On the praxis of writing time: Bernard Stiegler's concept of the orthographic moment as necessary complement tonumerical atemporality

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Abstract   Literary Theory's latest embrace of the Hard Sciences by way of forgetting the ''orthotheses of memory'', broadly understood as mnemo*technics*, it is argued, erases one of the most important aspects of the literary craft, namely its capacity to render and preserve a past that we did not live. Stiegler's conceptualization of writing as historically mediated *technics* of orthographic practice emphasizes questions of time and idiomatic subjectivity, precisely those notions usually obscured or absent in the Human Sciences' 'other': the natural sciences, particularly under the condition of today's ''numerical, industrial moment''. Instead of being merely seduced by economic rationality to produce accelerated innovation in science and technology in order to secure a competitive edge in the global market, both *Kulturwissenschaften* (cultural sciences) in place of the old Human Sciences—and *Naturwissenschaften* (natural sciences) need to remember that human life is both *zoon* (*politicon*) and *idios bios.*

Acceptance of C.P. Snow's fifty-year-old public narrative of ''two cultures,''[1] the putative divide between ''hard'' and ''soft'' sciences, makes it difficult to calibrate proper valence for the solicitous relation between the Human and the natural sciences. Neither Positivism, Darwinism, Linguistics nor of late Neuropsychology (Cognitivism) hold for the *Literaturwissenschaftler* (literary scholar) particularly powerful measuring capacity that can be used in an accurate and exact way to determine precisely in Literary Theory the standard against which it might be judged a ''science.'' But, besides high degrees of analytical rigor, what is it that qualifies a ''science'' in contrast to its other, namely art; and why are literary theorists, interrogating the nature and function of imaginary worlds and the representational force of fiction, again so enamored with the natural sciences? Why are the human Sciences (Literary Studies, History, Philosophy) regarded an insufficient habitat for *poiesis* or creative production on the one hand *and* of literary criticism on the other? In fact, ought the ''sciences'' be thus divided and compartmentalized when it comes to the analysis and interpretation of either so-called artifacts, human-made objects and 'natural' or 'physical' ones? And if so, who and what determine the link between Literature and other cultural systems of representation and performance? In the following I sketch some answers based upon the distinction between discursive and numerical representations or what the French philosopher of *technics*, Bernard Stiegler calls the ''orthographic moment'' in contrast to what I call the ''numerical, industrial moment'', so as to highlight the parallel universe inhabited by these two distinct symbolizations: namely words and numbers.

In the contemporary moment variously described as the ''affective turn'' (after the linguistic, cultural, narrative, and performative turns), dwelling on the boundary between the so-called hard and soft sciences will be spurious when in a posthuman ´*episteme*´ literary studies increasingly face a precarious situation in an academy wholly embraced and globally driven by the much-touted money form as the universal equivalent. Focusing instead on the very emergence of the 'Humanities' as a discursive formation in Modernity affords a glimpse into the valence of Literature ('art') and Science and their respective conjunctive configuration arching from relative capacity to unite, react, or interact to complete rejection. In this regard Walter Benjamin's treatise on the birth of literary criticism and 'theory' during German Romanticism (*Der Begriff der Kunstkritik in der deutschen Romantik*) (Benjamin 1991) constitutes within the German-speaking world as much of an example of a uniting, interactive force as does Goethe's *Farbenlehre* (Theory of Colour). The former describes the groundwork for an analytical engagement with 'art' (Literature), at the dawn of what for Foucault marks the ascent of the human sciences. On the other hand, Goethe's assertion, *die Wissenschaft notwendig als Kunst denken* (to „think science necessarily as art'')—since neither knowledge nor

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[1] "The two cultures and the scientific revolution" was delivered as the Rede lecture at Cambridge University in May 1959. See for an insightful revalidation of this epochal address Stefan Collini's "Leavis v Snow: the two-cultures bust-up 50 years on" in *The Guardian,* Friday 16 August 2013 http://www.theguardian.com/books/2013/aug/16/leavis-snow-two-cultures-bust/ Internet Accessed 3 March 2014.

