a historical motive and provide such a contextual background for the philosophy of technology as well. In any case, Apostolopoulou writes the following concerning philosophical anthropology: “The main anthropologists, Max Scheler and Helmuth Plessner, share the same opinion [that it] has appeared as a consequence of the shaking of the Middle Age’s order, the roots of which were Greek tradition and Christian religion” (1992: 49). Surely, in regards to this, the technological developments and their specific discontinuities had a central role to play in this “shaking” of the traditional order by way of their successive upheavals and transformations – its breaks – of the techno-logical structuring of the configuration of human existence throughout the industrial and technological revolutions of the late 18th, the 19th, the 20th, and even into the current 21st century.
- ³⁰ A work that by emphasizing the production and use of tools as distinctive characteristics of the human species popularized and propagated – the book having been printed in numerous editions – the understanding of the human as being essentially a maker or producer of artefacts; of being, in other words, *Homo faber*.
- ³¹ The term ‘posthuman’, in order to briefly clarify, seems to suggest, specifically by adding the prefix ‘post’, that our mode of being with the invention and implementation of, most importantly, contemporary information processing technologies, somehow has moved past, perhaps even beyond, what qualifies as human. At the very least, it thereby suggests that we have surpassed what is associated with our doxastic grasp of such notions as ‘the human’ and ‘humanity.’ In this connection, the term also seems to indicate, since our current technological condition is increasingly characterized by our reliance upon complex systems of technologies ubiquitously present in our lives that what came before the contemporary situation, and what would thereby appear to be more properly named ‘human’, was, if not pre-technical, then at the very least pre-technological. Such a tentative suggestion, even if it does not reflect the theories of the philosophers and media theorists who use the term ‘posthuman,’ runs counter to Stiegler’s assertion that the human from the first is an

invention, and that this invention is technics (T1: 137), which is one reason why I hesitate to use it. In making this point, however, my intention is not to critique the critical philosophies of figures such as N. Cathrine Hayles and Cary Wolfe. For these thinkers do not uncritically celebrate the advent of the posthuman, but use it in order to mark a shift, where the posthuman is introduced to name the contemporary privileging of information over matter, as well as the appearance of popular techno-fantasies revolving around the prospects of humanity transcending its own embodiment, which have gained prominence over the last couple of decades in more than just popular culture and science fiction literature, but even within the spheres of academia. An influence that thinkers such as the Swedish transhumanists Anders Sandberg and Nick Bostrom, the latter being the director of the Future of Humanity Institute at Oxford University, clearly indicate. Statements such as “we will no longer be human anymore, but posthuman beings” made by Sandberg, and assertions such as “we shall eventually manage to become post-human” made by Bostrom, are symptoms of the historical construction that Hayles gives the name ‘posthuman’ and that her work, among other things, critically analyses and discusses. However, when one pauses to reflect upon the fact that critical theorists like Hayles are termed ‘posthumanists’, it becomes painfully obvious that this movement, if one can call it that, when using this locution, are running the risk of being conflated with the aspirations, fantasies and ways of understanding ourselves and our future, which they are attempting to analyse, criticize, and historically, as well as technologically, situate. Such a conflation is especially problematic in this case since the designation of ‘posthuman’ connotes negative sentiments towards the traditions of humanism and the notion of human dignity, thereby signalling an upheaval of the grounding principals animating occidental thinking regarding morals and ethics. These connotations when connected to the usage of the term within transhumanism and, in part, popular culture, leads me to suspect that both the concept of ‘the posthuman’ and the critical theorists that go by its name could, in this way, meet a similar faith to the one arguably faced by the historically connected concept of ‘the postmodern’ and its ‘postmodernists’. The coinage and usage of the term by thinkers such as Hayles appear to me, in light of the above reflections, to be a strategic mistake. A mistake that Stiegler thankfully does not make, although some of his less careful readers and commentators do at times group his thought under the banner of critical posthumanism. In this connection see, for instance, Tamar Sharon’s recent book *Human Nature in an Age of Biotechnology: The Case for Mediated Posthumanism*, which is an otherwise well-researched and detailed account of the general trajectories of what she – problematically in the case of Stiegler (2014: 79-111) – groups under the banner of posthumanism.

³² Mumford’s theory is quite complex, in any case far too complicated to be adequately summarized or addressed by way of this brief discussion in which Mumford and his theory figures as a mere example of one way of submitting technology to thought within the traditions of the humanities. For a short summary of his position and thought see the section on him in Mitcham 1994 (T3: 40-4) and Langon Winner’s foreword to the new edition of his masterful *Technics and Civilization*. In the latter, and in regards to my usage of Mumford in this passage, Winner mentions a short form summarization of his position that Mumford himself formulated, especially as it concerns philosophical anthropology. The very brief summary goes as follows: “Man internalizes his external world and externalizes his internal world.” In order to clarify, Winner makes the following comment: “Seen in that light, Mumford’s work is an attempt not merely to write an accurate history of technology in its full sweep, but to explain a fundamental pattern in all of human experience, an explanation far more accurate and full of possibilities than the popular but sadly ham-fisted belief that “man is a tool-making animal.” (Winner 2010, xii) In this regard, Mumford’s theory aims at combatting this reductive and technicist understanding of the human species and its existence found in much writing of his time. His early writings constitute, rather, an optimistic project for humanizing technology. A project that he in his later work turns away from in light of the developments of the cold-war era, landing on a more pessimistic note in his analysis of the relationship between politics, power, productivity, profit and publicity as they concern technology in the two volumes of *The Myth of the Machine* (1967 and 1970).

³³ Ortega’s influence was, and still is, especially widespread in the Spanish-speaking world. In the English-speaking world, one can find some recent indications of an increased interest in Ortega’s writings, related perhaps to Graham Harman’s acknowledgment of the influence asserted by the thinking of Ortega on his object-orientated ontology (see, for instance, Harman’s use of Ortega in his *Guerilla Metaphysics* (2005: 101-24)).

³⁴ The quote from Ortega is from his series of lectures entitled “Meditación de la técnica”, first published in 1939, and found in the fifth volume of the *Obrus completes* of his writings (1945-7: 317-75), see specifically pp. 334-5 of that volume for the original Spanish of the quoted passage. These lectures were translated into English, but as Mitcham reports they were substantially revised and shortened, by Helene Weyl and Edwin Williams as “Thoughts on Technology” (1972). Worse still, the translation also contains, according to Mitcham, errors in both phrasing and terminology (T3: 374). I have on the basis of Mitcham’s reservations quoted portions of his modified translation of the passage on the invented life of humans (see T3: 47), and not the rendering found in the 1972 translation that is cited.

³⁵ Revealingly Ortega opens the text in question by distancing the question concerning technics and technology from the field of literature; “Here, then, we are embarked on *the altogether unliterary undertaking* of finding an answer to the question: What is technology?” (1939/72: 290, ea).

