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**extract from *the birth of physics***

Michel Serres, translated by David Webb, with an introduction by Bill Ross

INTRODUCTION

*On the occasion of a forthcoming edition of Michel Serres' The Birth of Physics in the Groundworks series with Rowman & Littlefield International, Bill Ross reflects on the unique place of this text in the philosophy of science.*

In a way notably infrequent in the discourse of the philosophy of science, Michel Serres' work *The Birth of Physics* arrived with a full-blown unequivocally acknowledged seat at the table of a paradigm shift taking place within the scientific corpus of the day. Chaos theory, crystallised in the seminal work *Order out of Chaos* by Ilya Prigogine and Isabelle Stengers, forcefully foregrounded the importance and predominance of non-linear processes in the operations of nature. This work elevated the significance of the science of thermodynamics and rendered more nuanced our understanding of entropy. Serres' book is cited often in *Order out of Chaos* (more frequently in the French original than the English translation), focusing as it does on themes shared between the two: randomness, the genesis of order, the degradation of physical systems, the openness of the cosmos. The debt to Serres is perhaps most clear in the French title, *Une nouvelle alliance*; a reference to the need for a new paradigm under which to formulate the labours of the physical sciences, a paradigm to replace the Newtonian world view, a necessary

shift to encompass the non-linear signature of nature. Most of all, a recognition that pattern emerges from chaos through repetition, that the Newtonian ideal of defining eternal, unchanging, ubiquitous laws under which to comprehend any process whatever, fundamentally jibes against the grain of constantly permuting nature. Systems, however big or small, can at most form ‘alliances’, fall into more or less coherent cycles, tamp down provisional pathways. And our way of science must reflect this. No longer should we imagine that to artificially designate initial conditions, insulate the evolution of the system under consideration and calculate the result, will serve any purpose other than to deaden the likeness of that system to those in the wild; to master nature is to tame it. We shouldn’t lose sight of the scope of this new paradigm; under the Newtonian framework, the isolated experimental system was the type for *all* systems, and any statistical deviation observed from their inevitably linear progress to equilibrium was to be disregarded as negligible. The realisation that no system is isolated, all ultimately non-linear, was akin to the discovery in the 1930s that the familiar, so to speak domestic form of matter which had formed the entire focus of physics hitherto was a mere fraction of the mass represented by what is now called dark matter.

A new alliance, then. The injunction is coded into the final words of Serres’ text in a shorthand for the non-linear science to come; “Invent liquid history and the ages of water.” Serres publishes in 1977, Prigogine and Stengers in 1979. Everything happens as if the philosopher proposes and the scientist disposes. But of course not, for two reasons. Firstly, both scientist and philosopher were building on and responding to paradigms belonging to the precursor disciplines of Cybernetics and Information Theory. Serres had been weaving these threads into his ambitious Hermès series since 1969. Cybernetics had established the curious causal connections of feedback, while Information Theory had revealed the intimate association of information with physical processes through the operations of entropy. Exotic chemical cycles such as the Bénard Instability and autocatalytic reactions fed into the natural philosophy of Prigogine and Stengers, indeed Prigogine had already championed the idea of ‘dissipative structures’ some time in advance of Serres’ book. Even chaos has a history. Which gives us the second reason; it is the *depth* of history on which Serres draws which differentiates *The Birth of Physics*. If both texts are heralds of ‘the ages of water’, they are so in radically different ways. And in fact, the date of the call for a new alliance is neither 1977 nor 1979, but somewhere rather closer to 50 years BCE.

In *The Birth of Physics*, Serres acts as a conduit for the thought of the ancient Roman atomist Lucretius. He surveys the philosophical and scientific eddies downstream of that author's meditation on order and decay. Leibniz, Kant, Carnot, Boltzmann *et al*, are each in their way shown to echo themes in *De rerum natura*. Serres' faithfulness to the Lucretian text, his readiness to furnish a close reading of the whole, is matched by his ability to reinvigorate the voice for contemporary concerns, and to alight on the conceptual recurrences of Lucretian themes in subsequent ages. He draws out an inexplicit proto-calculus from the work of Archimedes, of the kind that might contemporaneously have served as the mathematics for the Lucretian model. He notes in detail the structural analogies between Leibniz' remarkably dense short piece 'On the Ultimate Origination of Things' and Lucretian cosmology. He draws attention to the presence of an oscillatory system of genesis and dissolution of spiralling worlds in Kant's *Universal Natural History and the Theory of the Heavens*, all significantly prefiguring Clausius, Boltzmann, Wiener and Prigogine. *The Birth of Physics* is very much the story of a virtual scientific spirit subsisting alongside the official history of reason, positivism and empiricism, a spirit essentially opposed to what the physicist Lee Smolin has called "physics in a box."

The Lucretian cosmos is a rich model (or, rather, set of models), one in which, as Serres repeatedly asserts, "nothing is lacking." In the beginning, a body of atoms falling equidistant through the void, at a speed which is no speed, with a movement which is no movement, since there is nothing against which to calibrate. This is, says Serres, stasis, or equilibrium. Then a deviation, which consists in nothing more than the tiniest inclination of some atom or other from the true; the *clinamen*, or swerve. We are encouraged to recognize that this most minimal angle gestures forward to the calculus of the infinitesimal. This deviation, this break from stasis, is nothing less than the genesis of time and place says Serres, for a world which could not hitherto be said to move could not be said to support elapse. From this point, atoms collide, turbulence ensues, and with it form is engendered. Is this disorder emergent from order, from the uninterrupted true downward fall, or is it the reverse, asks Serres; does the order of structure emerge from the disorder of turbulence? This is the precise question for Chaos Theory, for the ages of water. All matter is drawn down, seeking the lowest point, just as a stream finds its bed, but the true downward path, the quickest route, is ever and always deferred by criss-crossing bodies; the lowest point is always at the end of an incline. Here is the same story as told by thermodynamics, by Clausius, Carnot and Boltzmann; energy is constant, yet the long term fate of all systems is to deg-

radation, to maximum entropy. But Serres takes pains to point out that the latest chapter of our modern texts is not lacking in the original; Prigogine's dissipative structures and Rene Thom's catastrophe. The bed of the river itself gives way, all lowest points ultimately give onto points yet lower as systems exhaust their alliances, free to find their reconfigurations in an open-ended universe.

Nothing is lacking in the Lucretian model, not the operations of perception, not the material soul nor human history. All move from equilibrium to turbulence to return to equilibrium. Serres' accomplishment is an act of synthesis of all that lies downstream of the Lucretian text, and one thing more. It is the practice of an art, a new art of science. Ideas percolate through history, Serres believes; they may entertain virtual connections with each other, as Archimedes' geometry did with Lucretius' physics, as Leibniz' metaphysics did with Lucretius' cosmogony. *The Birth of Physics* is performative, it enacts what it says; it traces the recombinations of complex idea-structures in certain times and certain places, fashioned anew as they are by local constraints, allied to their own newly perceived models; for Carnot, heat engines, for Hubble an expanding universe. More particularly, *The Birth of Physics* is the first book-length implementation of the principles of the philosophy of science laid out in Serres' masterly Hermès series. It is the result of Serres' chapter by chapter visitation on some occasion of the history of scientific culture, always following the interconnected threads of an encyclopedia that contains itself.

The accompanying extract relates what Serres terms 'declination' to the notion of 'ataraxy'. Declination refers both to the original deviation of the *clinamen* and to the tendency of nature both metaphorically and sometimes literally to roll down a slope to a point of stability, an entropic decline. Yet any apparent stability is in turn dependent on an underlying metastability, the interplay of turbulence, *ataraxy*. The selection is chosen to convey both the density and the momentum of this brilliant work.

Bill Ross

## TURBA, TURBO

The physical theory of turbulence contains a paradox. Laminar flow, the figure of chaos, is at first sight a model of order. The atoms pour out in parallel, without mixing or sticking to each other. These preliminary rows are already a taxonomy, as the word itself indicates. Turbulence seems to introduce a disorder into this arrangement. This is what the language means: *turbare* means a disorder, a confusion, a disruption or, as we say, a perturbation. Disorder emerges from order.

Yet it is the precisely reverse that is to be described and that occurs. Physics tries to explain how things and the world are formed naturally out of the atomic chaos, in other words how an order, or several orders, emerge from disorder. And it is turbulence that secures the transition. This seems contradictory.

The description of the chaos-cloud, of the first nebula is canonical, it is repeated in many places, and in particular in the Book V, on the birth of the world. It deals with the multiple distribution of the great elementary population at the heart of the stormy mass. The terms employed in this description belong to two families, topological and mechanical: intervals, paths and connections on the one hand, weight, movement and collision on the other. These determinations fluctuate. They fluctuate in and by turbulence. The *turbare*, here (Book V 439), is the fluctuation of figures and movements. Order or disorder, it is difficult to decide.

The vocabulary of the following lines provides a local index of the problem. Everywhere else in the poem, terms with a prefix of separation like division, disjunction and so on, indicate a drift towards disorder and what seems to be a return to chaos. Things which are already formed scatter by wear and tear, they disintegrate because they are only porous conjunctions. Everything flows and turns to dust, nothing is stable but the atom, the void and the whole, to which the operator of division can do nothing. Here, on the contrary, disjunction is arrangement, segregation constitutes coherent parts. By earth, air, fire, and water, distribution will lead to the order of the world. The interesting term here is *discludere*, to close by a limit, which has no equivalent in the French language. The dichotomy does not cut, it defines, it surrounds the closure of a limit, it delineates a boundary. Within the space thus enclosed like meets like. Or rather, conversely, the specific convergence [*convenance*] or identity, the assembly of the analogous, delimits zones in the disorder which are distinguished from each other. The earth is separated from the waters, air divides from fire. Thus the operator whose task in general is

to pulverise, works here towards distribution, towards an inchoate organization.

Weight and complexity are the engines of separation. Fall assures difference, as creation. Once again, the fall gives order, as well as drift, decline, disorder. Always the double operator: the fall, here, is productive.

What is true of the divisions and of the fall is not completely so for turbulence. When the ether was separated from the air by its lesser gravity, it tore itself from the tempests, immutable as the Pontus (which also flows), and seemed to enjoy a certain *ataraxy*. Now these troubled storms are the place both of turmoil (*turbantibus, turbare*) and of vortices (*turbinibus*). There is a distance between *turba* and *turbo*. The first designates a multitude, a large population, confusion and tumult. It is disorder: the Greek τυρβη (*turbe*), is also used of the mad dancing in Bacchic festivals. But the second is a round form in movement like a spinning top, a turning cone or vortical spiral. This is no longer disorder, even if the whirl is of wind, of water or of storms. In fact, the turning shifting movement is that of the stars, of the heavens, now and originally. The world in its globality may be modelled by vortices. The origin of things and the beginning of order consist simply in the narrow space between *turba* and *turbo*, an incalculable population tossed by storms, by unrest, in vortical movement. Perhaps there is an analogous distance, in French, between *turbulence* and vortex, if we take these words in their everyday sense, apart from fluid dynamics. The first is simply disorder and the second is a particular form in movement. Form and movement, linguistically closest to what has no form and whose movement is only fluctuating agitation.

The behaviour of the cone or the top is worth analysing. Throw this toy and describe, as Plato did, what happens. It is in movement, this is certain, yet it is stable. It even rests on its point or its pole, the more so as its movement is rapid. All children know this. But its rest is still more paradoxical. The top may move about, by translation, without ever losing its stability. To repeat, it can do so as long as it turns very quickly. Even better, its axis may lean, take on an inclination, without putting the movement of the whole in too much danger. It may again rock, by nutation, oscillating around a mean location. This very ancient and quite childish machine is marvellously instructive.

First of all, it combines all the movements known and thinkable at the time: rotation, translation, fall, leaning and swaying. An integral model, additive, overcharged, yet simple. Second, and above all, it conjoins in a simple one-off ex-

periment phenomena judged or presumed to be contradictory. It is in movement and at rest, it turns yet does not move, it rocks and is stable. The simplicity of a complexity, first and foremost, an additive machine; a synthesis of contradictions, beyond anything else. Now it may serve as a little model of the world, for a naive, simple and local orrery. It quivers, at rest, it moves forward, turning, like the heavens, like the stars.

Plato passes a little quickly over the spinning top [*Republic* 436d ff]. He describes the claim that tops are at one and the same time both stable and in movement as subtle but playful, since all that is required to escape the difficulty is to distinguish the immobile axis and the rotation of the circumference. In his eyes, this separation of the elements eliminates the contradiction. It can be done, he adds, on the condition that the axis does not lean to either side (ουδαμη γαρ αποκλινειν). If, in fact, it does lean (εγκλινη) left or right, forward or backwards, then it is clear that the top is no longer at rest. Plato has no notion here of rest in and by movement itself: the axis of the top sways around a position of balance, there is an invariance by variation. And the interlocutor, more wise than playful, can still assert that this distinction of the axis and the circumference does not lay to rest the opposition of movement and rest, nor their union, and that the top remains whole, at once whirling and stable. The fact remains that this little model in practice reunites what the dialogue holds to be contradictory. The fact remains that Plato did not give any thought to inclination, did not consider deviation, even in the angle of nutation. Lucretius, and atomist physics, covers these areas abandoned by Platonic geometricism, covers the temporarily meta-stable leaning and whirling, the concrete contradiction, the *turbo* of the top, unstable, immobile and mobile.

The children's top, στροβιλος (strobilos), the ρομβος (rhombos) or bull-roarer, games and magic rituals frozen in the diamond-form of Euclidean space, here reveal a solution, easily formed, to all the difficulties of a self-same operator functioning, almost at will, towards contradictory results. Is it stable? Yes. Is it unstable? Yes, again. Is it rotating, does it follow a circumference? Yes, ever again. The top is a *circum-stance*. Can it move forward, lightfootedly? Yes. Can it lean? Yes, in all directions. So ask some questions constructed around yes and no; the possibility of finding, building and observing an object that will not be destroyed by this difference is hereby established. The vortex is unstable and stable, fluctuating and in equilibrium, is order and disorder at once, it destroys ships at sea, it is the formation of things. And so on: the sun dries the earth, it melts wax; fire melts gold and shrinks leather; the wild olive is a feast for goats, but bitter to men;

marjoram is poisonous to pigs and a remedy that brings us back to life; atoms can be pathogenic germs. What is more, a single plant, for us too, may kill or cure us. This pharmacology is under the sign of the top. Not only is the thing decidable, but it is constructible, look at the top. That is how it is, in the thing itself, and no discourse can change it. As if the contradictions separated themselves, as if they repelled each other, in the battle of reason and language, while the contraries cohabited in the black box of things. If, one day, some subtle and playful dialectician disconcerts you, be quiet, don't answer, join the children, play at tops.

Hence there is a chaos-cloud, the *turba*, the stormy combat of atoms. The chaotic unrest or perturbation is a limitless empty space traversed by movements, collisions, intervals, paths and weights, distributed at random, without conjunction, scattered, opposed, disjunct. The Epicurean rediscovers Empedocles: struggle, war, Hatred. Collisions and encounters without union. And so here are translations, rotations, chance vibrations, here are the places of rest for the points of collision, momentary equilibria, deviation. Is it possible that at indefinite times, in unforeseeable places, here or there, yesterday or tomorrow, all these phenomena may suddenly add up, all the contradictions resolve? There is no reason why all these characteristics should not, somewhere, be co-present. Yes, it is possible theoretically. But it is also possible in practice, since we know how to construct an object that harbours within itself this combat, these oppositions, and these disjunctions, motionless and in movement, vibrating and stable, and so on. In such a place, in such a time, dissemination precipitates, as we say for a solid in solution. If this is possible and if this is constructible in practice, it will take place under the sign and the movement of the *turbo*. Figured against the backdrop, the vortex appears against chaos, and the *turbo* against the *turba*. Let there be no mistake, this has been shown.

Lucretius describes two forms of chaos: the streaming-chaos, the laminar flow of elements, a parallel flow in the void, drawn out like fibred space; the cloud-chaos, a disorganized fluctuating, Brownian mass of dissimilarities and oppositions. With declination, the vortex appeared against the backdrop of the first; now it reappears against the backdrop of the second. Whatever chaos may be, whatever may be its linguistic origin: yawn, pour, whatever the material movement of disorder may be, the solution is unchanged, the original figure and movement remain the same, it is the Democritean *dinos*. The vortex is thus the pre-order of things, their nature, in the sense of nativity. Order upon disorder, whatever the disorder may be; the vortex arises by a *fluxion* in the first hypothesis, which is that of chaos-

flow, and by *fluctuation* in the second, which is that of fluctuating chaos. There are indeed no stabilities except in a universe in which everything flows, unstable. Yes, the solution is the same; yet, it is not the same, neither for epistemology nor for the history that will follow. The first of these hypotheses opens a classical knowledge, in which disorder is minimized: it is the path which leads from Archimedes to Pascal and Newton, mechanics, hydraulics, and an infinitesimal calculus, the science of fluxions. Here, coherence is preserved between the local and the global. During the course of this history, which goes up to Laplace, and up to a dominant positivism, the second hypothesis lies dormant. Today, it is reawakening, out of some of Leibniz' dreams and from the other side of Laplace, where chaotic multiplicity slept. Order by fluctuation has become our problem, and our world has become that in which the local and the global no longer harmonize. How can something, rare, emerge from a noise? Or from a radical disorder, in absence of prior order.

## SLOPE AND EXTREMA

Lines of rain traversed by the oblique flight of the thunderbolt; at one point, then another, lightning pitches all about, tearing itself from the clouds. This is the visible model, as it is realized in nature: the obliquity of a flash on a parallel field, aleatory quasi-ubiquity. The theoretical schema is given at once. Declination, angled obliquely, traverses the field of atoms moving in a straight line. They are parallel to each other, in their movement, like drops of rain. This comparison goes back to the concrete model. The lightning declines, the *clinamen* blazes, amidst the sheet of water. The notion of the vertical only arises in discussing the fall of more or less heavy bodies. In fact, everything remains equal in the infinite void, including the directions of the field. The crucial thing remains the parallelism of the flow, of the transfer, and the weight, homogenous throughout, that sweeps it along. It is an average laminar field. Traversed by declination in its obliquity, aleatory as lightning. Now it is minimal.

Let us return to the *clinamen*. To acknowledge an almost null angle where turbulence forms is accurate but not enough. First, a detour. Leibniz says somewhere that, from a young age, he debated at length whether he should keep the void and atoms. How the monadology was decided is another question. The fact remains that declination always followed him. His psychology of freedom remains linked to a deviation in balance, to an infinitesimal angle of the beam, to an imperceptible rupture of spatial symmetry. Determination and decision introduce,

of themselves, a differential asymmetry, which makes, as we say, all the difference. There is something not at rest here, disquiet, as in the pendulum of a clock. It deviates from equilibrium. Leibniz' universe is doubly regulated, by the principle *De aequiponderantibus* and by that of the small difference. By that of identity, by that of indiscernibles. The principle of sufficient reason breaks the stability with a small deviation. Such phenomena discerned in the entrails of the subject are no different from those which constitute the world. Coherence is invariable from one structure to another, psychology and metaphysics. Regulating the production of things at their root is the law of the steepest descent of heavy bodies. In which the form of the raindrop is given, once again, for example. This law is differential, by maxima and minima. Things are drawn into existence along the steepest route. They seek equilibrium, following a determinant or decisive deviation. For Leibniz as for Lucretius, the combinations that we must call atomic are linked to the idea of a sloping path. Extreme in both cases.

Whereupon for Leibniz, the maximal *thalweg* along which existents pitch. For example, the brachistochrone, or the straight line, which will become, by variational calculus, the principle of least action. Maximisation, or optimisation, will occur only if account is taken of the constraints, the global system of limitations, that are said to be inherent in creatures. It passes around obstacles, as close as possible. Even the straight line, for which space counts as a constraint. Existence is the loop of a river that has flowed to a better bed. But there is a bed, that is to say a terrain, in which the inclination hollowed out by the *thalweg* optimises the flow.

For Lucretius, the whole system of constraints tends to zero as a result of the void. Equilibrium, therefore, is not set upon a plateau: where, in infinite space, could such a plateau be found? Nor can there be any such residual original *terrenum* or residual matter in Leibniz. Equilibrium is evaluated on a parallel self-referential plane. Atoms tend, indefinitely, towards stability. Nothing can happen, nothing is produced, in a homogenous field. One could almost say that the primal flow remains in a state of final equilibrium. In Leibniz' terms would this be the greatest slope, that which would overcome all obstacles? No. The maximum, the minimum, are *only* extremes. They optimise the constraints, but they do not get rid of them. The superlative is relative, it is neither all nor nothing. Now, here, the void has removed the constraints. But, in so doing, it has made direction relative. One could say, if one wished, that the fall of atoms has a total slope or a null slope. It is flow as such, homogenous, endowed with singular force. In a certain sense it is equilibrium, though more akin to a pre-equilibrium. Thus, *declination defines a*

*slope*. It is the slope that begins with a loss of equilibrium, with a difference in relation to this pre-equilibrium that is the homogenous. Now the *clinamen* is indeed well-defined by Lucretius, twice over, by a minimum. It is the smallest possible slope opening the path to existence. Could this be a law of the smallest descent of heavy bodies?

Are the *De rerum natura* and the *De rerum originatione radicali* complementary to each other, in the way we speak of angles? Do they in fact describe the same process, at right angles? To the greatest slope there corresponds the smallest angle, to the maximum a minimum, to the drop of rain the drop of liquid. In fact, it is one and the same theory of extreme descent. And since declination may be reckoned from the vertical, there will be at least one figure for which the two models become identical. Slipping at some point onto a minimal *clinamen*, atoms follow the greatest slope. The birth and the origin of things flow from the same source.

Henceforth the *clinamen* is indeed the smallest deviation and the optimal slope. Here is the descent, the *thalweg*, the  $\chi\rho\eta\omega\delta\eta$ , *chréode*. It is the optimised road to constitution. A track opened through which the flow is swallowed up, a funnel for atoms towards conjunctive existence. Here is the bed of the river: designed, calculated, set down, as the condition of genesis. The inclined plateau where the laminar sheet hits the rapids and rolls in spirals. In annular turbulence which remains stable for a moment and then unwinds slowly down the length of the flux flowing on the plane.

At the dawn of things, in the past and to come, here and there, indefinitely, at the heart of the universe, there exists an inclined plane where coils roll by the temporal flux of matter. Where then does one place the Galilean revolution? If it has balls roll down an inclined plane, it is doubtless because it constructs a singular case of the global model conceived by the atomists of antiquity. Galileo knew how to read. The Renaissance, as far as I know, was well named.

The world, objects, bodies, my very soul are, at the moment of their birth, in. This means, in the everyday sense, that they are mortal and bound for destruction. It also means that they form and arise. Nature declines and this is its act of birth. And its stability. Atoms join together, conjunction is the strength of things, through declination. This signifies the whole of time. The past, the present, the future, the dawn of appearance and death, tenacious illusions, are only the declinations of matter. They decline and are declined like the tenses of a verb, a word

made up of atom-letters.

The world, objects, bodies, my very soul are, from the time of their birth, adrift. Adrift, down along the inclined plateau. This means, in common terms, that they irreversibly fall apart and die. The *De rerum* ceaselessly reveals mortality. But their very birth is a drift. And their stability, their conjunction, their existence, are given up to *homeorrhesis*. The drift is the whole of time: the dawn of appearance, a life marked out by finitude, disintegration, the aleatory fragmentation of multiple temporalities in infinite space. Everything drifts, whatever happens, from the original atoms, the backdrop. Everything drifts from the elementary roots: and so it is with words, these shifting aggregations of atom-letters. Here is the origin of meaning, the transverse lightning-flash on the backdrop that is the background noise. Sense is nothing but its slope, it is the sense of the slope. It is another drift.

Existence, time, meaning and language go down the inclined plane together.

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## war in the family

nicole loraux, translated by adam kotsko

“Our war at home (*ho oikeiōs ēmin polemos*) was fought in such a way that, if people had to engage in internal strife, no one would pray for his city to be stricken in any other way. In fact, the citizens from the Piraeus and the city mingled among themselves with such a wholly familial joy (*hōs asmenōs kai oike kai oikeiōs allēlois sunemeixan*)...! And the sole cause for all that was their genuine kinship (*hē tōi onti xungeneia*), which provided them, not in word but in fact, with a friendship of those from the same stock (*philian bebaion kai homophilon*).”<sup>1</sup>

In other words: because it takes place in the family, civil war tends irreversibly toward fraternization. Or more exactly—since, in this development, the historical account is put in service of a generalizing goal—this is how the *stasis*-model is rolled out in Athens in 404 BCE. It is Plato who affirms it in the *Menexenus* and, to go by what he says, the Athenians carried out a civil war among themselves solely in order to better encounter one another in the joy of a family celebration. Just as if talking about military operations among fellow citizens amounted to describing the final reconciliation, *polemos* has no sooner been named than the citizens are mingling with one another with an entirely familial fervor.<sup>2</sup> Lest we be mistaken, however: before kinship (*xungeneia*) and belonging to the same stock (*homophilon*) come in to explain the miracle of this war in the form of fraternization, one word, the verb *sunemeixan*, has condensed in itself the entire ambiguity of the development. “They mingled among themselves”: in reconciliation, certainly. This

is what the text gives us to understand. But, if one dares to seek in *sunemeixan* a commentary on the preceding phrase, as the introductive particle *gar* (“Our war... was fought... In fact...”) moreover invites us to do, it will be necessary to resign oneself to giving this verb a completely different sense, frequently attested in the language of Greek historians: “they mingled [*se mêlèrent*] among themselves” then means “they engaged in the *mêlée*,” which is to say, “hostilities.” In an entirely familial fashion, certainly; it remains to give some sense to this familial manner of joining arms. Doubtless we are invited to choose the first reading, the edifying reading: the *oikeios polemos* is a war in name only since, as Plato will again tell us in the *Republic*, one engages in it “like people who know that one day they’ll be reconciled.”<sup>3</sup> It is a paradoxical war that is carried out as a family celebration; but, by virtue of the Platonic ruse, nothing prevents us from seeing in the hostilities themselves a familial manifestation.

That the city is a family is an open-and-shut case in the *Menexenus*. Still it would be advisable to determine at which moment this family most completely manifests its essence: at the instant when hatred changes into reconciliation or that of the unrelenting battle that confronts kinsmen with their own kinsmen. Is “family” latent in the city—and only revealed by the bitterness of *stasis*? Or should one see in the familial dimension of the city a model (an ideal, perhaps a dream) conceived to remedy this malady of civil war? Beyond its Platonic version, which is condensed to better express ambivalence, this alternative deserves to be deployed on its own terms. This is what I will be attempting in what would be a simple mapping of the ways of thinking war in the family, without pretending that there would be material there for an exhaustive survey of familial figures of civic ideology.



In opening this study with some lines from the *Menexenus* concerning a *stasis* that stands out in Athenian memory, I intended to insist at once on the rupture that the year 404/403 introduced in the time of the city and on the ambivalence constitutive of the notion of *oikeios polemos*—with the firm project of examining the question from that starting point, while choosing not to decide between two fully marked out lines of exposition.

The first would be diachronic. It would be a matter of recording, from archaic Greece to classical Athens, the successive forms of the familial representation of the city. From the political poetry of an Alcaeus or a Solon (where for the first

time, civil war, designated as *stasis emphylos*, is grafted onto the generic kinship links of the group) to the emergence, in Xenophon or Plato, of an irenic model of the city as a great family, the route would consist of some obligatory steps: such as Aeschylean tragedy where, toward the middle of the fifth century, the civic order proclaims the reign of an Ares of lineage to be a thing of the past, and the historical writing of Thucydides, who made *stasis* the necessary consequence of the reversals of the Peloponnesian War and the family the principal victim of the disorders of *stasis*. And we would reconstruct a coherent evolution, beginning with a prestigious but incomplete series.

The second way, as one has guessed, would by contrast opt for the intemporal-ity proper to all those pairs of oppositions in which a cultural system thinks its identity. To be specific, to the idea of a connaturality of discord and family, one would oppose the praise of familial *homonoia*, as two antagonistic paradigms, two mirrors offered to the city. The risk would then be that of blurring differences and tensions beneath the reassuring verisimilitude that characterizes structural sketches.

But I have chosen not to decide—to hold simultaneously to the two lines of exposition, because, in this case, reversals and delays could very well give the evolution a zigzag course; because, above all, the share of interference in it is largely equal to that of the clear-cut opposition. This assumes that one is especially interested in intersections and encounters, because they demand an analysis that can respect the multiplicity of levels of pertinence of a single figure.

To anticipate my topic, it will be the example of the war between brothers, which furnishes to thought one of the privileged metaphors for *stasis*. Before every figurative usage, there is no doubt that the theme enjoys in itself an autonomous existence, imparting more than a word circulating from one place to another: there it gains harmonics that resonate in the discourse on civil war. The war of brothers: a theme in evidence first of all in tragedy, from the rivalry of Atreus and Thyestes to that of Eteocles and Polynices; it is to a verse from Euripides that Plutarch, following Aristotle, has recourse to establish that “cruel are the wars of brothers,”<sup>4</sup> and in the *Poetics* it is the hatred of brother for brother that opens the enumeration of the familial “events” that make up the material of tragedy.<sup>5</sup> But one finds that in the fourth century this tragic motif becomes—in a bourgeois fashion, one could say—the refrain of judicial pleas where, for an estate, brothers summoned one another to court, where such a litigant advances as a bold gambit the harmony

that unites him to his brother (“I never had a quarrel with him,” he proudly proclaims.)<sup>6</sup> Behold the tragic transformed into the quotidian. Let us not rush too quickly to note that in the same epoch, Aristotle, unconcerned about metaphorical thought, gladly derives *stasis* from the process of inheritance and familial wars that are all too real, “like the one that happened in Hestiaea after the Persian wars when two brothers quarreled about the distribution of their inheritance.”<sup>7</sup> For the same fourth century sees the war of brothers, so threatening to the city, inverted into the most positive of relations: the same holds for the developments of the *Menexenus* on reconciliation and, more generally, for Platonic speculation on the subject of the fraternity that is foundational for civic peace, against the background of autochthony or in the context of the generalized kinship that in Book V of the *Republic* unites the perfect citizens among themselves.<sup>8</sup> And what are we to think when the “reality” of epigraphic documents goes further than the philosophical fiction, when, in the third century before our era, in an obscure village in Sicily, the reconciliation of citizens proceeds by way of a redistribution ceremony of the civic body according to the principle of fraternity?<sup>9</sup>

When metaphor is incarnated in social practice, who will still be able to distinguish the real from the figurative in this case? Assuming that, from one to the other, the boundary had not always been more virtual than actual.

The city as family: a support for the representation of politics, but a support that only lets us apprehend an unsteady terrain. At the very most one will attempt to immobilize a few of the figures, recurrent or new, under which it imposed itself as the best instrument to think *stasis*, in the short time of action or the *longue durée* of *topoi*. Which means that the route will be essentially Athenian—with the crucial reference which is the *stasis* of the end of the fifth century—and textual, because the *topoi* of living eloquence are forever inaccessible to us.

## SOME SYNTAGMAS

*Stasis emphylos, haima homaimōn, oikeios polemos*: to characterize civil war as it affects that family which is the city, the Greek language uses a few syntagmas where the family is in the predicate position, which does not entail that the relationship between the substantive and the adjective is the same in the three cases.

Take for example *stasis emphylos*. If one acknowledges that on its own, the noun *stasis*, considered in the most common of its social usages, evokes an *internal* con-

flict, one can judge that the adjective *emphyl(i)os*, because it characterizes the conflict as interior to a group that is a lineage (*phylon*), simultaneously supplies a redundant explanation and an important piece of information: *em-* names the internal character of the process, thus explaining an essential connotation of the term *stasis*, and *phyl(i)os* makes the city a *phylon*—a natural reality, a group defined by a common birth. With *haima homaimōn* (the murder of a blood relation; literally: blood of the same blood), pleonasm triumphs so conspicuously that one begins to suspect, behind the obvious sense, a more secret intention: is the goal of such a redundancy to emphasize a scandal or, on the contrary, to pronounce a law, paradoxical but necessary, governing the relation of kinship? *Oikeios polemos*, by contrast, does not harbor any redundancy; much to the contrary, this syntagma draws its efficacy from being constructed on an opposition: *polemos* designates war in general—that is to say, for a Greek of the classical epoch, external war—and it is solely to the modification supplied to this noun by the adjective *oikeios*, derived from *oikos* (house), that the whole owes the fact that it designates “civil war.”

Thus, far from considering these three syntagms as synonyms, it is important to determine with precision for each of them the rules of its functioning.



*Stasis emphylos* first of all: the oldest of the three syntagms, the most difficult to translate as well.

Let us suppose that the meaning of *phylon* is clearly established, following a semantic specter that runs from the “race” to the “tribe,” passing through lineage and all the forms of the group as it thinks of its closure as a natural given.<sup>10</sup> To be *emphylos* or *emphyl(i)os* would then amount to being “in the group,”<sup>11</sup> and in fact, it is indeed this sense that, in a very official fashion, the word presents in a Cretan inscription of the third century.<sup>12</sup> But chance (or necessity) would have it that this example, where the term has, it seems, its normal and peaceful meaning, is unique in its genre, in a corpus that extends from the seventh to the third century before our era.