reflection aggregate a whole[2]—underscores the interdependence and codetermination of the two halves of the culture divide. Both texts—unlike, for instance, Mary Shelley's contemporaneous novel *Frankenstein* about (hard) scientific over-reach, or Victor Hugo's fervent celebration of art's divine aim (in his 1827 "Preface to *Cromwell*"): ''to bring to life again if it is writing history, to create if it is writing poetry''[3]—focus on 'method'. And it is 'method' ('path' in Latin), rather than the natural sciences as theme, subject, or, in Deleuze and Guattari's illuminating definition in *What Is Philosophy?*: ''function,''[4] that concerns me as literary theorist. (There is neither time nor place here for a case study in which Goethe's *Farbenlehre*, which sought to overthrow the irrefragable demonstrations of Newton's theory about white light as composed of a multitude of differently refrangible rays, could provide insight into the workings of a poet as distinct from that of a physicist. Suffice it to note a saying ascribed to Einstein, according to which for the scientist the reward of his invention comes from the joy in understanding, not in its utility, an appraisal equally valid in art and science.)

Thus despite Foucault's justified misgivings about any claim to hard "scientific" method on part of the (essentially soft) "Human Sciences," whose birth he describes in *Les Mots et les choses* (*The Order of Things*), need its field be abandoned. Neither is the human sciences' lack of a clearly demarcated object a sufficient reason to discard the image of the human. Irrespective of the field's epistemic weakness in the eyes of, among others, Blanchot and Foucault, the "passion for literature" (Blanchot) that drove both thinkers to engage with it, remains today more vital than ever given current tertiary education's preferences for the study of science and technology. Had the human sciences and with them Literary Studies, History, and Philosophy been at the apex of the "university of culture" charged with the education of responsible citizens in the late 19th and earlier 20th centuries, the "university of excellence" in our century is charged with training labor capable of producing accelerated innovation in science and technology in order to secure a competitive edge in the global market. Economic rationality militates against the axiomatic status accorded the "soft sciences" that tend to eschew overriding consideration of a pecuniary nature. Literary theory's turn to the natural sciences can therefore not merely be explained by the human sciences' lack of analytical

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[2] "Da im Wissen sowohl als in der Reflexion kein Ganzes zusammengebracht werden kann, weil jenem das Innre, dieser das Äußere fehlt; so müssen wir uns die Wissenschaft notwendig als Kunst denken, wenn wir von ihr irgend eine Art von Ganzheit erwarten. Und zwar haben wir diese nicht im Allgemeinen, im Überschwenglichen zu suchen, sondern wie die Kunst sich immer ganz in jedem einzelnen Kunstwerk darstellt, so sollte die Wissenschaft sich auch jedesmal ganz in jedem einzelnen Behandelten erweisen.

Um aber einer solchen Forderung sich zu nähern, so müßte man keine der menschlichen Kräfte bei wissenschaftlicher Tätigkeit ausschließen. Die Abgründe der Ahndung, ein sicheres Anschauen der Gegenwart, mathematische Tiefe, physische Genauigkeit, Höhe der Vernunft, Schärfe des Verstandes, bewegliche sehnsuchtsvolle Phantasie, liebevolle Freude am Sinnlichen, nichts kann entbehrt werden zum lebhaften fruchtbaren Ergreifen des Augenblicks, wodurch ganz allein ein Kunstwerk, von welchem Gehalt es auch sei, entstehen kann'' (Goethe 1994, pp. 90–91).

[3] https://archive.org/details/prefacedecromwe02hugogoog.

[4] It will be remembered that, according to Deleuze's division of labor in the realm of knowledge, artists create affects and *percepts*, ''blocks of space-time,'' whereas science works with *functions*, and philosophy creates *concepts*. Cf. Deleuze and Guattari (1991).

rigor. That literary theorists in their various approaches, vacillating in their choice of objects and critical methods between empathetic appreciation, hermeneutics, politics, deconstruction and linguistics, are again seduced by the lure of paths taken by the Hard Sciences is, I contest, as much a scholarly choice as it is a critical political (neo-liberal) praxis. But it is not only Darwinism, or cognitive poetics ranging from rhyme and rhythm studies to narratology, or psycholinguistic studies of literary phenomena, among others, that have taken over were the *Wissenschaftlichkeit* of Structuralism and Systems Theory left off. There are other procedures like Stiegler's "orthotheses of memory," broadly understood as mnemo*technics* that can vouchsafe an approach which is both "scientific" *and* critical.