- ³⁶The figure and construction of a mythic pre-human species existing without and outside of technics is found, as Mitcham reports, in a presentation Ortega made towards the end of his life, specifically “in Damstadt, Germany, in 1951”, entitled “The Myth of Humanity outside of Technics” (T3: 47).
- ³⁷For a helpful take and explanation of this Heideggerian term and its usage in various texts by Heidegger, see the entry on “historiology” in Inwood’s *A Heidegger Dictionary* (1999: 90-2).
- ³⁸The emphasis, in the first line, is added by Heidegger in his quotation in *Parmenides*, while the emphasis found in the passage quoted from the footnote is Spengler’s own.
- ³⁹Questioning political aspects of Spengler’s anthropological views, evident in this passage, and more specifically how they relate to Heidegger’s political affinities with the National Socialists, as well as his Spenglerian influenced shift from the authenticity of the individual to that of the German *Volke* as detailed by, among others, Tom Rockmore in his book *On Heidegger’s Nazism and Philosophy* (1992), are concerns that, while certainly highly worthwhile, go far beyond the scope of this thesis, and my current undertakings.
- ⁴⁰This splintering should, however, equally be seen as a consequence of the general post-Hegelian tendency towards compartmentalizing thought into specialized fields within philosophy, and not just science (which, at any rate, as among others Ihde has highlighted, is itself a neologism coined by William Whewell in 1833 (2015: vii)). Ihde also acknowledges this when he writes that; “Of course “philosophies of this and that” are also nineteenth-century philosophical genres that were originated by Hegel, who spoke of the philosophy of religion (*Religionsphilosophie*), philosophy of history (*Geschichtsphilosophie*), philosophy of science (*Wissenschaftesphilosophie*), and so on” (2010a: 5). In this connection, it is unsurprising that the aforementioned Kapp was a left-wing neo-Hegelian like Marx (T3: 21).
- ⁴¹In the opening statements of *The Technological Society* (*La Technique ou l’Enjeu du siècle*) Jacques Ellul makes a similar claim regarding capitalism as stemming from out of a deeper technological worldview. Although Ellul, in contrast to Heidegger after his infamous “turn,” emphasizes while doing so the role of what he conceptualizes as the modern figure of “the machine”, stating that: “It is useless to rail against capitalism. Capitalism did not create our world; the machine did. Painstaking studies designed to prove the contrary have buried the obvious beneath tons of print. . . The machine took its place in a social milieu that was not made for it, and for that reason created the inhuman society in which we live. Capitalism was therefore *only one aspect of the deep disorder of the nineteenth century*. . . Let the machine have its head, and it topples everything that cannot support its enormous weight. Thus, everything had to be reconsidered in terms of the machine. *And that is precisely the role technics plays*. In all fields it made an inventory of what it could use, of everything that could be brought into line with the machine. The machine could not integrate itself into nineteenth-century society; *technics integrated it*” (Ellul 1954/64: 5, tm. ea.). Ellul continues on the following page, writing that: “All-embracing technics is in fact the consciousness of the mechanized world. Technics integrates everything. It avoids shock and sensational events. Man is not adapted to a world of steel; technics adapts him to it. It changes the arrangement of this blind world so that man can be a part of it without colliding with its rough edges, without the anguish of being delivered up to the inhuman. Technics thus provides a model; it specifies attitudes that are valid once and for all. The anxiety aroused in man by the turbulence of the machine is soothed by the consoling hum of a unified society” (1954/64: 6, ea.). The way Ellul conceptualizes and evaluates this new world of technics echoes Heidegger’s understanding of *der Technik* during his late period, as the underlying worldview that maps out the space or orientation from out of which we find ourselves submerged as beings occupied with the available projects that the contemporary techno-logical framework has always already arranged and made possible *for us*, and that are thusly not resolutely chosen and acted upon *by* an authentic and *characteristic* human being. On the other hand, for Heidegger this situation is the culmination of a far longer history springing from out of the metaphysics animating the world of the Occident, and that find their roots in the philosophy of the ancient Greeks, as will be briefly discussed in the following chapter, and specifically its section on Heidegger’s late period as far as his thought concerning technics is concerned (3.3).
- ⁴²Such a sentiment, formulated by Kapp as a call for the actualization of “the drive for technological progress”, is related to the vision of, and advocacy for, a technocratic management of both industry and society, which was championed in the Soviet Union by among others the aforementioned Russian engineer Peter Engelmeier, while being associated with the Fordist and Taylorist scientific management of production in the United States. A movement and a train of thought that Mitcham summarizes in *Thinking through Technology* as “the idea that business enterprises and society should be transformed and managed according to technological principles”, adding that “whereas in the United States the opposition was between business and engineering, in the Soviet Union it was between the Communist party and the engineer” (T3: 28).
- ⁴³Espousing a similar sentiment and worldview as that of Kapp, the Russian engineer Peter Engelmeier writes in a long, multipart article entitled “Allgemeine Fragen der Technik” from 1894 that the modern technologist “should develop a total picture of technology, in which we analyse as many technical manifestations as possible . . . for technology is the spring in the great world clock of human development” (p. 21, see T3: 26-7). Restating his “technicist philosophy” in his paper “Philosophie der Technik” from 1911, Engelmeier writes, as Mitcham quotes him, that “Technology is the inner idea of all purposeful action” (p. 591), grounded in the anthropological value of a technological will, “which springs from the utilitarian drives” (p. 592)” (T3: 27). What is more, Engelmeier provides an interesting overview of the problems this engineering approach to the philosophy of technology sought to tackle in a paper entitled “Is Philosophy of Technology Necessary?” from 1929, where he states the following: “For the immediate future [the

philosophy of technology] has set itself the following tasks: to develop a program to define the concept of technology, the principles of contemporary technology, technology as a biological phenomenon, technology as an anthropological phenomenon, the role of technology in the history of culture, technology and the economy, technology and art, technology and ethics, and other social factors (pp. 36-40)” (T3: 28). This is, to be sure, a comprehensive program for the philosophy of technology, and indeed a tall order, at least if it were to be accomplished within the confines of Engelmeier’s technicist or technology-optimistic view of the world. If it, in other words, were to be elaborated exclusively within the engineering approach to tackling the question concerning technics, and not, as I suggest, by way of a unified approach that conceptualizes human existence as individuated and transformed through technical and technological structures. An approach that would, moreover, enable one to rethink the relations Engelmeier lists in 1929 from a perspective that encompasses both the humanities and the engineering traditions’ respective emphasis and contribution, and thus hopefully set one upon a conciliatory path forward that just might work to dissolve the animosities that propagate the current “two cultures” divide and the tags of “technophobe” and “technophile” that, one might say, delineate the respective proponents as oppositional forces situated on each side of an entrenched conceptual and intellectual conflict or war.

⁴⁴ Due to Heidegger’s two-folded engagement with technics it is perhaps not surprising that his writings have influenced thinkers whose approach to and diagnosis of our technological condition vary immensely; differences that could be schematized by way of the divide between the humanities and the engineering approach. For, on the one hand, Heidegger’s thought played a formative role in shaping the thought of figures such as the French philosopher Jacques Ellul and specifically his influential book *The Technological Society (La technique ou l’enjeu du siècle)* from 1954, in which Ellul argues that a rationalizing demand for efficiency is intrinsic to technics as a whole; a term that for him does not signify “machines, technology, or this or that procedure for attaining an end”, but rather “the *totality of methods rationally arrived at and having absolute efficiency* (for a given stage of development) in *every* field of human activity” (1964: xxv). Technics or the technical, in its unique contemporary form, leads according to Ellul’s diagnosis inevitably “to a certain amount of suffering and to social scourges which cannot be completely separated from it” as these are results of “its very mechanism” (1964: 104). Ellul can, in light of this position, be placed in the humanities approach to the question concerning technics, as he is not interested in specific machines, technologies or this or that technical procedure, but rather takes a view-from-above, so to speak, and conceptualizes modern technics *as such* through quite pessimistic, even dystopic descriptions of its overall mechanism in turning both people and things into resources for efficient management. On the other hand, Heidegger also figures as a key influence upon the development of the German tradition of media studies, which in no small part can be seen as a rejuvenating of the engineering approach to the philosophy of technology coupled with a deep understanding of 19th and 20th century German philosophy. A central thinker within this tradition, Wolfgang Ernst, argues by explicitly calling upon “Martin Heidegger’s definition of “the thing” (German *Zeug* in *Being and Time*)” that it “belongs to the specificity of technical media [*Technischen Medien*] that they reveal their essence only in their operation” (2013: 57). Ernst, therefore, under the influence of Heidegger, sets out – unlike Ellul – to investigate technical objects and technologies in their operative specificity – in their “inner world,” so to speak – as a self-identified *media archaeologist* whose practice presents “a nonhuman challenge” to culture in suspending “our subject-centered interpretations for a moment” by drawing out and emphasizing “the technicality of media” (2013: 72). From these two examples, it is evident that the influence wrought by Heidegger’s writings on technics transcends the simplistic notions and established antagonisms between technophobes and technophiles, technology pessimists and technology optimists, which characterize the contemporary form of the divide between philosophers and technicians or engineers. In other words, Heidegger is referenced in the current manifestations of both the humanities approach and the engineering approach; on both sides, one could say, of “the Diltheyan divide” between the old-hat constellations of *Geisteswissenschaften* and *Naturwissenschaften* that still haunts our approach to, and thinking concerning, technics. Heidegger’s writings on technics and technology constitute, therefore, a fruitful place of departure for any attempt at reconciling the approaches, conceptualizations and perspectives of the two cultures.

⁴⁵ Don Ihde in the introduction to his book *Embodied Technics* writes that he self-identifies as a ““phenomenological materialist” by reference to the phenomenon of embodiment. But [Ihde insists] this is not a reductive materialism or a mechanized materialism – it is rather a phenomenological and multidimensional sense of body. And it is also an analysis of contemporary forms of embodiment through various media, imaging and digital computer processes” (2010b: iv).

⁴⁶ As Donald A. Landes, in the new and vastly improved English translation of *The Phenomenology of Perception*, notes by way of an attached endnote, Merleau-Ponty is here negating Saint Augustine’s command, found on p. 39, n. 72., of *De vera religione*, “In te redi; in interior homine habitat veritas” [“Go back into yourself. Truth dwells in the inner man”]. Interestingly enough, as Landes adds, this very phrase “is cited by Husserl at the end of his *Cartesian Meditations*, where he argues that science is “lost in the world” and that a phenomenological *epoché* alone can establish a universal truth through self-knowledge”, which indicates that one of Merleau-Ponty’s intensions with this major work was to problematize certain aspects of Husserlian and classical phenomenology, especially as far as embodiment and human-world interrelations are concerned (1945/2012: 493n).

⁴⁷ The subjectivist undertones of the phenomenological framework – its terminology and methodology – is thoroughly problematized from within by way of Merleau-Ponty’s late essay “Eye and Mind” (1961/93) and his posthumously published manuscript for *The Visible and the Invisible*, specifically in the form of the latter work’s attempt at describing the intermeshed exchange between body and