For, from Alcaeus (indeed from Homer) to the classical epoch, there is no occurrence of this term that does not mark it down on the disquieting side of conflict, indeed of murder, as is attested by the list of nouns with which, as an adjective, it forms a syntagma. There is first of all *haima*, as a noun for spilled blood: the crime

of Ixion (the first murderer, first to spill the blood of his race), the parricide of Oedipus, familial murders of the tyrant, so many varieties of *emphulion haima*.<sup>13</sup> Next comes *phonos*, the noun for murder, which those *emphuloi ponoi andrōn*, those murders of fellow citizens that, for Theognis, are part of the sinister procession of *stasis*—that civil war that Alcaeus had already designated as *emphulos machē*.<sup>14</sup> And with Solon there appears the syntagma *stasis emphulos*, which one encounters again in a Herodotus or a Democritus.<sup>15</sup>



When the time comes to mention even the Ares *emphylios* evoked in the *Oresteia*,<sup>16</sup> we wonder: if only the most bloody forms of conflict truly merit the qualifying *emphyl(i)os*, must one deduce from this that conflict alone can be called “of the *phylon*”? Which amounts to admitting that, in being so regularly associated with nouns of destruction, *emphylos*, from its root, is forever marked by a sinister connotation—and this from its earliest occurrences. Unless, taking a step further, one supposes that, in the very notion of *phylon*, there would be inscribed the fatality of murder and dissension. Or that, by making *emphylos* a doublet with *emphuēs*,<sup>17</sup> one proclaims the “inner” character of *stasis*, thus naturalized in the city. But there is another way of understanding the syntagma, which consists in seeing there the brutal pronouncement of a shocking reality: then, by its very presence, the reference to *phylon* would have the goal of orchestrating the scandal that resides in a war between combatants of the same stock.

*Stasis*: a natural reality; *stasis*: the scandal of a confrontation contrary to nature. Here is the alternative formulated in its nudity. We have not finished with it, and we are far from choosing in favor of one of the two pronouncements.

Is *emphylos* substantivized? The same situation awaits us. What mysterious law holds, then, from Homer to Plato, that “the man of the group” is never to be named as such except in the position of a victim, object of a verb meaning “to kill”?<sup>18</sup> Thus, in the *Laws*, the murderer of a fellow citizen will be designated as “one who by his own hand kills an *emphylioi*,” as if *phylon* were on this occasion the most pertinent term to designate the city.<sup>19</sup>

We must resign ourselves to it: occurrences of *emphylos* in a peaceful context are extremely rare.<sup>20</sup> As if the word was never relevantly employed other than to qualify the blood relationship that the city, as stock and, as such, thought in its closure,<sup>21</sup> entertained with itself. Leaving the word there, without following it in

the later steps of its destiny (from Polybius to Dio Cassius and from Porphyry to Eustathius, one would see in profile the occurrences up to the point where *ta emphylon* comes to designate civil struggles on its own),<sup>22</sup> we will then content ourselves with the unanswerable questions that an analysis of the corpus of the archaic and classical usages irresistibly stir up: why this sinister vocation of a term that, in itself, should only qualify a process as internal to a group? What destines the city, when it is thought as *phylon*, to welcome conflict? Would *stasis* be con-natural to city life?

In poetic language first of all, then also in prose, *emphyl(i)os* would traverse the totality of Greek literature. To mark out the semantic field of war in the family, we will now tie together a purely poetic expression and a syntagma very commonly used in prose.

On the side of poetry, the material is mythical, and *stasis* really takes hold in the family, which is not a reason to invalidate what the poets say about it. From tragedy, we will retain essentially the identification of civil war with the blood that it spills. A second series of syntagmas is then centered on *haima*, the noun for blood.

*Haima*: blood. And by metonymy: 1) murder and 2) kinship. In this way we could summarize the article that every Greek dictionary devotes to this word. In fact, the two “figurative” usages are well attested: *haima* interferes more than once with *phonos*, and from Homer to Aristotle and beyond, the word frequently designates the element of kinship, indeed kinship itself.<sup>23</sup> One can always go quickly if necessary and declare that, in this second acceptance, the metaphor, “which is not the exclusive possession of Antiquity,”<sup>24</sup> is banal. But, beside the fact that such a widely shared figure would at least merit noting down a comparative study,<sup>25</sup> there is in *haima* a paradox so glaring that one hesitates to formulate it.

The logic is in fact very strange for a word whose two dominant figurative usages are in principle rigorously exclusive of one another. And insofar as it founds kinship, blood should in no case be shed: the one who spills familial blood provokes the outpouring of a “forbidden blood”<sup>26</sup> and causes language to play on itself to give simultaneously to the same word two significations that thought declares hostile to one another. This is what, more than once, happens in tragedy, where *haima* is undecidably kinship and spilled blood. See for example Apollo’s oracle to Laius, in Euripides’ *Phoenicians*:

if you beget a son, that child will kill you  
and all your house shall wade through blood (*di' haimatos*).

*Di' haimatos*: through blood. That is to say, by the spilling of blood. But one must also be able to understand: from the deed of your blood—from your descendants, from your son.<sup>27</sup> It is thus that the tragic genre abounds in expressions like *metrōion haima* (maternal blood) which, extracted from their context of violence, would denote only kinship—but it is precisely the context that causes the two senses of the word *haima* to play off one another.<sup>28</sup> The examples would be numerous in those tragedies of blood that, such as the *Oresteia*, the *Seven Against Thebes*, or the *Phoenicians*, install dissension at the heart of the family. To render an account of them, it is necessary to simultaneously hold two propositions: insofar as it is blood—and as blood is life's vehicle—murder gives birth; it is because it is blood to the highest degree that forbidden blood is doomed to flow before all others.

That murder gives birth, the *Oresteia* declares ceaselessly. Thus when, in *Libation Bearers*, the chorus, evoking the preparations for Clytemnestra's murder, salute “the child of ancient blood” who is entering the house,<sup>29</sup> in this circumlocution we recognize Orestes, son of the blood, spilled long ago, of Agamemnon and of the maternal blood that he is going to spill; but there is also the question of the murder to come, which the ancient murders have given birth to as if, in *haima*, even understood in the sense of “murder,” the other meaning, latent, must always manifest itself.

But the inverse proposition is also just as true: the blood of kin is blood to the highest degree, but because the language never forgets that *haima* designates first of all spilled blood,<sup>30</sup> forbidden blood finds itself paradoxically destined to flow most of all. It is this logic—at work in the expression *haima sungenes*, by which Euripides denotes *haima emphylion*<sup>31</sup>—that one can detect in the syntagma *haima homaimōn*. “Blood of the same blood”: this could be the most redundant of designations for kinship, but in reality it always designates the murder of the same, particularly in Aeschylus. Thus, in the *Suppliant Women*, when King Pelasgus fears that “*homaimōn haima* may come to pass,”<sup>32</sup> or in the *Seven Against Thebes*, with the reciprocal murder of the sons of Oedipus, which the choir glosses by stating that they are of the same seed since they are of the same blood, which amounts to saying that they have spilled the blood that they had in common.<sup>33</sup>

What affinity, we ask, does such a syntagma suggest between murder and family? For Aeschylus again, the Erinyes give a response, affirming that only *haima homaimōn*—the shedding of kindred’s blood—can unleash them against the guilty party: they have not pursued Clytemnestra, but set themselves against Orestes.<sup>34</sup> A tragic way of expressing what the Greek tradition recounts in the form of a myth: that Ixion, the first murderer, was also the one who first murdered a kinsman.<sup>35</sup> Translated into juridical terms, this means that there is not murder in the full sense of the term except within the family.<sup>36</sup> Of course, from this familial specificity of murder, tragedy and law do not draw the same conclusions, and the tragedians doubtless endeavor less to define murder in itself than to present the family as a privileged site of spilled blood. But, more than the gap between these two bodies of thought, their conjunction constitutes a fact: the familial dimension of murder was—is always—at the center of a lively debate among historians of Greek law, which should forbid anyone from classing the tragic reflection on blood as murder or as kinship under the rubric of purely literary speculations.

Of course, tragedy plays on the word *haima*—or, more exactly, whether flanked by the qualificative *homaimōn* or not, the word plays on itself. But we will see there something other than a formal investigation or a baroque point.

With *oikeios polemos*, we find ourselves, it seems, finally on stable ground: frequently used in classical prose from the end of the fifth century, this syntagma would characterize *stasis* as a familial war in the simplest and most neutral manner.

*Oikeios polemos*: war in the *oikos*, or among *oikeioi* (among kinsmen).<sup>37</sup> We are on familiar terrain. Except that in this syntagma, to judge from the majority of its occurrences, the family seems to be envisaged less as a place of concord than as origin of all dissension. Thus in the *Menexenus*, Plato, not without irony, concluded from the familial character of the war the necessary reconciliation which, for good measure, he rooted in an authentic consanguinity (*syngeneia*).<sup>38</sup> And the definition that he gives of *stasis* in Book V of the *Republic* comes forward to corroborate, this time in a serious mode, the association of *oikeion* and *sungenes*. As though to gloss the absent syntagma *oikeios polemos*, it is affirmed there that hostilities, because they take place between kin (*oikeioi*), are conducted as between “people who know that one day they’ll be reconciled,”<sup>39</sup> which obviously aims to efface from familial war all the sinister things that the notion could entail. To speak of *oikeios polemos* rather than of *stasis* would be to suggest that, in the city, violence has no future.

So much for *oikeion*. Now let us turn to the side of *polemos*, by which another modality is introduced. To designate dissension as a “war,” one avoids the word *stasis*, and therefore all those which are associated with it, first among which there is *phonos*, murder; and one accomplishes above all a fruitful ideological operation by substituting for the irreconcilable opposition of *stasis* and *polemos* the notion of a confrontation which would be only one of the species of war, the familial species. In any case, a process that would still fall under the category of order, under which Greek prose thinks *polemos*.

With regard to this operation, two steps of the Platonic reflection will clarify my point. The first, in the *Republic*, maintains between *stasis* and *polemos* an insurmountable gap: “It seems to me that if we have two names, ‘war’ and ‘discord,’ so there are two things and the names apply to two kinds of disagreements”; this amounts to putting the word *oikeios* first by pushing back *polemos*, so as to preserve the respectability of the latter term:<sup>40</sup> omnipresent on the horizon of the reasoning, the syntagma *oikeios polemos* is nonetheless always refused. The next step will be taken in the *Laws*, where *polemos* is subdivided into two species: exterior war and that which takes place in the city “and which one calls *stasis*.”<sup>41</sup> Thus there is inscribed in one and the same work the movement, discernable in all Athenian literature, by virtue of which an opposition, of capital importance in the texts of the fifth century,<sup>42</sup> has ceded place, without for all that being completely effaced, to the pairing of two notions.<sup>43</sup> It turns out that for Athens the phenomenon can be dated very precisely from the dark years of the end of the fifth century when one dared to think *stasis* as a war, doubtless because the experience of a long war had somewhat tarnished the glamour of the word *polemos*.<sup>44</sup> Still it is with some reluctance that one ranges civil war under the category of *polemos*, the latter being qualified as “familial”: Plato’s reticence in the *Republic* attests to it, as does the effort taken by Thucydides to speak of the effects of *stasis* on the family without passing by way of the word *oikeios*.<sup>45</sup>

So everything would be clear: from *stasis emphylos* to *oikeios polemos*, a double substitution—of *oikeios* for the questionable *emphylos* and of *polemos* for *stasis*—would have contributed to the taming of the notion of war in the family. It could nonetheless be the case that things are not as simple as they seem to be when one chooses, as we do, a Platonic point of entry to interpret *oikeios polemos* in the figure of a war between *oikeioi*. For it is not certain that one can accomplish with full legitimacy the operation which consists in glossing an adjective (*oikeios*) by substituting its substantive form for it, placed in a complement position (*es*

*oikeious*). In fact, the language tends to mark a distinction between the substantivated usage of *oikeios* and its use in an epithet position: in the first case, *oikeios* speaks of kinship; in the second, referred to a thing or to a notion, it would merely point out what belongs to the sphere of the subject.<sup>46</sup> Understood in this way, the syntagma *oikeios polemos* would therefore not designate, for the speaker, anything but “the war that personally concerns him,” “the war where one is among one’s own” (rather than confronting foreigners): in short, a war that concerns at the same time the values of the private and the reflexive.<sup>47</sup> Only a play on words consequently seems to be able to make *oikeios polemos* a war between *oikeioi*. We will add that, even understood in its familial meaning—for example in an orator like Isaeus—*oikeios*, whether substantivated or not, has nothing like a stable meaning. Oscillating ceaselessly from the sense of “kind” to that of “one’s own,” passing by way of “familiar” and “close by,”<sup>48</sup> *oikeios* would denote, among the consanguine (*sungenēs*) and friends (*philos*), the hardly specifiable position of intimacy that would be less kin than consanguine, but closer to kinship than *philos*.<sup>49</sup>

Yet it is precisely because the value of the word is fluctuating that all the plays of meaning are possible: it is sufficient to appeal to slight distortions. So the Athenian orators use the margin of indecision that is linked to *oikeios* to resemanticize this term more and more in the direction of the family. In a discourse of Isaeus concerning an inheritance, the statement “he found no relative closer [*oikeiōsteron*] than us” must be understood as a way of suggesting that the litigant belonged to the “house” of the deceased; and in another such discourse, the juxtaposition of “close ones” (*oikeioi*) and “servants” (*oikētai*) appeals to the *oikos* to insinuate that the closest ones are indeed kin.<sup>50</sup>

All things considered, I therefore confine myself, finally, to the Platonic reading of the syntagma *oikeios polemos*. For it is a safe bet that its users, the political orators of the fourth century, did not deprive themselves of a resource which allowed them to reinterpret *oikeios* in the context of ambient familialism. Nothing is easier, from this perspective, than to slide from war where one is personally implicated to war in the *oikos*.<sup>51</sup> In favor of this hypothesis there plead at Athens some remarkable usages of the adjective *oikeios* in the political context of the myth of autochthony, when, in the *Menexenus*, the citizens who have died in the war are said to “lie *en oikeiois topois*, among the familiar (or familial) places of her (the earth) who gave them birth, nourished them, and received them as her own” or when, in the *Panegyricus*, the autochthonous Athenians alone are credited with the possibility to call their city “by the very names which we apply to our nearest

kin” (*tous oikeiotatous*), namely “nurse, fatherland, mother.”<sup>52</sup> Consequently, there would be nothing properly Platonic in these *oikeia onomata*, these “familiar/familial names” that, on the basis of a generalized kinship, the citizens of the *Republic* are given among themselves, or in the expression *oikeios politēs*, not far from the reference to the Zeus of the people of the same stock (*Homophylos*):<sup>53</sup> there I see instead something like the most widespread of Athenian idioms.

In that Athens of the fourth century where one agrees to valorize the reality of the family, everything indicates that *oikos* swings to the side of kinship. *Oikeios polemos* is therefore—and durably remains—a designation of “familial war,” but a designation that is virtually edifying.



War in the family: a scandal which it is necessary to quickly remedy / a destiny or a nature. The first statement is implicit in *oikeios polemos*, the second is embodied in *haima homaimōn*. And between them both, there is *stasis emphylos*, which we could pull indifferently toward one side or the other. For anyone who wants to historically appreciate the incidences of such an alternative, the study of words could not of course provide any definitive response; at least it allows one to extricate the questions that the familial representations of the city unfailingly raise when they are used for thinking *stasis*. Because the three syntagms intersect without being superimposed on one another, we find ourselves introduced to a shifting dossier, made of gaps and hesitations between neighboring figures that are connected but are neither homologous nor clearly defined, and which the notion of “family” unifies under a translation that is convenient while not always satisfactory.

The affair will play out between three terms: *stasis*, city, family. To enumerate the familial figures of the city invites us to a combinatory where it is sometimes the family that induces war against the city, sometimes the *stasis* installed in the city that destroys the family, sometimes the city as family that pushes back *stasis*. Three terms of which one must always be menaced by the other two, linked together by a necessary relationship, of alliance or affinity: thus is the space to think civil war in Greek delimited.

## HATRED IN THE FAMILY

The first figure will be tragic. It installs war in the family. By assimilating the *oikos* to the time of myth, conceived as a past at once bygone and always menacing,

tragedy, in the same movement, exalts the city and confronts it with its most vital problems.

Of this ancient connaturality of family and discord, the *Oresteia* is the most beautiful dramatization. Everything commences within the *genos* in the *Agamemnon*, where the palace of the Atrides is inhabited by the Erinyes of the family line or by Eris (Discord), unless it is—which anyway comes down to the same thing—by the avenging genius of the race, which exhausts it in the succession of family killings (*thanatois authentaisin*), always categorized under the madness of reciprocal murders (*allēlophonous manias*).<sup>54</sup> And it comes to an end, in the *Eumenides*, only at Athens, with the foundation of the Areopagus, a tribunal of blood destined to judge the murderer god Ares when, “domesticated,” he struck out at the one who had taken him in;<sup>55</sup> then, installed at the foot of the hill to which the god gives his name, the Erinyes will preserve the city against the Ares of the *phylon* (*Arēs emphylios*),<sup>56</sup> who is unleashed in civil war. The civic order has integrated the family within itself. Which means that it is always virtually menaced by the discord that is like a second nature to kinship and that it has always already gone beyond that menace.

Strong in this conviction, moved by this inquietude, the tragedians make the familial *stasis* of the myths a privileged material for dramatic representation. Yet, of this discord internal to the family, the most pronounced is doubtless war between brothers. In the beginning, the rivalry of brothers: and the *Oresteia* designates the distant past which saw the quarrel of Thyestes and Atreus as the origin of the interminable giving birth of murder by murder.<sup>57</sup> But also, at the end, for the annihilation of the family, the fratricidal war of the sons of Oedipus, in an *allēlophonia* that Pindar puts under the authority of the terrible Erinye.<sup>58</sup> Then, in what remains of the lineage of the Labdacides, there occurs what in Thucydides comes to pass in a city torn apart by civil war, within a group of partisans encircled and reduced to despair: mutual putting to death and recourse to hanging as the ultimate escape.<sup>59</sup> A victory as “Cadmean,” to be sure, as that of the sons of Oedipus: victory without victor or vanquished, graver still than what, in the *Eumenides*, was characterized as an “evil victory” because it assured the triumph of the same over the same, graver also than what, for Democritus, made the *stasis emphylos* in every way a calamity because, he said, “there is similar destruction for both the winners and losers.”<sup>60</sup>

I will not accumulate examples: obviously, for the tragedians, the family engenders *stasis*. It falls to the city to contain the one by preventing the other, to the tragic poet to push discord back into the mythical past the better to offer its representation to the Athenians of the present, to the citizens of Athens to know how to guess that long ago hides now.



It is in the present that Thucydidean historiography notes the installation of *stasis* in the city and the destruction of familial relations that ineluctably result from it.

This begins, or rather it has already begun with, the dissolution of all bonds of sociability, those very bonds that alone could check the progress of subversion if *stasis*, working latently, had not already destroyed them: in Thucydides' historical analysis, the circle is perfect. And so, in book VIII, if in 412 the oligarchs could seize power in Athens without encountering opposition, it is because no one in the city "knows [*connaît*]" anyone any longer; suddenly everyone in the *demos* distrusts all the others—quite normally for those one does not know, but for those as well whom one knows, knowing them too well. Distrust is general,<sup>61</sup> and the city has lost that blessed familiarity of *oikeioi* among themselves, which is founded on reciprocal familiarity [*connaissance*] and confidence.<sup>62</sup> In fact, under the historian's gaze, *stasis* brings to its conclusion a movement that the plague had already made a start on, by emptying houses and loosening the bonds between neighbors.<sup>63</sup> All sociability seems now to have taken refuge in the relationships between faction members who are marvelously familiar with one another and, from this point of view, indeed merit being designated as "comrades" (*hetairoi*). But this implies that the intimacy of comradeship has changed sign: it was positive and constituted one of the bases of city life,<sup>64</sup> but here we see it become a simple association for death. It is true that already, in the general reflection that he devotes to the seditious phenomenon in Book III, Thucydides had noted that all familiarity has henceforth passed to the side of faction: to say that blood kinship itself has become more "foreign" (*allotriōteron*) than the factional bond was to suggest clearly that, for everyone, this bond was now more intimate than all familial relation.<sup>65</sup>

When faction supplants kinship, familial intimacy is dissolved and civil war is installed in the very bosom of the *oikos*. What Thucydides expresses concisely yet clearly, the political eloquence of the fourth century, from Lysias to Demosthenes, will make into a *topos*. Thus, for Demosthenes, the massacres at Elis were

characterized “by such delirious insanity” that the country’s inhabitants “stained their hands with the blood of their own kindred and fellow-citizens” (*syngeneis hōtōn kai politas miaiphonein*). And Lysias evoked the tyranny of the Thirty, who constrained the Athenians to “wage against their brothers, their sons and their fellow-citizens” (*adelphois kai hyesi kai politais... polemein... polemon*).<sup>66</sup>

Their brothers, their sons: in other words, in time of *stasis*, brother is killed by brother and son by father. Anyone who would want to go further, who would wish to draw up, in the Roman way, an exhaustive nomenclature of relatives who kill each other and of familial relationships really destroyed by civil war would doubtless be quite disappointed. For, in giving what looks like a succinct list of the principal victims of *stasis*, Lysias’s text breaks with a corpus where, as in Demosthenes, generalities on the murder of *syngeneis* are dominant. Of course, the “list” has all the markings of a sketch, and one can suspect that the reality had been more diversified; but, to discern the nature of those bonds of kinship that the Greek imaginary assigns to *stasis* the particular property of dissolving, it will be necessary to resign oneself to generalizing starting from Lysias. We will notice then that the orator is not the only one to name brother and son.

Let us return to Thucydides; we find there the father who kills the son, which the historian presents as the absolute point of horror: a beyond of disorder.<sup>67</sup> From Hesiod to ancient comedy, the Greek order of disorder held in effect that it was the son who attacked the father, and not the contrary,<sup>68</sup> and tragedy does not contradict this law, judging by Aristotle’s enumeration of the familial murders that make up tragic events, “such as when a brother kills a brother, or a son a father, or a mother a son, or a son a mother,”<sup>69</sup> where only the figure of a father who is murderer of his son is “forgotten.” By proceeding to such a remarkable reversal, it could then be possible that the historian intends to suggest to what degree *stasis* is contrary to nature: the father who kills his son does not only annihilate in the latter the city to come—a goal to which only the tyrant is reputed to aspire, when he suppresses the youth—above all he annihilates his own lineage, he annihilates himself in this murder where Greek thought generally saw a woman’s crime<sup>70</sup>—and in fact in Aristotle’s enumeration, the murderous mother actually takes his place.

In the murder of the son by his father—which could have been the historical reality of a parallel episode in such and such a city—I would therefore gladly see something like a symbol: the extreme paradigm of the abomination that is *stasis*.

As to fratricide, it could indeed, as a theme, represent ordinary civil war. On this point, from tragedy to prose genres, no significant rupture is observed:<sup>71</sup> it is the murder of brother by brother that opened Aristotle's list of tragic events and, out of the number of familial crimes, this murder is the only one that Plato declares virtually "pure," on condition that it is carried out in the course of a *stasis* and in a state of legitimate defense. Then, as if the confrontation of citizens among themselves finds its most perfect expression in fratricide, the text passes without transition from the murder of brother by brother to that of citizen by citizen:<sup>72</sup>

If a brother kills his own brother in a sedition or some similar circumstances, in self-defense when his victim had struck first, he shall be regarded as free of pollution as though he had killed an enemy (*kathaper polemion apokteinas estō katharos*), and the same applies for a citizen who kills a citizen in the same conditions (*kai ean politēs politēn, hōsautōs*).<sup>73</sup>

Son, brother: it is so much as to say that every time, in the outburst of civil hatred, it is the closest of one's kin that one kills and, as if one measured the ravages of civil war by the narrowness of the kinship circle that it affects, it is the nuclear family that that *stasis* dissolves by dividing. Real family in the city,<sup>74</sup> family as metaphor of the city: by tearing apart the bonds of kinship, civil war saps one of the essential foundations of city life. *Stasis* is contrary to nature.

Between innate *stasis* and its contrary-to-nature form, it would still be necessary to make room for *stasis* as a secondary effect of hatred in the family, the figure of which is evoked here and there by fourth-century thinkers. Again, as in tragedy, discord has its place in the *oikos*, except that it takes on its full magnitude only when generalized to the dimension of the whole city. From a disagreement between kinsmen to division in the civic body, this model is sometimes Aristotelian, and Book V of the *Politics* enumerates a *stasis* derived from a conflict between brothers and some civil wars resulting from broken marriages. From being menaced, as it was in a Thucydides, the family has become menacing; but between familial discourse and civic dissension, the essential relay—the nerve center of these affairs—is therefore the tribunal: trials are what stir up hatred between citizens, for Aristotle<sup>75</sup> as in Book V of the *Republic*,<sup>76</sup> and Plato goes further in the *Laws*, affirming that humanity after the flood was ignorant of both the arts of war and of those conflicts, interior to the city, that one calls "trials and civil wars" (*dikai kai staseis*).<sup>77</sup>

It is thus that, among theorists of the fourth century, the family comes to the fore as the source of civil war.<sup>78</sup> We could hold forth on what this return suggests about the vitality of dark representations of the bonds of kinship. We can also attempt to interpret this figure in the precise context where it is produced. We will therefore read these texts in comparison with what private litigants, pronounced on the occasion of actual trials, say insistently about hatred in the family.

In this discourse, it is good form to deplore the hard necessity that constrains one to come to the point of controversy and struggle against kinsmen (*pros oikeious diapheresthai, agnōnizesthai*); no litigant ever denies that, when kinship is changed into hatred, it is indeed a question of war.<sup>79</sup> Then the father shows himself to be relentless against his son; but it is above all of the hatred setting brother against brother that these discourses speak, which enumerate all its variants.<sup>80</sup> Thus the trials call into question those very bonds that, in Thucydides or Lysias, civil war dissolved.

When dealing with judicial rhetoric, it is always necessary to make allowances for amplification: indeed, litigants who, while attacking their brother in court, lament having been constrained to do so, remain the most hackneyed of *topoi*. But there is no *topos* that does not express the truth of a situation and, from all these declarations, it appears, in a hardly paradoxical fashion, that if the family is the place where hatred is the most terrible, it is because one must see in it the source of all value. Thus, one client of Lysias intends to move the judges by affirming on the subject of his adversary that “he is reducing all men to such a state of suspicion towards their fellows that neither living nor dying can they place any more confidence in their nearest relations (*tois oikeiotatois*) than in their bitterest enemies.”<sup>81</sup>

Whether putting forward familial hatred was still a way, albeit an indirect one, of proclaiming the preeminent value of the family, it is doubtless only one of the dimensions of what we can call the “crisis of the fourth century,” by which, in the Athenian city, there was brought to light the temptation to give the family the lead over the city. To measure the force of such a temptation, it would again be necessary, leaving aside the prose of judiciary eloquence, to return to that of political orators. There we would see a Demosthenes justifying the law on adultery—which allows one to kill the lover caught *in flagrante delicto*—“because in the defence of those for whose sake we fight our enemies, to save them from indignity and licentiousness, he permitted us to slay even our friends ...” Adding: “Men are not born our friends or enemies (*sugenos estin philōn kai polemiōn*): they are made

such by their own actions.”<sup>82</sup> “Friend” is another way of naming the fellow citizen: one will deduce from this that everything is permitted in the name of family, even killing another Athenian. Even more significant is an affirmation of Aeschines, in the heat of a political trial aimed at Demosthenes. When Philip died, the latter did not fear making a sacrifice of thanksgiving, although he had just lost his daughter; a situation that, in his address to the Athenians, inspires in Aeschines this indignant flight of rhetoric:

The man who... does not love the persons who are the nearest and dearest to him (*ta philtata kai oikeiotata sōmata*) will never care much about you, who are strangers (*tous allotrious*) to him.<sup>83</sup>

“You who are strangers to him”: apparently Aeschines is expecting it to go without saying, for his auditor as for himself, that such is the definition of fellow citizens. Obviously all value has taken refuge in the family.

Doubtless I have somewhat departed from the familial *stasis* that constitutes my object. But it would be important to put forward the gravity of the accusation tirelessly raised against civil war, which imputes to it responsibility for destroying the family in the city. Of course, it is on the real family that affect is concentrated, and this doubtless contributed to dissuading the orators from taking the plunge toward the figure that would make the family a metaphor for the city. But all the elements of this more theoretical reflection are there, ready to hand.

After *stasis* against the family, the time has come to study the inverse figure—kinship against civil war—in this dossier where opposed representations are defended with an equal conviction.

Then, after the civil war, the city will become a family.

## AGAINST CIVIL WAR, CIVIC KINSHIP

Because the family is one of the essential foundations of the city, against *stasis*, there would be no more effective ideological weapon than the appeal to kinship. Such is, to hear it from Xenophon, the tragedy that, in the Athens of 403, presided over the reconciliation at the bosom of the civic body.

Very significant in this regard is a discourse—real or fictive—delivered by a democrat on the issue of the battle of Mounichia where, for the first time, the Thirty had met with a bloody defeat after which they were exiled. Advancing between the two fronts of citizens, Kleokritos, herald of the Eleusian initiates and a fighter for democracy, then addressed himself to the oligarchs' troops. After having enumerated the shared activities that made up Athenian sociability, it is on an appeal to bonds of kinship that the orator concludes, as if among citizens, only this theme could prompt the healthy start that puts an end to *stasis*:

In the name of the gods of our fathers and our mothers, in the name of blood kinship, of marriage and comradeship—for all these bonds many of us share among one another—cease... to sin against your fatherland, and do not obey those most accursed Thirty.<sup>84</sup>

This is all that makes up Athenian kinship. The reference to the gods, first of all—“the gods of our fathers and our mothers” (*pros theōn patrōōn kai metrōōn*)—which will be surprising: the collectivity of the Athenians highly venerated *patrōoi* gods (at the highest rank of which is Apollo, protector of the patrilineal line) and, on the Agora of Athens, an edifice called *Metrōon* is consecrated to the Mother of the gods, but we do not know of any official cult of the *metrōoi* gods. Must one understand that, to present the city as a great family, it is important to reestablish at any price, even fictively, for each citizen the equilibrium between the two lines, paternal and maternal, of his ancestors?<sup>85</sup> In fact, it is to citizens insofar as they are also individuals that Kleokritos addresses himself, and his harangue aims less at the collectivity taken as a whole than at the intertwining of those personal and singular relations that make up the tissue of city life.<sup>86</sup> Then comes the triad *syngeneias kai kēdestias kai hetairias*. *Syngeneia* is blood kinship: in other words, the most natural of all relations, which does not need to be codified to be lived in the immediacy of everyday existence.<sup>87</sup> *Kēdestia* designates marriage, where Aristotle sees an element very necessary to the city as community of living-well.<sup>88</sup> *Hetairia*, finally, is not surprising: how can the orator who is preaching in favor of the end of hostilities forget the factious meaning of this word in order to assign it a resolutely positive value? But in posing this question, we underestimate the will to forget that is precisely that of Kleokritos in this address to oligarchs: to forget *stasis* and the questionable sense that he gives to the word<sup>89</sup> in order to think back to the happy times of life in peace when the *hetairoi* were only strongly united comrades, often bound among themselves by relations of marriage<sup>90</sup>—such is the goal of the discourse.

*Syngeneia, kedestia, hetairia*: it is in Athenian kinship, envisioned in its widest and most extended sense as place of concord,<sup>91</sup> that an impromptu orator is supposed to find the sole argument strong enough to transform the seditious into citizens enamored with civil peace. We are very far from Aeschylus and the eminently negative representation of the family, when the latter was identified with the *genos* of a bygone past. But it could be that in elaborating a model of kinship that was endowed with all virtues, the restored democracy simply accomplished its essential ideological task: it was a matter of repairing the social tissue that *stasis* had torn, and nursing the trauma inflicted on Athenian identity by the scale of the dissension.

One step further, and one would assimilate the city entirely to a family.



It suffices for this to proclaim all citizens kinsmen among themselves. The idea was not absolutely new in 403, but it gained ground. It can pick up from the rhetorical procedure where the litigant tells the judges that to him they “must act as my father and my brothers and my children.”<sup>92</sup> This is above all a *topos* of political eloquence, which gives rise to the exaltation of civic *syngeneia* in general.<sup>93</sup> Unless, by translating in terms of kinship the relation that unites the citizens to the city, the orators assimilate it to the love that one feels for a father<sup>94</sup> or, more often, for a mother, as in Pindar.<sup>95</sup>

If one is aiming at a general interpretation of parallel declarations, one will affirm that “the Greeks always conceived the union among citizens making up part of a group, a village, or even of several villages on the model of blood kinship.”<sup>96</sup> Preferring for my part to confine myself once again to classical Athens, I will recall that the civic imaginary was nourished there on the myth of autochthony, terrain par excellence for the elaboration of a generalized kinship, uniting the citizens among themselves by virtue of the bond that they all maintain to the city, of which they are the “legitimate children” and which, for them, is mother, nurse, and fatherland.