By briefly introducing the concept of the ''orthographic moment,'' outlined by Stiegler in his ''The Orthographic Age'' (Stiegler 2009, pp. 1–64), I am underscoring the notion of *Wissenschaftlichkeit* in respect to literary theory and criticism while pointing to shortcomings of its often purely numerical/statistical considerations. By the German *Wissenschaftlichkeit*, which I translate as specific style of scientific thinking covalent with historically transmitted paradigms,[5] I wish to call attention to method. Method, the path or road to knowledge, here means, first, *orthos,* correctness as a form that on a spatio-temporal plane secures a truth in specific content—or, if you so will—in a regime of signs; and secondly, repeatability of particular experiments as well as replicate-ability of specific analyses in thought and praxis. Experimentation, it should be noted, entails not only the discovery of how things are, but also the experiment to make them how we want them to be—in short, *inventio.* Invention particularly in the application of science and technology has today become the yardstick for measuring (financial) success and prosperity, something that lay at the core of Snow's argument. We need only look at Silicon Valley's tech companies to comprehend not only the reward that potentially awaits students of the ''hard'' sciences but that also secures their products a competitive edge on the global market. In comparison, the more restricted territory for the literary scholar/critic holds out less promise leaving her with the role of guarding and promoting attentiveness to how language functions—and has functioned–as both ''narrative'' and ''performative'' force in relation to time and space, individuation and its undoing.

Influenced in part by Derrida's work in *On Grammatology* and Deleuze's two books on the cinema, (Deleuze 1983, 1985) Stiegler develops the notion of the 'orthographic' as a moment of verbal exactitude in respect of ''a past I did not live,'' transmitted to me in and through ''particular public languages'' (in institutions of learning, different media, etc.), as American cognitive philosopher Andy Clark would say. For Stiegler, the orthographic moment is linked to wide-ranging arguments about technology and its relation to the human; it asserts a formulation of human life as ''epiphylogenetic,'' that is, evolving according to the logic of

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[5] After all, "science", whether "hard" or "soft" is as much a "language" narrated and performed in discursive formations (Foucault) as in paradigm shifts of "scientific revolutions" (Kuhn) or "two-cultures" talk following C. P. Snow. That the latter should more or less emerge, as do Kuhn's and Foucault's mid 20th-century investigations, should be understood as response to fundamental shifts in so-called techno-science.

"prosthetic supplementation". For Stiegler, *technics*, or the prosthetic supplementation of the human in "default" of the origin, embodied in the figure of Epimetheus who forgot to assign particular qualities to man created by his brother, Prometheus, is the condition of "life that knows," human life (*idios bíos*) in its singular as well as in its societal form. This potentially negentropic, self-renewing "life" co-evolved with *technics,* commonly referred to as "tools" that, as distinct from *bíos* (life), are always subject to entropy. (Stiegler distinguishes between cultural 'technics' and technology to mark the profound changes that began with the Industrial Revolution, culminating in today's digital revolution, epitomized in Silicon Valley's leading names Google, Facebook and Twitter).

Defined by the irreducible relation of the *who* to the *what*, which is nothing but the expression of referential finitude (that of its *memory*), human life has been, according to Stiegler, transmitted, adapted, and adopted over millennia due to three modes of retention. *Primary retention* relates to *physis,* that is, our body cells, nervous system, organs; in short, our bio-chemical apparatus "remembers" and retains life beyond consciousness. *Secondary retention* refers to the conscious connection made between the "what" (*hyle* = matter, 'substance', content) that went before and the "what" that follows "after", as when making a connection between sequential modalities (two musical notes or two words, for example). It is time manifest, appearing to us in experience. *Tertiary retention* refers to "artifacts" (i.e., human-made matter) that allow us to remember and recollect secondary retentions. In short, there is not simply one mnemo*technics* but three. Corresponding to the three classes of retention there are three types of "memory": (1) genetic memory; (2) memory of the central nervous system (epigenetic); and (3) techno-logical memory (language and technics are here amalgamated in the process of exteriorization, a process of 'form-giving' or shaping in whatever material manifestation be it writing, printing, pixels, pictures, or hammers, cars, planes, etc.).