world through the concept of ‘flesh’ (*chair*) and “the flesh of the world” (*la chair du monde*) (1964/68, see Adolpho Lingis’s translator’s preface to this work for an introductory elaboration of this aspect of his thought). I do not, unfortunately, have the opportunity to detail the specific contributions made by Merleau-Ponty, which in the case of his descriptions of corporeality and the body’s interrelationship with things are immense, as such an undertaking would far exceed the scope of this thesis and its chosen topics. Suffice it to say that I do not find his engagement with technical objects and technologies in his phenomenological descriptions sufficient, nor do I find his conceptualization of corporeality or bodily comportment to fully reflect the transformative nature of the intertwining of technics with human existence. This might partially spring from out of Merleau-Ponty’s rather dystopian view of what he terms “operational thinking” and his understanding, following Husserl, of science as having become increasingly technicized and thereby blind to the significance of the lifeworld and lived experience. In order to illustrate this, note the language and unusual tone, as far as Merleau-Ponty is concerned, employed by him in the following passage from “Eye and Mind”; “Thinking “operationally” has become a sort of absolute artificialism, such as we see in the ideology of cybernetics, where human creations are derived from a natural information process, itself conceived on the model of human machines. If this kind of thinking were to extend its dominion over humanity and history; and if, ignoring what we know of them through contact and our own situations, it were to set out to construct them on the basis of a few abstract indices . . . – then, since the human being truly becomes the *manipulandum* he thinks he is, we enter into a cultural regime in which there is neither truth nor falsehood concerning humanity and history, into a sleep, or a nightmare, from which there is no awakening” (1964/93: 122). The sentiment on display here seems to establish a contrast and a certain antagonism between the techniques of the painter – of his trained eye and hand, of his skilled bodily techniques and the skilful practice with which his technical objects are put to use – and the technical *operations* of information processing machines and its adherent *ideology* of cybernetics, under which as Merleau-Ponty writes “The depth of the existing world and an unfathomable God no longer stand over against the flatness of “technicized” thought” (1964/93: 137). As Ihde and Selinger have noted, in this connection, Merleau-Ponty does in fact “rarely addresses questions of technology at all; when he does. . . it is an indirect examination” like the one mentioned above in the case of cybernetics and information processing. Indeed, Ihde and Selinger go so far as to suggest that “Merleau-Ponty simply showed little interest in technologies as such, and. . . did not show sensitivity to dealing with human-technology relations” (2004: 370). I would hesitate to state my criticism, not to be fully elaborated here, as strongly as Ihde and Selinger are willing to, since Merleau-Ponty is highly attentive to the role played by things and technical objects in regards to our bodily comportment in the world, especially such technical objects which prosthetically form what Ihde calls “embodiment relations” and that are closest and most transparent to us; an attentiveness evident, as Ihde himself has noted (1990: 39-41), in, for instance, Merleau-Ponty’s famous description of the blind man’s cane in *The Phenomenology of Perception* (1945/2012: 144-8, 153-5). Therefore, while it is clear that Merleau-Ponty does not sufficiently appreciate the role played by machines and technologies that are not in such a proximity to human bodies, one should not, conversely, downplay the importance of his reflections on our interrelation with things situated in such an evident proximity to our bodies and perceptual apparatuses. An importance and clarity of description that I believe his reflections in the aforementioned essay “Eye and Mind” are especially indicative of. Take, for instance, the following remarks offered by Merleau-Ponty: “Like all other technical objects, such as tools and signs, the mirror has sprung up along the open circuit *between* the seeing and the visible body. Every technique is a “technique of the body,” illustrating and amplifying the metaphysical structure of our flesh. The mirror emerges because I am a visible see-er, because there is a reflexivity of the sensible; the mirror translates and reproduces that reflexivity. In it, my externality becomes complete” (1964/93: 129). With such pronouncements one can even glimpse a resemblance – however different their respective takes on the relationship between humanity and technics might be – between the late reflections of Merleau-Ponty and the recent writings by Stiegler. A resemblance, as well as a difference in regards to their emphasis on technics, that is perhaps especially evident in Stiegler’s essay on painting and art history entitled “The tongue of the eye: what “art history” means” with its discussion of Cézanne and its elaboration of a concept of ‘organology’. Compare, for instance, Stiegler’s description of an organic arrangement that could historically and techno-logically result from an organological configuration, with the musings of Merleau-Ponty concerning the thinking of painters in “Eye and Mind”. Stiegler writes; “a noetic organ always forms a system with one or several other organs that are themselves as such noetic, and that what links them passes outside the body, through a social body that is woven by a *tekhné*: the tongue with the hand of the writer, the eye with the hand of the painter, the ear with the hand and the eye of the musician, and so on – all of which is articulated by words, papers, brushes, pianos, and other instruments” (2011c: 228).

⁴⁸ Derrida offers a critique of Husserl’s phenomenology in his early long-form introduction to his own translation of Husserl’s essay on “The Origin of Geometry” (1962/89) and in his *Speech and Phenomena* from 1967, which can be seen as the culmination of his study of Husserl’s writings, which began in the early 1950s (1973). While Stiegler is highly influenced by Derrida’s reading of “The Origin of Geometry” there are key difference between their respective reading and appropriation of Husserl’s phenomenology. I do not have the opportunity of clarifying this difference in any detail here, but will merely quote a summarization of its core aspects made by Stiegler himself in an interview published in *New Formations*, where he states that he, with *Technics and Time*, “tried to reinterpret Heidegger’s *Being and Time* and to revisit, or really to re-think, phenomenological concepts. So I began to develop the concept of tertiary retention in utilising the late Husserl against the early Husserl, as well as using Husserl in order to move away from Derrida. I published an essay in

England [“Derrida and technology: fidelity at the limits of deconstruction and the prosthesis of faith” from 2001] where I try to show how the problem with Derrida begins with *Speech and Phenomena*, when he says that the difference Husserl posits between primary and secondary retention is a metaphysical illusion. This is, in my opinion, absolutely wrong. And I think that from the moment Derrida says that there is no difference between primary, secondary, and tertiary retention – but he doesn’t speak about tertiary retention, rather what he calls ‘writing’ I myself call ‘tertiary retention’ – from that moment we have returned to our point of departure. So for me, in saying that, Derrida is condemned to go round in circles” (2013a: 165).

⁴⁹ It should be noted that in his late works, such as *The Crisis of the European Sciences*, Husserl departs, to a not insignificant extent, from the methodology he lays out in his previous writings, which sought to establish phenomenology as a rigorous science and attempted to articulate guiding postulates defining the right method for the theory of knowledge (for the later point, see Ingarden 1963/75: 1-2). Whether or not this development constitutes a departure, or is simply a result of the investigations of the *Crisis* being set on a different, and indeed lower and historical, level when compared to the *Ideas* or *Cartesian Meditations*, is, at any rate, not crucial for the arguments made here with regards to Husserl’s understanding of technics and phenomenology.

⁵⁰ This point is made, among other places, in a lecture entitled “Phenomenology and Anthropology” that Husserl held in 1931, wherein he states the following regarding empirical knowledge, mathematics and the relationship between philosophy as genuine science – as transcendental phenomenology – and the positive natural sciences: “Mere empirical knowledge – descriptive, classificatory, and inductive – is not yet science in the full sense. It provides only relative and merely situational truths. Philosophy, as genuine science, strives for absolute and definitive truths that surpass all forms of relativity. In genuine sciences entities themselves, as they are in themselves, get determined. What manifests itself in the immediately intuited world, the world of our prescientific experience, is *self-evidently* (despite its relativity) a world that is actually in being, even if its intrinsically true qualities transcend straightforward experience. Philosophy as genuine science attains those qualities (even if only on the level of approximation) by having recourse to the *eidós*, the pure *a priori* that is accessible to everyone in apodictic insight. Further development tends towards the following idea. Philosophical knowledge of the given world requires first of all a universal *a priori* knowledge of the world – one might say: a universal ontology that is not just abstract and general but also concrete and regional. It allows us to grasp *the invariant essential form, the pure ratio of the world*, including all of its regional spheres of being. To put the same thing another way: Prior to knowledge of the factual world there is universal knowledge of those essential possibilities without which no world whatever, and this includes the factual world as well, can be thought of as existing. This *a priori* makes possible a rational method for knowing the factual world by way of a rational science of facts. Blind *empeiria* [knowledge of particulars] becomes rationalized and achieves a share in pure *ratio*. Under its guidance there arises knowledge grounded in principles, a rationally *clarificatory* knowledge of facts. For example, with regard to corporeal nature: pure mathematics, as the *a priori* whereby nature can be thought at all, makes possible genuine philosophical natural science and even mathematical natural science. Yet this is more than just an example, since pure mathematics and mathematical natural science have allowed us to see, in an admittedly narrow sphere, *exactly what it was* that the original objectivistic idea of philosophy/science was striving for” (Husserl 1989: 166-7/1997).

⁵¹ In another passage from his lecture “Phenomenology and Anthropology” from 1931, Husserl notes the following regarding the bracketing of the phenomenological method: “The renunciation of the world, the “bracketing of the world,” did not mean that henceforth the world was no longer our focus at all, but that the world had to become our focus in a new way, at a whole level deeper. What we have renounced, then, is only *the naïveté* by which we allow the common experience of the world to be already given to us both as in being as such [and] as being thus or so according to the case. This naïveté is dissolved if we, as autonomous subjects – and this was the impelling motive – responsibly interpret the way experiencing brings about this acceptance of validity and if we seek a form of rational insight in which we take responsibility for it and are able to determine the consequences” (1989: 173-4/1997). Husserl goes on to state, in a passage that relates to his critique of philosophical anthropology found in this lecture – one explicitly levelled against Scheler and implicitly against Heidegger – the following: “Thus, as transcendental ego I am the absolute subject of, and the subject responsible for *all* of my validations of being. When, by virtue of the transcendental reduction, I become aware of myself as this kind of Ego, I assume a position above all worldly being [*weltliches Sein*], *above my own human being and human living*. This absolute position *above* everything that holds true for me and that can ever hold true for me, along with all its possible content – precisely and necessarily this is what must be the philosophical position. And this is the position that the phenomenological reduction provides me. I have lost nothing that was there for me in the state of naïveté, and in particular nothing that showed itself to me as existing reality. Rather, in the absolute attitude [*Einstellung*] I now recognize the world itself, I recognize it for the very first time as what it continuously was for me and had to be for me according to its essential nature: *as a transcendental phenomenon*” (1989: 174-5/1997, ea.).