The consequence that such a link is supposed to prevent any risk of war is self-evident, although the idea often remained implicit. It falls, however, to Isocrates, in a remarkable passage from the *Panathenaicus*, to develop it at length.<sup>97</sup>

To show “from the very beginning” the superiority of the Athenians over all the other Greeks, the custom is to oppose Athens to other cities; in this case, in place of denouncing an excess of alterity in the other cities, Isocrates delights in characterizing them, in the tragic mode, by the catastrophes of the same that the great familial crimes of the myths constitute. And to enumerate: murders carried out on brothers, fathers, or strangers (see Thebes, Argos, many other cities); on mothers (one recalls Orestes and Alcmeon, Argos again); incest (Thebes once more); parents devouring their children (Thyestes’ feast brings us back to Argos); sons exposed by their fathers (Laius, Oedipus, and Thebes); drowning and blindness (see Thrace, with the history of Phineas...). In other words, at the origin of the cities of Greece there are the murders that “each year, the Athenians present in the theater”: Isocrates could not more clearly indicate that he borrows from tragedy this litany of hatred in the family. And on the good side are found the autochthonous Athenians, neither mixed blood nor immigrants—a way of implicitly linking together in the other cities the excesses of the same and the intrinsic flaw that alterity constitutes. The Athenians, therefore, show their nurse the affection that the elites have for father and mother, as if, because it is metaphorical, the familial love that they bear toward their land had held them separate from the horrors of the family.<sup>98</sup>

In this way Isocrates renews in its themes the obligatory praise of autochthony without, however, modifying its content. But his contribution is above all important in that it works to integrate into one mythico-historical perspective the two opposed figures of the family: as place of hatred, the family presides over the birth of other cities; as place of generalized kinship, the Athenian City is ignorant of *stasis*. The tension between two models that alternate in dominance has ceded its place to a very distinct opposition, between two types of origin and two types of city.

And we could show that it is still from the same source—this Athenian ideology of kinship—that that the reflection of a Plato on the city draws, on an incomparably more theoretical level. To found the city on nature, there is no other solution but to constitute—really, in the sense that ideological formations are real—a generalized kinship uniting all the citizens among themselves. We know how, in order to insure cohesion among the guardians, a “noble lie” turns out to be necessary, which, in many ways, is a myth of autochthony: and here they are all brothers, because they have the earth in common, which to them is a mother and a nurse.<sup>99</sup> Then one will be able to eliminate all property, thus every nuclear family (for

property and family are what the word *oikia* designates) in order to people the city entirely with kinsmen.<sup>100</sup> More than a private *oikeion*, the *oikeion* will be common to all, so much so that “mine” will no longer have any meaning other than “ours,”<sup>101</sup> and then one will avoid *stasis*. For such is indeed the aim of this construction: destroying families amounts to suppressing the trials and quarrels of which “money, children, and families are the occasion,” which is to say suppressing all civil war since the trial was already a *stasis*.<sup>102</sup> Destroy families, but found the city as a great family and civil peace will be assured. In short, one model has edged out the other, which Plato intends to definitively strike down with invalidity. And the tension that Isocrates immobilized into an opposition is here reabsorbed: at once explained on its own terms and evacuated.

By summarizing in broad outline these very well-known pages of Plato, I wanted only, at the end of a long journey through the Athenian representations of *stasis*, to show with what insight the philosopher can play one figure of kinship off against the other. But I also find there the occasion to return to two points where we have stopped along the way more than once: the notion of *phylon* and the logic of fraternity.

On the side of *phylon* as fact of nature and as a stock envisioned in its closure, it would be necessary to associate the qualificative *homophylos* because, entirely (it seems) on the site of concord, this happy word escapes the sinister connotations that surround *emphylos*. We recall the Athenian kinship in the *Menexenus*, one designation of which was *philia homophylos*, “friendship of those belonging to the same stock.”<sup>103</sup> We will add to it the marriages in the *Republic*, founded in necessity because coupling men and women as much as possible “of the same nature” (*homophyeis*).<sup>104</sup> And, still in a Platonic milieu, it would again be necessary to evoke the Zeus *homophylos* of the *Laws*, witness of the marker of friendship, who ensures that no conflict among relatives opposes the *oikeioi politai*, the fellow citizens that everything brings together.<sup>105</sup> And one could even make an incursion into Aristotle who, against Plato, never stopped proclaiming that one does not make a city with those who are alike, but who, when he reflects on the conditions of a city’s survival, willingly recognizes that, to avoid *stasis*, belonging to one same stock (*to homophylon*) turns out to be effective.<sup>106</sup>

However, in its recurrence on the side of united kinship as well as that of the family torn apart, it is the model of brothers that will retain us for the longest time. At the same time that Aeschylus founded the history of the Atrides in the rivalry

of Thyestes and Atreus, Herodotus was not at all surprised that the traditional misunderstanding between the two royal families of Sparta found its origin in the initial discord of two brothers;<sup>107</sup> but when politics is fantasized in the form of kinship, it goes just as much without saying that the citizens are “all brothers” (*pantes adelphoi*), as in the *Republic*.



*Adelphoi*, these are blood brothers<sup>108</sup> and, in fact, the appellation *syngensis* specializes more than once in the designation of those consanguines par excellence.<sup>109</sup> Whoever believes in the *syngeneia* of all citizens among themselves will therefore declare them brothers. When Lysias, evoking the Athenian democrats of 403, says that those among them who reentered the city manifested “the kinship of their counsels” (*adelpa ta bouleumata*) with the acts of those who had died in combat for liberty, perhaps he is only employing a well-worn metaphor, from which one could not infer that the theme of fraternity was actually at the heart of the democratic restoration.<sup>110</sup> By contrast it is explicit in Plato that fraternity is a figure of autochthony, when the latter, envisioned from a political point of view, is assimilated to democracy: the Athenians, “all brothers sprung from one mother” (*mias mētros pantes adelphoi phuntes*), are supposed to practice equality completely naturally, as opposed to citizens of other regimes, which can easily be divided into “masters” and “slaves.”<sup>111</sup>

When it is a question of relations of fraternity, we have certainly not finished with Plato, whose predilection for the theme is obvious. From the proverb, cited at the beginning of the *Republic*, that makes a brother the first helper,<sup>112</sup> one passes without difficulty to the imperative, codified in law, of coming to the aid of a fellow citizen as to a brother,<sup>113</sup> to the noble lie of the *Republic* by which all citizens are *adelphoi*,<sup>114</sup> and to the reflection of the *Laws*, where the word “brother” is again the most proper to designate precisely the relationship of fellow-citizenship.<sup>115</sup> And everything indicates that the notion of fraternity, even beyond its political implications, occupies an essential place in the philosopher’s speculation.<sup>116</sup>

At the moment, we are far from the political life of classical Athens.

And yet, to follow the recurrence of this theme in Plato, we are not far at all from the reality of social representations that make the city a family. At least it is necessary, in conclusion, to allow us to leave Athens and make an incursion into the beginning of the Hellenistic era. It is in Sicily, in the small city of Nakōnē in the

third century, that reality is made Platonic, so to speak, when, following civil troubles, the citizens solemnly reconcile among themselves by becoming brothers: a procedure that is certainly remarkable but of which, at the end of this journey, we will no longer rush overhastily to proclaim that it is a *hapax*<sup>117</sup>—exceptional with respect to real social practices, it is obviously less so if we refer it to the familial and fraternal imaginary of the city whose coherence we have tried to suggest here.

Hence the “brothering” of Nakōnē. The course of the operations is now something well known, since the publication of the inscriptions of Entella,<sup>118</sup> and we will content ourselves with commenting on the essential methods. A conflict (*diaphora*) took place, which there is every reason to compare to a civil war.<sup>119</sup> Calm having returned, it was a question of organizing reconciliation (*dialysis*). In this case, it consisted in dividing in order to better unite: distributing the city as a whole into groups of five brothers, this procedure aiming at an ultimate end, which is to reunify the civic body through the force of fraternity alone.<sup>120</sup>

It is thus that, by drawing lots, groups of “elective brothers” (*adelphoi hairētoi*)<sup>121</sup> are constituted. In itself, such a pronouncement will not fail to surprise the historian of institutions, accustomed to the very strong opposition that Greek political thought marks precisely between election and drawing lots. But is it indeed a question of a problem of institutions? Of course, in this case, both drawing lots and the title of elective brothers make sense: it is necessary to rely on the random chance of drawing lots to avoid the outcome that, in each group of brothers, the ideological hostility separating two “adversaries” (*hypenantioi*) is redoubled by a solid personal hatred,<sup>122</sup> but at the same time everything has to suggest to the citizens so designated that they are “chosen”—chosen by one another, in view of an unshakeable fraternity. If nevertheless one persists in being astonished that the product of a drawing of lots draws its name from election, we will be able, in clarifying the expression *adelphoi hairētoi*, to make use of a passage from the *Menexenus* where Plato opposes an elective (*hairētos*) title to the one that one holds from birth (*ek genous*).<sup>123</sup> Let us assume that, in this opposition *ek genous/hairētos*, birth is the marked term, *hairētos* finally having no function other than to suggest that there was a procedure of designation: by relation to *genos*, which speaks of nature, *hairētos* designates nothing more than a recruitment of a political, and thus contractual, type. If we now return to our third-century Sicilians, it turns out that the inhabitants of Nakōnē—decidedly Platonistic—through the title of elective brothers doubtless want only to oppose to natural fraternity that which, by virtue of a human decision (I would say: a fiction?), associates five citizens among them-

selves. The problem is therefore not one of institutions, but of a representation of kinship (natural or fictive: that of the *adelphoi* is fictive, and recognized as such). Which invites us to look more closely at what of the family, in this inscription, is real and metaphorical.

Under the codified form of legal kinship (*angisteia*), the real family is kept in the background. In two rounds, at the time of the first thirty groups' casting of lots,<sup>124</sup> then when the rest of the city is divided according to the same model, it is specified that the five "brothers" must maintain among themselves none of the kinship relations that define *ankhisteia*, which are excluded from this extraordinary procedure just as, in customary law, divisions of tribes are.<sup>125</sup> By so radically separating the *adelphoi* from their natural kinship, the community of the Nakōnaioi recognizes that the *stasis* in fact passed through familial relations,<sup>126</sup> and proscribes the family the better to found reconciliation. By the same token, it affirms the autonomy of entirely new fraternities.

*Adelphoi hairatoi*: a fictive kinship, civic through and through, but which, in any case, could not constitute an institutional structure in the city.<sup>127</sup> And if the decree takes care to organize the future in order that, each year at the same date, the citizens celebrate "according to their brotherings" (*kata tas adelphothetias*), doubtless one must understand that the groups of brothers have no purpose but a festive one<sup>128</sup>—and thus a symbolic one, since the very fabric of the festival is constituted by the bonds of reciprocity that unite among themselves the old enemies who have become brothers and been mixed with the other citizens.<sup>129</sup>

A kinship as entirely symbolic as that of the *adelphoi hairatoi*. And nevertheless it is the paradox (and the interest) of the decree of Nakōnē that it is thought as consanguine, and not simply classificatory: they are not *phrateres*,<sup>130</sup> but indeed *adelphoi* that the procedure institutes. *Adelphoi*, like the autochthones of the *Menexenus*, like the citizens of the *Republic*. And it is not surprising, consequently, that the annual ceremony instituted by the decree should include a sacrifice to the ancestors at the same time as to Concorde: the cult of Homonoia is political,<sup>131</sup> that of the *Genetores* joins all the members of a lineage in the celebration of one same mythical past.

Brothers, therefore: a fiction, but a true fiction. The "creation of a consanguinity," a "factual kinship,"<sup>132</sup> this is the same thing that Plato founded on a convincing lie. A generic consanguinity to put real familial relations in their right place in the city:

outside of the symbolic, in any case. A civic fraternity to forget division. Very far from Homeric fraternities which were constituted by and for vengeance,<sup>133</sup> much closer to Hellenistic “kinships”—I am thinking of those communities which call themselves *syngeneia* and give their members the title of “brothers”<sup>134</sup>—but above all: directly in line with a thinking of the city under a familial metaphor.



It is time to put an end to this journey, already quite long even if we have contented ourselves to point out some figures of a combinatory in three terms between *stasis*, family, and city; even if we have only raised questions of which each one would merit an investigation unto itself.

The same applies for that model, so recurrent, of brothers—the worst enemies, the surest friends—to which one will have to give a detailed grounding in the classical city. This presupposes that we systematically follow the order in which the nearest relatives are traditionally enumerated. If, as the texts studied here suggest, the tendency is indeed, in a political context, to name brothers first of all,<sup>135</sup> that fact merits interrogation in itself, and this would be the case only with regard to a logic like ours, where it is understood that one starts from ancestors (those whom we call, in the Roman way, “parents,” and who give their name to the entirety of the familial network; and it is thus that we speak of kinship [*parenté*] where the Greeks speak of *syngeneia*, generalizing to the whole of the family what relates properly only to consanguinity). If it would turn out in fact that, in reflection on the city, *syngeneia* takes precedence in this way over *genos*—which is to say over lineage<sup>136</sup>—one would still have to explain this choice, whether one seeks to clarify it through the Greek structures of kinship; whether one supposes it to be determined by the status of citizens insofar as they are ideally *en hēlikia*, of age to bear arms, neither too old nor too young, and thus inclined to privilege the horizontal relations between peer, within the same generation;<sup>137</sup> or whether one sees in it the imaginary realization of a desire for equality, in the face of the specter of division in the city and the continually reborn menace of *kratos*.<sup>138</sup>

But I return once again to what my subject was, to the triad *stasis*/family/city, to state anew that these notions are articulated along lines of force where recurrence and superposition prevail for a long time over the whole continued process of evolution. Hence paradox and ambivalence, encountered more than once. May the historian of kinship be able to find there an occasion to reexamine the received idea of an irresistible overshadowing of the *oikos* by the city. The historian

of politics, for her part, will perhaps draw from it strength in the conviction that ambivalence presides over Greek reflection on the city as soon as one must integrate *stasis* into it: for internal conflict must henceforth be thought as effectively being born within the *phylon* instead of being, as a comfortable solution wishes it, imported from outside. Here begins the interminable confrontation of *stasis emphylos* and *oikeios polemos*....

It is necessary, with the Greeks, to try to think war in the family. Propose that the city is a *phylon*: it follows that *stasis* is its revelator. Turn the city into an *oikos*: on the horizon of *oikeios polemos*, a feast of reconciliation looms. And admit finally that between these two operations, the tension is not one of those that are resolved.

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## NOTES

*Author's note:* An initial version of this text was the subject of a conference at the Instituto Gramsci (Rome, January 1986) and was submitted to a long discussion in my seminar at the École des Hautes Études en Sciences Sociales. I am eager to thank all those who, on one occasion or another, lavished remarks and advice on me; my recognition goes above all to Yan Thomas, whose friendship, knowledge, and lively questions have been infinitely precious to me, throughout the elaboration of these pages.

1. Plato, *Menexenus* 243e2-244a3. [*Translator's note:* All quotations from the works of Plato are based on those found in Plato, *Complete Works*, eds. John M. Cooper, D.S. Hutchinson, Indianapolis: Hackett, 1997. These and other published translations have been revised, sometimes considerably, to conform to Loraux's usage. Translations for classical texts are only cited in cases where Loraux quotes them directly; in all other cases, the reader may consult any standard edition using the reference given.]
2. Within a funeral oration, even if a parodic one, the repetition *polemos... epolemēthē*, which aims to present this *stasis* as a war, is a means of effacing the ideologically problematic separation between *stasis* and *polemos*; on this separation, see precisely in connection with the events of 404/403, Nicole Loraux, "Thucydide n'est pas un collègue," *Quaderni di storia* 12 (1980, 55-81, note 63), as well as *The Invention of Athens: The Funeral Oration in the Classical City*, trans. Alan Sheridan, Cambridge: Zone, 2006, 255-56.
3. Plato, *Republic* V, 471a4.
4. Plutarch, *On Brotherly Love*, 480d (cf. Euripides, fragment 975 in Nauck, also cited by Aristotle, *Politics*, VII, 1328a). [*Translator's Note:* Translation based on *Plutarch: Moralia* (Loeb Classical Library), vol. 6, trans. W.C. Helmbold, Cambridge: Harvard University Press, 1939.]
5. Aristotle, *Poetics* 1453b19-22. [*Translator's Note:* Translation based on Aristotle, *Poetics*, trans. Joe Sachs, Newburyport: Focus Philosophical Library, 2006.]
6. Isaeus, IX, 30: *oudepote diaphoros egenomēn*. [*Translator's Note:* Translation based on *Isaeus* (Loeb Classical Library), trans. Edward Seymour Forster, Cambridge: Harvard University Press, 1962.]
7. Aristotle, *Politics* V, 1303b31-37. [*Translator's Note:* Translation based on Aristotle, *Politics*, trans. Joe Sachs, Newburyport: Focus Philosophical Library, 2012.]
8. Plato, *Menexenus* 239a1-5.
9. I have in mind the inscription of Nakōnē, published by D. Asheri, in G. Nenci (ed.), *Materiali e contributi per lo studio degli otto decreti da Entella*, Pisa, 1984 (= *Annali della Scuola Normale Superiore di Pisa* 13.3 [1982]), 771-1103.
10. According to the *Dictionnaire étymologique de la langue grec*, by P. Chantraine, s.v. *philon*, "the primitive meaning must be: 'what has developed as a group'" (my translation). On the root \**bhu-*, "push, grow, develop," see *Ibid.*, s.v. *phuomai*.
11. And not "of the same race" or "of the same tribe," as Chantraine proposes (*Dictionnaire*, s.v.), followed by D. Roussel, *Tribu et cité*, Paris: Les Belles Lettres, 1976, 161 (who goes so far as to assimilate *emphyloi* to *homophuloi*).
12. H. Collitz et al., *Sammlung der griechischen Dialekt Inschriften*, Göttingen: Vandenhoeck & Ruprecht, 1884-1915, no. 5040, l. 15: *hosoi eōnti emphuloi par' ekaterois* (all those who will be registered on one or the other side in a group [a tribe]).
13. Hesiod, fr. 190 in Merkelbach-West, 2; Pindar, *Second Pythian*, 32 (Ixion); Sophocles, *Oedipus Rex* 1406 and *Oedipus at Colonus* 407 (Oedipus); Plato, *Republic* VIII, 565 and 4 (the tyrant). See also

- Apollonius of Rhodes, *Argonautica* I, 865 and IV, 717.
14. *phonos*: Theognis, 151; see also Ephorus, *FrgHist*, fr. 100. *Machē*: Alcaeus, fr. 70 in Lobel-Page, 11 (also Theocritus XXII, 200).
15. Solon, fr. 4 in West (cited by Demosthenes, *De Falsa Legatione*, 255), v. 19; see Herodotus VIII, 3 and Democritus, fr. 249 Diels-Krantz.
16. Aeschylus, *Eumenides* 863. [Translator's Note: All translations from Aeschylus are based on those found in *Aeschylus* (Loeb Classical Library), trans. Herbert Weir Smyth, Cambridge: Harvard University Press, 1962.]
17. If *homophylos* and *homophuēs* are, as for example in Plato, more or less interchangeable terms, must one follow the same reasoning in connection with *emphulos* and *emphuēs*?
18. *Odyssey* XV, 272-73 (where it is important, against Bérard's correction, to maintain *emphylon*); Sophocles, *Antigone* 1264; Plato, *Laws* IX, 871a2.
19. Plato, *Laws* XI, 871a. On the link of equivalence between *polis* and *phylon* or *phulē*, see G. Nagy, "The Indo-European Heritage of Tribal Organization: Evidence from the Greek Polis," in *Proto-Indo-European: The Archeology of a Linguistic Problem. Studies in Honor of Marija Gimbutas*, ed. S.N. Skomal and E. Polome, Washington, D.C.: Institute for the Study of Man, 1987, 245-266.
20. Other than the inscription cited in note 12, we will mention two exceptions: Euripides, *Ion* 1581 (foundation of Attic *phylai*: one will note that *emphylon* appears on the side of the warlike *phylē*); Sophocles, *Oedipus at Colonus*, 1385 (but the word figures in the pronunciation of a scandal: to conquer with the spear *gē emphylios*, the land where one was born, is to confound war and *stasis*).
21. On the closure of *phylon*, see G. Nagy, *op. cit.* The *emphulos* / *othneios* opposition (Apollonius of Rhodes, IV 717) doubles the opposition *oikeios* / *otheneios* (in connection with which see J.-P. Vernant, *Myth and Society in Ancient Greece*, trans. Janet Lloyd, New York: Zone, 1988, 31).
22. Beside the words already mentioned (*haima*, *phonos*, *machē*, *stasis*), *emphylios* can qualify *polēmos*, *tarachē*, *dichostasia*, *nikē*, *kinēsis*, *sphagē*, *thorybos*, *diasphora*, *kakon*, *miasma*. *Ta emphyilia* designates civil struggles in Dio Cassius. One will note that, for Eustathius, the conflict of Achilles and Agamemnon in Book I of the *Iliad* is an *emphylios machē* (*ad loc.*).
23. *Haima* as murder: see for example Aeschylus, *Libation Bearers* 66-67, 520, 650. *Haima* and kinship: *Iliad* XIX, 111; *Odyssey* IV, 611 and VIII, 583; Pindar, *Sixth Nemean*, 34; Aeschylus, *Seven Against Thebes*, 141 and *Eumenides*, 606; Sophocles, *Ajax*, 1305 and *Oedipus at Colonus*, 245; Aristotle, *Politics* II, 1262a11.
24. F. Bourriot, *Recherches sur la nature du génos*, Paris: Librairie H. Champion, 1976, pg. 251, note 42.
25. See F. Hériter, "Le sperme et le sang," *Nouvelle Revue de Psychanalyse* 32 (1985, 111-122).
26. Aeschylus, *Seven Against Thebes*, 694: *haimatos ou themistou*.
27. Euripides, *Phoenicians*, 19-20; see also 1051 and 1292, as well as 790. [Translator's Note: Translation based on Euripides, *The Phoenissae*, in *The Complete Greek Drama*, Whitney J. Oates and Eugene O'Neill, vol. 2, New York: Random House, 1938.]
28. See Euripides, *Orestes* 285 (citing Aeschylus, *Eumenides*, 230, 261, 608, 653). Conversely, if "the blood of a mother" is the murder of a mother, at verse 89 of the *Eumenides*, *autadelphon aima* (the true fraternal blood) designates only kinship.
29. Aeschylus, *Libation Bearers*, 650.
30. See H. Koller, "Haima," *Glotta* 15 (1967, 149-155).
31. Euripides, *Suppliants*, 148.
32. Aeschylus, *Suppliant Women*, 449. One will observe that the overdetermination of kinship is obvious in this verse: *haima homaimon* is for the king the blood of his fellow citizens; for the Dan-

- aides, Argosian blood; for the Argosians, the blood of the Egyptiades.
33. Aeschylus, *Seven Against Thebes*, 681 and 934-940.
34. Aeschylus, *Eumenides* 653, which one will compare with 210-212 and 605 (the murder of Agamemnon by Clytemnestra was not *homaimos authentēs phonos*: therefore they do not pursue her).
35. Pindar, *Second Pythian* 32: *haima emphyllion*. One will note that, for Apollo, Ixion is only the first murderer (*Eumenides* 717-718; in 439-441, Athena compared Orestes to Ixion).
36. Among historians of Greek law, the debate is centered around the word *authentēs*: one will find the bibliography in N. Loraux, “La main d’Antigone,” *Mètis* 1 (1986, 165-96). From the Roman side, where there exists no neutral word to say “homicide,” see Y. Thomas, “Parricidium. Le père, la famille et la cité,” *Mélanges de l’Ecole française de Rome (Antiquité)* 93 (1981, 643-715).
37. See for example Euripides, *Phoenicians* 374.
38. *Menexenus* 243e-244a. On *syngeneia*, the most generic noun for blood kinship, see D. Musti, “Sull’idea di *syngeneia* in iscrizioni greche,” *Annali della Scuola Normale Superiore di Pisa* 32 (1963, 225-239, notes 226-227).
39. Plato, *Republic* V, 470b-c, 471a.
40. *Republic* V, 470b; cf. V, 471a1-2: “between kinsmen, they consider it a *stasis* and do not even call it war.”
41. *Laws* I, 628a-b.
42. Besides Aeschylus, *Eumenides* 858-869, 903-915, and 976-987, we will cite Herodotus, VIII, 3.
43. See for example Lysias, *Against Eratosthenes* 55 and Isocrates, *Against Callimachus* 31.
44. On the avatars of *polemos* in the works of Thucydides, see N. Loraux, “Thucydides et la sédition dans les mots,” *Quaderni di Storia* 23 (1986, 95-134, notes 98-100). The shift in the years 404/403 concerning the use of *polemos* is perceptible in Xenophon, *Hellenica* II, 4, 22 (“the war that we wage against one another”) [*Translator’s Note*: Translation found in *Xenophon* (Loeb Classical Library), vols. 1 and 2, Cambridge: Harvard University Press, 1985-86] and Isocrates, *Against Callimachus* 45.
45. In III, 82, 6, Thucydides affirms that “the bond of kinship became more foreign [*allotriōteron*] than the factional bond”: a way of inverting the phrase “the factional bond became more intimate [*oikeiōteron*] than the familial bond,” which was the most “natural” formulation of this idea. [*Translator’s Note*: Translation based on Thucydides, *History of the Peloponnesian War*, trans. Rex Warner, New York: Penguin, 1954.] The syntagma *oikeios polemos* is nonetheless not foreign to Thucydides; see below, note 47.
46. See P. Chantraine, *Dictionnaire étymologique*, s.v. *oikos*.
47. If *oikeios* is in this way “opposed to *allōtrios*, close to *idios*” (Ibid.), one will recall that *idios* is related to the Indo-European root \**swe* (see E. Benveniste, *Vocabulaire des institutions indo-européennes*, vol. 1, Paris: Minuit, 1969, 328-332). The usage of the syntagma *oikeios polemos* by Thucydides (I, 118, 2; IV, 64, 2) supports a parallel analysis.
48. I borrow these diverse translations from P. Roussel, in his edition of Isaeus’s *Discourses* (CUF).
49. Just as a close analysis of the usage of the word in Discourse I (*Succession of Cleonymus*) could show: see in particular §§4, 21, 31, 33, 41-42; see also IX (*Succession of Astyphilus*), 30. At any rate, *oikeios* leans toward kinship, and the translation by “friend” is thus always insufficient, just as Earnstman observes in *Oikeios, hétairos, épistèdeios, philos*, Groningen, 1932, 132.
50. See Isaeus II, 11 (and 23); VI, 15. A similar play brings together, in Herodotus IV, 148, the verbs *sunoikeō* (which concerns colonization) and *oikeioō*.
51. When the Athenians fined the tragedian Phrynichus for having made them cry after the representation of *The Capture of Miletus*, for reminding them of *oikeia kaka* (Herodotus VI, 21), they

designate as “national misfortunes,” misfortunes that concern Athens in itself, evils that affected them by means of their kinship with the Ionians.

52. *Menexenus* 237c1-2; *Panegyricus* 24-35 (cf. *Panathenaicus* 124-125) [Translator’s Note: Translation based on *Isocrates* (Loeb Classical Library), trans. George Norlin, 3 vols., Cambridge: Harvard University Press, 1980.] On these developments, see N. Loraux, *The Children of Athena: Athenian Ideas About Citizenship and the Division Between the Sexes*, trans. Caroline Levine, Princeton: Princeton University Press, 1994, 63-64 and *passim*.

53. Plato, *Republic* V, 463a8 and c1-2 (with Aristotle’s commentary in *Politics* II, 1262b15-20); *Laws* VIII, 842e8.

54. Aeschylus, *Agamemnon* 1190, 1460-1461, 1571-1576.

55. Aeschylus, *Eumenides*, 354-355: “*Arēs tithasos*” is Ares domesticated—in other words, “domestic” or “internecine” murder: a familial variant of the *emphylios phonos*.

56. *Ibid.*, 862-863. See N. Loraux, “L’oubli dans la cité,” *Le temps de la réflexion*, I (1980, notes to 228-237).

57. In line 1585 of the *Agamemnon*, we will note the juxtaposition of *adelphon* and *amphilektos* (which relates to controversy).

58. Pindar, *Second Olympic*, 45-46.

59. We here compare Sophocles’ *Antigone* with what Thucydides describes in III, 81, 3.

60. See Plutarch, *On Brotherly Love* 488a (Cadmean victory); Aeschylus, *Eumenides* 903 (*nikēs mē kakēs*); Democritus, fr. 249. [Translator’s Note: Translation qtd. in James Warren, “Democritus on Social and Psychological Harm,” in *Democritus: Science, the Arts, and the Care of the Soul: Proceedings of the International Colloquium on Democritus, Paris, 18-20 September 2003*, ed. Aldo Brancacci and Pierre-Marie Morel, Leiden: Brill, 2007, 94.]

61. See VIII, 66, 3-4: *tēn allēlōn agnōsian, ... ē... agnōta... ē gnōrimon apiston*.

62. The *oikeioi* are in a relationship of knowing [*connaissance*]: see for example Isaeus XII, 6 (and IX, 30), as well as Plato, *Laws*, V, 738d-e.

63. See Thucydides, II, 51, 5: whether people come near (*prosiēnai*) one another or not, they are lost in both cases, and even *oikeioi* have renounced all their duties; for the verb *prosiēnai*, see VIII, 66, 5 (*allēlois gar apantes hypoptōs prosiontes hoi tou dēmou*) and Xenophon, *Hellenica*, II, 4, 19 (where coming near one another is the sign of a decline in dissension).

64. In VI, 30, 2, the *hetairoi*, for each Athenian, belong, alongside the *xungeneis* and sons, to the group of “his own” (*spheterous autōn*); see again VII, 45 (*ē hetairōn ē oikeiōn*). On the efficacy of bonds between *hetairoi* in Book VIII, see 54, 5 and 65, 1.

65. III, 82, 6: see above, note 45. A dramatic version in Isocrates, *Panegyricus*, 111: “they honored the assassins and murderers of their fellow citizens more than their own kinsmen.”

66. Demosthenes, *De Falsa Legatione* 260 [Translator’s Note: Translation based on *Demosthenes: Speeches* (Loeb Classical Library), trans. J. H. Vince, Cambridge: Harvard University Press, 1930]; Lysias, *Against Eratosthenes* 92 [Translator’s Note: Translation based on *Lysias* (Loeb Classical Library), trans. W.R.M. Lamb, Cambridge: Harvard University Press, 1930]; see again Isocrates, *Panegyricus* 174.

67. Thucydides, III, 81, 5: *...kai eti peaitērō. Kai gar patēr paida apekteine*.

68. Hesiod, *Works and Days* 185-188 and 331-332, speaks only of violent words. The figure of patricide—or of its euphemism, the son who “strikes his father”—is recurrent in Aristophanes.

69. Aristotle, *Poetics* 1453b19-22.

70. See Euripides, *Hercules* 1016-1024 (where, after Hercules’ murder of his children, the choir evokes “crimes of women”). In contrast to the Roman father, the Greek father does not seem to

- have legally had at his disposal the power of life and death over his son; in Rome, it is therefore not the murder of the son by his father, but parricide which is the height of seditious violence: see Y. Thomas, “Vitae Necisque Potestas. Le père, la cité, la mort,” in *Du châtement dans la cité*, Rome-Paris: École française de Rome, 1984, notes to pp. 545-548 and “Parricidium,” *op. cit.*, 714, note 36.
71. Even if it is with good reason that R. Parker (*Miasma: Pollution and Purification in Early Greek Religion*, Oxford, 1983, 137) highlights the gap between the indignant development of the Seven on fratricide and the legislation that, in the *Laws*, Plato assigns to this crime.
72. On this point, see the commentary of L. Gernet, *Platon. Lois, Livre IX. Traduction et commentaire*, Paris, 1917, pg. 140.
73. *Laws* IX, 869c-d. We will note that the Platonic legislator, far from thinking *stasis* as a familial war, makes it by contrast the sole circumstance that allows one to declare the murderer of a kinsman pure and safe from all pursuit; and the clause in *kathaper* suggests that it is despite everything not absolutely obvious to consider a brother as a public enemy.
74. In a way that is less menacing for its integrity but also entirely destructive, the family is equally affected by *stasis* from the point of view that Glotz calls its “passive solidarity” (*La solidarité de la famille dans le droit criminel en Grèce*, Paris: Fontemoing, 1904, 456).
75. Aristotle, *Politics*, V, 1303b31-1304a13 (and 1306a33-34). The lesson of such episodes is that “when there are factions among prominent people, they make the whole city participate.”
76. Plato, *Republic* V, 464d7-e2. But it is in generalized kinship, which dissolves nuclear kinship relations, that Plato sees the means of avoiding the *dikai* that are generative of *stasis*.
77. Plato, *Laws* III, 679d.
78. Book VIII of the *Republic* could be studied from this perspective: it is within the nuclear family that the passage from one constitution to another is plotted.
79. Controversy, struggle: Lysias XXXII (*Against Diogiton*), 1; Isaeus I, 6-7, 34; war (*polemein*): Lysias XXXII, 22; Isaeus I, 15, IX, 37. Hatred: Isaeus I, 9, 10, 33 (where *echthra* is opposed to *oikeiotēs*), II, 29 (brothers become *echthroî*), V, 30.
80. The father against the son: Isaeus VI, 18 and 22. Brothers: it is the theme of speeches I (*Succession of Kiron*; see 9-10), II (*Succession of Menekles*; see 29, 40); speech IX (*Succession of Astyphilos*) sets cousins against one another, but refers to a hatred among brothers (16-17, 20, 23, 31) even if, one of them having passed by adoption to another family, the word *adelphos* is carefully avoided on this subject; the hatred between uncle and nephew of speech VII (*Succession of Apollodoros*) is still a version of hatred of brothers.
81. Lysias XXXII, 19.
82. Demosthenes, *Against Aristocrates* 55-56.
83. Aeschines, *Against Ctesiphon*, 78. [Translator’s Note: Translation based on Aeschines (Loeb Classical Library), trans. Charles Darwin Adams, Cambridge: Harvard University Press, 1919.]
84. Xenophon, *Hellenica* II, 4, 21.
85. I put forth this hypothesis in *Athena’s Children*, pg. 119.
86. On the personal character of the relation denoted by *patrōios*, see the remarks of E. Benveniste, *Vocabulaire*, vol. 1, 272-273.
87. On *synguneia* in its opposition to *anchisteia* (kinship codified according to the law of inheritance), see for example Isaeus XI, 17, as well as 1-2, 6, and 13; IV, 17 (and II, 20-21 and 37). It is because he is discussing the generalized kinship of the *Republic*, fictively held to be consanguine, that Aristotle can use *syngeneia* as a generic designation of kinship: *Politics* II, 1262a10-11 (*kat’ allēn tina syngeneian ē pros haimatos ē kat oikeiotēta kai kēdeian*).
88. Aristotle, *Politics* III, 1280b36-38.