For an illustration of techno-logical memory, consider the difference between a poem recited and a poem written. You try to listen intently to the audible data in an attempt to retain in memory for future recollection the poem just heard. Rhythm, rhyme and sound repetition, not to mention the rhetorical tricks of old here operate as mnemotechnics that will aid the listener particularly in a preliterate world. In a literate world based on alphabetic writing you not only relax your mnemonic functions but, as Sybille Krämer points out, only literacy reveals the ''grammatical structures'': in other words, a grammatological system that ''can only fully emerge in notational iconicity. Texts can make their 'inner' cognitive order visible,'' albeit a discursive order that is being severely challenged by ''the demands of computer technology, which reveals the boundaries in the notion of notational iconicity.''(Krämer 2003, p. 537.)

Such "inner cognitive order," based, in the eyes of Stiegler, on the co-evolution and co-determination of *technics* and the human, emerged with the appearance before an open, indetermined and contingent horizon without closure in either past or future, of *zoon symbolicon,* that is the sign and sense making, as well as creating life-form (*bios*), as Hartmut Böhme reminds us. The emergence and evolution of the *zoon symbolicon* is coeval with *technics*: Stiegler sees this figured in a myth—not as has often been thought, through Prometheus [whose name means 'foresight'], who

stole fire from heaven—but via Prometheus' brother and assistant, Epimetheus [whose name means 'hindsight'], who, having the task of distributing to all living creatures their qualities and abilities, ran out of resources before humanity had been appropriately endowed. Epimetheus had forgotten that humanity still had to be served because he did not have the foresight to plan for humanity's needs. Consequently humanity, bereft of capacities, had from that time to turn to *technics* in order to survive. Prometheus had to steal fire from heaven and was punished by being tied to a stake having an eagle eating his liver, day after day, because, each day, the organ regenerated. As a result, fire—*technics*—makes the human human, not the reverse. Stiegler wants to push the situation to its ultimate, arguing that humans only get their nature from *technics*, implying that to be human—to be the *who subject*—is to inherit the fault of Epimetheus and to be inextricably bound to *technics*—bound to the *what object* of an always already given but also always mutable milieu or external domain.

The reinterpretation of the myth (and with it the correction of late 18th and 19th-century devaluation of [cultural] technologies as mere instrumental[6]), allows Stiegler to posit the *who* as requiring an external element—a *what*—to constitute itself as an internal being. Or rather, the difference between internal and external is not radical. Externality is required in the constitution of internality through the process that Stiegler calls 'epiphylogenesis,' or the third plane (third mnemonic functioning) of the threefold retention capability mentioned earlier. In contrast to the first two planes of genetic and nerve (cognitive) phylogenies (memories), ''[E]piphylogenesis bestows its identity upon the human individual: the accents of his speech, the style of his approach, the force of his gesture, the unity of his world.'' For Stiegler there is a 'transductive' (Simondon)[7] relation between the *who* and the *what*, a relation of diffe ́rance, for the *what* invents and 'programs' the *who*, and vice versa.

At stake in 'orthography,' or the means of exactitude of recording (*enregistrement*) over and above the two (genetic-biological and nerve-cognitive) different types of exact recording that lead to the "orthotheses of memory," broadly understood as mnemo*technics*, is the orthographic moment that emerged with alphabetic writing, engendering a consistent epoch that, lasting for more than 2,000 years is coming to an end. Given the current state of what Stiegler calls, "disarticulation" between three elements required for consistency namely "physical organs" (the body, including the brain and the spirit/mind), "artificial organs" (*technics*/technology) and "social organs" (institutions), "orthotheses of memory" no longer articulate shared practices. "Orthotheses of memory," anchored in orthographic recording of idiomatic production by way of inscriptions, ranging from epigraphs to newspapers, pamphlets, Literature, rules, laws, manifestos and much more, represent, secure and produce the imaginary of a people; they ritualize and

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[6] Mary Shelley's treatment of Prometheus in her novel *Frankenstein* as distinct of that by the young Goethe in his poem ''Prometheus'' can serve as example. However, it is Heidegger's (1993) ''Die Frage nach der Technik'' (English translation in Heidegger 1993, pp. 307–341), which effectively corrects the putative notion of the character of technology as mere neutral instrument without a history.