⁵² The entry on Wilhelm Dilthey in the *Stanford Encyclopedia of Philosophy* makes clear that “Dilthey’s reflections on the human sciences, historical contextualization and hermeneutics influenced many subsequent thinkers such as Husserl, Heidegger, Cassirer, Gadamer and Ricoeur” (Makkreel 2016). In other words, the deeply related 20th century traditions of phenomenology and hermeneutics were both influenced by the thought of Dilthey, and especially his conceptualization of the *Geisteswissenschaften*, which encompasses “both the humanities and the social sciences” and ranges “from disciplines like philology, literary and cultural studies, religion and psychology, to

political science and economics.” One could argue, however, that the central aspect of this conceptualization was the construction of its contrast group – the *Naturwissenschaften* – the rise and success of which “the united front” of the human sciences were erected as a response to. For Dilthey insisted, and rightly so, in opposition to the positivists of his time, “that the human sciences be related not by some logical construct on the order of a Comte or a Mill, but by means of reflective considerations that take their historical genesis into account” (Makkreel 2016).

⁵³ As concerns the questioning of technology over the course of the first half of the 20th century, one could note that Dilthey was praised as “the most important philosopher in the second half of the nineteenth century” by Ortega y Gasset, whose humanities philosophy of technology I briefly sketched in the previous section (1946: 131).

⁵⁴ It is important, in this connection, to take heed of the intricate relationship between the divide between the study of nature and that of culture, and that between technics and humanity. For the separation between the concepts of nature and culture was facilitated by the *cultivation* made possible by means of technics, explicated as the work of human manipulation upon a perceived virginal natural state; of active form upon passive matter. One can observe, in this connection, that the sentiments of the early engineering philosophers of technology are not dissimilar to the ones espoused by the pioneers of the early modern paradigm of natural science. For Francis Bacon, for instance, nature was to be subdued and exploited for *her riches* with the aid of every instrument available – technical objects, ensembles and systems serving, in other words, as tools for and facilitator of the pillage – in order to achieve scientific and civilizational progress. Today with the current widespread speculation concerning the possible event of transitioning into a new geological age starting with the first industrial revolution some 200 years ago, the divide between “the two cultures” of the *Geisteswissenschaften* and the *Naturwissenschaften* has taken on a new intensity and urgency as the developmental and progressive history of the likes of Bacon have fallen into disrepute in light of the environmental impact of our practices of cultivation – of tilling the soil. When the separation between natural and cultural history becomes problematic, in this connection, as geological forces no longer are grasped as uniform and immune to anthropogenic influence, the grounds upon which the disciplinary split was erected between the humanities and the natural and calculative sciences – the fields of respectively scientific *inquiry* and scientific *enquiry* – also becomes unstable; a destabilization that is intertwined with the explicit tension between modern technologies in which the modern sciences are embodied and the traditional and largely premodern framework and toolset embodied by the humanities.

⁵⁵ There is a transition in Husserl’s thinking worth mentioning in this connection. One that, as argued by Roman Ingarden in his *On the Motives which led Husserl to Transcendental Idealism* (1963/75), runs from the realism Ingarden finds in the early Husserl of the *Logical Investigations* published in 1900, and gradually leads, from the writing of the first volume of the *Ideas* and onwards – in other words, from at least its publication in 1913 – to Husserl’s explicit adherence to transcendental idealism crystallized most clearly, perhaps, in *Formal and Transcendental Logic* published in 1929 and *Cartesian Meditations* published in 1931. This transition does not, as I see it, significantly impact the reading of Husserl’s grasp of technics offered here. One that, at any rate, reflects Stiegler’s brief reading offered in the general introduction to the first volume of *Technics and Time*.

⁵⁶ The rediscovery of what, for the most part, is a German tradition of engineering philosophy of technology is, therefore, also a predominantly German one, but as the writings of the central figures within the German school of media studies are increasingly translated into English, such as the work of Kittler and Ernst, this might gradually change over time. Within Germany, in any case, such a process of rediscovery and reorientation continues today with the writings of a younger generation of German media scholars, such as Erich Hörl, who engage more fully with more recent developments coming from France, such as Stiegler and Jean-Luc Nancy, as well as with the writings of more neglected figures of previous generations of French scholars concerned with questioning technics, such as Gilbert Simondon (see Hörl 2013 and 2015).

⁵⁷ In this connection, it is perhaps not surprising that Kittler champions – like Kapp before him – the figure of the engineer; with Edison, Muybridge, Marey, the Lumière brothers, Turing, and von Neumann being hailed in their role in making “both the founding age and the digital age of modern media possible” (Winthrop-Young & Wutz 1999: xxxvii).

⁵⁸ I am here, as Ernst also does in the passage quoted from, playing on “McLuhan’s well-known distinction in *Understanding Media*” between, for instance, the visual evidence of photography as “a *cold medium* of the past as opposed to *hot* historiography” typifying the traditional approach of the humanities (Ernst 2013: 47, see McLuhan 1964/94).

⁵⁹ In a recent article, reworked from a lecture held at the conference *Methoden der Medienwissenschaft* held in Berlin in 2015, Wolfgang Ernst highlights the way in which media archaeology can inform the methodology and practice of traditional textual philology, specifically in the form of a techno-mathematical philology (see Ernst 2016a).

⁶⁰ Ernst makes clear the strategic aim and delimited field of employment of his “cold” perspective in regards to his media archaeological approach, when he states that while it suspends “our subject-centered interpretations for a moment,” such a “technoascetic approach” constitutes “just another method we can use to get closer to what we love in culture. Media archaeology exposes the technicality of media, not to reduce culture to technology, but to reveal the technoepistemological momentum in culture itself” (2013: 72-3).

⁶¹ In Adorno’s late writings one encounters, on the other hand, an increased interest in technics and concrete technologies, on account of which these texts were seen as important for both Stiegler and his one-time mentor Lyotard (see Stiegler 2013a: 169). Nevertheless,

Adorno's critique is reminiscent of Plato's as, for instance, the following passages from some brief preliminary remarks for the purposes of the publication of a written record of his lecture "Kultur and Culture" held in 1958 – the only occurrence of Adorno reflecting upon tape technology – are indicative of: "He [the author: Adorno himself] is thus unable to accept the responsibility for the printed text that follows and merely regards it as *aiding the memory* of those who were present during his improvisation and who – as a result of the modest stimulations that he provided – want to continue thinking about the discussed questions on their own. The author regards the ubiquitous tendency to record free speech [*die freie Rede*], as it is called, on tape, and then to disseminate it *itself as a symptom of the administered world that even ties down the ephemeral word*, whose truth lies in its own transience, and then makes the speaker swear to it. *The tape recording is something like the fingerprint of the living mind [Lebendigen Geistes]*" (2009: 145-6, ea.). A tape recorder is a fingerprint of the living mind or spirit and a reminder of the original truth found in the transience of the speaker's speech according to Adorno, as it was for Plato, as he writes in his dialogue *Phaedrus* – and as I detailed in section 2.1. –, for whom the written word is an external character and reminder of "the word which is written with intelligence in the mind of the learner" (276a).

⁶² This is not to say that the writings of Adorno, or the tradition of the Frankfurt School, are no longer relevant or important – on the contrary its critical project is still highly relevant and valuable, if not more so than ever, if we are to understand and combat the toxicity of our contemporary situation. I am merely suggesting that frameworks such as Adorno's, with regard to the question concerning technics, have to be revised and supplemented by a different perspective, which goes beyond the ideological superstructure and is enriched, if you will, with knowledge of concrete technical and technological objects and systems and their significance in, for instance, constituting the platform through which – and the space of possibility in which – ideology takes on concrete form. Other continuities and discontinuities – other "histories" – come to light by embodying such a perspective. One becomes attentive, for instance, as Ernst has analysed, of the technical and historical fact that "the famous *Volksempfänger*, which notoriously was used to broadcast propaganda speeches" during the National Socialist regime, still "receives radio programs when operated today, because the stable technological infrastructure of broadcasting media is still in operation" (2013: 56-7).

⁶³ For where the late Heidegger ultimately opted for "the *geisteswissenschaftlich* route" and thereby further entrenched "a disciplinary divide, Kittler [and the German school of media studies] has led an engagement with the sciences" (Sale 2015: 53). So, while thinkers such as Kittler agree with Heidegger that, for instance, the invention of the computer, on the back of Alan Turing's invention of the universal discrete machine in 1936, and the subsequent elaboration of its design by way of the von Neumann architecture, altered "(strictly following Heidegger) the relationship of Being to Man" (1986/99: 230). Kittler, on the other hand, "does not identify cybernetics with a withdrawal of the essence of technology from *Dasein* [from the being that questions its own being]. Rather he sees computing as freeing us of the solipsistic illusions that characterize the humanities and which Heidegger [on this view] was unable to overcome" (Sale 2015: 55).

⁶⁴ The phrase "die Nacht der Substanz" appears on pp. 463-4 of the *Jubiläumsausgabe* of *Phänomenologie des Geistes*, edited by Georg Lasson and first published in 1907, specifically as part of chapter VII on "Die Religion" and its second section on "Die Kunstreligion". The phrase is also the title of a short book by Kittler from 1990, which is a transcription of a lecture he held on Hegel, and especially the latter's famous "end of history" thesis, in regards to the development of technologies and media.