89. A passage from Lysias (*Against Eratosthenes* 43: “the so-called *hetairoi*”) seems to indicate that the “normal” sense of the word is peaceful. “What made the *hetaireia* a revolutionary element in Athenian politics?” asks S.C. Humphreys, *The Family, Women, and Death*, Ann Arbor: University of Michigan Press, 1983, 27.
90. On *hetairos*, related to the root \**swe*, see E. Benveniste, *Vocabulaire*, vol. 1, 331. *Hetairos* and *hetairia* as positive relation: in Books VI and VII of Thucydides (see above, note 64) and, for example, in Isocrates, *Panegyricus* 174. *Heteireia* and kinship bonds in Athens: S.C. Humphreys, *ibid.*, pp. 26-28.
91. Family and *homonoia*; see Plato, *Alcibiades* 126c and e.
92. See Andocides, *On the Mysteries*, 149 (peroration), as well as Antiphon I, 3-4 (where the word used is *anankaioi*, which can designate kinsmen; see Earnstman, *Oikeios...*, pg. 20). [Translator’s Note: Translation based on that found in *Minor Attic Orators* (Loeb Classical Library), vol. 1, trans. K. J. Maidment, Cambridge: Harvard University Press, 1968.]
93. See Demosthenes, *Against Aristogiston* 87-89.
94. Lycurgus, *Against Leocrates* 48. We will note that the object of affection here is *patris* and not *polis*.
95. *Mētēr*: already in Pindar, *First Isthmic*, 1ff.; *8th Pythian*, 98. On the figurative use of *mētēr*, “more developed than that of *patēr*,” see P. Chantraine, “Les noms du mari et de la femme, du père and de la mère en grec,” *Revue des Etudes grecques*, 59-60 (1946-1947, 239). *Trophos*: Lycurgus, *Against Leocrates*, 53, 85.
96. Citation from G. Glotz, *La solidarité de la famille*, 90.
97. Isocrates, *Panathenaicus*, 120-125.
98. Sparta illustrates historically what Isocrates developed as a mythico-tragic model: there everything begins with dissension to the highest degree (*Ibid.*, 177); Spartan *oikeiotēs* is at ones the kinship relationship that unites the citizens to the mass and the ironic expression of a relationship of violence (182); the Spartans are criminals who dare to kill their brothers and their *hetairoi* (184); they did great evil to their kinsmen (207, 220).
99. Plato, *Republic* III, 414d-415a: *pantes adelphoi...*, *mētēr kai trophos*.
100. For the rules for the usage of the names of kinship, see *Republic* V, 461d.
101. The linguistic foundation of this theoretical construction consists of completely voiding the ordinary usage of possessive adjectives and pronouns: see *Ibid.*, 462b-c, 463e3-5, 464c-d. It is a question of avoiding the situation, dramatized by Sophocles in *Antigone*, where the pronunciation of “mine” is exclusive of everyone else, beginning with the city (see for example v. 48).
102. *Republic* V, 464d-e. See also 459e, 465a-b.
103. *Menexenus* 244a.
104. *Republic* V, 458c, with the synonymy *homophulos* / *-phuēs*, mentioned above, note 17.
105. *Laws* VIII, 842e-843a.
106. Aristotle, *Politics* V, 1303a25.
107. Herodotus VI, 52: we will note that the translation of *adelphous eontas* must choose between “although brothers, they were in discord” or “because they were brothers, they were in discord,” while the Greek text leaves both possibilities open.
108. See Benveniste, *Vocabulaire*, vol 1., 212-214; *adelphos* originally designates brothers as issued from the same womb, which has durably contributed to attaching the question of matriarchy to the discussion of the word; see P. Kretschmer, “Die griechische Benennung des Bruders,” *Glotta* 2 (1910, 201-213) and J. Gonda, “Gr. *adelphos*,” *Mnemosyne* 15 (1962, 390-392).
109. See Sophocles, *Oedipus at Colonus*, 1387-1388 and above all Isaeus VIII (*On the Estate of Ciron*),

- 30, with the remarks of F. Bourriot, *Recherches sur la nature du génos*, 219.
110. Lysias, *Funeral Oration* 64. One encounters it again, however, in *Antigone* 192 (*adelphā tōnde kēruyas ekhō*), where the signifier “brother” is anything but neutral.
111. Plato, *Menexenus* 238d-239a, which we will find again in the *Republic* III, 414d-415a. On the opposition *adelphos/doulos*, see again *Antigone* 517.
112. *Republic* II, 362d (see Demosthenes, *De Falsa Legatione*, 238). The idea goes back at least to the *Odyssey* (XVI, 95-96 and 115-116).
113. *Laws* IX 880b5: the brother is enumerated at the first rank of fictive kinship relationships that express fellow-citizenship.
114. *Republic* IV, 414d-415a. We will note that in the *Timaeus* 18d12, the summary of the *Republic* puts sisters and brothers at the head of the enumeration of the *homogeneis*.
115. *Laws* I, 627d9 (“those brothers I’ve just mentioned”). Yet the word “brother” has not yet been pronounced; doubtless it was in filigree in the definition of citizens as “*syngeneis* born of the same city.” See again, for the passage from brother to citizen, *Ibid.*, IX, 869c7-d2.
116. There would be a great deal to say about the Platonic idiosyncrasy of employing *adelphos* in an adjective position to denote the kinship or affinity of two notions. Some examples in a long list: *Phaedo* 108b6 (brother crimes), *Phaedrus* 238b4 (brother desires between them), *Republic* VI, 511b (sister sciences), as well as VII, 530d, which emphasizes the Pythagorean origin of such a metaphor.
117. According to the text’s editor, D. Asheri, this procedure found “no analogy in any other city with institutions of the Greek type,” which drove him to seek models elsewhere (“Osservazioni storiche sul decreto di Nakone,” in *Materiali e Contributi per... Entella*, 1033-1045; citation pg. 1038-5).
118. It is inscription #3 in *Materiali e Contributi*.
119. Is it necessary, as I. Savalli envisions it (“Alcune osservazioni sulla terza iscrizione da Entella” in *Materiali e Contributi*, pp. 1060-1061), to interpret the absence of the term *stasis* as a sign of the limited scope of the dissension? In this way, in Xenophon (*Hellenica* VII, 4, 15), *diaphora* designates a larval *stasis*. I believe rather, like the author, that the usage of *diaphora* is euphemistic (as in *Menexenus* 243d5); but this word can also function just as well as the global designation of the genus “conflict” (see for example *Republic* V, 471a).
120. Constitution of groups of five around the nucleus of two adversaries, then repartition of the civic body entirely according to the same principles: on these two steps, see D. Asheri “Osservazioni storiche,” 1038-1039. We will recall that the number five is a symbol of integration, in a number of Indo-European traditions just as in the philosophical speculation of the Greeks where it is the “nuptial number”: see *Republic*, VIII, 546b-d, as well as Plutarch, *On the E at Delphi*, 388a-b, *On the Decline of the Oracles*, 429b-d, and *Isis and Osiris*, 374a-b.
121. Drawing lots: I, ll. 15-17 and 22-27. Elective brothers: l. 20.
122. As D. Asheri observes in “Osservazioni storiche,” 1037-1038.
123. Plato, *Menexenus*, 238d4.
124. On the constitution of the first thirty groups, drawn by lot on the basis of two lists of thirty adversaries that the two opposed parties drew up, see ll. 13-19.
125. *Ankhisteia* defines in this case the degrees of kinship preventing one from being seated as judge at the time of a trial: see I. Savalli, “La terza iscrizione,” 1063 (with bibliography).
126. It is on the basis of familial relations that were made into memberships in a faction: see for example Xenophon, *Hellenica* V, 3, 17 (*dia philian ē dia syngeneian tōn phygadōn*). At Nakōnē, it was necessary to avoid the reconstitution of a nuclear family, even reduced to a minimum, reintroduc-

ing dissensions.

127. See I. Savalli, “La terza iscrizione,” 1063; *contra*: S. Alessandri, “Sul terzo decreto da Entella,” in *Materiali e Contributi*, 1053-1054.

128. We will evoke the “joy” of reunion in the *Menexenus* (243c: *hasmenōs*) and the evocation of the panegyric of souls in *Republic X*, 614e.

129. I do not believe, as does D. Asheri, that the national reconciliation is the imitation of private ceremonies of brothering (“Formes et procédures de réconciliation,” 141): *kata tas adelphothetias* (l. 33) seems to me to refer to the newly instituted civic procedure and not to a past of private practices; at the same time, the *adelphoi hairatoi* do not seem to me to be destined to an activity other than symbolic (*contra*: Asheri, *Ibid.*, 140-141, who believes that the brothers vote at the age of majority).

130. D. Asheri regrets this (“Osservazioni storiche,” 1043-1044) because *phrateres* always constitute a classificatory kinship (cf. E. Benveniste, *Vocabulaire*, vol. 1, 212-214), which to him would seem more appropriate to the creation of elective brothers. But *phratēr*, which has only an institutional existence, is absent from the ideological constructions in the texts as in the practice of the citizens of Nakōnē.

131. Like that of *Demokratia* which, according to certain historians, would have been instituted at Athens from 403.

132. Citations from G. Glotz, *La solidarité de la famille*, 160-161.

133. We will recall that the two faithful helpers of Ulysses in his vengeance must become for Telemachus *hetarō te kasignētō te* (comrades and brothers): *Odyssey XXI*, 213-216, with the remarks of J. Svenbro on the “minimal familial group” (“Vengeance et société en Grèce archaïque,” in eds. R. Verdier and J.-P. Poly, *La vengeance. Vengeance, pouvoirs et idéologies dans quelques civilisations de l'Antiquité*, Paris: Cujas, 1984, 49).

134. Cf. L. Robert, *Le sanctuaire de Sinuri*, Paris: Boccard, 1945, pp. 93-97. On the development of the vocabulary of kinship in the sphere of international relations, I can only refer to the article of D. Musti cited in note 38.

135. Some examples, of course limited in number: Lysias, *Against Eratosthenes* 34 and 92 (or 83, where the enumeration “fathers, sons, brothers” is explained from the perspective of the “passive solidarity” of the family, when tyrants want to kill their adversaries with their descendants); Isocrates, *Panathenaicus*, 121, 184; Plato, *Republic V*, 463e5, *Timaeus*, 18d1-2, *Laws IX*, 880b5.

136. *Genos*, from birth to lineage: see F. Bourriot, *Recherches sur la nature de génos*, pp. 212-219.

137. *Syngeneia*, of horizontal relationships between consanguines, to express the bond unifying members of a generation.

138. On *isotēs* as ideal of the fraternal bond, whose reality is *kratos*, we refer to Euripides' *Phoenicians*.



## for a philosophy of technology in china

geert lovink interviews yuk hui

### INTRODUCTION

Soon after his first book on “digital objects”,<sup>1</sup> philosopher Yuk Hui published a second title, *The Question Concerning Technology in China*.<sup>2</sup> We decided to do an interview again and focus on contemporary issues related to the rise of China as a world power. Hui’s aim is to develop a speculative theory of “Chinese technicity.”<sup>3</sup> China has caught up with the great powers but at the same time the country isn’t ready yet to deal with the new situation. Hui observes that “China is on the same technological time-axis as the West, but what still lags behind is Chinese thought.” According to Hui something went wrong in the separation of tradition and modern life. How could Chinese philosophy “think” technology, and how would such an intellectual enterprise, inevitably, be related to Western thought? Hui, who has been studying and working in Europe for the past decade, has not been able to distinguish China from Europe. If this was ever his ambition, he has failed. Much like his first study, his main references are Martin Heidegger, his French contemporary Gilbert Simondon and today’s philosopher of technology, Bernard Stiegler. Equipped with all the latest insights from London, Paris and Berlin, Hui sends the unequivocal message to Beijing that technologies are not merely instruments. They affect the Chinese mind, and all forms of dualism between technology and thought are revealed to be erroneous.

The first part of Hui's fascinating book is dedicated to historical Chinese philosophy and the distinction between *Qi* (tool) and *Dao* (wholeness). It culminates in the crucial historical question, formulated by Joseph Needham, why modern science and technology didn't emerge in China, despite all the elements being present for this emergence in the 16th century. The second part asks what the long-term impact has been of the absence of geometry in ancient China. Instead of going into the direction of an essentialist geo-politics, Hui favours time over space and argues for another view of world history. What will sinofuturism look like in the age of the Anthropocene?

## INTERVIEW

**Geert Lovink** You state that the second half of the 20<sup>th</sup> century in China did not result in any type of philosophical reflection on the nature of technology. Why was this reflection all but impossible? Are we talking here about a taboo, censorship, a particular blind spot in Marxism-Leninism?

**Yuk Hui** Technology is at the centre of Marxist thought, since the tool is central to hominisation. This was already clearly stated by Engels in his *Dialectics of Nature*, which later became a central scientific view of the Chinese communist party. Until the 1990s, disciplines like science and technology studies and the philosophy of technology didn't exist in China, they were all put within a "dialectics of nature," which is the title of a manuscript from Engels. However, this anthropological reading of technology which one can find in the chapter "The Part Played by Labour in the Transition from Ape to Man" prevents further reflection since it assumes a universal concept of technology. Marx might himself have admitted that his theory is very much a European one, which is the historical product of the Judeo-Christian tradition, but Marxians tend to seek in his thought a universal solution to the realisation of world history. There is a huge difference between applying Marx's thought to a non-European culture and considering Marx's thought as a stage of the *Geist*. The New Confucians of the 20<sup>th</sup> century who escaped China were very sceptical of such an "application" as a universal solution without considering the compatibility of the specificity of Chinese culture. At first glance, the Marxism-Leninism-Maoism trinity in China seems to have localised Marxist thought in China by adding some Chinese and Russian flavours. As political strategy or political economy, however, it legitimates Marxism as a universal science or logic, which falls prey to false oppositions such as matter and spirit, or modernity and tradition. If at the end of the 19<sup>th</sup> century and at the beginning of the 20<sup>th</sup> cen-

ture, there was still a conscious distinction between Chinese *Qi* and Western *Qi* (i.e. tool), in the second half of the 20<sup>th</sup> century, that was no longer an issue, since tradition had given way to a problematic interpretation of materialism. The Cultural Revolution presents an extreme Westernisation, manifested in its intensive industrialisation, even if during this period China was more or less isolated. The economic reform that immediately followed didn't leave room for doubt either. Retrospectively, we can say that Deng Xiaoping was a great accelerationist, and acceleration will firstly have to remove obstacles imposed by tradition, including moral and epistemological ones.

**GL** Did critical thinking in this field instead move to Hong Kong and Taiwan? In November 2016 we both met in Hangzhou at the first conference of the Institute of Network Society. In June 2017 there was another meeting in Nanjing organised by the Nanjing University. How should we position your book in relation to these various locations? Are things changing on the mainland?

**YH** There is surely a hype about digital technologies, digital humanities, smart cities, archives, etc., but I think there is still room for a critical understanding of technology, and by critique I don't mean only social, economic and political critiques, but also historical-metaphysical ones. Last autumn I was asked by the China Academy of Art to organise a conference, and it was my aim to bring in a diversity of discourses while not being limited to any particular school. So I invited you, and also Matt Fuller, Wendy Chun, Hiroki Azuma, Ishida Hidetaka and many others. The title of the conference is "Forces of Reticulation." The word "reticulation" is from Gilbert Simondon and is central to the third part of *On the Mode of Existence of Technical Objects*, when he uses the terms "ground" and "figure" from *Gestalt* psychology to analyse the genesis of technicity departing from the magic phase. The third part is also where Simondon explains the genesis of technicity with which I identify my own notion of cosmotechnics.

The Nanjing conference that you mentioned was initiated by Bernard Stiegler, and supported by the Center for Studies of Marxist Social Theory of Nanjing University. It dealt with the subject of automation, and its participants included Toni Negri, David Harvey and others.

Things are changing rapidly in China. But the country also needs some new conceptual frameworks to conceive and cope with these changes. My book is a reflection on a long historical trajectory, which is of course beyond my limited com-

prehension, but I felt that it had—and has—to be done urgently and rigorously. I started working on it in 2009, but this project is just a beginning, it will take several generations to complete this task. I wrote this book not only for China; in fact, I have emphasised on many occasions in the book that every culture should reflect on the historical and metaphysical question of technology. Since the question is not only that China has to reflect on it, but also that *we* have to imagine a new form of globalisation. The one we have now is a historical consequence that we *had* to accept due to geo-political power differences. Trump's fear of China and the current hype of Asian futurism are indicators that we have to conceive a different globalisation. In order to do so, the primary task will be to understand the multiplicity of technicities.

**GL** Your choice to put Martin Heidegger at the very centre of your investigation on technology in China somehow comes as a surprise. Is this because you have been on the European continent too long? It's all the more striking as you also pay attention to Heidegger's 1936 call to defend Europe against the "Asiatics, barbarians, the rootless and allochthonic." I could have understood it if you had turned to Lewis Mumford, Günther Anders, Paul Virilio, or the Jünger brothers (Ernst and Friedrich, who were earlier, more original tech thinkers). There is also Science and Technology Studies (with the trajectory from Thomas Kuhn to Bruno Latour), Avital Ronell, and—let's not forget—the critique of development. You're using a German fascist philosopher to explain Chinese communist party industrial policies. That sounds a bit like the totalitarian theories of the 1950s. Why is it necessary for China to respond to Heidegger? What do *Mefskirch* and *Todtnauberg* have to offer those in Guangzhou, Shanghai and Chongqing? Environmental awareness? Comfort that culture and heritage in China was destroyed for a higher purpose? In short, why does the liberation of Chinese philosophy have to go through Western philosophy?

**YH** It doesn't mean that Mumford, Anders and Virilio are not good thinkers, I engage with them in my other writings, but Heidegger is different. Heidegger is close to the Jünger brothers, he was very much inspired by Ernst Jünger's *Der Arbeiter*, and Anders was his student, whose first volume of *Obsolescence of Man* has interesting contrasts with Simondon's *On the Mode of Existence of Technical Objects* published two years later. But Anders's critique of technology remains a Heideggerian one, and this is very clear in the second volume published in the 1980s. The title of my book is a response to Heidegger's 1953 lecture *The Question Concerning Technology*. If I have to respond to Heidegger, it is not only because I have been intensively studying Heidegger in the past decade, but also because Hei-

degger's analysis of technology is at the same time fundamental and polemical. It is fundamental since Heidegger was able to analyse the relation between modern technology and the history of Western metaphysics. This elevates the question of technology from a social and economic level to a metaphysical level. It is polemical because the concept of technics is limited to the Greek notion of *technē* (*poiesis, hervorbringen*) and because technology came out of European modernity, whose essence is no longer *technē* but *Gestell*. The framework that Heidegger has constructed prepares for future dialogues with other philosophical systems.

While reading Heidegger's *Black Notebooks*, I came across an intriguing comment on Chinese communism, which became the second opening quote of my book: "If communism in China should come to rule, one can assume that only in this way will China become 'free' for technology. What is this process?" This sentence is very strange, to be sure. But what interests me about it is that it seems to hint at the lack of resistance against technology when communism came to power in China. We may want to ask, what does Heidegger mean by "not free" for technology? What kind of "resistance," if we can really use this word at all, can we imagine here? Resistance manifesting itself as hate and hostility against the Other, like what Heidegger himself has said about the Jewish and the Asiatic? Heidegger's reading of modern technology as an accomplishment of Western metaphysics is for me both a pivot and a shortcut to expose his own limits and to reopen the question of technology.

To liberate Eastern philosophy is to re-activate it, to give it wings so that it can escape the marginalisation by Western technology (metaphysics), and comprehend the latter from a new standpoint. I think that it is only by doing so that we can develop an Eastern "critical theory" or "critical philosophy." To reopen the question of technology is such a liberation and reinvention. For readers who know Chinese philosophy well will find out that I historicise its problematics in a framework different from conventional readings; I avoid falling prey to philological debates. I make comparisons between the East and West aided by Heidegger—for me it was necessary to take such a detour in order to systematise the investigation.

**GL** Can I propose a *Dao* reading of copycat culture? First Japanese, then Korean and now Chinese copycat industries have all upset Western intellectual property right regimes. An amoral analysis of this "Asian" attitude towards technology could be interesting. Copying invokes a *schizo* attitude towards technology. The copy doesn't come from inside and the Chinese psychic ar-

mour can be maintained. In this way, Western values do not stick and the civilisation is able to integrate science and technology without losing its roots. A Teflon approach, if you like. Copycat cultures benefit from the positive side of progress, yet, they do not have to internalise the technological impulse and can maintain a “pure” image of the self. I believe this approach comes close to your analysis, even if I will admit that it is more Freudian than Heideggerian.

**YH** This question is a very delicate one and we have to complicate it and understand it historically. Since the two opium wars, there has been the issue of how to integrate Western technologies and even Christian religion in Chinese culture. It is worthwhile trying to understand the relation between copycating and integration. China has been doing “copycat” in this sense—as “integration”—since the self-strengthening movement (1861-1895), during which China imported knowledge and scientific methods from the West, and more recently the *Shanzai* culture which makes Huaqiangbei of Shenzhen a tourist pilgrimage and succeeds in giving the impression that all the Chinese steal ideas. What drives this integration through copycating? It is delicate, if not dangerous, to imagine a “Teflon surface” between culture/thought and technology. Since the self-strengthening movement, the reformers have advocated instrumentalising Western science and technologies to serve Chinese thought, but we now know that this is far too Cartesian—it didn’t only fail, but it also produced an opposite effect: technology became the driving force and Chinese thought was consequently carried away, which Heidegger similarly described as *deracination*.

There is another type of copycating which one should not forget, and I think quite a few authors already mention it in their discourses on *Shanzai*. It is a tradition in which the Chinese learn painting and calligraphy by copying the work of celebrated artists, or in other words, by automatising through copying; in which, finally, some may arrive at creating their own style. We may find this in the West, but probably with a strong difference. In the Chinese tradition, there is a very strong emphasis on the understanding of *Dao*. So the question is not about creating a “Teflon surface” to separate culture and technology, but about integrating technology with culture through what I call *cosmotechnical* thinking, which may allow us to re-appropriate technology by constructing a new epistemic framework that is in continuity with tradition. This is why I propose to start with the *Qi-Dao* thinking from the ancients in order to demonstrate its importance for this critical moment of technological globalisation and to highlight the historical failures that we should avoid.

**GL** In the last sentence of your book you are calling for “another version of world history.” The spirit can be found in your central term “cosmotechnics.” What might be missing here is a confrontation with technology as a “titanic” force. Or is this too much a Greek mythology, to your taste? Is it the sheer size of China that prompted you to start operating at this global level? I am asking this because many in Western Europe think that “cosmotechnics” is precisely the source of the problem we’re facing, for instance in the case of global warming.

**YH** Let me firstly give a preliminary definition of what I call cosmotechnics: the unification of the cosmic order and moral order through technical activities. I use this concept in order to reopen the question of technics, and I wanted to show that the Greek *technē* is only ONE kind of cosmotechnics—there are many. If today in the West, there is no longer the concept of cosmotechnics it is because there is no longer cosmology but only astrophysics. I open the book with two quotes, one is from D.H. Lawrence’s *Apocalypse*: “When I hear modern people complain of being lonely then I know what has happened. They have lost the cosmos.” It is true that Lawrence was into solar paganism at that time, but it is equally possible to see it as a reaction against the absence of cosmology. This is another limit of our current technological thinking, which is a thinking without cosmology; if it maintains a sense of the cosmic, it is that the universe is only an object of exploration and exploitation. Heidegger has already pointed to the fact that technology is a gigantic force, and furthermore a mysterious force.<sup>4</sup> I hope to understand this force from its outside, the cosmos, therefore I coined the term *cosmotechnics*. Europe took a long time to get rid of its cosmology and to realise a physics and cosmos which are no longer *physis* and *kosmos* in the Greek senses. In the West, since cosmology gives way to astrophysics, it is difficult if not impossible to find the outside of technological thinking. In China, there was no continuity between its ancient cosmology and contemporary astrophysics, so it is easier to retrieve this cosmological thinking and therefore to approach the technological system from both its inside (epistemologies) and outside (cosmologies). The question is the following: can we conceive of a way to transform and to re-inscribe this gigantic force into a renewed cosmotechnics?

The question of world history comes out of my disagreement with the search for an Asian modernity or multiple modernities. I think that if one is still looking for modernity in Asia, one gets trapped in a false understanding of modernity and submits oneself to a single time axis of history. Some historians, especially in art, have written about Asian modernities that are based on comparisons of forms

(e.g. a modernist style portrait and a 19<sup>th</sup> century Chinese portrait) that seem to me rather ungrounded. It is futile to compare two concepts in philosophy or two forms in art without taking into account their histories and their relations to the systems to which they belong.

Let me be a bit provocative: the search for modernities in Asia in the name of decolonisation turns out to be a sort of neocolonisation of itself. Therefore, I reject the concept of a non-European modernity in order to rethink the question of history which no longer resides on the same time axis defined by pre-modern, modern, post-modern. Modernity in Europe originated from an epistemological and methodological transformation in all domains of cultural and intellectual life, which presented a rupture or a break with the previous epoch. Philippe Descola considers naturalism (opposition between culture and nature) as the ontology of European modernity. This epistemological change didn't really happen in China, and it is not productive to orient oneself according to the notion of modernity simply for the sake of postcolonial resistance. Another world history, which I invoke in the book, is an attempt to negotiate a new relation between tradition and technological development in order to resist the homogeneous global time axis. This is not, strictly speaking, a Chinese question nor is it developed merely from the perspective of China; it is applicable to all non-European cultures that want to escape from the Eurocentric concept of technology.

**GL** You argue that, in the name of diversity and difference, there should be a specifically Chinese philosophy; particularly, “If one admits that there are multiple technics, which are different from each other not simply functionally and aesthetically but also ontologically and cosmologically.” You also state, that “the philosophical concept of technics cannot be assumed to be universal.” You see this misunderstanding as an obstacle to understanding global technologies. In political rhetoric, China positions itself as one of the players in a polycentric world. Putin has also endorsed this theory in a common effort to divert the global leadership of the United States. Are you advocating a polycentric philosophy of technology?

**YH** As I said before, so far, the widely accepted concept of technics is very much limited to either *technē* in the Greek sense or technology in the modern sense. This is already very intriguing, as if technology is in itself universal and the discourse on non-European technics has to be situated within a rather narrow concept of history. I question this, and by doing this, I am also challenging the entire literature on philosophy of technology in order to relativise the concept of tech-

nics. Enlightenment humanists believe in universalism, and up to our day, to talk about relativism and exoticism is something shameful. But it is only so when one takes relativism and universalism at face value by substantialising the universal. We can relativise a concept in order to universalise, to come to the “same”.

I agree with you that we need to handle this question carefully, and take it as far as we can, as you suggest, with regard to global politics. There are two ways to conceive the polycentric world based on the interpretations of the movement of “difference.” Since the Enlightenment, we have been seeking to deduce difference from sameness, or the universal, and in so doing, we end up today at multiculturalism. This anticipates the recent neo-reactionary anti-Enlightenment sentiment, which is compatible and resonates with the right-wing movement. Another way for globalisation is based on the opposite movement; it induces sameness through the affirmation of differences, or even absolute differences, like the philosophical work of François Jullien (as well as sinologists such as Victor Segalen and Marcel Granet) even if he didn’t intend for it to be taken politically and historically. However, such a difference cannot be affirmed without taking up the question of technology because it is the source of synchronisation of the global time axis since the beginning of globalisation and colonisation, and without which it won’t be possible to break away from such a synchronisation based on sameness. It’s no surprise that Peter Sloterdijk has also talked about this problem of globalisation and proposed a “polycosmology.”<sup>5</sup> To me, however, Sloterdijk’s critique of Heidegger—of Heidegger’s prioritising of time over space—is plausible and at the same time negotiable. The spatial analysis of Sloterdijk arrives at the visual image of foams, which can only exist when there are walls or membranes. These membranes are best illustrated as national borders, therefore Sloterdijk pointed out in an interview with the political magazine *Cicero* in 2016 that it is necessary for Europe to develop an effective border policy to avoid self-destruction. His theory of foam is strangely compatible with right-wing movements including *Alternative für Deutschland*, of which Sloterdijk’s former student and colleague Marc Jongen is the philosopher.

Instead, I continue working on the question of time, extending both Derrida and Stiegler’s deconstruction of Heidegger’s concept of historicity, and work with Keiji Nishitani’s lament of the lack of historicity in Asia. In the second part of the book, I expose the weakness of Chinese technological thought that I lay out in the first part of the book.

**GL** Remarkably absent in your book is Chairman Mao, who once said “We cannot adopt Western learning as the substance, we can only use Western technology.” Because of his “peasant deviation,” he had different ideas from Soviet-style industrialisation. Much of what we Westerners think about China and technology is projected onto the era after Mao’s death, with the transition to a market economy under Deng Xiaoping, and the rise of Pearl River Delta. The Mao period somehow doesn’t count. China already possessed its own nuclear power and nuclear weapons as early as the mid 1950s, which was soon followed by the disastrous industrialisation during the Great Leap Forward. Can you tell us why the period before the 1980s is less relevant?

**YH** You are absolutely right. It is also true that I don’t talk much about the Cultural Revolution in the book, but I haven’t ignored it entirely. I see the Cultural Revolution as a continuation of a different period of modernisation in China. Roughly speaking, there were three: the self-strengthening movement (1861–1895), the May 4<sup>th</sup> movement (1919), and the Cultural Revolution (1966–1976). The Cultural Revolution presents a very complicated question. As I said at the beginning of this interview, the Cultural Revolution is an extreme form of Westernisation, preparing large scale industrial infrastructures as well as conditions for the acceleration of the economic reform of Deng Xiaoping. For sure, it is no less relevant here; indeed, it is central. In fact, the Cultural Revolution is the central theme of a new project that I have just started with partners from Hong Kong and Berlin.

**GL** Technology without modernity, as you discuss in relation to the Japanese Heidegger scholar Nishitani, reminds me of an “internet without democracy.” As Morozov showed in his first book, internet technology does not automatically result in a Western-style of representative democracy. The effects of technology seem hard to predict and can go in many directions—often different from what Western experts are selling in their scenarios. Aren’t you fighting shadows here? Why is the link to (Western) modernity so crucial in your story?

**YH** I think one has to be cautious when one says that technology is radically open and therefore not possible to predict; it is like saying that we can use Facebook for initiating social movements, so we can partially ignore the problems of Facebook. You quit Facebook and created the Unlike Us network, so I am sure that you understand this point better than anyone else. Sometimes, we tend to justify a technology by its positive externalities without really confronting its main purposes and functions; this is because in our culture, as Simondon says, we have a

mode of majority and a mode of minority, the former belongs to the experts and technicians, the latter belongs to users, and between them there is a gap. The users are not able to understand the technical reality, they are contented with the contingent use of it, so it seems there is a sort of unpredictability or an openness. But should we be satisfied with that?

While confronting the Anthropocene, the discussion on modernity is revived, for example in philosophy and anthropology, among scholars like Bruno Latour, Philippe Descola, and Viveiros de Castro, among others. Descola's work is very significant in his criticism of naturalism and his effort to open up an ontological pluralism, meaning to recognise the diversity of ontologies and take them seriously. How can cultures without such a Western "modernity" confront the Anthropocene? Should they go back to their tradition or adopt the Western discourse again? The dilemma here: going back is a trap, mere adaptation is oblivion. I invoked Nishitani since the Kyoto School was very much involved in a philosophical project called "overcoming modernity" during the second World War, which aims to overcome the West and nationalism. Kitaro Nishida, the founder of the Kyoto School, developed a fundamental distinction between Western and Eastern thinking, namely Being vs. Nothingness. The Kyoto school wanted to mobilise the notion of "Absolute Nothingness" to overcome modernity by invoking Nietzsche's *dictum* "overcoming nihilism through nihilism". Unfortunately, this "home coming" of philosophy ended up in fascism and imperialism. It is important to reflect on "overcoming modernity" after almost a century to avoid repeating the same path.