[7] The French philosopher Gilbert Simondon (1924–1989) and his theory of individuation through transduction in a metastable environment was an important influence on the thought of Deleuze and especially Stiegler. See in this connection Stiegler (2010b).

direct praxis; they negotiate the social meanings we and others use in making sense of the world, as well as the processes of identification that create the difference between same and other.

It is through working on and with words—exemplified in Literature's notational iconicity—that we order the world, an order that is quite distinct from the numerical ordering of the world, although both symbolic systems, a semiotic and a mathematical one, function as production and representation. Yet, it is only words and stories that produce and represent mnemonic inscriptions; numerical orders that produce diagrams, statistics, and algorithms (digital functioning of search engines, for instance) are non-mnemonic, hence time and space-less in quite a literal sense as demonstrated by the internet. Missing in the numerical world is what Bakhtin would have called the *chronotopical* entities. However, outside particular space-time coordinates that is the contemporary cybernetic milieu, human life without a new, post-orthographic *otium* of the people begins to display, as Stiegler surmises, ''its most prominent and pathological effect turning the body and the spirit into dumping terrains of useless and meaningless products, manifesting as symbolic misery.'' (Stiegler 2010a).

Stiegler's insistence on writing as historically mediated technics of orthographic practice underscores temporality and subjectivity, precisely those notions usually obscured or absent in the human sciences' 'other': the natural sciences, particularly under the condition of today's ''numerical, industrial moment''. It is that the moment of our digitalized culture in which language tends to become, in a world ruled by calculation rather than interpretation, merely a medium of statistically driven information transfer between agents, instead of a tool for structuring and controlling action by way of reflexive debate. However, as Deleuze and Guattari remind us, language is integral to questions of the polis, of the social field. ''For language is a political affair before it is an affair for linguistics; even the evaluation of degrees of grammaticality is a political matter.'' (Deleuze and Guattari 1987, pp. 139–140) Hence Stiegler's recent demand for a new, overdue ''cultural politics'' that allows space for cultivating an imaginary that is nurtured by the orthographic past from whence its becoming appears as possibility in form of continuous negentropic self-fashioning in place of entropic consumption.

Orthographic recording, both as material, historical genesis *and* as structure, grammar, or logic of an idiomatic production that constitutes a peoples' memory, provides a window to past and future potentialities; the orthographic ''temporal object'' is always open to both hermeneutic-interpretative and explanatory strategies. These might be more or less analytical and rigorous depending on their calibration with dominant institutional standards. But even mere commentary expresses more world than a string of numbers because all ''temporal objects''—not just art and Literature—hold out the injunction: ''You will have to return to see me again, or you will not see me: you will never have seen me *in the future perfect where I maintain myself always and only—and where you will also maintain yourself from when inasmuch as you transform yourself there*'' (Stiegler 2005, pp. 139–140),[8] thus enabling individuation, something profoundly threatened by the

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[8] Translation of this passage by Johann Rossouw.

new digital mnemotechnology of the ''programming industries,'' no longer governed by the power of *orthography* (words) but by the power of the algorithm (numbers).

Finally, the seduction by today's lead sciences—Biochemistry and Neurology –, not to mention the market pressures, is compelling, yet Stiegler's notion of the orthographic moment delivers a necessary complement to their numerical atemporality. Moreover, philosophy's age-old suspicion about so-called Art and Science constituting irrevocable binaries or competing for more advanced insight across an unbridgeable divide requires confirmation, so that what today are commonly called *Kulturwissenschaften* (cultural sciences) in place of the old human sciences—and *Naturwissenschaften* (natural sciences) are able to enter into a mutual relationship of transdisciplinary cooperation. To be sure an appropriate "method" for such cooperation still needs to be assembled anew in each instance but the paths of the sciences has to converge for two reasons: first, as Michael Hardt reminds us, because "the creation of ideas, images, code, affects, and other immaterial goods" is not yet recognized as the primary key to economic innovation in the global biopolitical economy; and secondly, natural sciences, especially the new technosciences that operate functionally and not interpretatively and hence without memory, need to remember that human life is both *zoon* and *idios bíos,* life as such and specific life. In Goethe's words from the *Farbenlehre*, *"Der Wissenschaftler muss durch sein Handeln immer wieder kund tun, dass er zum humanen Teil der Menschheit gehört."* (The scientist has to, in his action, demonstrate at all times that he belongs to the humane part of the species.)

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