⁶⁵ In this connection one might add, and indeed specify, that another work by Simondon entitled *L'individu et sa genèse physico-biologique* published in an incomplete edition in 1964, but stemming from his primary thesis for the *doctorat d'Etat* entitled *L'individuation à la lumière des notions de forme et d'information* and delivered in 1957 under the supervision of Jean Hyppolite, was dedicated to Maurice Merleau-Ponty, who also attended its defence held in front of a jury comprised of Hyppolite, Raymond Aron, Georges Canguilhem, Paul Ricoeur and Paul Friaese. Simondon's secondary thesis, the aforementioned *Du mode d'existence des objets techniques*, defended and published in 1958, and hence published before his primary thesis, was supervised by Canguilhem (Mitcham 1994: 306n, and Barthélémy 2015: 17). At any rate, Simondon's thinking on individuation meet with interest from various traditions within French philosophy, notably in this connection from phenomenology (Merleau-Ponty) and hermeneutics (Ricoeur), but also found a receptive audience in French post-structuralism, being especially important for Deleuze. *On the Mode of Existence of Technical Objects* was, moreover, praised by Herbert Marcuse for its critique of technocracy and referenced by Jean Baudrillard. For more biographical information on Gilbert Simondon, see Nathalie Simondon's brief biography on her father on www.gilbert.simondon.fr

⁶⁶ Ihde is relying upon the Dutch philosopher of technology Hans Achterhuis, and the book he edited entitled *Van Stoommachine tot Cyborg: Denken over techniek in de nieuwe wereld* from 1997, later translated as *American Philosophy of Technology: The Empirical Turn* (2001), in making this point. Achterhuis' book, as Ihde summarizes, "purports to show that a newer generation of philosophers of technology, six chosen from philosophy in America, has shifted the center of gravity by making "an empirical turn"" (2009a: 20-1). These six philosophers are a part from Don Ihde himself; Albert Borgmann, Hubert Dreyfus, Andrew Feenberg, Donna Haraway and Langdon Winner. The thesis that an empirical turn or shift has taken place in the North-American tradition of the philosophy of technology is one that is widely accepted within the field.

⁶⁷ In detailing this empirical turn, specifically one made towards an engagement with actual technologies and an involved dialogue with the sciences, as predominantly an American one, Ihde forgets to mention the French and German philosophers that likewise engage with

concrete technical objects and technologies. For while the American development undoubtedly has been important, Ihde neglects such pioneering figures as Gilbert Simondon and Pierre Ducassé in France, and the approaches undertaken in media studies and media archaeology in Germany. Ihde is not alone, however, in failing to engage with these schools of thought as the entry on the “philosophy of technology” in both the *Routledge Encyclopedia of Philosophy* and the *Stanford Encyclopedia of Philosophy* does not even mention their existence, while finding, in contrast to Ihde, the analytic branch of contemporary and modern philosophy to be the one that, first and foremost, has developed a philosophy that is “concerned with technology itself and that aims to understand both the practice of designing and creating artefacts”, and that, in doing so, “seeks continuity with the philosophy of science and with several other fields in the analytic tradition in modern philosophy, such as the philosophy of action and decision-making, rather than with social science and the humanities” (Franssen et al. 2013, ea., and Kroes 1998). Emphasizing the German and French traditions concerned with the question concerning technics might work to dissolve some of the ingrained hostility and divisiveness between so-called analytic philosophers of technology and those aligned with various schools of thought within what has become known as Continental philosophy, since they both recognize the importance of empirical engagements with technologies and technical objects. The latter, however, would not accept the dichotomous setup presented in the introduction to the entry in the *Stanford Encyclopedia of Philosophy* quoted from above, and would, at least in the case of Simondon and Stiegler, insist upon the relevance of the social sciences and the humanities for their own endeavours and for understanding technologies more generally.

- ⁶⁸ As is done, for instance, within the field of Science, Technology and Society studies (STS), the conceptual and methodological framework of which is chiefly inspired by the hugely influential work of Bruno Latour, published from the early 1980s and onwards.
- ⁶⁹ It appears that Heidegger was well aware of this development in his own time, for as he writes in a famous passage of “The Age of the World Picture”: “The researcher no longer needs a library at home. He is, moreover, constantly on the move. He negotiates at conferences and collects information at congresses. He commits himself to publishers’ commissions. It is publishers who now determine which books need to be written” (GA 5/2002b: 64).
- ⁷⁰ With regards to the narrative offered in this chapter, this divide could partially be construed as an alternation of the divide between the humanities and engineering philosophy of technology.
- ⁷¹ The notion of “action research” was first introduced by Kurt Lewin in the 1940s, and whose animating questions Stiegler reposes, writing the following in order to elaborate upon this engagement: “But what is also at stake is the status and the social relevance of research: digital technologies allow for new forms of research – a contributive research linking the academic and scientific research of actors who are not themselves professional researchers. Here the questions put by Kurt Lewin under the name of ‘action research’ are reposed – but also the question of knowledge or wisdom outside of the university. Kant, in discussing the ‘Republic of Letters’, had already envisaged this issue in *The Conflict of the Faculties* (1799) when he emphasized the specific question that the knowledgeable communities and the amateurs of his epoch posed to the ‘corporate experts’ (the professors)” (2012b: 17).
- ⁷² The quote is taken from the English-language homepage of IRI and can be found by following this link: http://www.iri.centrepompidou.fr/?lang=en_us Last accessed: 04.06.2017.

3. *The hand of technics: Rewriting philosophical anthropology as a philosophical technology*

- ¹ I mostly employ the chosen renderings of Joan Stambaugh’s translation. Quotations, when not noted otherwise, are all from the revised 2010 edition, while the pages cited all refer to the pagination of the definitive German 7th edition, as is standard.
- ² For more on Heidegger’s notion of ‘destruction’ (*Destruktion*) and his initial attempt at *deconstructing* the preconceptions of Western metaphysics, see Daniel O. Dahlstrom’s entry on the notion in *The Heidegger Dictionary* (2013: 57-8)
- ³ Schatzki, among others, has emphasized this point (1992: 82). Quite a few scholars have equated Dasein with human being in some way or another, either in its extension or by way of its intension. This trend is detailed by Wayne Martin, who calls into question “the ontological homogeneity thesis”, held by some Heidegger scholars, which holds “that all human beings are of the same ontological type” (2013: 107). For more on the relationship between the concept of ‘human being’ (*Mensch*) and ‘Dasein’ in Heidegger’s thought more generally, see the entry on the former in Daniel O. Dahlstrom’s *The Heidegger Dictionary* (2013: 102-4).
- ⁴ While maintaining the handedness of *Zubandenbeit* has been followed extensively; Macquarrie and Robinson translating it as “ready-to-hand” in 1962, Joan Stambaugh rendering it in her translation of 1996 as both “handiness” and “the at hand” interchangeably, the rendering of *Vorandenbeit* has varied greatly. Some have claimed that the term should rather be interpreted and rendered as “the occurrent” (Carman 2013: 99), “on-handness” (Dahlstrom 2013: 89), “the exstant” (found in some translations of the *Gesamtausgabe*, most notably *Basic Problems of Phenomenology*) or as “objective presence” (Stambaugh). As Dorothea Frede has pointed out the German signification of *Vorandenbeit*, “though originally signifying being “on hand,” has lost all connotation of nearness” (1993: 68). In this connection, it might appear to a contemporary reader that one ought, in order not to confound the two terms, to emphasize the hand in *Zubandenbeit*, while avoiding such connotations in the case of *Vorandenbeit*; a choice that would further distance the role of the hand

that befalls the everydayness of Dasein from the primacy of the “theoretical” presence of the *Vorhandensein* that marks both the object and subject of the tradition of metaphysics. This would, however, give an unfounded privilege to a pragmatist interpretation of Heidegger’s analysis of the existentiality of everyday *daseining* in making the pair *Zubandenheit* and *Vorbandenheit* too pure a stand-in for the opposition between the practical and the theoretical (a binary opposition that Heidegger criticizes on SZ: 69), while in addition unnecessarily occluding the intimate bonds between knowledge of *Vorhandensein* and any forming of Dasein’s horizontal attunement (*Befindlichkeit*). In order to bring to light the handedness that underline even *das Vorbandene*, I therefore prefer Daniel O. Dahlstrom’s translation as “on-handness” that is given in his *The Heidegger Dictionary* (2013: 88-9).