**GL** I am interested in radical Chinese nihilism. Isn't the critique of the Chinese *Seinsvergessenheit* a new colonial educational program in order to train this large new army of "global citizens" according to the latest therapies à la Peter Sloterdijk: a mental workout to get rid of the smart phone addiction. There is always a pedagogical element in the call for national philosophies. How do you think this can be avoided?

**YH** In the book, I launched an attack against the metaphysical fascism that I have identified with the "home coming" that we found in Heidegger (that you have just quoted), the Kyoto school, and Aleksandr Dugin, among others. I am convinced that we must retrieve tradition from a new perspective, in other words, we have to desubstantialise tradition. In the past century, substantialising tradition or culture had two major outcomes: nationalism and the culture industry. The former sets a line between the authentic self and the others and mobilises nationalism

as a governmentality; the latter turns culture into an industrial production, which is evident in the policies of the culture industry—for example in China, there are more and more “creative towns,” or *Chuang Yi Xiao Zhen* in Chinese, which aim to capitalise on cultural heritages. Development in China—as is already evident now and will become only more obvious in the coming years—is moving from the industrialisation of mass products (of the Pearl River Delta) right after the economic reform, to the industrialisation of cultural products (of the Yangzi River Delta) in the digital era.

The decisive question is: will it be possible to desubstantialise tradition in order to set it free from nationalism and consumerism, so that it can regain its force to engage with technology, urbanism, and social imagination in a new way? This is the reason for which I attempt to analyse the technological thought in terms of *Qi* and *Dao* instead of from a certain technical object or technical system. Opposed to the *Vergessenheit* is anamnesis, and it depends very much how are we are going to understand and perform this process of anamnesis. Anamnesis is not entirely about remembrance, or retaining as many traces as possible; it also implies a kind of passage, a passing into somewhere else.<sup>6</sup>

**GL** Will there be a digital “episteme,” to use a Greek term that you borrow from Michel Foucault, and will China play a role in defining it? The ongoing absence of China in the realm of software production is not very encouraging in this respect. India has already taken that position in the global division of labour. Instead, it seems that China will remain the hardware manufacturer. Despite new policies from Beijing to invest in research, knowledge production and design, its role as “global factory” is still the consensus. To reach a global software hegemony is a whole other ballgame, very different from the customising crafts coming out of Shenzhen. I sense that your project could play a role in this. The real test here, as I see it, is whether there can be a thriving design sensibility without critical thinking. Can concepts and designs be developed without an autonomy for philosophy? Can there be Chinese technology without Chinese thought? What if the answer is yes?

**YH** The digital episteme is already there: just look at the hype of digital media, innovation, artificial intelligence, social networks, smart cities, internet of things, etc., which constitute a new regime of truth, which Antoinette Rouvroy has analysed well. Digital technology is rapidly becoming a base for culture, economy, sociality, etc. However, it also poses problems. In *On the Mode of Existence of Technical Objects*, which was written more than 60 years ago, Simondon observed the

discrimination of culture against technics, but today the antagonism takes another form: technology has been the major driving force of culture, it modulates the dynamics of culture. Can there be Chinese technology without Chinese thought? I think this is what we have now, and what sinofuturism means, and what Heidegger means when he says “China will be free for technology.”

All I try to do in this book is to move past this stage of modernisation and technological globalisation by going back to history and traditional metaphysics in order to understand what options and possibilities are left to us. As you know, Foucault gave up on the term “episteme” after *The Order of Things*; he started using *dispositif* instead and redefines episteme as a kind of *dispositif*. I rescue the term episteme by giving political agency to it. The question that I want to raise is, will it be possible to imagine a new episteme in which we can find another way of *framing* digital technology? When culture is in crisis, it will be forced to produce a new episteme as a new sensibility and a new way of *sensibilisation*. I am more and more convinced that this was what Jean-François Lyotard wanted to do with the postmodern and that which he has attempted to make felt (*faire sentir*) in *Les Immatériaux*, an exhibition that he curated with Thierry Chaput in 1985 at the Centre Pompidou.

However, in the context of China, the question of episteme has to be investigated from the standpoint of its own history. I am tempted to distinguish three epistemes in the Chinese history of philosophy: first, the emergence of pre-Qin philosophy and the gradual dominance of Confucianism after the fall of the Zhou dynasty which established and legitimated the moral sensibility between humans and the heavens, for the latter provides the legitimacy for political, social and individual actions; secondly, after the dominance of Buddhism in the late Tang dynasty, the emergence of neo-Confucianism in the 11<sup>th</sup> century re-established a moral cosmology by reintroducing cosmogonies into the Confucian doctrine in order to reaffirm the unity between the cosmic and moral orders; and third, after the defeat by Britain in the opium wars, China was forced to search for a new episteme to cope with Western science and technology, but it has failed because there was a serious lack of knowledge and understanding of technology throughout the experience of dealing with such a material transformation. Now, it seems to me to be the moment of taking this quest for epistemologies and epistemes seriously again, when globalisation actually touches its limit and it becomes more and more pressing to respond to the Anthropocene.

**GL** Talking about cosmotechnics in 2017, it is very hard not to close with Brexit, Trump, the rise of right-wing populism and the current crisis of neoliberalism as a facilitating ideology of globalisation. China has benefitted a lot from the outgoing globalisation consensus. On the one hand, China could also benefit in a new constellation when the world falls apart into smaller regions. On the other hand, the “global factory” will suffer from the expected drastic reduction of global trade. The internal market will have to grow. Neocolonial relations with Africa, other parts of Asia, and Latin-America could compensate but don’t look very promising. Needless to say, a war, regardless on what scale, would be catastrophic. How do you read the signs of the times in the light of your metaphysical quest?

**YH** In a recent article on the neo-reactionaries, published in e-flux journal, I have tried to show how the end of a unilateral globalisation since the European Enlightenment (if not earlier) led the West to lament its second decline after the book with the same title from Oswald Spengler.<sup>7</sup> However, this time it is not about the *Innerlichkeit* of culture, namely the incompatibility between nature and technics, or culture and civilisation; the pressure is from the outside. Brexit, Trump and the right-wing movement belong to this resentment of the decline of the West, therefore Britain and America have to be great *again*. What kind of globalisation can we imagine after the current one comes to an end? A coalition between Asia, Africa and Latin America is important but it is not sufficient, since all these cultures also have to retrieve and reinvent their own cosmotechnics. Unless they do so, what is going to be changed is not the nature of globalisation but only its geographical configuration of power. The new coalition could be seen as a continuation of the Bandung Conference in 1955, which set its aim to oppose colonialism and neocolonialism; however, we should also understand that the technological universalisation dominating the current state of globalisation is a form of neocolonialism par excellence, which won’t go away without a deeper reflection on technology, no matter how strong the coalition is.

We should try to avoid a third world war at all costs, but with Brexit, Trump and the right-wing movement, and the coming intensified competition of technological singularity, I feel, and I believe you do as well, that a war has never been so imminent. You may remember that when the philosopher of *Todtnauberg* said in an interview with *Der Spiegel* that only a god can save us, he was not talking about God, but rather about the *unknown* (*Unbekannte*). The task of the poet is to invoke this unknown, to *sensibilise* according to the unknown and set a limit to the known.<sup>8</sup> This is why I am convinced that Heidegger himself was longing for a cos-

motechnics by reinventing the pre-Socratic notion of *technē*; it is in this sense that we can understand his proposal for *another beginning* (*anderer Anfang*). Heidegger was ambiguous, of course, and this ambiguity has to be clarified and radicalised to allow us to approach globalisation anew from the standpoint of cosmotechnics; we may follow him, to look for another beginning, but not only for Europe.

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## NOTES

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6. Jean-François Lyotard employed Sigmund Freud’s term “*durcharbeiten*” to describe this “passing.” See: Jean-François Lyotard, “Logos and Techne, or Telegraphy,” in *The Inhuman: Reflections on Time*. Trans. Geoffrey Bennington and Rachel Bowlby. Stanford: Stanford University Press, 1988. Also see: Yuk Hui, “On a Possible Passing from the Digital to the Symbolic,” *Haus der Kulturen der Welt* (2017): [http://hkw.de/de/tigers\\_publication/on\\_a\\_possible\\_passing\\_from\\_the\\_digital\\_to\\_the\\_symbolic\\_yuk\\_hui/on\\_a\\_possible\\_passing\\_from\\_the\\_digital\\_to\\_the\\_symbolic\\_yuk\\_hui.php](http://hkw.de/de/tigers_publication/on_a_possible_passing_from_the_digital_to_the_symbolic_yuk_hui/on_a_possible_passing_from_the_digital_to_the_symbolic_yuk_hui.php)
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## the future of technics

tracy colony

*The future—which is “the task of thinking”—is in the thinking of (by) technics.<sup>1</sup>*

Bernard Stiegler is perhaps the most important figure in contemporary continental philosophy of technology. Unquestionably, the theoretical basis and point of departure for his thought can be found in his seminal *Technics and Time* series.<sup>2</sup> As part of the widening reception of his work, fostered by recent translations, commentators are returning to *Technics and Time* as a resource for many of the original concepts underpinning Stiegler’s philosophy.<sup>3</sup> With the first volume, *The Fault of Epimetheus* available in English since 1998 and the second and third since 2009 and 2011, the English-language reception of this series is quite established and growing. However, within this secondary literature there is, to date, not one sustained treatment of futurity.<sup>4</sup> This absence is remarkable because the importance of rethinking futurity and the possibility of a different future is announced at the very beginning of *Technics and Time* and maintained throughout. Moreover,

the question of futurity is not only a theme which can be seen to unify the *Technics and Time* series but has increasingly come to the fore in Stiegler's later and most recent work on the Anthropocene as articulating, perhaps, the ultimate exigency of his thought.<sup>5</sup>

The theme of futurity is unambiguously announced in the opening sentence of the first volume of *Technics and Time*: "The object of this work is technics, apprehended as the horizon of all possibility to come [à venir] and of all possibility of a future [d'avenir]."<sup>6</sup> At the same time, the absence of a future in the contemporary epoch is announced as a collapse of orientation that defines the most extreme challenge to thought within that horizon: "The frenzy of time is all the more paradoxical in that, although it should open onto evidence of a future [un avenir], never before has the imminence of an impossibility to come [à venir] been more acute."<sup>7</sup> This absence of a future is announced in *The Fault of Epimetheus* with its opening epigraph from "On a Change of Epoch" from Blanchot's *The Infinite Conversation* and reiterated in its final sentence: "Whence the excess of measure in this exceptional phrase inscribed on the wall of time: *no future*."<sup>8</sup> The uncanny sense of crisis invoked by these references to Blanchot is not that our epoch is in a state of mere transition to another coming epoch, but rather, that we stand within a turning in excess of all traditional measures of the coming of time.

For Stiegler, all relations to time are opened and constituted through the irreducible materiality of technological inscription. This understanding of originary technicity is able to define a tradition from Plato to Heidegger in which technics was construed as the mere determination of a pre-technical sense of time. This division between time and technics was nowhere more pronounced than in the traditional metaphysical projection of the future as opening in advance of any material determination. This construal of the future as a pre-technical purity is one of the deepest metaphysical prejudices of our tradition and can be seen as Stiegler's point of engagement with his main interlocutors in *Technics and Time*. The challenge this diagnostic reading articulates is the need to rethink futurity at once from within the horizon of a technologically factored becoming [devenir] but at the same time as figured by a difference that is not reducible to that becoming. One of the most pressing implications of thinking time as constituted by originary technicity is that the traditional concepts of futurity, as predicated upon an extra-technological donation of time, are rendered inadequate. Moreover, these concepts actually obfuscate both the genuine sources of possibility within our technological condition and the urgency of recomposing a new futurity from out

of them. Between a merely mechanical becoming and an equally problematic messianic sense of the future, Stiegler can be seen to repose the question of futurity itself in terms of a *transformation* of becoming.

Within the horizon of technics, the openness of the future can no longer be sought in thematizations of time that would hope to transcend that horizon or merely await messianic incursions from beyond it. From this perspective, the issue of futurity can be seen to articulate the distance that Stiegler's work stakes out with respect to the accounts of Heidegger and Derrida who, both in their own ways, can be seen to think the future as a resource in excess of technological constitution. Like these previous thinkers, Stiegler will also diagnose the distortion of time in ever accelerating technologies which culminate today in the phantasms of "real" and "live" time. However, for Stiegler, the recovery of a possible future is not sought in the non-technological anteriority of the truth of being or the messianic resources of *différance*, but rather, in the inventive transformation and reorganization of technological becoming itself. As I will argue, this rethinking of futurity in *Technics and Time* is a theme which is crucial for the reception of Stiegler's work in that it brings to light both the singularity of Stiegler's thought and a vital aspect of his project as a whole.

My argument in this essay is structured in three sections. In the first, I present a brief introduction to Stiegler's novel understanding of originary technicity. In the second, I then trace the central motif of futurity in *Technics and Time*. While critical reception has understandably concentrated on the vital themes of retention and memory, what has frequently gone unnoticed is the actually predominant roles of protention and anticipation. Focusing on *The Fault of Epimetheus*, I demonstrate the importance of the question of futurity in Stiegler's readings of Leroi-Gourhan, Simondon, Heidegger and Derrida. While it is beyond the scope of the present essay to enter into a detailed evaluation of Stiegler's readings of his interlocutors, my intention is to articulate the theme of futurity within the purview of Stiegler's own thought in the early volumes of *Technics and Time*. In the final section, I draw out some crucial elements within those early volumes for a possible future as the task of thinking a future *of* technics. I then make some suggestions as to how this early engagement with the theme of futurity can be seen as an important resource for approaching the question of futurity in Stiegler's more recent work.

In *The Fault of Epimetheus* Stiegler first presents traditional interpretations of the nature of technological beings and the way in which their dynamic precedes ethnic and cultural unities. This initial stage traces conventional accounts of technological beings and systems as emerging and evolving merely *within* time. However, this depiction of technological beings as intra-temporal entities is purely diagnostic in that it remains within the conventional metaphysical understanding of technicity. Since Plato, this tradition has construed technological beings as merely inanimate formations of matter which were shaped by an anterior human agency. What this understanding of technical beings obscured is the actually autonomous dynamic of technically formed matter and its role in opening the temporality through which human specificity within the history of life is first achieved. Rather than framing technics as what would merely augment an already given determination of the human, Stiegler thinks both anthropogenesis and technogenesis as a “process of exteriorization” whereby life is transformed through conjugation with a technical exteriority. This sense of exteriorization is not to be understood as if there was an interiority which would precede it. Rather, the relation must be seen as aporetic in that interiority itself only arises via the reorganization of life in the externality of technically formed matter.

The term which Stiegler introduces for technics thought from out of the ordinary process of exteriorization is: “organized inorganic beings.”<sup>9</sup> Neither living nor inert material, technically organized matter can be seen as an autonomous third order of beings. Although Stiegler stresses the differences opened when life becomes technically mediated, one of the important aspects of continuity which is retained across this rupture is the character of both pre-technical and technical life as negentropic configurations of matter. The movement of life as a continuous deferral of entropic diffusion, i.e. an “increase in negentropy,” is not first opened by technics, but rather, is an aspect of life that is accentuated by technical exteriorization.<sup>10</sup> Although technically mediated life is a new configuration of negentropy it must be seen as also an accelerator of entropy. Technical beings as the matrix of hominization are paradoxically both the condition for the opening of negentropic transformations and equally the source of entropic regressions as what is most threatening to life as such. This inherent co-possibility of vital advance and decline is the basis for Stiegler’s later characterization of technicity as pharmacological. Earlier than metaphysical accounts, which have always opposed the human to the technical, technics must be rethought as co-original with the

very emergence of the human as such.

Stiegler employs the work of paleontologist Leroi-Gourhan as an initial framework for thinking technicity in the aporetic passage from biological to technically organized life. From this perspective, the cortex [*cortex*] of prehominid life is transformed along with the emergence of the first flint [*silex*] tool.<sup>11</sup> This complex of living and inorganic organization displaces any merely naturalistic determination of the body and its physical environment. The original transformation of life in technicity is understood as a rupture with zoological life which originally disorients the relation between life and its environment. In the wake of this immemorial dis-orientation arises the first possibility of an explicit thematization of a surrounding environment. From out of this threshold of exteriorization the first technically mediated thematizations of time and space initially unfurl. This external prosthetic support for the thematization of time and space is the basis for the difference between life organized merely biologically and the specificity of human life as organized by an inorganic technical supplement. Stiegler employs the manifold sense of the word “organ” to articulate this originary prostheticity of the human body. The organized matter of the first tool or *organon* is, strictly speaking, also the first specifically *human* organ. From this perspective, there is no proper or natural human body. The body *qua* human arises through the aporetic re-organization of life in the technicity of external “inorganic organs.”

Stiegler’s appropriation of Leroi-Gourhan on the original technical exteriorization of life remains, however, an *initial* formulation. Ultimately, Leroi-Gourhan will not maintain the aporia of this technological origin but allows it to collapse into a merely metaphysical opposition between a discreet origin and a subsequent fall into technics. Conversely, Stiegler radicalizes the undecidability of this original rupture by thinking it in terms of Simondon’s concept of transduction and Derrida’s thought of *différance*. However, Stiegler’s own interpretation of the material technical supplement will remain irreducible to both of these accounts of originary technicity. The first technically formed matter is not the expression of a prior intention or creative intelligence, but rather, is paradoxically co-original with the anticipation which would seem to bring it forth: “the tool appears at one and the same time *qua* the result of anticipation, exteriorization, and *qua* the condition of all anticipation.”<sup>12</sup> The original transformation of life from its purely biological organization into life articulated in technically organized matter is not to be understood as a mere transition within an abstract thematization of space and time. While the technological supplement is described as constitutive of both

time and space as separate theoretical metrics, for Stiegler, it is also constitutive of what he describes as the “earlier” dimensionality of “speed.”<sup>13</sup> This sense of speed designates the originary relatedness of time and space prior to their decomposition into discrete chronological and geometric orders.

Speed, understood as the primordial composition of time and space, is the most original dimension opened by the conjugation of life and the autonomous dynamic of technological beings. On this point Stiegler can be seen to philosophically appropriate Leroi-Gourhan’s understanding of the technological exteriorization of life as the continuation of a “conquest of mobility.” The origin of technics is not the expression of any pre-technical intelligence, but rather, a function of life’s vector towards increased capacities of movement. The technical articulation of life’s motility as speed is the earliest horizon within which technological beings are defined.

Organized inorganic beings are originally [...] *constitutive* (in the strict phenomenological sense) of temporality as well as spatiality, in quest [*conquête*] of a speed “older” than time and space, which are the derivative decompositions of speed. Life is the conquest [*conquête*] of mobility. As a “process of exteriorization,” technics is the pursuit of life by means other than life.<sup>14</sup>

The dynamic animating technics is not a prosaic logic of acceleration which is merely the charting of movement within derivative time and space. While technics opens and constitutes the horizons of chronological and historical temporalities, it is also not reducible to explanation within these horizons. The technological being is also phenomenologically in excess of the temporal horizons it opens. It must also be understood as animated by the conquest of an extra-natural dimension of speed. Technics grants repose to the historical temporalities which it opens yet its innermost motility and auto-nomy moves in advance of these horizons and continually threatens to disrupt the theoretical and epochal orientations it makes possible. However, in a move that will distinguish Stiegler’s own conception of technical exteriorization, this spatial-temporal economy of speed is also grounded in another aspect of exteriorization which Stiegler describes as the opening of a new form of memory.

On Stiegler’s account, the first technological being, i.e. the flint which immemorially took form between living and merely physical matter, is itself the site of a

transformation of memory. Prior to the mediation of life in technicity, memory was structured either as a genetic program or in terms of the epigenetic retentions of an organism's individual experience. With the grafting of life into technics another form of memory is made possible. In strictly biological forms of life the experiences and memories of an individual are lost with the death of the individual. However, the inorganic matter of the tool is able to preserve the epigenetic experience beyond the demise of the individual and open a trans-individual form of memory. This passage from a genetic to non-genetic memory via the non-living "artificial" organization of memory in the tool is the opening of an exterior to the merely biological scope of memory. Stiegler terms this third form of retention: "epiphylogenetic memory." This techno-logical memory is described as the "already-there" [*déjà-là*] which makes possible the distension of time in anticipation and the conservation of a specific past. Access to a past and a future are first opened when life becomes technically exteriorized. However, this immemorial and in a sense "absolute" past is never allowed to function as a transcendental term. The specific empiricity of the technical memory support remains constitutive for all relations to time. Moreover, the technological conditions of access to a specific past and future are themselves evolving and remain tied to their specific material genealogies.

For Stiegler, the mode of access to a past and a future itself has a particular mne-mo-technical history and must be understood as an inextricable element in all thematizations of time.

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.<sup>15</sup>

At the opening of metaphysics, Plato distinguished between the soul's pure memory (*anamnēsis*) which was untainted by empiricity and a corrupted memory (*hypomnēsis*) which was contaminated by technical supports. This division between a technics-free time and one degraded by its implication in the materiality of technics can be seen as one of the most pervasive figures of metaphysics. This unquestioned structure was implicit in the history of different versions of the division between a transcendent pure origin of time and the subordinated orders of empiricity and historical time. The singularity of Stiegler's own conception of

originary technicity can be seen in the radical degree to which he preserves the constitutive role of technical materiality and the specific relations to memory and futurity that it makes possible. There is no non-technical point of origin nor non-technical Other within the coming of time. The temporalization of time passes irretrievably through specific technical materiality not as the obfuscation of a prior privileged time but as the condition of time itself. However, this does not have the result of dragging down the possibilities of the future into a mere positivistically determined becoming. Rather than thinking technics as the corruption of a pure time or obstruction of an alteritous future to come, the beyond of the future must now be sought within technics.

The “to come” of a possible future opened by originary technicity is, of course, not merely a future present. Nor is it brought closer by any logic of “progress” construed as “the spontaneous bearer of the future.”<sup>16</sup> Although the possibility of anticipation, foresight, and the awareness of mortality are all first opened by technics, the sense of a future to come is not any event merely distanced from the present in chronological time. This sense of a future beyond mere becoming yet within technicity represents a new configuration of futurity as such. When the human is rethought from out of the aporetic mediation of life in technics, what pertains to the future must also be rethought in terms of this *constitutive* technical prostheticity. Stiegler finds intimations of this prosthetic understanding of human beings in the early versions of the Prometheus-Epimetheus myth which were able to think and preserve this aporia prior to its dissolution in the categories of metaphysics. Technics is not something placed in front of a more original human essence that it would then passively complement, rather the rupture into prosthetics is co-original with the appearing of any human phenomena. Strictly speaking, the human as technically transformed life does not exist but is always to come.<sup>17</sup> Rethinking the relation to futurity from out of this transformed sense of possibility within life can be seen as one of the most important, although often overlooked, themes of *Technics and Time*. Focusing on the first volume of this series, I will now demonstrate that the question of futurity both structures its key dialogues with other thinkers and also articulates a singular urgency.

## II

One of Stiegler’s most important interlocutors in *The Fault of Epimetheus* is Leroi-Gourhan who can be seen as a precursor in that he attempts to think the human exactly on the basis of technics. However, despite the radicality of Leroi-Gourhan’s

project, it retains an implicit metaphysics and ends up claiming: “technological evolution is *essentially* of zoological origin, and *elsewhere* there is a ‘nontechnical,’ reflexive and symbolic ‘intelligence.’”<sup>18</sup> Leroi-Gourhan will ultimately oppose a fabricating “animal” human with the non-technical consciousness of a “spiritual” human. The basis of Stiegler’s critique will be Leroi-Gourhan’s failure to understand the technical rooting of all relation to time and in particular the technical constitution of the relation to a future inherent in the structure of anticipation.<sup>19</sup> Leroi-Gourhan allowed for a sense of anticipation that was enclosed within a zoological order and which governed the basic fabrication of tools. This sense of anticipation was then seen to quantitatively expand towards a higher non-technical consciousness which was associated with a capacity for symbols and an awareness of death. Against this naturalized capacity for anticipation as present in pre-human fabrication, Stiegler asserts that anticipation as such is not quantifiable: “Access to anticipation is access to the possible”<sup>20</sup> and further: “anticipation, relation to the future, is immediately relation to all future.”<sup>21</sup> Whereas Leroi-Gourhan posits a form of anticipation before the technical exteriorization of life, Stiegler claims that anticipation cannot be the expression of merely programmatic-genetic behavior, but rather, must be thought as arising only with the exteriorization of life into technics.

The opening of a future within life is co-incident with the becoming artificial of memory and the original distension of time within which anticipation is first possible. For Stiegler, there is anticipation, i.e. a future, only “since” the exteriorization and transformation of zoological life by the technical supplement: “There is no anticipation, no time outside of this passage outside [...] that ‘exteriorization’ is.”<sup>22</sup> Despite his radicality, Leroi-Gourhan can be seen to have allowed for a pre-technical sense of futurity which amounts to an unsupportable projection back into zoological life of capacities that are only possible after exteriorization in technics. His positing of the awareness of death as first arising in a non-technical consciousness also divides mortality from the actually technical constitution of the future required for its possibility. In ascribing anticipation to pre-human life and the first awareness of death to a non-technical consciousness, Leroi-Gourhan can be seen to not draw out the full implications of his own insights. In both cases, a future independent of technics, beyond the constitutive horizon of technicity, had been uncritically maintained. The issue of anticipation and a future beyond technics can also be seen as the central point of critique in Stiegler’s reading of Simondon.

One of the most important resources for Stiegler in *Technics and Time* is the work of Gilbert Simondon. Perhaps more than any other philosopher of technology Simondon sought to rethink the nature of technical objects beyond the anthropocentric and hylomorphic categories of metaphysics. Rather than framing the technical object as merely the effect of an anterior human imposition of form upon an inert matter, Simondon attempted to think the industrial technical object in terms of its own proper autonomous dynamic. However, from Stiegler's perspective, Simondon did not go far enough and think the proper co-originality of technics with all human phenomena. On the contrary, Simondon explicitly retained a non-technically mediated human capacity for anticipation as an operative component of the industrial technical object. The focus of Stiegler's critique of Simondon is a passage from his *Du mode d'existence des objets techniques* in which Simondon describes the possibility of the technogeographical milieu as dependent upon "human intelligence" [*l'intelligence de l'homme*], and in particular, the employment of an: "inventive function of anticipation" [*fonction inventive d'anticipation*].<sup>23</sup> Although Stiegler will explicitly frame the project of *Technics and Time* as an appropriation and extension of Simondon's concepts of transduction and individuation, a crucial point of divergence is Stiegler's understanding of the completely technical constitution of the human as such.

Despite the profundity of Simondon's rethinking of technics, the metaphysical contour that Stiegler outlines in his thought is an uncritical acceptance of anticipation as an anterior human component of the industrial technical object. Stiegler charges: "If there is, a dynamic proper to the technical object tending toward its concretization, it nevertheless supposes a possibility of anticipation on the part of the operator, of the driving force, the human *qua* efficient cause of the technical object."<sup>24</sup> The residual metaphysics in Simondon's thought can be seen in the positing of a capacity for anticipation, i.e. a relation to the future, not wholly constituted through technics. Because Stiegler appropriates Simondon's thought of individuation an important point of divergence between the two can be seen in terms of their different accounts of the pre-individual. For Simondon, this comprises the metastable pre-individual potentiality of being as such from out of which specific chronologies are individuated, whereas for Stiegler the pre-individual is described as the already-there of the technical object that first opens the possibility of access to the dimensions of history and futurity.<sup>25</sup> Although stemming from a very different motivation, the projection of a future independent of technics is also at the center of Stiegler's critical engagement with Heidegger.

Stiegler's reading of Heidegger is his most sustained engagement with another thinker in *The Fault of Epimetheus* and in many ways forms the culmination of that work. Despite Heidegger's grounding of temporality in facticity and his own phenomenological articulations of an already-there aspect of Dasein, he is unable to think the originary relatedness of technics and time. Technics is unthought in Heidegger both in the sense of the originary technological constitution of all relation to time and in terms of the specific technological conditions of access which determine epochality. Against the background of originary technicity Heidegger is shown to remain within the traditional opposition between *logos* and *tekhnē* in which technics is understood as a mere constriction upon the proper dimensionality of time.<sup>26</sup> Stiegler bases his reading on Heidegger's 1924 lecture: "The Concept of Time." In that lecture Heidegger can be seen to privilege Dasein's capacity for anticipation [*Vorlaufen*] beyond any constitutive relation to technics and its orthographic structures: "The fundamental phenomenon of time is the future ... It is manifest that the original way of dealing with time is not a measuring."<sup>27</sup> For Heidegger, the anticipation which runs ahead towards the indeterminate, towards death, is the most original structure of time. Any reduction of this difference to the metrics of a specific continuum represents an inauthentic attempt to determine the indeterminate and obfuscate the properly futural structure of temporality.

For Heidegger, the future originally opens beyond the realms of calculation and metrification. This possibility of authentically anticipating the indeterminacy of the future is lost when it is subjected to metrification in terms of the "now" fixed by the chrono-graphy of clocks: "The Dasein that comes to be in anticipation—in *différance*—is not given its being through the clock; rather, it loses itself in the clock. Its temporality is its future."<sup>28</sup> Despite Heidegger's phenomenology of tools and equipmentality, in the final analysis he will disallow any constitutivity to technics and ultimately conflate inauthenticity with the realm of technicity from which the anticipatory structure of Dasein can be extracted. This attempted decoupling of futurity from technics is not just characteristic of Heidegger's early existential analytic but rather symptomatic of Heidegger's thought as a whole. Just as Dasein was seen as able to conserve its relation to the future beyond any specific orthographic medium, Heidegger's later determination of the relation of technology to the truth of being is also structured by a possible extrication from technics. The index of this determination is his account of technology as the culmination of the history of being and his articulation of a free relation to it in: "The Question Concerning Technology." Heidegger's interpretation of technology as

the culminating epoch of metaphysics as *Gestell* thinks technology ontologically and beyond many of the traditional concepts applied to technical beings. However, it still moves in the foreground of an ultimate division between a fallen order of technics and a non-technical origin.

Heidegger locates the start of metaphysics in Plato as a forgetful fall into the derivative calculations of mere correctness [*orthotēs*], however, what is forgotten is not the tragic aporia of originary technics, but conversely, a *pre*-technical origin of the truth of being. For Stiegler, this opposition between metaphysics as technics and the truth of being consigns Heidegger's thought to an aspect of metaphysics determined by the more fundamental forgetting of originary technicity: "The meaning of *alētheia* still echoes the Platonic structure of reminiscence such as it is determined in opposition to hypomnesic memory, while this memory constitutes the destiny of being as the forgetting of being."<sup>29</sup> This non-technological anteriority of the truth of being will be the ultimate basis for Heidegger's attempt to articulate an original difference between the essence of the human and the essence of technics in order to think a free relation to it. The difference which opens this ontological sense of freedom is the difference between metaphysics and the truth of being itself. The inherence of metaphysics in the forgotten truth of being is the utmost ground for Heidegger's claim that the essence of technology is nothing technical. By thinking the non-technical truth of being as the origin and hidden essence of *Gestell*, a distance from technics is projected from out of which it could then be non-technically encountered. For Stiegler, the projection of this technics-free essence of technology merely traces the widest outcome of Heidegger's forgetting of originary technics. This forgetting perhaps finds its ultimate expression in Heidegger's understanding of the task of thinking as the conservation of being beyond our technological epoch. In contrast, Derrida would appear to offer a non-oppositional figuring of the technical constitution of time, however, a close reading of Stiegler on the composition of the differing and deferral of *différance* demonstrates this is not the case. The issue at the basis of Stiegler's critical reading of Derrida is, once again, the question of futurity.

In the preface to *The Fault of Epimetheus* Stiegler clearly situates his work as both an appropriation of and critical dialogue with Derrida. At once Stiegler will explicitly invoke the thought of *différance* as a resource for moving beyond metaphysical determinations, however, Stiegler's most sustained engagement with Derrida is the charge of an "indecision" regarding the technics of futurity. Derrida describes *différance* as characterizing all forms of life and accords a kind of temporaliza-

tion to all life. Stiegler accepts this understanding of life as *différance*, however, charges Derrida with an uncritical projection into non-human life of a thematization of temporality which is particular to technically exteriorized life. For Stiegler, Derrida has not properly articulated the specificity of human temporality within the history of life as *différance*. What remains unthought are the implications of the becoming technical of life and specifically the transformation of possibilities of temporalization that technical exteriorization opens within life as *différance*. Stiegler quotes from *Of Grammatology*: “the trace is the difference that opens appearing and the signification (articulating) the living onto the non-living in general.”<sup>30</sup> For Stiegler, this description of life in general as *différance* betrays an unexamined importation of a relation to the non-living, i.e. the dead, which is made possible only through the technical exteriorization of life. The thematization of death presupposes the ability of life to take up a relation to the future and anticipate, however, this is a temporality particular only to the technically mediated life of humans.