- ⁵ A general term for ‘the hand’ (*die Hand*) is in any case explicitly invoked in the thought of the late Heidegger after the *Kehre* (Heidegger GA: 54/1992, see Derrida 1987a for a discussion).
- ⁶ This should not confuse one, however, for a technical object, and technics more generally, is, as Daniel O. Dahlstrom notes, “not simply a means, an instrument, or human activity,” for Heidegger, but rather “belongs to the realm of knowing, the realm where truth in the sense of *altheia*—dis-closing—occurs. Since disclosing as such is not our doing but far more something upon which we are dependent, purely instrumental, i.e. anthropological views of technology do not get at the essence of technology” (2013: 205). In other words, Heidegger’s understanding of technics goes far beyond that of the traditional anthropological-instrumental position, which tended to reduce the technical object to a mere means to human ends, and which, more often than not, understood technological changes or transformations as developments that were instrumental in progressing human civilization. Heidegger’s analysis of equipment or useful things as it is undertaken in *Sein und Zeit* is obviously not intended, in this connection, to be instrumentally or pragmatically useful in any obvious sense, rather, Heidegger is after something more fundamental, as he makes clear a few years after its publication as part of his lecture course on Aristotle’s *Metaphysics* when he writes that: “What the Greeks conceived as *episteme poiētikē* is of fundamental significance for their own understanding of the world. We have to clarify for ourselves what it signifies that man has a relation to the works that he produces. It is for this reason that a certain book called *Being and Time* discusses dealings with equipment; and not in order to correct Marx, nor to organise a new national economy, nor out of a primitive understanding of the world” (GA 33: 137/1995: 117).
- ⁷ Within this discussion of the thinking of inscribed bodies there is a trace, not to be elucidated here, of the constitution of Dasein as a sexed being. For as Derrida has pointed out in his *Geschlecht* series of essays (1983/87/93), the ontological nature of Heidegger’s analysis of the formal structure of Dasein’s being, reveals our primordial being as pre-sexed; as an it, rather than a he or she.
- ⁸ Heidegger analysis of “the hand” and technics also connects to the analysis of the work-world of Dasein that is indicated briefly in §15. A work-world which in its signifying whole of references connects the work of Dasein to the collective mass of buyers and sellers, as Heidegger makes clear when stating that even “the simple condition of craft” that Dasein is situated within contains within it “a reference to the wearer [Benutzer] and the user [Träger] at the same time” (SZ: 70-1). A reference that “is by no means lacking when wares are produced by the dozer; it is only undefined, pointing to the random and the average” (SZ: 71). The shoemaker, for instance, in producing a pair of shoes is in this sense positioned in relation to a larger network of significance that transcends the individual space of his or her workshop. Likewise, and perhaps more drastically, the industrial worker of the car factory is positioned in relation to the assembly line in which the instrument that is the functioning hand of Dasein is put to work as a resource – as labour – to be utilized.
- ⁹ Kostas Axelos has in this connection insisted upon opening a dialogue between Heidegger and Marx, and their respective traditions, specifically through their grasp of technics. Since, as Axelos sees it, they both “strive for the same thing”, namely “to expand our awareness of technology” (1966/2015: 87). Indeed, Marx’s contention in *Capital* that “technology reveals the active relation of humans to nature, the immediate production-process of their social relations and intellectual conceptions arising from these relations” (1867/1976: 493n4), is one Axelos connects to Heidegger’s project; specifically, as one that reframes, modifies and extends the philosophical promise of Marx’s thought (1966/2015: 80, tm). Now, this is decidedly not an interpretative route welcomed by Heidegger. Who goes so far as to state during his late period and as part of a seminar held in Zähringen in 1973, specifically upon opening Marx’s *Early Writings* “from a position of extreme opposition”, that his interpretation of Marx “is not political. It is concerned with being and the manner in which it destines itself. It is in this perspective and from this vision that I can say that with Marx the position of the most extreme nihilism is reached” (GA: 15/2003: 77). Such a positioning and reading of Marx is related to Heidegger’s understanding of the techno-logical positioning framework (*das Gestell*) typifying modern industrial existence and the metaphysics animating and projecting it. Remembering, as was briefly noted in the previous chapter, that Heidegger in 1942 identifies Leninism and Bolshevism as the leading metaphysics projecting the “complete technical organization of the world” (GA 54: 127/1992: 86). A project, and Marxism as a metaphysics projecting it, which in 1973 is grasped as “the thought of today, where the self-production of man and society plainly prevails”, specifically through the imperative of progress, which “demands an imperative of production that is combined with an imperative of ever-new needs” (GA 15/2003: 73). These imperatives and the supposed extreme nihilism they position one in, spring from out of Marx’s anthropocentrism, evidenced, according to Heidegger, by a remark made by Marx in his “A Contribution to the Critique of Hegel’s ‘Philosophy of Right’: Introduction”, which states that: “To be radical is to grasp the root of the matter. But for man the root is man himself” (Marx 1844/1982: 137, quoted in Heidegger GA 15/2003: 73). Such an anthropocentric outlook cannot raise the question concerning being (*Sein*) according to Heidegger, and likewise cannot value the environment in which Dasein always

already finds itself for any other purpose than the satisfaction of fabricated human needs, which amounts to a dominating stance towards humanity's other. This criticism, however, is one levelled by Heidegger against political thinking more generally in the industrial and radically techno-logical period during which Marxism, for a time, was a dominant strain of thought. For more on the connection between Marx and Heidegger see Michael Eldred's text "Capital and Technology: Marx and Heidegger" (2000) and Kostas Axelos's brilliant book *Introduction to a Future Way of Thought: On Marx and Heidegger* (1966/2015). The volume of essays written by Herbert Marcuse, among other things a former student of Heidegger's, and published as *Heideggerian Marxism* (2005) are also of interest in regards to the possibility of, if not reconciling, then at least bringing into dialogue, these thinkers and their respective traditions. As concerns Marcuse's attempt at doing this, as well as his understanding of technics in regards to Heidegger and the central role it played in his early attempt to fuse Heidegger's thought with Marxism, see Andrew Feenberg's impressive book *Heidegger and Marcuse: The Catastrophe and Redemption of History* (2005).

¹⁰ Indeed, Heidegger admits as much when he writes the following in §5: "The analytic of Dasein thus understood is wholly oriented toward the guiding task of working out the question of being. Its limits are thereby determined. It cannot hope to provide a complete ontology of Dasein, which of course must be supplied if something like a "philosophical" anthropology is to rest on a philosophically adequate basis. With a view to a possible anthropology or its ontological foundation, the following interpretation will provide only a few "parts," although not inessential ones" (SZ: 17).

¹¹ Husserl read *Sein und Zeit* as a work of philosophical anthropology, specifically critiquing the existential analytic by rejecting what he found to be its "transcendental anthropologism", and as such, in accordance with the framework found in his *Cartesian Meditations*, as an undertaking of "merely a lower level [*Unterstufe*]" as he notes in the margins of his edition of *Sein und Zeit* (see Husserl's 1930 preface to the English edition of the first book of his *Ideas* cited in Dastur 2000: 120, and the sixth volume of the *Husserliana: Edmund Husserl—Collected Works* published in 1997, where the marginal remarks are translated and edited by Thomas Sheehan; the note is made to §5, p. 17 of the fifteenth edition of *Sein und Zeit*). In another of these marginal notes to *Sein und Zeit*, Husserl goes so far as to state that; "Heidegger transposes or changes the constitutive-phenomenological clarification of all regions of entities and universals, of the total region of the world, into the anthropological; the whole problematic is shifted over: corresponding to the ego there is Dasein, etc. In that way everything becomes ponderously unclear, and philosophically loses its value" (marginal note to §4, p. 12 of the fifteenth edition).

¹² In the wake of the publication of *Sein und Zeit* Heidegger was in fact quite hostile both to the idea of a *philosophical* anthropology and to the actual German movement of philosophical anthropology, as Daniel O. Dahlstrom has noted in the entry on "Philosophical anthropology" in his *The Heidegger Dictionary*, as part of which he writes the following: "Shortly after the publication of SZ [*Sein und Zeit*], Max Scheler's and Helmut Plessner's philosophical anthropologies appear. With their works in mind, Heidegger criticizes the very idea of philosophical anthropology, both for its indeterminacy and its inherent limitation. Philosophical anthropology ("Descartes' supreme triumph?") attempts to encompass the results of all the sciences that consider human beings. Not only is it impossible to survey the empirical results of all these disciplines, but their approaches are fundamentally diverse. As a result, anthropology becomes so all-encompassing that it is utterly indeterminate. The inherent limitation of philosophical anthropology consists in its failure to explain why all central philosophical problems are to be traced to the human being. No age knows as much about human beings as the present, but no age knows as little about what a human being is" (Dahlstrom 2013: 159-60). Heidegger does, however, have some rather kind things to say concerning the writings of Max Scheler. A thinker Heidegger clearly had some admiration for as he dedicated his important book from 1929 on *Kant and the Problem of Metaphysics* to him. Since this is the very book Dahlstrom draws on for his summary, I would like to note that its account of philosophical anthropology, in actual fact, is not quite as damning as Dahlstrom makes it out to be in his summary (see GA 3/1997: 146-50).

¹³ Jacques Taminiaux can, according to Mark Sinclair, be read as being a proponent of such a reading, as he holds that the distinction between the authentic and the inauthentic modes of Dasein's existence is "an opposition between two 'fields' of existence" in his *Lectures de l'ontologie fondamentale*. Specifically, as Sinclair summarizes, Dasein would then be "either involved with equipment and other people in the world as inauthentic or it heeds the call of its conscience in a supposedly authentic isolation from these people and these things. The distinction between the two modalities of existence would, therefore, be one between the public and the private, between a public life and the purity of a quasi-Platonic dialogue of the soul with itself within which *Dasein* would disclose itself as a *solus-ipse*. Thus, for Taminiaux, Heidegger is, in the end, quite peculiarly un-Aristotelian and it "goes without saying within the framework of fundamental ontology that it is by a sort of distraction, [...] by a sort of letting slip of our most proper possibility that we pay attention to things"" (Sinclair 2005: 251-2, citing and quoting from Taminiaux 1995: 169, 71, the translation of which are presumably Sinclair's own).

¹⁴ This path of disclosure on the way to a radically individuating momentary clearing (the *Augenblick* of authentic fore-sight) is detailed in the section on Angst (§40) and more extensively in the three first chapters of division 2 of *Sein und Zeit* (§46-66). See some of Matthew Ratcliffe's writings for more on the topic of *Stimmung* (2013).

¹⁵ Stiegler's engagement with Leroi-Gourhan's thought also include two early articles "Leroi-Gourhan, part maudite de l'anthropologie" and "La programmatologie de Leroi-Gourhan" that were both published in *Les Nouvelles de l'Archéologie* in 1992 (1992a and 1992b). The

reading and appropriation of Leroi-Gourhan's thought occupies, in other words, a central place as part of Stiegler's early period and publications.