There is an indecision, a passage remaining to be thought. At issue is the specificity of the temporality of life in which life is inscription in the non-living, spacing, temporalization, differentiation, and deferral by, of, and in the nonliving, in the dead. To think the articulation is also to think the birth of the relation we name with the verb ‘to exist’; this is to think anticipation.<sup>31</sup>

While Stiegler’s reservations regarding Derrida’s indecision have generated a fair amount of critical reception, what has gone comparatively unnoticed is that the specificity of human time as mortal, which then guides his reading of Dasein’s futurity, is also the basis for an equally sustained reading of the futurity of *différance*. When Stiegler states: “The question of *différance* is death.”<sup>32</sup> this not only refers to the need to think technicity as what makes a relation to death possible, but also opens the terms of a comparison, indeed convergence, of *différance* with the indeterminacy and deferment of originary temporality in Heidegger. In many ways, Stiegler can be seen to frame his culminating engagement with Heidegger as also an engagement with Derrida by explicitly converging Heidegger’s understanding of the improbable and indeterminate aspect of Dasein’s future death with the deferment of *différance*. What Stiegler describes, as “the structure of *différance* that articulates anticipation,”<sup>33</sup> is found in the configuration which holds together the incalculable delay and calculating fall in Dasein’s (im)possible relation to its future: “It is certain knowledge of an uncertain difference, difference that ‘shrinks

back' and that in this very withdrawal is this *différance* in the Derridean sense."<sup>34</sup> The originary and constitutive delay which characterizes Dasein's being-towards-death as incalculable and unprogrammable is described in terms of *différance*: "The delay can be seen to emerge from the lecture as *différance*."<sup>35</sup> This delay is explicitly framed in terms of a proper futurity "to come [à venir]"<sup>36</sup> which opens in advance of any orthographic medium. The time of Dasein is a deferred time in that it temporalises itself from out of the indeterminacy of its being-towards-death. This deferment, that is the basis for differentiation and individuation, at once gives time but is also covered over in the very becoming-discrete of time in measurement and calculation.

Stiegler articulates a structural parallel between the original delay of Dasein in anticipation and *différance* in that both are obscured through the exactitude of calculation: "To calculate means to eliminate *différance*—the delay."<sup>37</sup> Referring to the improbability and indeterminacy of Dasein itself, Stiegler states that, "The structure Heidegger describes is indeed that of *différance*: because there is *deferment*, there is *differentiation*."<sup>38</sup> Further still: "The end pre-cedes Dasein as its possibility. As unsurpassable possibility, it is also the impossibility of Dasein. Improbable, it is impossible: its possibility is *only* differing and deferring."<sup>39</sup> Stiegler's explicit introduction of Derridean terms into his reading of Heidegger is much more evident in the original French version because the English translation has often not preserved this aspect of Stiegler's text. In the above quote, the expression "differing and deferring" is a translation of the single French term: "*différente*"<sup>40</sup> which obscures Stiegler's reference to *différance*. In another description of Dasein, Stiegler states: "The knowledge of the end always withdraws, is concealed in being deferred."<sup>41</sup> Instead of "being deferred" the original has "en se différent."<sup>42</sup> However, the significance of Stiegler's explicit and sustained reading of the thought of *différance* in terms of Heidegger's existential analytic must be understood in light of the reservations regarding futurity these structural parallels reveal.

In anticipation Dasein is its deferral in the indeterminacy of death, any attempt to calculate this incalculable or prove this improbable is an obfuscation of the origin of time. The parallel that Stiegler draws with the thought of *différance* is that it also undergoes only a loss in the orthographic medium of its trace and can be seen to conserve itself beyond any constitutive dependence upon specific and actual conditions of access to the already-there. Stiegler quotes Heidegger and then articulates in Derrida a similar occlusion of ontic technicity: "The closest

closeness which one may have in being-towards-death as a possibility is as far as possible from anything actual. This entire discourse describes the structure of *différance*.”<sup>43</sup> On Stiegler’s account, originary deferment opens the possibility of differentiations and increasingly exact measurements, however, the originary delay in Derrida is uncritically disengaged from the actual material conditions of technicity that open and condition all relations to time. This disengagement of the future from the specific memory supports which make it in fact possible is the basis for Derrida’s messianic figuring of the “to come” beyond every horizon of expectation or constitution.<sup>44</sup> For Stiegler, the improbability of futurity in the delay of *différance* that gives differences must remain rooted in the actual empirical technicity that supports access to the already-there: “The *différance* that Dasein is can only be disclosed to it through a prostheticity that, if it most often conceals *différance* as calculation, measure, or determination, also puts it into actual play.”<sup>45</sup> On Stiegler’s reading, Derrida has attempted to affirm a futurity that would elude its material and prosthetic roots and open beyond the condition of technicity.<sup>46</sup> Tracing the theme of futurity in Stiegler’s engagements with thinkers from Leroi-Gourhan to Derrida has demonstrated that the forgetting of originary technicity also articulates a tradition in which futurity has been envisioned as independent from the actually ubiquitous constitutivity of technics. Stiegler’s readings all had the common outcome of exposing an uncritical understanding of the future as a time evading the horizon of technics. In every case, the constitutivity of the specific material inscription of technicity was disengaged from anticipation and the advent of a possible future. What this projection of the future beyond technics consistently obscured is the inexorably empirical and prosthetic condition of all futurity. Moreover, if all futurity is irreducibly technical and constitutively woven into material inscription, the projection of a non-technical alterity as its ultimate source can be seen to obscure the genuine resources for composing a possible future within the horizon of technical life. Stiegler’s genealogy of past futures has demonstrated that one of the most pressing challenges opened by the thought of originary technics is the task of rethinking the future at once *beyond* the futureless becoming of “real time” yet *within* the constitutive horizon of technics. In the final section, I will now present Stiegler’s own preparations in the early volumes of *Technics and Time* for a possible future that might open beyond the uncanny absence of a future in past philosophies and contemporaneous “real time.”

### III

The absence of a future which Stiegler found expressed in the widespread experience of “no future” is to be understood in terms of the phenomena of real time: “the *no future* remains to be thought (as ‘real time’ in the sense of the nondeferred).”<sup>47</sup> It is against the background of both the inability of traditional philosophy to compose a future and the contemporary crisis of real time that Stiegler’s own preparations for a different future in the early volumes of *Technics and Time* can be brought to light. For Stiegler, real time constitutes: “the fundamental trait of contemporary technology”<sup>48</sup> as the industrially produced instantaneous temporality of data computation and mass media. What is distinctive about real time is that, unlike all traditional conceptions of time as opening from out of an originary deferral, real time is an ordering of time in which the speed of its synchronization has covered over its rooting in an originary deferral. This technical synthesis of time transpires at the speed of light and enacts an obfuscation of the deferral which opens time itself. Because time can only be what it is as deferred, the instantaneous character of real time, having covered over its deferral to an almost absolute degree, can be seen to pose the threat of a de-temporalization of time. For Stiegler, the non-deferred instantaneity of real time raises the unprecedented spectre of the: “disappearance of time in time itself.”<sup>49</sup> What is covered over in the ubiquitous and banal present of real time is the earlier granting of the possibility of temporal differentiation by a technically articulated *différance*.

Perhaps the most dangerous aspect of real time, in addition to its specific difference dissolving effects, is that it occludes the rooting of time and space in the originary deferral of *différance* and conceals in advance the need and possibility for the opening of a different future. The work of *différance* as the becoming-time of space and the becoming-space of time is understood as the condition from out of which any specific differentiations are given. With the covering over of the work of *différance* what is also concealed is the possibility of the creation of differences that could open beyond the synchronic calculations of real time and reopen the possibility of a different future. For Stiegler, the seemingly total instantaneity of real time remains rooted in *différance* and “does not exclude the work of *différance* but conceals it in an essential manner”<sup>50</sup> and further, real time is: “an exit from the deferred time specific to the history of being that seems to constitute a concealing of *différance* and a threat to all kinds of difference.”<sup>51</sup> This covering over of *différance* in real time is equally the obfuscation of place: “the occultation of *différance* is the in-*différance* of a non-place (‘no future’ does not mean ‘nothing

*happens* anymore’).”<sup>52</sup> However, in contrast to Derrida, the opening of a possible future is not figured in terms of the deferral of *différance* as in excess of all anticipation and technical inscription, but rather, is thought from within the horizon of technics.

For Stiegler: “*Différance* does not exist without the technologic of differentiation.”<sup>53</sup> Instead of thinking the future from out of the messianic absolution of *différance* over every specific figuration of time it makes possible, Stiegler can be seen to call for a futurity that would relate to that excess as opening the possibility of *composing* specific differences. Since, for Stiegler, *différance* is articulated through technics, any projection of a futurity beyond technics would amount to an empty formalism which obscures the actual need to think a possible future wholly within the condition of technicity. Rather than the tropes of piety which Derrida invoked before the absolute alterity of a possible future to come, Stiegler, in explicit rejection of the messianic, can be seen to think the relation to a possible future in terms of adoption, making and invention. Although it is beyond the scope of the present essay to develop further, it is perhaps here, in terms of the need to produce criteria for a possible future, that Stiegler’s calls for a *politics* of technology most clearly diverge from Derrida’s approach to technics and futurity. In what is clearly a virtue of his thought, Stiegler’s politics of technology can be seen to articulate the exigency of a possible future as entwined with the need for concrete forms of engagement with the specific dangers and resources of our technological epoch.

Stiegler’s rethinking of futurity is articulated in terms of a possible transformation of becoming [*devenir*]. This sense of becoming is not to be understood in simple opposition to an unchanging being, but rather, as a site of possible composition: “The question is time, becoming *qua* the bringing into play of the non-programmed, the im-probable, and destiny *qua* nonpredestination, the decision.”<sup>54</sup> In the English translation of the second two volumes of *Technics and Time* this crucial term is rendered sometimes as “becoming” and other times as “to-come” in an attempt to capture its sense of futurity. The concept of becoming defined as changing states linked by cause and effect does not itself constitute a future but must be understood as a basis that can undergo transformation into a possible future: “If the to-come is not the future, there is no future without the to-come, but there is a to-come without future.”<sup>55</sup> The simple equation of becoming with the future amounts to a kind of mechanistic cancellation of the future.<sup>56</sup> In contrast, Stiegler will describe the need for a production of differences that are irreducible

to this uniform order of becoming. The differences which could be opened between mere becoming and a possible future are to be composed and prepared for through an evaluative criteriology.

One of the most important contexts for understanding the pressing need for a criteriology which would be the basis for the adoption of the to-come of a possible future is the recent rise of technoscience. At once, “[t]he to-come, which is today in its broadest tendencies the fact of technology, is subsumed [*inféodé*] to technoscience”<sup>57</sup> and this conjugation of technics, science and the anticipations of investment capital: “signals the opening of a future that is to be systematically explored through experimentation.”<sup>58</sup> In what Stiegler refers to as “axiomatic ontology,” in which the possible was merely a modality of the real, traditional science understood itself as the progressive discovery of what is, i.e. the real. The rise of technoscience which merely utilizes the real as a basis for inventing the possible, represents the disruption of this traditional order. This condition of technoscientific disruption at once articulates the need for a critique of technoscience and an evaluative criteriology for the possibility of a to-come beyond the current technoscientific ordering of a systematic futurity.

For Stiegler, becoming in itself is merely entropic and denotes a technical synthesis of time that is forever without a future. Nor is a future opened by the mere interruption of becoming: “*Becoming*, which has been *disrupted*, does not produce a *future*.”<sup>59</sup> Instead, what is called for is: “the *transformation of this becoming into a future*.”<sup>60</sup> Stiegler returns to the interface between the indeterminate and calculation, the improbable and the probable, and calls for a dynamic recomposition of these elements in terms of a new criterion. This difference which is to be created is not simply an adaptation to becoming, which would merely be another entropic sequence, rather this difference is understood as one that is to be invented: “adoption is not a simple *adaptation* to becoming, but its projective transformation into a possible future as the implementation of a criterion that has been “invented” in the sense that it is projected onto the retentional screens forming the machinery of its time.”<sup>61</sup> Perhaps the most important criterion that Stiegler sets for this created difference that could open upon a different future, is the distinction between entropic and negentropic organizations of matter.

The opening of a future beyond the entropic becoming of real time is explicitly described in terms of differences to be created: “differences that could be produced would be capable of constituting an *adoptable to-come*, a future.”<sup>62</sup> The in-

vention of a specific difference that could open onto a different future is one that would distinguish between the entropy of mere becoming and its negentropic re-organization. In contrast to the “growing entropy – or what Nietzsche calls *the desert*”<sup>63</sup> a “neguentropic difference”<sup>64</sup> could provide a criterion for the desynchronization of real time and the possibility of composing new configurations of time and space. This possibility at once would assume *différance* as what opens the negentropic deferral of entropy in all life and specifically the technically mediated futurity of human life. What distinguishes Stiegler’s futurity is that the deferral of *différance* is not absolutized but understood as always entwined with the material specificity of a technically articulated difference. Rather than a future which would advent from beyond the specific forms of time shaped by ontic technicity, the opening of a negentropic futurity is conceived wholly within the medium of technical materiality as a creative *trans*-formation. The “to come” of this futurity is understood in terms of the creative cultivation of the technically opened improbable and indeterminate dimensions of prosthetic life. The negentropic composition of a possible future to come is shaped from out of the indeterminate always to come of the continual entropic deferral at the heart of technically mediated life. While the question of a possible future has become only more pressing with the recent articulation of our epoch as the Anthropocene, many aspects of Stiegler’s early treatment of futurity can be seen to look forward to his most recent work on this theme.

In a recent lecture, “Escaping the Anthropocene” Stiegler states: “Our question is the future—of work, of knowledge and of everything this entails and generates, that is, everything—insofar as it *is not soluble* into becoming.”<sup>65</sup> Stiegler approaches the current epoch of the Anthropocene as the unsustainable systematic production of entropy which he more exactly defines as the “Entropocene.” The particularity of this current epoch is that it is dominated by a global negative protention, the awareness of an end, a *nihil* which Stiegler interprets in Nietzschean terms as “completed nihilism” whose overcoming is described as: “the transvaluation of becoming into future.”<sup>66</sup> The perception of the absence of a future in this epoch is paired with the growing inability to compose a future beyond the prefabricated protentions imposed by increasing automatization in all areas of life. The result is a projected becoming that: “our organological and pharmacological condition no longer allows us to succeed in *trans*-forming into a future.”<sup>67</sup> For this reason Stiegler states: “The great organological question in the contemporary Anthropocene is protention.”<sup>68</sup> The evaluative criterion for the production of differences which could transform becoming into a future is understood in terms

of the transformation of entropic becoming to negentropy. This transformation marks the possible transition from the Anthropocene into what Stiegler terms the “Neganthropocene”: “If there is to be a future, and not just a becoming, the value of tomorrow will lie in the constitutive negentropy of the economy-to-come of the Neganthropocene.”<sup>69</sup> Even from this cursory overview, the continuity between Stiegler’s early treatment of futurity and his most recent work can be clearly seen. This continuity can be traced in terms of the composition of a possible future as wholly technical, the critique of real time, the structuring of a possible future as the transformation of becoming and the preparation for this possibility in terms of the creative production of negentropic differences.

In the intervening years since the first volumes of *Technics and Time* Stiegler has widened his thought to include political economy, media studies and social theory in order to understand and respond to our increasingly unsustainable epoch. However, the philosophical basis behind many of those perspectives can often be seen as originally and more fully articulated in the early volumes of *Technics and Time*. One of the often overlooked achievements of these early works is Stiegler’s rethinking of the meaning of futurity that arises from his understanding of the technicity of human temporality. While traditional concepts of futurity have all been uncritically predicated upon the projection of an extra-technological donation of time, Stiegler can be seen to both diagnose this residual metaphysics and begin the task of rethinking a new composition of futurity as such. In terms of the reception of the early volumes of Stiegler’s *Technics and Time*, their continuity with his later thought, and potential resources for articulating our current technological epoch, the thought of a technical futurity, a possible future not beyond, but of technics, can be seen as one of the most crucial aspects of Stiegler’s thought. When the time of human life is seen as irreducibly technical, the dimension of the future takes on the character of an aspect of life to be created and conserved. It is from out of this possible future created through the negentropic power of life, that future life can, perhaps, be granted more time.

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## NOTES

1. Bernard Stiegler, *Technics and Time, 2 Disorientation*. Trans. Stephen Barker. Stanford: Stanford University Press, 2009, 32.
2. To date there are three volumes with plans for a possible three more: *La technique et le temps, 1. La faute d'Épiméthée*. Paris: Galilée, 1994. *La technique et le temps, 2. La désorientation*. Paris: Galilée, 1996. *La technique et le temps, 3. Le temps du cinéma et la question du mal-être*. Paris: Galilée, 2001. The three corresponding English translations are: *Technics and Time, 1 The Fault of Epimetheus*. Trans. Richard Beardsworth and George Collins. Stanford: Stanford University Press, 1998. *Technics and Time, 2 Disorientation*. Trans. Stephen Barker. Stanford: Stanford University Press, 2009. *Technics and Time, 3 Cinematic Time and the Question of Malaise*. Trans. Stephen Barker. Stanford: Stanford University Press, 2011.
3. For example see: *Stiegler and Technics*. Eds. Christina Howells and Gerald Moore. Edinburgh: Edinburgh University Press, 2013.
4. This theme is announced in Stephen Barker's "Transformation as an Ontological Imperative: The [Human] Future According to Bernard Stiegler." *Transformations*, 17, [http://www.transformationsjournal.org/issues/17/article\\_01.shtml](http://www.transformationsjournal.org/issues/17/article_01.shtml) (Accessed 29 December 2016). While this is an instructive treatment of the concept of transformation, there is no discussion of temporality or futurity as such. Arthur Bradley admirably captures the importance of this theme when he states: "In Stiegler's account, what is at stake in the question of hypomnesia today is nothing less than the future – or lack of it – of the human experience of time." in Arthur Bradley, *Originary Technicity: The Theory of Technology from Marx to Derrida*. New York: Palgrave Macmillan, 2011, 126. However, although a chapter of this book is devoted to Stiegler there is no extended engagement with the question of futurity.
5. For example see: Bernard Stiegler, "The Anthropocene and Neganthropology" available at: [https://www.academia.edu/12693668/Bernard\\_Stiegler\\_The\\_Anthropocene\\_and\\_Neganthropology\\_2014\\_](https://www.academia.edu/12693668/Bernard_Stiegler_The_Anthropocene_and_Neganthropology_2014_) (Accessed 29 December 2016). Bernard Stiegler, "Escaping the Anthropocene" [https://www.academia.edu/12692287/Bernard\\_Stiegler\\_Escaping\\_the\\_Anthropocene\\_2015\\_](https://www.academia.edu/12692287/Bernard_Stiegler_Escaping_the_Anthropocene_2015_) (Accessed 29 December 2016). This theme is stressed at the opening of his most recent series: "The escape from the Anthropocene constitutes the global horizon of the theses advanced here." Bernard Stiegler, *Automatic Society: The Future of Work*. Trans. Daniel Ross. Cambridge: Polity, 2016, 7. Cf. also: Bernard Stiegler, *Dans la disruption: Comment ne pas devenir fou?* Paris: Les Liens Qui Libèrent, 2016.
6. Stiegler, *The Fault of Epimetheus*, ix. *La faute d'Épiméthée*, 11. The English translation of "un avenir" as simply "a future" does not capture the specific sense of futurity here which is not the future "le futur" to come in a merely chronological sense, but rather, a futurity as thought from out of a radical undecidability. Moreover, this pairing of a future "un avenir" and all possibility to come "à venir" should be read as an explicit engagement with Derrida's contemporaneous work on this theme. Cf. Jacques Derrida, *Specters of Marx*. London: Routledge, 1994. This engagement with Derrida regarding futurity continues in Stiegler's most recent work, see: Stiegler, *Automatic Society*, 244.
7. Stiegler, *The Fault of Epimetheus*, ix. *La faute d'Épiméthée*, 11.
8. Stiegler, *The Fault of Epimetheus*, 276. The reference to Blanchot in this passage is clearer in the original French because earlier quotes from "On a Change of Epoch" regarding the "wall of time" were translated as "time barrier" whereas Stiegler consistently employed the one expression: "le mur du temps." Cf. *The Fault of Epimetheus*, 15.
9. Stiegler, *The Fault of Epimetheus*, 17. *La faute d'Épiméthée*, 31.

10. Stiegler, *The Fault of Epimetheus*, 54.
11. Stiegler repeatedly plays on the pairing of cortex/silex in the original French.
12. Stiegler, *The Fault of Epimetheus*, 153.
13. Paul Virilio's concept of speed was clearly an influence on Stiegler, however, his elaboration of speed in *Technics and Time* is not simply reducible to Virilio's account. Stiegler describes speed as what: "remains unthought" *The Fault of Epimetheus*, 15. This more originary sense of speed is even able to re-articulate an aspect of *différance*: "*différance* is itself also a conjunction of space and time more originary than their separation. It is in this sense, then, that *différance* will, perhaps, have to be thought as speed." *The Fault of Epimetheus*, 146. For an excellent treatment of the theme of speed in *Technics and Time* see: Ulrik Ekman, "Of Transductive Speed – Stiegler." *Parallax* 13 no.4 (2007): 46-63.
14. Stiegler, *The Fault of Epimetheus*, 17. *La faute d'Epiméthée*, 31. The force of this key passage has been diminished by not following Stiegler's deliberate repetition of the word "conquest." In the original, the sense of technics as emerging within life's conquest of mobility is more explicit. The expression "conquest of mobility" is at once taken from Leroi-Gourhan, and reinterpreted in terms of speed: "The conquest of mobility, *qua* supernatural mobility, *qua* speed..." *The Fault of Epimetheus*, 146.
15. Stiegler, *The Fault of Epimetheus*, 159.
16. Stiegler, *Disorientation*, 1.
17. It is in terms of the possibility of a transformed future that Stiegler's most explicit proximity to Nietzsche can be seen. At the opening of *The Fault of Epimetheus* Stiegler names Nietzsche as, although largely unmentioned, one of his most important interlocutors. Across the *Technics and Time* series, his specific references to Nietzsche often address the crisis and need for a different futurity: "The desert grows' says Nietzsche, the philosopher of the future. But *this* desert, a kind of hell, this becoming through which 'desertification' is now to be understood, has no future." *Cinematic Time and the Question of Malaise*, 102. For Stiegler, Nietzsche is able to diagnose the "growing entropy" of mere becoming as the desert of completed nihilism. The proximity this opens can be seen in terms of the dire necessity to think a transformed future from out of the negentropic resources of prosthetic life.
18. Stiegler, *The Fault of Epimetheus*, 156.
19. For an excellent account and critique of Stiegler's reading of Leroi-Gourhan see: Christopher Johnson's "The Prehistory of Technology: On the Contribution of Leroi-Gourhan" *Stiegler and Technics*. Eds. Christina Howells and Gerald Moore. Edinburgh: Edinburgh University Press, 2013.
20. Stiegler, *The Fault of Epimetheus*, 160.
21. Stiegler, *The Fault of Epimetheus*, 165.
22. Stiegler, *The Fault of Epimetheus*, 152.
23. Gilbert Simondon, *Du mode d'existence des objets techniques*. Paris: Aubier, 1958, 69.
24. Stiegler, *The Fault of Epimetheus*, 81. This verdict is reasserted in the third volume where Simondon is charged with: "introducing into technical genesis the *need for anticipation* (Stiegler's italics) in advance of any assessing of the lessons of functional matter." *Cinematic Time and the Question of Malaise*, 196.
25. For Stiegler's extended account of this difference see, Bernard Stiegler, "Temps et individualités technique, psychique et collective dans l'œuvre de Simondon." *Intellectica* 1-2, 26-27 (1998): 241-256. For a critique of Stiegler's reading of Simondon on this point see: Muriel Combes, *Gilbert Simondon and the Philosophy of the Transindividual*. Trans. Thomas LaMarre. Cambridge: MIT Press, 2013, 67-70.

26. Although Heidegger clearly does not think originary technicity, the proximity of Heidegger's early phenomenology to Stiegler's own project is perhaps greater than initially allowed. Cf. My, "A Matter of Time: Stiegler on Heidegger and Being Technological." *The Journal of the British Society for Phenomenology* 41 no. 2 (2010): 117-31.
27. Stiegler, *The Fault of Epimetheus*, 222.
28. Stiegler, *The Fault of Epimetheus*, 220.
29. Stiegler, *The Fault of Epimetheus*, 4.
30. Stiegler, *The Fault of Epimetheus*, 139.
31. Stiegler, *The Fault of Epimetheus*, 139.
32. Stiegler, *The Fault of Epimetheus*, 139.
33. Stiegler, *The Fault of Epimetheus*, 217.
34. Stiegler, *The Fault of Epimetheus*, 217.
35. Stiegler, *The Fault of Epimetheus*, 215.
36. Stiegler, *The Fault of Epimetheus*, 238. *La faute d'Epiméthée*, 243.
37. Stiegler, *The Fault of Epimetheus*, 225.
38. Stiegler, *The Fault of Epimetheus*, 216.
39. Stiegler, *The Fault of Epimetheus*, 216.
40. Stiegler, *La faute d'Epiméthée*, 223.
41. Stiegler, *The Fault of Epimetheus*, 231.
42. Stiegler, *La faute d'Epiméthée*, 237.
43. Stiegler, *The Fault of Epimetheus*, 254.
44. Their divergence on technics and futurity is even more explicit in their contemporaneous exchange, see: Jacques Derrida, and Bernard Stiegler, *Echographies of Television: Filmed Interviews*. Trans. Jennifer Bajorek. Cambridge: Polity, 2002. Especially chapter 7 in which Stiegler points to increasingly exact forms of memorization as altering our relation to the future: "aren't the current teletechnologies transforming our relationship to the past in their turn, that is to say, to the future?" Derrida, Stiegler, *Echographies of Television*, 102.
45. Stiegler, *The Fault of Epimetheus*, 234.
46. This position is reasserted in Stiegler's: "Derrida and Technology: Fidelity at the Limits of Deconstruction and the Prosthesis of Faith." Trans. Richard Beardsworth in Tom Cohen Ed. *Jacques Derrida and the Humanities*. Cambridge: Cambridge University Press, 2001.
47. Stiegler, *The Fault of Epimetheus*, 221.
48. Stiegler, *Disorientation*, 63.
49. Stiegler, *The Fault of Epimetheus*, 221.
50. Stiegler, *The Fault of Epimetheus*, 230.
51. Stiegler, *The Fault of Epimetheus*, 276.
52. Stiegler, *Disorientation*, 241.
53. Stiegler, *Disorientation*, 143.
54. Stiegler, *The Fault of Epimetheus*, 172. *La faute d'Epiméthée*, 181. The English translation has omitted the final word of the sentence: "la décision" which I have included.
55. Stiegler, *Cinematic Time and the Question of Malaise*, 176.
56. This sense of futureless becoming has been described in Stiegler's recent work in terms of automation as: "the fatality of an *automatic becoming* [*devenir automatique*] that is, a becoming without future [*sans avenir*]." Bernard Stiegler, *What Makes Life Worth Living: On Pharmacology*. Trans. Daniel Ross. Cambridge: Polity, 2013, 53. Cf. especially: Bernard Stiegler, *Automatic Society: The Future of Work*. Trans. Daniel Ross. Cambridge: Polity, 2016. This theme appears to continue

in the projected next volume: *L'avenir du savoir*.

57. Stiegler, *Cinematic Time and the Question of Malaise*, 176.
58. Stiegler, *Cinematic Time and the Question of Malaise*, 191.
59. Stiegler, *Cinematic Time and the Question of Malaise*, 7.
60. Stiegler, *Cinematic Time and the Question of Malaise*, 7.
61. Stiegler, *Cinematic Time and the Question of Malaise*, 175.
62. Stiegler, *Cinematic Time and the Question of Malaise*, 224.
63. Stiegler, *Cinematic Time and the Question of Malaise*, 171.
64. Stiegler, *Cinematic Time and the Question of Malaise*, 171.
65. Stiegler, "Escaping the Anthropocene", 15.
66. Stiegler, "The Anthropocene and Neganthropology", 7.
67. Stiegler, "The Anthropocene and Neganthropology", 12.
68. Stiegler, "The Anthropocene and Neganthropology", 4.
69. Stiegler, "Escaping the Anthropocene", 6.

## life after extinction

joshua schuster

Extinction is a fact of biological periodicity and deep time, yet knowledge of the finitude of species is also a marker of modernity and the present. The extinction of species is one way we have come to understand both vast stretches of time past and the precariousness of life today. It was only in the early nineteenth century that species extinction began to be accepted as scientific fact, with evidence of animal remains unearthed whose anatomy did not identically correspond to any living beings. Yet it is no coincidence that early theories of extinction by Cuvier and Darwin arose at the same time as a visible rise in animal extinction rates began to occur. Darwin's account of extinction in *The Origin of Species* drew on testimonies of animal depletion from naturalists spread across the globe and located also right in England, where Darwin was witnessing in his lifetime evidence of island biogeography diminution of species.

An extinction event is paradoxically both eliminative and generative in Darwin's model, in that the loss of one species frees up opportunities, resources, and space for another.

The theory of natural selection is grounded on the belief that each new variety, and ultimately each new species, is produced and maintained by having some advantage over those with which it comes into competition; and the consequent extinction of less-favoured forms almost inevitably

follows.... Thus the appearance of new forms and the disappearance of old forms, both natural and artificial, are bound together.<sup>1</sup>

Darwin elaborates:

for as new forms are continually and slowly being produced, unless we believe that the number of specific forms goes on perpetually and almost indefinitely increasing, numbers inevitably must become extinct. That the number of specific forms has not indefinitely increased, geology shows us plainly; and indeed we can see reason why they should not have thus increased, for the number of places in the polity of nature is not indefinitely great.<sup>2</sup>

The emergence of new life forms is intimately bound with the destruction and vanishing of old forms. New existences arise on the graves of old, the new forms of life that live on are bound together with the specters of other species, and the emergence of new species means that death to the point of extinction is the fate of other, “less-favoured” forms of life.

There is no clock that tells us when extinction will happen for a given species, yet statistically there are measurements of the average rate of extinction and also measurements of extraordinary accelerations in extinction, or mass extinction events. Paleontological research indicates that approximately 99 to 99.9% of all species in the history of our planet have gone extinct.<sup>3</sup> Ernst Mayr estimates that well over one billion species have disappeared in the history of the earth.<sup>4</sup> These numbers show the astonishingly devastating yet consistent and functional role that extinction plays in speciation. Species extinction often follows statistical norms but also is capable of huge fluctuations and casting norms of life aside. In the language of nineteenth century biology, extinction is both uniformitarian and catastrophist. Extinction is regulative and alarmist, functional and apocalyptic, regenerative and disastrous, manageable and entropic, universally permanent yet perhaps locally reversible. How do we comprehend this condition where both the fragility and regularity of conditions is built into what makes them possible in the first place?

I do not take it for granted that we know what are the philosophical, psychological, literary, and biological effects of extinctions, or even to what extent extinction can be cognized at all. Circumstances of contingency and finitude suffuse

processes of natural selection at work in the generation and collapse of life, and it is an open question how these same circumstances factor into any philosophical conceptualization of life. Extinction also raises fundamental ontological questions that extend beyond any philosophy of life. Life is not the same as being in general, and so biological questions raised by extinction have limited relevance to general philosophy. But if life is only one domain of ontology and not any special or privileged medium for asking ontological questions, how then should one construct a philosophical thought on life within its own limits and parameters, and especially within its own finitudes?

In Eugene Thacker's *After Life*, a study of the genealogy of the generic characterizations of life in philosophy, he shows that ontological categorizations of life that have become standard in Western philosophy resort to defining life with terms that are not strictly biological and are more properly metaphysical. Concepts such as temporality, finality, and immanence are used to define life but do not signify life by themselves. Thacker situates the long history of proposed ontologies of life as residing in a zone between biology and metaphysics first established in the work Aristotle. Aristotle's attempt to offer both an empirical and general (transcendental) definition of life inaugurates a long-standing, intractable ontological dilemma: "On the one hand, any concept of life must be transcendent to life in order to account for its ephemeral nature and its propensity to change. On the other hand, any concept of life must be immanent to life in order to demonstrate the inseparability between principle and manifestation."<sup>5</sup> One of the intrinsic problems here is that any overarching concept of life already may be too generic or abstract, indeed, too conceptual, to be directly pertinent to the complex and provisional concatenations of matter that support life. The philosophical battles at the level of generic ontology end up being over competing abstract conceptualizations of life that move further and further away from the contingent histories of actual plants and animals. Abstraction on its own is not the problem, yet this emphasis on a generic theory of life slants biological problems towards the realm of the cognitive and the categorical. But the constitution and limits of thought are not necessarily the same as the limits of life and life processes. The task then is to elaborate a theory of the living from within biological events that make and unmake life, rather than assume an abstract ontology independent of biological events.

Here I will claim that Darwin develops a philosophy of biology that provides a rigorous yet open-ended baseline of how speciation works that shows extinction

to be both an immanent and statistically common outcome of biological systems as well as a unique event involved in the making and unmaking of species. In Darwin's model, both difference and collapse, or speciation and extinction, define the condition of species, yet a significant number of recent philosophers of life coming from diverse methodological backgrounds have put an almost exclusive focus on the *becoming* of speciation. Darwin's emphasis on including extinction within the ambit of regular biological processes has been repeatedly underrated in a wide variety of philosophies of life from the past century, including Henri Bergson's *vitalism*, Gilles Deleuze's *neo-vitalist* philosophy of virtual life, and Richard Dawkins' *genetic reductionism*. I discuss how vitalist and reductionist philosophies of life both appeal to meta-biological principles of the infinite repeatability of life (Deleuze) or the theoretically immortal germ plasm/DNA (Dawkins). Both kinds of philosophies underplay how the extinction of species conditions the conditions of life. I then turn to some arguments for and against the overlapping of the biological and the philosophical in thinking extinction proposed by Quentin Meillassoux and Ray Brassier. Both Meillassoux and Brassier argue that precariousness applies to all things in the universe, and Brassier goes as far as to make extinction the index of a kind of transcendental entropic principle. Both philosophers take the undoing of life well beyond the biological into assertions about a general ontological condition, which effectively makes the specific precariousness of biological life not very important in their thinking of extinction. By making extinction so radically pervasive (although Meillassoux will ultimately argue that this is not the final principle of the universe), biological extinction and the vicissitudes of species forms lose their specificity and coherence. Ultimately the critique I make of Meillassoux and Brassier is not of their conclusions, but in the way their methodologies skip over addressing a number of steps and distinct phases that makes extinction a coherent biological problem to begin with. The steps by which species are made and unmade need further scrutiny to understand what extinction means for the biological condition, and this methodological focus need not be instantly recombined with metaphysics. Finally, the essay finishes with a return to emphasizing the relevance of Darwin's description of the sustenance and collapse of life together in the same unfolding processes of evolution.

The bulk of this essay provides a critical assessment of philosophies of life that minimize and discard extinction or philosophies of extreme contingency that render extinction too abstract or absolute, but then what theory of extinction is to be offered instead? Rather than aiming for a generic theory of life or death, I am interested in how to account for the lives of species in the context of the way

the biological condition incorporates an inevitable unraveling of its own biological systems. Instead of beginning with meta-biology or an abstracted formal definition of life, the thought of extinction must first contend with how extinction happens within biological life, even as it empties biology from within. Even if the initial cause of an extinction event is something biologically external—a comet or a severe change in climate—what ensues is a breakdown at the species level of the survival and reproductive capacities that maintain organisms and allow future speciation. Ways of living involve species in both the elaboration and breakdown of the internal/external differences that maintain life; these processes of living overlap with processes of dying such that both condition the conditions of life. At the same time, as Darwin shows, extinction is part of the process of speciation and can contribute to a broader (but not indefinite) proliferation of life. Extinction then entails questions about what species are, what we mean by the term species, how individuals and species are co-implicated, and what are the limits of life—and extinction raises these questions in the very disintegration of life.

The reason I turn to yet another rethinking of Darwin is to draw out his insistence that life is made and unmade in the same extended process, meaning that extinction is not an isolated, secondary outcome of life but has causal effects throughout the process of speciation. “No one I think can have marvelled more at the extinction of species, than I have done,”<sup>6</sup> Darwin stridently announced in *The Origin of Species*. What seems so strange then is how many of the prominent theorists of Darwin in the traditions of critical theory and reductionist science have ignored this declaration. This is not to say Darwin got everything right about extinction—for example, he thought it very unlikely that extinction could happen at a fast rate and did not support the theory that mass extinctions could have happened.<sup>7</sup> I turn to Darwin to emphasize how his thinking of extinction as immanent to the conditions of the biological proves crucial in providing a factual account of species finitude and a theoretical model for thinking how species can be defined as changing and self-differentiating but also as prone to complete disappearance. Darwin’s work establishes a view of life both enabled and effaced by extinction, which allows for a conceptualization of species uniqueness and the development of biological thought based on how the immanent conditions of life also immanently un-work themselves. Species extinction has both empirical and ontological consequences, and both must be accounted for methodologically in any theory of life. “When a species has once disappeared from the face of the earth, we have reason to believe that the same identical form never reappears,”<sup>8</sup> Darwin writes. The loss of any single species is a unique moment such that there will never be

that form of life again, and this subtraction has rippling effects on the conditions of any further conditions of life. The Darwin I examine then is a thinker of both becoming and the failure to become, species transformation and species eradication, difference and devastation, uniqueness and erasure.

Throughout this essay, I make a case for focusing on the species form as a crucial biological object that allows for extinction to be coherent in the first place, even as any specific species form is continually changing and symbiotically entwined with other species. I argue against tendencies to *overmine* and *undermine* the species form (to borrow Graham Harman's terms<sup>9</sup>) as something secondary and of minor importance because it is supposedly superseded by larger ontological processes such as vitalism or is seen as a temporary manifestation of activity that essentially occurs at the micro-cellular level of the gene and gene pool. Deleuzian theorists of the philosophy of biology argue for a *productionist* view of speciation that views organisms as constantly changing and creating, even, paradoxically, when they die. This view relies on implicit assumptions that life can be generative indefinitely without much regard to species forms, ecological limits, or to the failures and finitudes of extinction. While Deleuze overmines the species form with his generic vitalism, many reductionist and eliminativist neo-Darwinian philosophies undermine the species form and put overly restrictive limits on how to understand biological extinction by focusing on genomic activity exclusively or by shifting from problems of biology to problems of cognitive theory. Extinction, in this reductionist context, is seen as just an inevitable material circumstance that seemingly does not tell us much about biological processes other than showing how a germ line ends or the closing of the window of consciousness. In contrast to these positions, the Darwin that I sketch here is not just a thinker of effusive generative difference nor committed to explaining all biological systems as following a generic, perpetual mechanism of natural selection, since the conditions of natural selection are themselves conditioned by the fate of species. Rather there is another Darwin who combines collapse and continuity, the melancholic and the normal, in the self-same processes that make life livable and unlivable.

We need a more robust conceptualization of extinction not just because it will tell us more about the end of thought and the finitude of being, but also because it will tell us more about how biological systems work and un-work themselves immanently. There does not need to be a direct metaphysical payoff for this line of inquiry. The task then here is to think conceptually about evolution and to build a theoretical understanding of extinction but without necessarily favoring high

conceptual problems or metaphysical controversies. Clearly, one of the reasons that a careful attention to extinction matters is because to think ecologically and to be knowledgeable about the lives of animals (including ourselves), we need to understand how they flourish and how they fail, how biodiversity thrives and how it collapses. If we are to live ecologically as best we can, we need to develop complex theorizations of how ecologies are made and unmade. If we only understand the generative and creative aspects of embodiment and ecosystems, we will not have a complete picture of how fragility as much as vibrancy is at stake in matter and life. Here I make use of the term *precarity* to signal the unstable means of biological systems as well as the way individual lives and species flourish or fail in and through these unstable means.<sup>10</sup> The species form is its own precarious object that concerns not just generativity and difference; fragility and failure is at stake in both structuring and unstructuring processes throughout the entire course of speciation.

## THE SPECIES FORM AS MOVING BASELINE

Any theory of how life is imbricated with extinction must address “the species problem”<sup>11</sup>: namely, it is not clear that we even know how to define species today. Are species a natural kind or a classificatory convention? Should species be defined by DNA, descent, shared capacity to sexually reproduce, structural homology, regional and temporal isolation, or some other criteria? How do we differentiate between species and speciation, or variety and the process of variation? In several instances in *The Origin of Species*, Darwin indicates he recognizes the ambiguity of the term from the outset, but also welcomes the conceptual vagueness that comes with the notion of species. “Nor shall I discuss the various definitions which have been given of the term ‘species.’ No one definition has satisfied all naturalists; yet every naturalist knows vaguely what he means when he speaks of a species.”<sup>12</sup> Darwin repeatedly states that he finds no consistent way to distinguish species from varieties, and ultimately suggests that the distinction is more a problem for taxonomists than relevant to the lives of organisms: “It is immaterial for us whether a multitude of doubtful forms be called species or sub-species or varieties.”<sup>13</sup> The ambiguity of the concept of species does not get in the way of Darwin’s investigations; rather, he is able to better theorize speciation because he does not insist on a strict definition of species even while he retains the species form as important to biological processes. He keeps the species form even as he deconstructs it. Darwin is helped by the looseness of the term to distance his ideas from essentialism or previously fixed taxonomies, yet he does not cast aside

the species form completely. At the same time, Darwin also recognizes that no one really knows what a species is or can do.<sup>14</sup>

The question of the need to consider the species form as a coherent unit, or even as something central to natural selection at all, has been raised more recently by Richard Dawkins in the context of his argument that genes should be first and foremost the focus of natural selection since they are the only direct replicators of life. Dawkins argues that the species form is just a provisional development of the underlying genome and does not play a primary role in evolution, since animals only directly pass on their genomes rather than their species form or phenotype. According to Dawkins, “One feature of life in this world which, like sex, we have taken for granted and maybe should not, is that living matter comes in discrete packages called organisms.”<sup>15</sup> Dawkins does not mean that the organism or the species form is irrelevant to biological processes, rather he states that organisms are not exactly discrete packages and do not reproduce themselves as a single, full-bodied entity. He then makes the case for seeing the organism as one form of an “extended phenotype” intermingling among others. Dawkins argues then that organisms are, in effect, just one possible package or extended phenotype shape for genes to express themselves. He calls species “temporary aggregations,”<sup>16</sup> comparing them to clouds always changing shape.

Dawkins’ view of the gene is consistently productionist, in that one of the gene’s defining characteristics is its apparently endless generation and regeneration. In *The Selfish Gene*, Dawkins mentions that he could have titled the work *The Immortal Gene* on the suggestion of a friend,<sup>17</sup> and calls DNA “immortal coils.” Extinction for Dawkins simply represents the elimination of particular genes from a gene pool that is seemingly set on autopilot to reproduce indefinitely. Dismissive of any romance of the species form, Dawkins’ position views the end of a species as an end to certain genotypic and phenotypic effects. Yet Dawkins’ work also provides the insight into how “extended phenotypes” matter at the genomic level as well as the ecological level, and thus the eradication of phenotypes has consequences for the genotypes and phenotypes of other species. In other words, the loss of the species form has consequential effects at more than one level, from the gene to the ecosystem. To understand the broad stakes of extinction, one must account for these losses at multiple levels, rather than assuming one form of loss (the gene pool) is ultimately all that matters.

In contrast to Dawkins' insistence that organisms or species forms have only a secondary or indirect role in natural selection, Stephen Jay Gould argues that natural selection pressures work on several different levels of life simultaneously, from the gene to the cell to the individual to the population. Regarding the species form, Gould argues that species are tightly bound and functionally integrated,<sup>18</sup> and not as fluid or cloud-like as Dawkins makes them out to be. According to Gould, "Species act as well-defined Darwinian individuals, not as arbitrary subdivisions of a continuum."<sup>19</sup> Gould is well known to be critical of views that are associated with gradualism that claim a slow and steady process of speciation, but his related dismissal of a "continuum" theory of life will prove resonant with the philosophy of continual becoming in Deleuze as we shall see shortly. Against this position, Gould states the case for a view of "punctuated equilibrium" that entails highly variable rates of speciation and extinction, often occurring in brief bursts followed by long periods of little change. Overall, Gould calls his approach a "hierarchical theory of multi-level selection" that is not reducible to one evolutionary location or situation, hence the need to take the species form into account as much as the genome in offering a layered causal modeling of biological events. Gould's anti-reductionist conclusion is that "by defining species as the basic units or atoms of macroevolution—as stable 'things' (Darwinian individuals) rather than as arbitrary segments of a continua—punctuated equilibrium precludes the explanation of all evolutionary patterns by extrapolation from mechanisms operating on local populations, at human timescales, and at organismic and lower levels."<sup>20</sup> Gould's warning against "extrapolation" from one scale or level of causality to all others (which he accuses Dawkins and other reductionists of doing) will return in a different argument later in this essay concerning the capacity to make metaphysical extrapolations from the fact of biological finitude.

Shifting from the term *life* to the term *species* does not solve all conceptual problems regarding extinction, but it does diminish the need to establish a generic definition for organisms and instead builds on how multidimensional aspects of living beings are made and unmade in the overall conditions of speciation. The species form is the manifestation of the intertwined play between genotypes and phenotypes, symbioses and auto-immunities, a *moving baseline* that indicates the integrity of the species form even as genotypes and phenotypes can fluctuate. Genomes are repeatable and consistent yet also are prone to inconsistent timing, error, mutation, external tampering, symbiosis, and dissolution. The genome itself continuously makes and unmakes itself, integrates and disintegrates, as it duplicates itself but also wears itself out. Still, among these fluctuations and multiple

causal pressures, a rigorous yet mobile concept of species and speciation provides a moving baseline that allows for an understanding of how contingencies, unforeseen consequences, couplings, fragility, loss, and irreversible disappearances are built into the condition of speciation. A moving baseline allows one to track how a species changes in more than one dimension, or how environmental changes might overwhelm the possibility for a species to change. This moving baseline is not reducible to a nominalism or a heuristic, rather it accounts for the shifting qualities of embodiment of a species, including its symbioses and co-adaptations, while respecting how a unique entity is liable to go extinct. One cannot think the severity of extinction without also thinking the uniqueness and permanent loss of the species form. Extinction can entail a partial or full loss of some genes from a gene pool, but it also is the total loss of a species form, which will never be repeated and will no longer have effects on shaping environments. Furthermore, this moving baseline of the species form is necessary to provide the concept of biodiversity with its own integrity in order to understand it as something variously embodied rather than merely equated with statistical gene pools.<sup>21</sup>

## VITALISM WITHOUT SPECIES

Because the species form has historically been aligned with fixity and essentialism, there is a tendency for recent meta-biological theories of life to do away with the species form altogether in order to give primacy to the profound malleability of life. An important and prominent example of this shift occurs in the work of Gilles Deleuze. Deleuze is well known for incorporating a theory of vitalism at the heart of his philosophy of difference.<sup>22</sup> As Deleuze stated, “Everything I’ve written is vitalistic, at least I hope it is.”<sup>23</sup> For Deleuze, especially in the period of *Difference and Repetition* (1968), immanent, productive, differentiating intensities or “pure forces”<sup>24</sup> traverse both ideas and sense, providing the impetus for both thought and life. But from the outset Deleuze will assert that generic life is not the same as the living nor need it be liveable or embodied at all. Generic life, in its purest condition, is synonymous with the vitalist power of the pure virtual potentials that are developed in and through an ongoing procession of difference. There is a gap between generic life as the pure power of the virtual and life as that which can be lived. In Deleuze’s account, only the life that can be lived can die. Virtual life, which he also calls “a life”<sup>25</sup> at the end of his career<sup>26</sup>, exists as “pure immanence,” which cannot be contained in any single body subject to material growth and decay. For Deleuze, “pure” means unformed, immaterial, virtual, qualitative, unmediated, and productive. Virtual life unfolds as continuously differentiating

movement that is the quality intensive to such movement. Extensivity, the external shape or configuration of such movement, is a secondary effect of pure intensivity. Intensive movement is a continuous quality or *spatium* that cannot be segmented. Deleuze also reiterates this distinction as one between individuation as a continuous process stemming from the virtual power of life and the organism (a “dividual”) as a temporary configuration or actualization. Yet this immanent “continuum” of life is precisely what Gould rejected as noted earlier.

The difference between the intensive and extensive is important for Deleuze’s understanding of life and death. For Deleuze, the gap between bio-physical life and death is a gap external to “a life” as the pure power of the virtual. A death in the externalized physical realm has no effect on the intensive virtual conditions of “a life” other than to invite a new line of individuation. Individual organisms are temporary condescendences of the individuating process; as Deleuze states, “species and parts are not primary; they are imprisoned in individuals as though in a crystal.”<sup>27</sup> Deleuze adds, “The highest generalities of life, therefore, point beyond species and genus, but point beyond them in the direction of the individual and pre-individual singularities rather than towards impersonal abstraction.”<sup>28</sup> Another name for these singularities is intensities. Species are the differentiated actualizations of this primary condition of differences and forces of intensity. When the organism dies, these “pre-individual singularities” pursue different lines of development. Since processes of individuation and speciation draw from a source of pure immanence, bodily death does not fundamentally disturb these immanent processes or have any lasting effect on them. Extinction at the level of the species is not really a problem for individuation since the species form itself is already only transitory. A loss at the species level is not a loss at the vitalist, virtual level. This is why Deleuze uses terms from holistic embryology to describe general ontology when he declares, “The entire world is an egg.”<sup>29</sup>

Alain Badiou claims that the ontology of Deleuze’s universe is a One-All.<sup>30</sup> This One-All is a “chaosmos” in plenitude, complete and eternal, while continually differentiating itself internally. There are no gaps or voids or externals to the One-All. However, on rare occasion Deleuze also speaks of a kind of death or formlessness in the virtual, when differentiation is dissipated in an empty form. This death is a flattening of immanence into an eternal indifference without a pulse, which Deleuze describes as a kind of decentered circle.<sup>31</sup> While this death in the virtual is always a possibility for pure immanence to dissipate into its own indifference, it is questionable as to whether such a death has ever occurred anywhere in the

universe, for it would seem to mean a quiescence so indifferent to itself that it would permit no events, not even chaos. There would be no way of accounting for this death in the virtual because no possible form would be able to register this emptiness of a subtracted form. Whether or not this virtual death has occurred, how could any thought or form reach it?

Deleuze never really pursues such questions of radical finitude in his philosophy. Rather he casts death in the virtual as a kind of eternal return of chaos, which is not the same as entropy.<sup>32</sup> What happens at the level of the virtual is that the death of one intensity or line of individuation in turn frees up intensities to pursue other paths. Thus, when Deleuze states that death in the actual, in a kind of doubling back, affects a death in the virtual, he means that some intensive differences are dissolved, which frees up pre-individual singularities to act elsewhere. This is why Deleuze states that, “Every death is double, and represents the cancellation of large differences in extension as well as the liberation and swarming of little differences in intensity.”<sup>33</sup> Since only “large differences in extension” are cancelled, this is a chance for smaller, “swarming,” nomadic individuations to become “liberated” and aggregate elsewhere, hence not a death at all. A One-All would permit of no permanent subtraction, no unrecoverable energy or form, no irretrievable void. Furthermore, nowhere does Deleuze indicate that a system-wide, irreversible dissipation could ever occur within or to the One-All. Indeed, Deleuze actually argues that entropy is an illusion or a secondary phenomenon and not at all the fate of the universe. Death in the virtual remains enigmatic, if it occurs at all.

Deleuze is foremost a thinker of creativity and generativity, and his philosophizing on death and speciation is assimilated to this metaphysical engine of continual, productive differentiation. Yet in Darwin’s own theorizations of life, the role of extinction is not just to clear the way for more generativity elsewhere. The loss of a species form does indeed provide opportunities for other species to fill a vacated niche, but also marks a subtraction and elimination of other potential biological events. Extinction is a generative constraint but also a constraint on generativity. Deleuze, along with Guattari, argues in *What Is Philosophy?* that empirical science is only one relevant aspect to philosophy, and that “radical empiricism”<sup>34</sup> refers to immanent becoming in the widest sense, where philosophical time supersedes historical time. “Philosophical time is thus a grandiose time of coexistence that does not exclude the before and after but *superimposes* them in a stratigraphic order. It is an infinite becoming of philosophy that crosscuts its history without

being confused with it.... Philosophy is becoming, not history; it is the coexistence of planes, not the succession of systems.”<sup>35</sup> Aside from the problem of how philosophy itself came to supersede historical time yet still be implicated in its layering of planes, if we are to think species specificity and the loss of specific lives as important and consequential for the possibility of future lives, then coexistence in “grandiose time” and “infinite becoming” is irreconcilable even with “stratigraphic order.” There is stratigraphy because layers of sediment and rock, and the species embedded in them, are unique and have effects on subsequent layers—this is how strata are dated in the first place. There is no biological condition in which all species forms can coexist at one time—only certain biological forms are possible at certain times because the available forms contribute to the conditions of possibility for subsequent forms.<sup>36</sup>

Deleuze’s own tentative gestures to think with Darwin have been expanded more recently by Elizabeth Grosz into a fuller attempt at a synthesis of these two philosophers.<sup>37</sup> Grosz’s own work has important differences with Deleuze especially regarding her emphasis on the role of sexual and natural selection as contributing to embodied sexual difference. However, Grosz clearly favors Deleuze’s continuously generative vision—she writes of “life as the ever more complex elaboration of difference”<sup>38</sup>—and effectively dismisses extinction as nothing deeply concerning for life. Grosz claims that, by taking a wider view of life, that is, a general ontology, what Darwin offers is “a concept of life as dynamic, collective, change.”<sup>39</sup> For Grosz, any particular species form is not as important as what it can do, become, or endure. The loss of a species form is not as important as what becomings ensue elsewhere. Hence Grosz claims that Darwin offers a “new ontology, an ontology of the relentless operations of difference.”<sup>40</sup> The philosophy of life then should flourish (become, overcome) over any philosophy of finitude. According to Grosz, “If an ecology that values not only the living—the present—but also the future could be possible, it would be very close to the (non)moral ontology of Darwinism, which mourns no particular extinction and which waits, with surprise, to see what takes the place of the extinct.”<sup>41</sup> There are several problems with this statement that tries to take a longer and futurist view of ecology. To begin, there is no guarantee that anything like an inhabitable ecology will remain after an extinction event, especially if that event is at a massively catastrophic scale. Although some life did survive the five mass extinctions previously recorded on earth, there is nothing guaranteeing such survival, especially not a metaphysical principle of becoming. But even at a small scale, an extinction may mean that no animal or plant takes up the vacated niche—an island that is stripped of its biological resources

can end up effectively as a desert. The collapse of one species can lead to a collapse, not a becoming, of others. In other cases, the collapse of biodiversity could result in one species dominating all others, such that a monoculture takes root that does not signal an “ever more complex elaboration of difference.”

As noted earlier in this essay, the vast majority of life vanishes, fails, and does not survive. Why then is life as such theorized so often in terms of production, proliferation, and generativity? Creativity is certainly an aspect of the living, but so are failure and dissolution, which closes off permanently any further speciation in the case of extinction. Creativity and difference are not systematic guarantees but are themselves at stake in the making as well as unmaking of species. Any philosophy of life that sidelines extinction ends up being pre-programmed for redemption and romanticizes the creative over the uncreative or de-creative. Generic vitalist theories of life often assume that the precariousness of life means that life is constantly changing and self-differentiating, but precariousness is not the same as a metaphysics of becoming. One could say then that metaphysics of becoming are actually too powerful, or too creative—becoming is apparently never exhausted, never precarious itself. Sometimes the causal factors of precariousness in biology are not entirely clear, but one need not revert to unlimited metaphysical reserves to explain how processes of speciation can lead to both proliferating difference and eradication of modes of being and becoming.

## EXTINCTION WITHOUT METAPHYSICS

The extinction of life on earth provokes questions about whether or not the extinction or entropy of the universe is in any way or sense an absolute.<sup>42</sup> But the extinction of the universe is not at all at the same scale as biological problems internal to biology, unless we assume, as Deleuze seems to indicate, that the universe is in some way living (an “egg” or “a life”). Theorists of life may want to argue that the cosmological perspective is indeed the ultimate truth of the universe, and that vitalism cannot be dismissed based on just empirical science. But instead of tackling vitalism directly here, I am arguing that the uniqueness of biological life (not the same as vitalism or “a life”) is most profoundly theorized by Darwin and by post-Darwinian models of the making and unmaking of species. Darwinian thought and any philosophy of life as continual generation and difference are certainly at odds over the issue of extinction. If you find that extinction matters, that the specific forms of species and the loss of these forms matters, and that this loss is not just empirical but structures the conditions of possibility of biologi-

cal life, then Deleuzian vitalism cannot be a sufficient philosophy to understand such loss. Furthermore, the recognition of biological extinction powerfully puts into question some historically entrenched presuppositions about philosophies of the meaning of being and the centrality of self-consciousness in transcendental schemas.

Two important philosophical contributions to the question of how biological extinction may or may not pertain to issues of fundamental ontology are raised by Quentin Meillassoux and Ray Brassier in their recent writings. To understand the radical challenge to any thinking of extinction that these philosophers present will require a brief presentation of their arguments. Meillassoux's *After Finitude* is a daunting work of philosophy that aims to formulate a non-metaphysical and non-subjective concept of the world that is not dependent on correlating thinking to being. One motive for this argument is to provide a philosophical reasoning for how science is able to make claims about events in the universe that take place prior to the appearance of life, or any subjective condition whatsoever. These ancestral events occur independent of the conditions of thought, and thus index a fundamental non-coincidence or non-correlation of thought and being.

This essay is not the space to unpack the precise means by which Meillassoux's arguments are posited, although I will note that Meillassoux uses both logical and mathematical reasoning such as exemplified by Descartes as well as what he calls "indirect demonstration"<sup>43</sup> of the "speculative thesis" (60) of the absolute necessity of contingency. Proceeding from logic and mathematics, according to Meillassoux, distances philosophy from dogmatic assertions of metaphysical first principles and subjectivist frameworks, but philosophy need not be based on or even be beholden to empirical scientific evidence. To contrast Meillassoux and Brassier on this methodological point, Brassier proceeds primarily by induction, extrapolating from the empirical scientific evidence of the extinction of life and thought to arguments for establishing mind-independent objective reasoning. The difference between inductive, scientific reasoning and indirect, speculative reasoning will be important for thinking about extinction, as I will argue in a moment.

As Meillassoux elaborates his argument for being able to think an absolute factual reality independent of the conditions of thought, he examines two foundational yet non-metaphysical principles consistent with math and ontology: the logic of non-contradiction and Cantorian set-theory that states there is more than one

infinite, yet no infinite set that can totalize all sets into a One-All.<sup>44</sup> The logic of non-contradiction entails that contradictory or opposing terms cannot be realized at the same time in any existing object. For example, there cannot be a circular square or a being that both is and is not at the same time. However, from these principles Meillassoux finds no legitimacy for making dogmatic or non-sceptical assertions about why any being is the way it is. Non-contradiction does not perforce lead to claims about the necessity of any being, for example, that squares exist in the first place, or, indeed, that all living beings must go extinct. Circles could suddenly change into squares and what is can turn into what is not at any moment. The principle of non-contradiction obliges no claims on the necessity of something being or becoming what it is. It certainly does not mean that some other principle must explain the being of beings, such as any number of metaphysical assertions including spirit, substance, vitalism, complexity, or any poetic or mystical attunement to being beyond language.

According to Meillassoux, dogmatic metaphysics always adds a second principle—the principle of sufficient reason that states there is a reason why something is the way it is—that is not deducible from the rationally coherent principles of non-contradiction and the non-totality of sets. The reason that obliges us to assume the ontological impossibility of occupying contradictory states at the same time does not entail that there are reasons for why the way the world is as it is. Meillassoux then claims that if nothing is necessarily the way it is, and if neither logic nor metaphysics can legitimately establish that something must exist the way it does, then everything is the way it is without reason. Rather, everything is contingent. Contingency is paradoxically the only absolute. Being is, but there is no why behind it, no cunning of reason, no permanent formal or metaphysical stabilizers, or no meaning of being.

Meillassoux is careful to distinguish this principle of absolute contingency from worldly occurrences of change, becoming, and destruction. The becoming and vanishing of things in the world Meillassoux calls “precariousness” or “empirical contingency”:

But absolute contingency differs from empirical contingency in the following way: empirical contingency—which we will henceforth refer to using the term “precariousness” —generally designates a perishability that is bound to be realized sooner or later. This book, this fruit, this man, this star, are all bound to perish sooner or later, so long as physical and organic

laws remain as they have been up until now. Thus “precariousness” designates a possibility of not-being which must eventually be realized. By way of contrast, absolute contingency... designates a *pure possibility*; one which may never be realized. For we cannot claim to know for sure whether or not our world, although it is contingent, will actually come to an end one day. We know... that this is a real possibility, and that it could occur for no reason whatsoever; but we also know that there is nothing that necessitates it. To assert the opposite, viz., that everything must necessarily perish, would be to assert a proposition that is *still* metaphysical.... Contingency is such that anything might happen, even nothing at all, so that what is, remains as it is.<sup>45</sup>

It seems critically important to ask what the connections could be between contingency and precariousness, even while recognizing why Meillassoux insists on distinguishing between the two. Certainly both precariousness and contingency share the lack of metaphysical supports, such that there is no reason for why all things perish just as there is no reason for any being to be the way it is. If being is without reason and any transcendental safety, any specific form of being could fail, breakdown, or collapse at any moment. “Everything could actually collapse: from trees to stars, from stars to laws, from physical laws to logical laws; and this is not by virtue of some superior law whereby everything is destined to perish, but by virtue of the absence of any superior law capable of preserving anything.”<sup>46</sup> Yet here Meillassoux indicates that he, like Deleuze, questions whether entropy is indeed a universal or “superior law” that consigns everything toward perishing. Meillassoux remarks that statements declaring that all things must perish are themselves metaphysical because they assert a universal necessity to physical laws.

Contingency means that something either could perish or could indeed stay the way it is indefinitely for no reason. “Contingency expresses the fact that physical laws remain indifferent as to whether an event occurs or not—they allow an entity to emerge, to subsist, to perish.”<sup>47</sup> Meillassoux contrasts this absolute contingency that could just as well change or not change with the facticity of extinction and physical laws of causality. We are then invited to think the relation of collapse and extinction with the absolute contingency of all things, but are denied a necessary or even ontological link between the two. We must think and not think this relation. We must be able to think collapse at any moment, yet also never assume such a collapse will occur as a supreme ontological fate. Contingency sets us at a

precipice but delivers no force of its own.

In his essay “Spectral Dilemma,” Meillassoux even invites the possibility that, if the laws of nature are themselves contingent, then a “counter-natural event”<sup>48</sup> such as the resurrection of the dead would not be by definition impossible. Extinction, the apparent fate of all species under causal laws of nature, is just as contingent as all other causal laws. Temporal irreversibility may be one of these contingencies. Meillassoux admits his argument is perhaps only “formal”<sup>49</sup> and may never become actual. This essay, along with other comments Meillassoux has made on the possibility of an “eschatology of immortality”<sup>50</sup>, are an implicit rejoinder and rejection of Ray Brassier’s claims regarding the fatalistic and nihilistic extrapolations of extinction. No commentators seem to have yet emphasized this distancing of Meillassoux to Brassier’s attempt to extend and think through the implications of Meillassoux’s philosophy via the scientific evidence of extinction. According to Meillassoux, while the laws of this universe persist for now, nothing ensures their permanence. Meillassoux does not delve at any depth into biological theory perhaps because he holds out for the possibility, without guarantees, of another biology to come that would not necessarily involve Darwinism or even the species form. Indeed, Meillassoux comes to the exact opposite conclusions of Brassier—everything is contingent, extinction is not fate, and perhaps even lost souls are recoverable, were the laws of this world undone from their merely contingent moorings. Far from simply confirming the ultimate scientific truth of extinction, Meillassoux only grants extinction to be a contingency of this world, and not at all an absolute truth for living beings. After finitude one can envision a condition after extinction. Although Meillassoux dismisses theories of vitalism for their metaphysical dogmatism, he holds out a possibility of a future change in the contingency of natural laws that would allow for a “speculative,” vitalistic, eschatological order. Once again this vitalism need not abide any interest in the limitations and fortitudes of the species form, and so much the less for the problem of extinction.

## THINKING EXTINCTION FROM THE INSIDE OUT

While Meillassoux argues there is no perforce reason to make an inductive leap from the empirical collapse of life to claims about either the universal or absolute conditions of finitude, such an inductive leap is exactly what Brassier boldly undertakes in *Nihil Unbound* (2007). Brassier’s book is a dense and subtle work of thinking about how the “transcendental trauma”<sup>51</sup> of extinction undoes much of

the claims continental philosophers have been making for the past few centuries regarding the question of the meaningfulness of being. Instead of elevating the subject to a transcendental form, the fact of extinction forces the subject to think its own disenchanting ends. As Brassier remarks, the will to know does not console or corroborate with the will to live.<sup>52</sup>

The truth of extinction reveals the internal limits of mind, world, and sense to an external and ultimately cold, non-conscious universe. With extinction, these phenomena that serve to make meaning in the world dissipate, or are “unbound,” with the loss of self-conscious beings. Thus the workings of life or thought can become unworkable externalized objects as can any other supposedly transcendental categories of experience or thought.