- ¹⁶ Leroi-Gourhan's thesis on the techno-logical process of differentiation is of the highest significance to Derrida and his book *Of Grammatology*, even if his engagement with *Gesture and Speech* is limited and his references to it few throughout his published writings. Derrida does, however, acknowledge the importance of Leroi-Gourhan's writings in *Of Grammatology*, most especially by way of the following passage: "Leroi-Gourhan no longer describes the unity of man and the human adventure thus by the simple possibility of the graphie in general; rather as a stage or an articulation in the history of life – of what I called *différance* – as the history of the *grammè*. . . this movement goes far beyond the possibilities of the 'intentional consciousness.' It is an emergence that makes the *grammè* appear as such... if the expression ventured by Leroi-Gourhan is accepted, one could speak of a 'liberation of memory,' of an exteriorization always already begun but always larger than the trace which, beginning from the elementary programs of so-called 'instinctive' behavior up to the constitution of electronic card-indexes and reading machines enlarges *différance* and the possibility of putting in reserve" (Derrida 1967/97: 84).
- ¹⁷ This difficulty is both related and deeply intensified by way of the radically multidisciplinary character of Leroi-Gourhan's research, which as Françoise Audouze describes; "combined methods and approaches from very different disciplines such as biology, technology, palaeontology, psychology, and physiology, as well as ethnology, sociology and the history of art. At a time when other scholars in the social sciences were trying, not without substantial disagreement among themselves, to define the contours and limits of their respective disciplines, Leroi-Gourhan conceived of a single, holistic science of humanity that integrated all the fields of biology and ethnology" (Audouze 2002: 9).
- ¹⁸ Christopher Johnson in his article "The Prehistory of Technology: On the Contribution of Leroi-Gourhan" calls attention to a few of the discontinuities between the terminology and categories employed by Leroi-Gourhan and those that are in use in contemporary palaeoanthropology. Noting, firstly, that the "genus name *Zinjanthropus* is no longer used in palaeoanthropology, and has been replaced by *Australopithecus* or *Paranthropus boisei*" (2013: 50n3). And secondly, that "Leroi-Gourhan uses the now outdated categories of Australanthropian, Archanthropian, Palaeoanthropian and Neanthropian to designate the principal morphological stages of hominid evolution, the latter two stages relating to Neanderthal and *Homo sapiens* respectively" (2013: 50-1n4).
- ¹⁹ Stiegler's reading of Rousseau and his intention for offering it as part of *Technics and Time, 1* relate to his understanding of aspects of ancient Greek thought concerning technics, which I offered my own elucidation and reading of in section 2.1. Unfortunately, this quite lengthy reading of Rousseau is one that I am not able to detail at any length here, due, first and foremost, to the limited scope and purpose of this section and chapter. Suffice it to say, that Rousseau radicalizes elements of the ancient Greek suppression and devaluation of technics, and as a result of his role as the forefather of ethnology and anthropology and hence a pivotal figure in launching anthropology's manner of questioning the character of the human and its way of being. The influence his approach has wrought upon the image we have of ourselves as human beings is, therefore, understandably immense. Lévi-Strauss writes, for instance, that "Rousseau did not limit himself to predicting ethnology: he founded it" (1978: 47, quoted and translated in TT1: 105).
- ²⁰ As Gerland Moore has remarked, "Leroi-Gourhan sought, through a qualified reworking of Lamarck, to counter [in this connection] the popularized Darwinist commonplace of a man descending directly from the primate, as if no more than the outcome of a gradual process of genetic refinement" (Moore 2013: 22). Leroi-Gourhan states as much when he writes the following in the opening chapter of *Gesture and Speech*: "When Darwin's *The Origin of Species* was published in 1859, it bore little relation to the barely nascent science of prehistory. Rather, it marked the conclusion of the movement begun by Buffon. Like the eighteenth-century naturalists, Darwin – himself a naturalist, not a prehistorian or an anthropologist – grew from the subsoil of stratigraphic geology, paleontology, and contemporary zoology, for in the last analysis, whether seen as the consequence of evolution or as its culmination, humans can only be understood as part of a terrestrial totality. With Darwin, the encyclopedists' thirst was quenched once and for all, and although the edifice of evolutionism has been extended in depth there is no denying that since his time its essential content has developed but little. The conventional wisdom reflected this truth when it associated Darwin's name, mistakenly but revealingly, with the idea that "the human being is descended from the monkey." At the end of the nineteenth century, when prehistory as a hobby of amateurs was in its heyday, when the earth was yielding up the first skulls of Neanderthal man and *Pithecanthropus*, the image of the human was that of the simian ancestor slowly improved upon over the ages" (GS: 8). It is this image, mistakenly credited to Darwin, that Leroi-Gourhan seeks to falsify and that echoes the cerebralist bias he identifies in this chapter as "The Image of Ourselves" that hinders us in rethinking the relationship between the human and the technical, and relatedly between the human and the world, both natural and cultural. Leroi-Gourhan goes on to state, if only to differentiate his own undertaking from some highly speculative, i.e. ungrounded, and fruitless endeavours of both the past and his present time, that: "As an image it ideally complemented that of the eighteenth century, when scholars had not yet dared to go beyond the view of the human as first cousin of the primates. A dense fabric of differences has sprung up around this central idea of our zoological origin. Paleontology, anthropology, prehistory, and evolutionism in all its forms served to justify attitudes whose roots lay elsewhere. Because the problem of our origins is common to religion [and one might add philosophy] and to natural science – because by demonstrating the truth of the one, we have hoped to demolish the other – the "monkey" issue has

tended to hold the center stage. Today it can hardly be doubted that the motivations involved lay outside of the field of scientific inquiry. With the passage of time these wrangles have come to seem rather sterile” (GS: 9).

- ²¹ In the following reading of *Gesture and Speech* I will slightly depart from the terminology employed by Leroi-Gourhan and Stiegler in regards to the taxonomy of human evolution. In line with contemporary scientific usage I will employ the term ‘homininan’ as designating, as stated in the entry on the term in *Wiley Blackwell Encyclopedia of Human Evolution*, “the informal term for individuals or taxa within the subtribe Hominina” (Woods, et. al.: 2011a). A subtribe that the Encyclopedia provides the following entry on: “If the tribe Hominini is interpreted to include both the clade that contains modern humans and the clade that contains extant chimpanzees/bonobos then some researchers. . . discriminate between the two clades at the level of the subtribe. In which case the clade that contains modern humans would be called the Hominina and the clade that contains extant chimpanzees/bonobos would be called the Panina” (Woods, et. al.: 2011b). In other words, the subtribe Hominina consists of modern humans and their closest relatives after their split from chimpanzees, and which therefore includes extinct species such as, among others *Australopithecus*, *Paranthropus*, and all the immediate ancestors of modern humans like *Homo erectus* and *Homo neanderthalensis*, which Leroi-Gourhan focuses upon. How the differentiation between Hominin and Hominina as subtribes is made concerning the fossil record, which in any case is highly difficult as far as the earlier ancestors to *Homo Sapiens* are concerned, is explained by Peter Andrews and Terry Harrison, in a classification that echo the characteristics associated with the technical evolution in Leroi-Gourhan’s analysis, as follows: “Among human specializations, the most prominent, at least in terms of skeletal anatomy, are the changes in the hip, knee and foot related to development of upright posture and obligate bipedalism, the greatly enlarged relative brain size, the reduction in the size of the canines, and the loss of C/P sectorial function (along with a corresponding modification in the form of the canines and anterior premolars). It is this suite of unique features that provides the basis for recognizing extinct species as homininans (i.e., humans and their close extinct relatives) in the fossil record” (2005: 103-4). I prefer to use the term ‘homininan’, in this connection, due to the fact that the designation ‘hominids’ (as part of the tribe *Hominidae*) that Leroi-Gourhan and Stiegler employ has taken on a broader reference over the course of the last two decades, at least within scientific context and fields such as palaeoanthropology, palaeobiology and palaeontology, which differ from its traditional and more colloquial sense as referring to the same species and subspecies as ‘homininan’. Such a terminological adjustment is necessary to make, I believe, on the basis of the importance Leroi-Gourhan places on the difference between the corporeal makeup of early tool-using species, i.e. *Australopithecus*, with which he identifies the evolutionary break of technical evolution to begin with, and the great apes, which the taxonomical term ‘hominids’ now also, and perhaps chiefly, refers to. For more on the differentiation at the subtribe level between Hominina and Hominin, see Andrews and Harrison’s article “The Last Common Ancestor of Apes and Humans” (2005).
- ²² The point I am making here, and that Leroi-Gourhan’s remark can be taken to be in sympathy with, relates to the notion introduced and discussed in the preceding chapter of ‘technological breaks’, which in *deconstructing* the organization through which a prior orientation in and towards the world has been established, makes the habitual again questionable, and thus simultaneously opens and calls for efforts at reorientation, which necessarily involve some form of thematic problematization of what has come before (for instance, the image of ourselves established by the transcendental philosophical anthropology of the occidental tradition) and of what is going to take its place (say Leroi-Gourhan’s project with *Gesture and Speech* or Stiegler’s project with the three volumes of *Technics and Time* that have so far been published).
- ²³ Quite recent findings suggest that the genus *Australopithecus* already possessed the ability of constructing simple stone tools. An archaeological study headed by Shannon P. McPherron and published in *Nature* indicates that the starting point for hominin tool-use will have to be extended quite drastically, for as the article’s abstract states, detailed forensic studies “constrain the finds to between 3.42 and 3.24 Myr ago, and stratigraphic scaling between these units and other geological evidence indicate that they are older than 3.39 Myr ago. Our discovery extends by approximately 800,000 years the antiquity of stone tools and of stone-tool-assisted consumption of ungulates by hominins; furthermore, this behaviour can now be attributed to *Australopithecus afarensis*” (McPherron et. al. 2010: 857). This obviously does not falsify Leroi-Gourhan’s fundamental point, but rather moves the advent of technical evolution and technological structuration further back in time.
- ²⁴ In order to avoid any unnecessary confusion at this point I would like to point out that the manipulation of one’s environment and the *instrumentality* in, through and with which hominians are differentiated as animals that are techno-logically capable of intelligence, does not in any way entail that hominians necessarily have an instrumentalist relation to its surroundings. Keekok Lee phrases it well when she writes that, while “humans have always inescapably adopted an instrumental attitude towards nature [as something one can make use of]. . . this must be distinguished from that of instrumentalism, an extreme anthropocentric world view which first emerged in a strident form in the modern era of human history, since the seventeenth century in Western Europe. . . nature exists only to serve human ends but is otherwise valueless” according to such an instrumentalist worldview (2009, 15). The modern instrumentalist view of the human-nature, or rather human-environment, relationship does, on the other hand, resonate with the early engineering approach to the philosophy of technology detailed in section 2.1.
- ²⁵ The development of cooking technologies could also have been important for this evolutionary development, albeit probably at a later stage than the specific situation of *Australopithecus* using flint bifaces, as evidence for human controlled fire does not go as far back as that.

But, while some researchers believe that “cooking did not occur until perhaps only 500,000 years ago” others, like the anthropologist Ralph Rowlett of the University of Missouri, claim to have “found evidence of scorched earth from 1.6 million years ago that contains a mixture of burned wood types, indicating purposely made fire” was possible for, at least, *Homo erectus*, whose brain, interestingly enough, “was 50 percent larger than that of its predecessor, *H. habilis*,” and which “experienced the biggest drop in tooth size in human evolution” (Gorman 2012). In this regard, there might be something to, for instance, Ernst Kapp’s description of the stove as constituting an external stomach, since some researcher now argue, chief among them being Richard Wrangham, “that from an evolutionary perspective, the development of cultural technologies such as cooking and how cooked food affected the body [constitutes a central part of the process that] led to increased brain size” (Ash 2015). Wrangham’s argument is, however, weakened by the fact that little proof can be found of controlled fires as far back as Wrangham would need for his evolutionary narrative to be validated. On the other hand, it is strengthened by the results of some of Wrangham’s own empirical research concerning this evolutionary scenario, since, as Rachael Moeller Gorman summarizes: “Wrangham and his colleagues calculated that *H. erectus* (which was in *H. sapiens*’s size range) would have to eat roughly 12 pounds of raw plant food a day, or six pounds of raw plants plus raw meat, to get enough calories to survive. Studies on modern women show that those on a raw vegetarian diet often miss their menstrual periods because of lack of energy. Adding high-energy raw meat does not help much, either – Wrangham found data showing that even at chimps’ chewing rate, which can deliver them 400 food calories per hour, *H. erectus* would have needed to chew raw meat for 5.7 to 6.2 hours a day to fulfil its daily energy needs. When it was not gathering food, it would literally be chewing that food for the rest of the day” (Gorman 2012). If cultural technologies such as cooking did have a significant role, if not the sole and primary one as Wrangham suggests, in the process of hominization this would also strengthen Leroi-Gourhan’s argument for the technicity of the process of humanization.

²⁶ Leroi-Gourhan uses the name ‘Archanthropians’ to refer to hominians’s capable of making, for instance, hand axes, as Tim Ingold has pointed out this terminology was at the time of its coinage quite idiosyncratic and has now become obsolete as the being in question is now classified as part of the species *Homo erectus* (2013: 36).

²⁷ Stiegler’s usage of the term ‘epigenetics’ should be called attention in this connection, as his usage departs from the way in which this term is employed in contemporary evolutionary biology and follows, rather, the sense with which Leroi-Gourhan uses it in *Gesture and Speech*, as part of which it is meant to signify “a mechanism that functions ‘on top of, or in addition to, genetics’” (Moore 2013: 33n2). In connection to this divergence, Gerald Moore elaborates upon the terms usage within epigenetics itself, as a nascent field of study, and what the findings of such research might mean for Stiegler’s thesis, as part of his article “*Adapt and Smile or Die!* Stiegler among the Darwinists”, in which he notes that; “epigenetics has shown that some genes switch themselves on and off in response to environmental changes, and transmit ‘heritable epimutations’ to subsequent generations. Debate is split over whether these intergenerational switches are a matter of undirected, random adaptations that just happen to fit the new environment, or whether they amount to instances of anticipation and learning from experience [Moore cites David Haig’s article “Weismann Rules! OK? Epigenetics and the Lamarckian Temptation” in *Biology and Philosophy*, vol. 22, no. 4, p. 415-28, for these insights] Either way, epigenetic evolution would be no more than a weaker version of the environmental anticipation that Stiegler attributes to technical evolution” (Moore 2013: 33n2).

²⁸ It is worth noting the work undertaken by the Earth system scientist Peter K. Haff, in this connection, and the concept of ‘technosphere’ that he has introduced to his field, specifically by way of his article “Technology as a geological phenomenon: implications for human well-being” (2013). In the article’s abstract Haff briefly explains the concept, as well as its import and relevance for thinking about the geological epoch of the Anthropocene, and the relationship between technologies and other ecological factors and spheres: “The technosphere, the interlinked set of communication, transportation, bureaucratic and other systems that act to metabolize fossil fuels and other energy resources, is considered to be an emerging global paradigm, with similarities to the lithosphere, atmosphere, hydrosphere and biosphere. The technosphere is of global extent, exhibits large-scale appropriation of mass and energy resources, shows a tendency to co-opt for its own use information produced by the environment, and is autonomous. Unlike the older paradigms, the technosphere has not yet evolved the ability to recycle its own waste stream. Unless or until it does so, its status as a paradigm remains provisional. Humans are ‘parts’ of the technosphere – subcomponents essential for system function. Viewed from the inside by its human parts, the technosphere is perceived as a derived and controlled construct. Viewed from outside as a geological phenomenon, the technosphere appears as a quasi-autonomous system whose dynamics constrains the behaviour of its human parts. A geological perspective on technology suggests why strategies to limit environmental damage that consider only the needs of people are likely to fail without parallel consideration of the requirements of technology, especially its need for an abundant supply of energy” (Haff 2013: 301). I find such a material and geological perspective to be fruitful, and indeed possibly of aid in regards to the argument forwarded in this thesis. For more on the possible connection between the philosophy of technology and such developments within Earth system sciences, see Haff 2016.

²⁹ Derrida does, however, anticipate such a critical response concerning the human-animal relation, and all the ethical issues that might arise if it were to be blurred and a continuum be established, when he says, as part of a colloquium held at the University of Essex in 1987, specifically in response to such a line of questioning pursued in this instance by David Wood, that: “No, on the contrary, you have

to *multiply* the differences, not *blur* the differences. I am not advocating the blurring of differences. . . All these differences have to be taken into account in a new fashion; whereas, if you draw a single or two single lines, then you have homogeneous sets of undifferentiated societies, or groups, or structures. No, no I am not advocating the *blurring* of differences. On the contrary, I am trying to explain how drawing an oppositional limit *itself* blurs the differences, the *différance* and the differences, not only between man and animal, but among animal societies—there are an infinite number of animal societies, and, within the animal societies and within human society itself, so many differences. Now, there is the *ideology* of difference, of genetic difference within human society which we have to be very careful about; it cannot be a matter of merely manipulating the ideology of difference, of course. But this ideology of racism, the genetic or biologist ideology, again blurs differences; it is not in the end an ideology of difference at all, but an ideology of homogeneity, with a single limit between white and black, Jewish and non-Jewish, etc. So the discourse I am trying to deconstruct is not a discourse of difference; it is a discourse of homogeneity, even if, or precisely because, it refers to oppositional differences” (1987b: 183-4). Derrida’s justification for multiplying differences by avoiding the limit or demarcating line is, in other words, found in his deconstructive effort at undermining the ideology and thinking that spring from out of the supposition of oppositional or binary differences. It is difficult to see how Derrida’s radical hesitation, or caution if you will, in regards to matters concerning the differences between different springs of differentiations in life, does not end up in an unresolved position that tends towards some form of continuum. For is not the abstention of decision, in this connection, itself a decision? Does not Derrida, in this way, commit precisely the pitfall Stiegler implicitly charges him with, namely that he in his “contestation of oppositions” in the end, if not eliminates, then at least leaves unresolved the question of “the genesis of differences” (IT1: 163)?

³⁰ The Norwegian philosopher has Arild Utaker voiced similar complaints in regards to Stiegler’s reading, which he finds to situate Leroi-Gourhan’s body of work within a philosophical problematic without fully qualifying or taking account of what such an appropriating translation or transportation, if you will, actually brings with it of conceptual and disciplinary differences and difficulties (2013: 152n12).

³¹ Interestingly enough, at the same time as Heidegger lectured on ancient Greek philosophy and the dangers of the typewriter the US government were releasing educational films intended to educate secretaries in the art of typing with speed; films which often displayed competitive speed tests where the proficiency of individual *typists* were measured by the words per minute they were capable of dictating into the machine. See the film “Modern Business Machines for Writing, Duplicating, and Recording” first released in 1947 and made available by Academic Film Archive North America via the following link:

https://archive.org/details/modern_business_machines_for_writing Other such films include “Basic Typing, Part 1: Methods” made available by the Prelinger Archives via the following link: https://archive.org/details/basic_typing_1

³² One could also question whether such a route of interpretation, in its attempt to construct a unified Heideggerian conceptualization of technics, would be preferable if one’s aim is to forge a new path forward for the philosophy of technology that is capable of accounting for and willing to actively describe and engage with concrete technical objects and technologies that populate our current technical system.

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