Extinction turns thinking inside out, objectifying it as a perishable thing in the world like any other.... This is an externalization that cannot be appropriated by thought—not because it harbours some sort of transcendence that defies rational comprehension, but, on the contrary, because it indexes the autonomy of the object in its capacity to transform thought itself into a thing.<sup>53</sup>

Brassier’s book is exceptionally dense and defies any summation that I could possibly offer here. However, briefly, I can sketch his argument as following along the lines of philosophical naturalism, asserting that science can offer an objective, third-person account of first-person states of mind. As life can be explained by biological and chemical processes, there is no reason to assume that there is any special ontological or metaphysical status to life. Thus the thought of being is not tied to any special status of the living (as in Heidegger’s philosophy, which accords a special role to “mortals,” and humans in particular, in his cosmology of the fourfold). Furthermore, the thought of being does not grant any special status to meaning, experience, or purpose, since all of these supposedly transcendental forms of consciousness are only made possible by a configuration of neurobiological processes which are themselves meaningless and purposeless and will become mute in extinction. The reality of being then exceeds thought and any intelligible form. Brassier then asks whether we should characterize being that cannot be subsumed by thought as “unobjectifiable transcendence,” as Heidegger does, or “in terms of immanent objectivity”<sup>54</sup> as neurophilosophers such as Paul and Patricia Churchland and Thomas Metzinger do.

In *Nihil Unbound*, Brassier works through the philosophical propositions involved in giving an objective account of immanence as factual reality, via Alain Badiou's equation of ontology and mathematics, and Francois Laruelle's non-philosophy in which the immanence of the in-itself pertains to all things and concepts and yields no access to any outside inquiry, including the inquiry of thought. Both of these philosophies are understood as concerned with offering an account of being that is not tied to meaning, experience, or any other correlation with subjective thought. The issue of extinction occupies the final third of the book, where Brassier considers Deleuze's complicated claims for intensive and repetitive difference unfolding by a process of individuation in a plane of immanence. As previously discussed, Deleuze claims that entropy is only a secondary phenomenon and has no effect on the pure immanence of intensive differentials. This intensive immanence of difference is a continuous, unstoppable, productive engine. Brassier reads this rejection of entropy as a form of idealism, as indeed Deleuze posits a non-chronological, immaterial, and inexhaustible condition where thought and being are conjoined in the realm of the virtual. But if the scientific account of the world tells us that the laws of thermodynamics and the physics of our universe predict the decimation of all planetary bodies in the universe, Deleuze's claims can only make sense by an appeal to a transcendental idealism-vitalism that supersedes biophysical laws. Contra such idealism and vitalism, everything we know about how life is built out of units that themselves are not alive indicates that we must, as Brassier puts it, "affirm the irreducible reality of physical death along with the autonomy of absolute space-time as identity of difference and indifference, life and death."<sup>55</sup>

I see four significant problems in Brassier's assertion of the identity of difference and indifference, which subsumes local extinctions within a universal, cosmic extinction that is the ultimate reality of space and time:

- 1) Why should the time of extinction of all life supersede any other concept of time, including the chronological, the transcendental, the immediate, the proleptic anticipation of death in the being and time of *Dasein*, and the empty time of the pure virtual that Brassier examines in Deleuze? Even if extinction is inevitable, does that make all other forms of time collapse into this one "time of death" (161)? Brassier elaborates an impressive critique of Heidegger's universal temporalization of *Dasein* and similar problems in phenomenology that conflate transcendental conditions of temporality with conditions of existentiality, subjectivity, or cognitivity.

Brassier is adamant that any argument for the primordial conditions of existentiality will involve a false split between transcendental time and physical time of biology: “every attempt to stipulate a transcendental disjunction between ontological temporality and bio-physical time surreptitiously occludes the empirical conditions of instantiation through which the former supervenes upon the latter” (161). *Dasein* is not primordial; yet is there a way to still consider *Dasein* and other subjective constructions of time as still locally valid, but not at all transcendent? There may be more than one temporal frame in question for any being, and furthermore the sequential passage of time cannot be collapsed into one end time. The universe must pass through temporal stages, and even if these temporalities are all perhaps extinguishable, we cannot skip these and just jump to a generalized extinction. Furthermore, the subjective qualities of time are actually enabled in part by processes of extinction that are concomitant with the process of speciation, as Darwin shows. In other words, localized processes of extinction have contributed in a positive sense to the plural forms of temporality that proliferate within the complexities of speciation, rather than simply wiping all slates clean in one nihilistic sweep. How can we understand the extinction of biological life on Earth as intertwined with but still distinct from the epochal, “transcendental efficacy” (230) of cosmic extinction that Brassier argues is the “anterior posteriority” (230) that foreordains the annihilation of all life?

This philosophical critique is connected to a practical ethical dilemma in our own time: even if extinction is the reality facing all species, this does not let us off the hook right now to just wipe out the biodiversity on the planet for our own immediate pleasures. There are at least two temporal realities to species extinction, the current rapid loss of species and the inevitable futural loss of all species. How should we think and act upon these together? How might we maintain a thought of biological extinction and transcendental, cosmic extinction as intertwined but still distinct processes?

2) Brassier is probably right to state that being qua being means nothing and has no correlate in the mind. But being is not ultimately fated to the “being-nothing” (238) that is the universal “anterior posteriority.” Cosmic extinction is not nothingness either—even after all stellar events are exhausted something subatomic remains. The remnant and persistence of

non-productive being in-itself are irreducible facticities in being. To think extinction in its various forms, we still need to think being and nothingness together as co-constitutive yet irreducible to each other, without collapsing everything into a flat ontological nothing.<sup>56</sup> Brassier fights for the need to maintain epistemological and ontological dualisms throughout his work<sup>57</sup>, but by focalizing on unbinding the two domains, he avoids further consideration of how the long, slow work of nihilation is involved in both the making and unmaking of the conditions of being. My main concern with Brassier's philosophy here is how he skips over any inquiry into the details of how extinction events work and how the specific stages of reaching a zero point of life have both a biological and philosophical import.

3) Just like Deleuze, Brassier also finds little relevance in the species form for philosophical accounts of extinction. Brassier rightly attacks the false fault lines drawn between organic and inorganic, the neurological and consciousness, life and death, all while never referring to the integrity of a particular species as irreducible even if composed of chemical and biological systems. Plants and animals are not more than their biological processes, but they are these biological processes taking place at the integral level of a species in a specific ecological surround. Furthermore Brassier offers no reading or relevance of Darwin as a thinker of extinction, one who does not privilege cognitive or cosmic problems. By skipping directly to the neural level (distinguished as the bearer of "thought") as the privileged site of existential questions, he puts to the side the factual relevance of species integrity in ecological systems, and favors cognitive crises over ecological ones. Furthermore, the variable rate of extinction is not straightforwardly a "transcendental trauma" to all biological life equally—it is stunningly statistically normal yet also easily manipulated by us. Finally, one could argue the temporary flourishing and inevitable extinction of life need not be cast as primarily traumatic, since the end of life is implicit in its conditions of possibility, such that life is marvelous both in its evanescent flourishing and failing (and here one can resituate Freud's pleasurable life-drive and traumatic death-drive as co-constitutive).

4) Brassier speeds extinction along to the horizon of nothingness but extinction can also involve localized conditions of proliferation. Such is the upshot of Darwin's modeling of how the flourishing of one species consequentially can lead to the extinction of another. Worlds without us

proliferate in our absence. To encapsulate all this excess into nothingness is to propose that total collapse defines the paradigm for the many local and small-scale collapses and expansions that occur. Brassier's identity of difference and indifference ultimately leads to a straight and narrow *telos* of indifference. It may be that such a *telos* is ultimately warranted in an epochal, entropic sense, but its causal power is diffuse and chaotically indirect. In the long term of the universe, life will go extinct, but also in the long term of the universe so far, for some 3.8 billion years, there has been life on Earth, a massive negentropic swirl within entropy.<sup>58</sup>

Since *Nihil Unbound*, Brassier's work has headed in the direction of further grappling with how the rationalist claims of scientific realism unravel any metaphysical reliance on life and the centrality of cognition as fulcrums for being. As he shows, this scientific realism does not mean that the categories of reason fall into irrelevance or norms of intelligibility are whisked away into scepticism.<sup>59</sup> Yet, as important as it is to admit that the intelligibility of biological extinction entails coming to terms with the non-being that is already implicitly in being, it seems to me just as important to grasp how a system can feed off its own conditions within the very loss or breakdown of these conditions. The limits and loss of biological life can make the biological as these unmake the biological. Reductionist processes at work in the forming and dissolution of biological forms will be effectuated at more than one level of biological organization until these very reductionist processes run their course through to their own organized disorganization.

Thinking extinction entails taking nihilism seriously yet also taking the current contingent conditions of life seriously. There is a double irreconcilable split to the real—one catastrophic, neutral to affirmation and negation, irrelevant to meaning, and one affirmative of the differential present, relevant to the collectivity of cares and blindnesses that are assembled on the planet. Trauma makes no sense if one is entirely neutral to the difference between universal dissolution and actually existing ecological states, with their unique concatenations of non-intentionality into intentional beings. Futural indifference does not supersede a being's stake in its affairs, but is the co-constitutive condition of care for beings that persist, inhabiting the double bind of difference/indifference. Without loss and extinction, as in philosophies of endless becoming, there is no ecology; but too much loss and extinction, there is also no ecology.

As Darwin indicated, extinction and generativity are not always clearly demarcated. Proliferation and dissipation of systems co-condition each other. How can the specific processes of the building up and the loss of form be intelligible in ways that connect to but are not the same as the unboundedness of all form? Can unbinding lead to new binds? Precarious life in its collapse is not then the same as nihilism or non-being, although these ontological crises do overlap. Precarity can entail loss of form that changes the stakes of form, which conditions the possibility of other forms to come, in and through failure and the dissolution of existing forms. I am as interested in how we can understand the unwinding as much as the unwound, the species and the spectral.

Norm, contingency, and catastrophe—this is the work of extinction. We need a way of thinking ontology that enables such differential ontologies within being to be coherent at each stage of their flourishing and undoing. Meillassoux thinks contingency and chaos without insisting on any necessary entropic *telos*, while Brassier claims extinction and the finitude of all things will result in an entropic destitution that reveals the ultimate indifference of being and non-being in its wake. Thinking the collapse of biological processes entails both apocalyptic and non-apocalyptic thought, although the former often overshadows the latter. Darwin's own statements hover between calm and catastrophe, as he writes that each being "has to struggle for life, and to suffer great destruction. When we reflect on this struggle, we may console ourselves with the full belief that the war of nature is not incessant, that no fear is felt, that death is generally prompt, and that the vigorous, the healthy, and the happy survive and multiply."<sup>60</sup> A precarious biology would be between a dark biology and the normative, statistic, and stochastic view of biology—a combination that is largely yet unexplored in theories of life. The thought of extinction entails both norm and collapse, regularity and breakdown. We are between care and blindness, function and destitution, hierarchy and contingency, wave and crash.

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## NOTES

1. Charles Darwin, *The Origin of Species*. Oxford: Oxford University Press, 1996, 258.
2. Darwin, *Origin of Species*, 90-91.
3. The estimate is from David M. Raup, *Extinction: Bad Genes or Bad Luck?* New York: Norton, 1991, 4.
4. Ernst Mayer, *The Growth of Biological Thought: Diversity, Evolution, and Inheritance*. Cambridge: Harvard University Press, 1982, 139.
5. Eugene Thacker, *After Life*. Chicago: University of Chicago Press, 2010, 11.
6. Darwin, *Origin of Species*, 234.
7. For further criticisms of Darwin's reluctance to recognize mass extinctions, see David M. Raup, "The Role of Extinction in Evolution," *Proceedings of the National Academy of Sciences of the United States of America* 91:15 (1994), 6758-6763.
8. Darwin, *Origin of Species*, 231.
9. See, for example, Graham Harman's use of these terms in "Realism without Materialism," *SubStance* 40:2 (2011), 52-72.
10. The phrase "precarious life" is used by Judith Butler in her book *Precarious Life: The Powers of Mourning and Violence* (New York: Verso, 2004) to describe the unevenly recognized vulnerabilities of bodies (specifically focusing on humans) in an age when not all forms of bodily violence are deemed equal. I adapt the term to apply it to the structuring fragilities and instabilities of the biological condition more generally, and also to highlight how a body or a species can be precarious yet still be robust.
11. See David N. Stamos, *The Species Problem: Biological Species, Ontology, and the Metaphysics of Biology*. Lanham, MD: Lexington Books, 2004; Robert J. Richards, *The Species Problem: A Philosophical Analysis*. Cambridge: Cambridge University Press, 2010.
12. Darwin, *Origin of Species*, 38.
13. Darwin, *Origin of Species*, 51.
14. For further discussion of the evaluative nuances implicit in definitions of species, see Ronald Sandler, *The Ethics of Species: An Introduction*. Cambridge: Cambridge University Press, 2012.
15. Richard Dawkins, *The Extended Phenotype: The Long Reach of the Gene*. Oxford: Oxford University Press, 1999, 4.
16. Dawkins, *The Extended Phenotype*, 99.
17. Richard Dawkins, *The Selfish Gene*. Oxford: Oxford University Press, 2006, vii.
18. Stephen Jay Gould, *The Structure of Evolutionary Theory* (Cambridge: Harvard University Press 2002), p. 650. Gould is influenced by Ernst Mayr's emphasis on the species form in order to comprehend both genetic variance among individuals and changes within a population. The term *species* is a comparative term, used to map distinctions and relations among organisms at various levels. Mayr then declares that, "The species... is the basic unit of evolutionary biology." Mayr also adds, "The species also to a large extent is the basic unit of ecology." Mayr, *Growth of Evolutionary Thought*, 296.
19. Gould, *Structure of Evolutionary Theory*, 776.
20. Gould, *The Structure of Evolutionary Theory*, 781.
21. Consider however that without extinction, biodiversity would proliferate exponentially, checked only by individual deaths. This would make the concept of biodiversity rather useless. Extinction and biodiversity require each other to make sense of the proliferation and fragility of the species form. Ursula Heise discusses the ambiguities of the notion of biodiversity in connec-

tion with extinction in “Lost Dogs, Last Birds, and Listed Species: Cultures of Extinction,” *Configurations* 18:1-2 (Winter 2010), 49-72.

22. For elaborations on Deleuze’s vitalistic thought, see Keith Ansell Pearson, *Germinal Life: The Difference and Repetition of Deleuze*. London: Routledge, 1999; Claire Colebrook, *Deleuze and the Meaning of Life*. New York: Palgrave Macmillan, 2010; John Protevi, “Deleuze and Life.” *The Cambridge Companion to Deleuze*. Eds. Daniel W. Smith and Henry Somers-Hall. Cambridge: Cambridge University Press, 2012, 239-264.

23. Gilles Deleuze, *Negotiations: 1972-1990*. Trans. Martin Joughin. New York: Columbia University Press, 1995, 143.

24. Gilles Deleuze, *Difference and Repetition*. Trans. Paul Patton. New York: Columbia University Press, 1994, 10.

25. Gilles Deleuze, *Pure Immanence: Essays on A Life*. Trans. Anne Boyman. New York: Zone Books, 2001, 27.

26. Deleuze does slightly vary certain emphases in his thinking on vitalism from the period of *Difference and Repetition*, which is more concerned with a metaphysics of the virtual. His writings in the 1970s retain a vitalist and virtual metaphysics but shift focus toward accounts of intensive processes of becoming that are lived through in examples of desiring machines, symbiosis, animal multiplicities, and embodied becomings. His writings in the 1980s and 1990s evince a renewed insistence on vitalist metaphysics, and he ultimately defines his position in *What Is Philosophy?* as “passive vitalism,” which he describes is a “force that is but does not act.” Gilles Deleuze and Félix Guattari, *What Is Philosophy?* Trans. Hugh Tomlinson and Graham Burchell. New York: Columbia University Press, 1994, 213. Colebrook cogently states that Deleuzian vitalism is not an argument for universal organicism or “life” as a mystical and unifying condition. “In some sense it is quite appropriate to define Deleuze as a vitalist and a philosopher of life, but this is only if his vitalism is qualified to the point where it is almost an inversion of all that vitalism has come to represent. Far from affirming some force that animates an otherwise inert matter, or an inner principle that directs matter, Deleuze’s various philosophical projects begin with forces that do not bear a direction or end within themselves but nevertheless have differential tendencies.” Colebrook, *Deleuze and the Meaning of Life*, 135. Deleuze’s philosophy is a powers and forces philosophy. These powers and forces are always ongoing, differential in intensity, generative and regenerative, terms that both Deleuze and Bergson associate with a vitalist metaphysics.

27. Deleuze, *Difference and Repetition*, 247.

28. Deleuze, *Difference and Repetition*, 249.

29. Deleuze, *Difference and Repetition*, 216. Deleuze’s egg reappears in *A Thousand Plateaus*, where he calls the body without organs an egg, which he also claims is the convergence of “the biological egg and the psychic or cosmic egg.” Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*. Trans. Brian Massumi. Minneapolis: University of Minnesota Press, 1987, 164.

30. Alain Badiou, *Deleuze: The Clamor of Being*, tr. Louise Burchill (Minneapolis: University of Minnesota Press, 2000), 13. Deleuze himself calls his philosophy the “One-All” in *Difference and Repetition*, 37.

31. Deleuze, *Difference and Repetition*, 299. Colebrook calls such death “a degree zero of intensities,” *Deleuze and the Meaning of Life*, 99. Deleuze does employ the notion of zero intensity but indicates that zero means pure intensity, not yet differentiated into gradients or degrees.

32. The powerful influence of Bergson’s vitalism extends to this argument concerning entropy. Bergson claims that entropy explains what happens to objects that are taken out of the infinite flux

or mobility of reality. Matter in its individuated state is prone to physical decay, but the universe, according to Bergson, is open-ended and forever changing in a positive, productive sense. Bergson defines life as continuous mobility, activity, and creativity –“immaterial” processes that run counter to materially extended things. Life, “one single immense wave flowing over matter,” runs counter to localized entropy, which only drags down things, including individual species. Henri Bergson, *Creative Evolution*. Trans. Arthur Mitchell. Mineola, NY: Dover, 1998, 250.

33. Deleuze, *Difference and Repetition*, 259.

34. Gilles Deleuze and Félix Guattari, *What Is Philosophy?* Trans. Hugh Tomlinson and Graham Burchell, New York: Columbia University Press, 1994, 47.

35. Deleuze and Guattari, *What Is Philosophy?*, 59.

36. The historical, diachronic development of species forms and the synchronic templates they provide for future species forms involve issues of path dependency and generative entrenchment (evolution based on previously entrenched or deeply established evolutionary robustness). On generative entrenchment, see William C. Wimsatt, *Re-Engineering Philosophy for Limited Beings: Piecewise Approximations to Reality*. Cambridge: Harvard University Press, 2007. See also Eric Desjardins, “Reflections on Path Dependence and Irreversibility: Lessons from Evolutionary Biology.” *Philosophy of Science*. 78:5 (December 2011), 724–738.

37. Deleuze delves most deeply into Darwin’s thought in *Difference and Repetition*, where he aligns Darwin with his own Spinozist-inflected philosophy: “Darwin’s great novelty, perhaps, was that of inaugurating the thought of individual difference. The leitmotiv of *The Origin of Species* is: we do not know what individual difference is capable of! We do not know how far it can go, assuming that we add to it natural selection” (248).

38. Elizabeth Grosz, *Becoming Undone: Darwinian Reflections on Life, Politics, and Art*. Durham: Duke University Press, 2011, 3.

39. Elizabeth Grosz, *Time Travels: Feminism, Nature, Power*. Durham: Duke University Press, 2005, 36.

40. Grosz, *Becoming Undone*, 4.

41. Grosz, *Time Travels*, 221 footnote 4.

42. For an account of what stages the universe may pass into and what the final stages of the universe might be, based on knowledge of recent astrophysical science, see Fred Adams and Greg Laughlin, *The Five Ages of the Universe: Inside the Physics of Eternity*. New York: Touchstone, 1999.

43. Quentin Meillassoux, *After Finitude: An Essay on the Necessity of Contingency*. Trans. Ray Brassier. New York: Continuum, 2008, 62. Meillassoux argues that his method is not strictly deductive (61), but proceeds by pointing out the inevitable inconsistencies of arguments for correlation or metaphysical necessity of first principles concerning being. Meillassoux has called his position a non-metaphysical “speculative materialism” and a version of realism. Material reality is understood “speculatively” because although it can be grasped rationally, its necessity is not provable. It is very difficult to summarize Meillassoux’s argumentative method, as he himself states that philosophy must invent “strange forms of argumentation” (76). Although Meillassoux makes ample use of logic and deduction, he states that his thinking, or philosophy itself, is not necessarily beholden to positive science, deductive logic, or innate faculties of reason (77).

44. These principles are not posited as givens for Meillassoux; they are derived from within the parameters of math and philosophy by testing their own principles for coherence. However, for an argument that some contradictions are conceptually reasonable as well as ontologically factual, see Graham Priest, *Beyond the Limits of Thought*. Oxford: Oxford University Press, 2002.

45. Meillassoux, *After Finitude*, 62-63.

46. Meillassoux, *After Finitude*, 53.
47. Meillassoux, *After Finitude*, 39.
48. Quentin Meillassoux, "Spectral Dilemma." *Collapse IV* (2008), 274.
49. Meillassoux, "Spectral Dilemma," 267.
50. Quentin Meillassoux, "The Immanence of the World Beyond," in *The Grandeur of Reason: Religion, Tradition, and Universalism*. Ed. Conor Cunningham and Peter Candler. London: SCM Press, 2010, 444.
51. Ray Brassier, *Nihil Unbound: Enlightenment and Extinction*. New York: Palgrave Macmillan, 2007, 234.
52. Brassier, *Nihil Unbound*, 227.
53. Brassier, *Nihil Unbound*, 229.
54. Brassier, *Nihil Unbound*, 31.
55. Brassier, *Nihil Unbound*, 203.
56. Brassier's thought has recently developed this question further, yet I still would question whether non-being, as co-constitutive with but not reducible to being, should be the general category that explains variable forms of worldly nothingness. For example, the nothing that indexes the extinction of life is a variable process that occurs in the forming and unforming of life. Is the being-nothing of a species comprehensibly the same being-nothing of a general ontology? The conjunction of being/non-being may be a more general problem for philosophy that does not override, explain, or supersede biological extinction. See Ray Brassier, "That Which Is Not: Philosophy as Entwinement of Truth and Negativity," *Stasis 1* (2013): 174-186.
57. It's a minor quibble, but Brassier seems to miss one argument for methodological dualism in his analysis of Freud's death-drive. Brassier has Freud as confirming the thesis that, "not only does... death precede the organism, it is the precondition for the organism's ability to reproduce and die. If the death-drive qua compulsion to repeat is the originary, primordial motive force driving organic life, this is because the motor of repetition... is this trace of the aboriginal trauma of organic individuation" (237-38). However, Freud only provisionally entertains the primordial supremacy of the death-drive, but ultimately makes it clear that he rejects this single causal efficacy of the death-drive and insists on the dualism of the drives that includes the libidinal life-drive of Eros. "Our conception has been a *dualistic* one right from the outset, and remains so today more emphatically than ever," Sigmund Freud, *Beyond the Pleasure Principle and Other Writings*, tr. John Reddick (London: Penguin, 2003), 92. Freud actually ponders some empirical evidence that death evolves only later with multicellular organisms, and that unicellular organisms are in essence immortal and endlessly replicating. Though he is not convinced wholly by this evidence of secondary, evolved death, he ends by maintaining the primordially of both life and death drives.
58. Brassier's argument does push back somewhat against favoring entropy over negentropy. Among Brassier's conclusions is that philosophy must think both entropy and negentropy on the same realist terms as one would the identity of difference and indifference (222). However, negentropic binding and the work of difference are only temporary and epiphenomenal in Brassier's view; Brassier still concludes that a generic unbinding abides in a condition of transcendental indifference where only "an originary *purposelessness*" (236) reigns.
59. See Ray Brassier, "Concepts, Objects, Gems," in *Theory after "Theory."* Eds. Jane Elliott and Derek Attridge. New York: Routledge, 2011, 278-293.
60. Darwin, *Origin of Species*, 66.

**raymond ruyer and the  
metaphysics of absolute  
forms.**

**raymond ruyer, *neo-finalism*,  
trans. alyosha edlebi  
(university of minnesota  
press, 2016)**

daniel w. smith

In 1974, the French philosopher of science Raymond Ruyer (1902-1987) published a book entitled *The Gnosis of Princeton: Scientists in Search of a Religion*, which purported to present the esoteric ideas of an influential but secretive group of scientists working at several prestigious American universities during the 1960s and 1970s.<sup>1</sup> The premise of the book, however, was a deliberate ruse, a fiction. Ruyer had invented the subterfuge of an imaginary group of gnostic thinkers working at Princeton and elsewhere to present his own ideas and make them accessible to a wider public, laying out a new perspective on science and a new articulation of the relation between matter and mind. The stratagem turned out to be a consummate success: the book became an immediate best-seller, and the French media dubbed Ruyer “The Sage of Nancy,” after the city in eastern France where Ruyer had spent most of his life.<sup>2</sup>

If *The Gnosis of Princeton* gave Ruyer a public acclaim that had hitherto eluded him, he had nonetheless already enjoyed a stellar if somewhat idiosyncratic academic career. He trained at the prestigious École Normale Supérieure in Paris, and received the highest mark in the 1924 *agrégation* exam in philosophy. Mobilized during WWII, he was a prisoner of war at the Oflag XVII-A camp in Germany from 1940 to 1944, where he wrote his influential book, *Elements of Psychobiology*.<sup>3</sup> In 1947, he was appointed Professor of Philosophy at the University of Nancy, where he taught until his retirement in 1972. He declined an offer to move to the Sor-

bonne, preferring to remain in his beloved Lorraine region, where he maintained contacts with numerous scientists. His last book, *The Embryogenesis of the World and the Silent God*, was published posthumously, in 2013.<sup>4</sup> In the four decades of his active career, Ruyer published over twenty books, and his works had a decisive influence on thinkers as diverse as Georges Canguilhem, Gilbert Simondon, and Gilles Deleuze. Throughout, he remained a singular thinker who shunned the well-trod currents of twentieth-century French thought such as Bergsonism, phenomenology, existentialism, Marxism, structuralism, even though he remained in dialogue with all of them.

It was no doubt Ruyer's fierce against-the-grain independence that consigned his work to an initial obscurity—despite the success of *The Gnosis of Princeton*, by the end of the century, all his works were out of print. In the past few years, however, there has been a strong resurgence of interest in Ruyer's work. In 2012, Presses Universitaires de France (PUF) reissued Ruyer's 1952 book *Néo-Finalisme*, considered by many to be his masterwork. The reissue appeared in PUF's influential series *MétaphysiqueS*, which, significantly, is edited by a new generation of younger French philosophers—Élie During, Patrice Maniglier, Quentin Meillassoux, and David Rabouin. In 2014, *Néo-Finalisme* was included in the French *agrégation* exam in philosophy, marking its establishment as a semi-canonical text, and in 2016 the University of Minnesota Press published the book in a superb English translation by Alyosha Edlebi.<sup>5</sup> One of the primary factors motivating this revival, to be sure, is the work of the Gilles Deleuze, who was deeply influenced by Ruyer, and made frequent reference, in particular, to *Neofinalism* and *The Genesis of Living Forms* (1958).<sup>6</sup> The publication of Edlebi's translation is thus doubly important, since it will not only allow scholars to explore Deleuze's indebtedness to Ruyer, but will hopefully restore Ruyer to his rightful place as one of the most important French philosophers of science of the twentieth-century.



Deleuze always insisted that the power of a philosophy must be measured by the concepts it creates, and the new set of divisions these concepts impose on things and actions. This is certainly true of Ruyer's work, and especially *Neofinalism*. In place of the distinction between the organic and the inorganic, Ruyer proposes a new distinction that cuts across both these domains: a distinction between *absolute forms* (individual beings), on the one hand, and *molar structures* (aggregate or mass phenomena), on the other.<sup>7</sup> Absolute forms include molecules, viruses, cells,

embryos, and brains, while molar structures are statistical aggregates of these individual forms, such as clouds, gases, crowds, or geological formations. This distinction in turn entails a new distribution of the sciences, since the primary sciences will be those that deal with absolute forms, while the sciences that only study individuals from their molar or statistical side will be relegated to a secondary status.

For Ruyer, like Bergson and Deleuze, the role of philosophy was to create a metaphysics adequate to contemporary science. Ruyer suggested, however, that there are two tendencies that tend to thwart this project: we tend to interpret the nature of physical beings from either *visual sensations* or *human activity* (technics) (NF 143). On the one hand, to “observe” a physical object is another way of saying that one’s retina (or a photographic plate, or another piece of laboratory equipment) is the locus of the impact of photons emanating from the object. But observation does not necessarily give us knowledge of the object. Put simply, I can observe the circular appearance of a nebula, a rainbow, a solid metallic sphere, a soap bubble, or an amoeba at rest, but the internal modes of “bonding” in each of these cases is very different. The task of metaphysics is thus “to transform scientific observations into a knowledge of bonds [*liaisons*]” (224; cf. 104).

On the other hand, and perhaps more insidiously, we tend to interpret nature through the prism of our own technical artifacts. Seventeenth-century “mechanism” interpreted nature through a comparison with the “functioning” (147-8) of mechanical machines such as watches, levers, or pulleys. Today, many people appeal to information machines (computers) as models for the mind: the brain is the hardware, and the mind is the software, running different programs in different modules. Genetics, and the discovery of DNA, arose at the same time as the computer (both are informational), and, in the popular mind, when one says something is “genetic,” they generally mean it is “pre-programmed.” Most egregious, for Ruyer, is the appeal to the “building blocks” or “bricks” of the world (141): because we fashion our complex buildings out of simple bricks, we presume that the universe, with all its complexity, must likewise be built out of simple building blocks, such as atoms or particles—one of the reasons physics is still sometimes presented as the most basic of the sciences. “We continue to believe in a poorly defined primary of the molecular and the elementary,” with its concomitant presuppositions of reduction and analysis (155).

For Ruyer, this vision of the universe—a multileveled structure in higher levels “emerge” from a ground floor (matter, *Grund*, space-time) that alone is solid—is no longer tenable (141). As a way of approaching Ruyer, we might note that Deleuze, in a seminar on Spinoza, had argued that, in the analysis of matter, there are three possibilities for determining what constitutes the “simplest” body: the finite, the indefinite, and the actually infinite. The *finite* approach, which has inspired atomism since Epicurus and Lucretius, holds that the analysis of matter necessarily reaches a limit, and this limit is the atom or particle (the building block). The *indefinite* approach, by contrast, insists that, no matter how far the analysis is pushed, the term one arrives at can always in turn be analyzed and divided—in other words, there is no final or ultimate term (indefinite regress). The viewpoint of *actual infinity*, however, implies a double battle against both the finite and the indefinite. Against the indefinite, it insists that there are indeed ultimate or final terms that can no longer be divided, but against the finite, it insists that these ultimate terms are *actually infinite multiplicities* that cannot be divided further *without changing their nature*. In other words, one cannot speak in Spinozistic terms of a simple body as if it were a brick or a building block; rather, the simplest bodies in nature are themselves infinite multiplicities.<sup>8</sup>

Ruyer adopts a similar position in *Neofinalism*. The “simplest” terms in Nature, he says, are *absolute forms*, and the concepts he formulates in *Neofinalism* each indicate an inextricable aspect of such forms. An absolute form is a domain or multiplicity in constant *formation* that has an irreducible unity—a “being-together” (107)—characterized by a non-dimensional or *absolute survey* [*survol absolu*] of itself (94), which establishes *non-localizable bonds* [*liaisons*] between its constituent components, with their own *zones of overlapping* [*recouvrement*] or indetermination (108).<sup>9</sup> Ruyer distinguishes absolute forms from *molar structures*, which are statistical and secondary composites of these absolute forms. Absolute forms include molecules, viruses, embryos, organisms, consciousness, and culture (externalized technics and symbolization). Molar structures include, for instance, clouds or gasses, which are composites of individual molecules; sedimentary limestone formations, which are an aggregate of individual mollusks (143), or crowds of human beings, which are collections of individual consciousnesses (84). This distinction in turn entails a new distribution of the sciences: the primary sciences are those that focus on absolute forms, while the secondary sciences are those that only study individuals from their molar or statistical side.



Deleuze called Ruyer “the most recent of Leibniz’s great disciples” because his absolute forms are the successors of Leibniz’s monads, though Ruyer conceives of them quite differently, and *Neofinalism* is filled with penetrating analyses of different types of absolute forms.<sup>10</sup> Consider, for example, a water molecule. It is not enough to say that that water “consists” of two hydrogen atoms and one oxygen atom, since the molecule is marked by a zone of absolute survey in which the internal relations or bonds between the atoms become non-localizable (156), and the elements within the system lose their individuality (106). To speak of a domain of absolute survey is to speak of a domain of *internal bonds*.<sup>11</sup> “If there were no zone of overlapping,” Ruyer writes, “there would be no molecule at all” (108). The same is true of atoms, which are no less domains of absolute survey and activity than more complex molecules. Ruyer notes that quantum physics had already replaced the atom of matter with a quantum of *action* (161). “The old idea was that first of all a given piece of matter is what it is, and then, because it enjoys that permanent and unchanging nature, it acts on various occasions in various ways.”<sup>12</sup> In the new concept, what an atom *is* is the same as “*doing what it does*” (148). In Ruyer’s language, an atom is a *formation* and not a *functioning*: “an atom is not a fully assembled mechanism that functions. It is incessant activity, it is continually ‘forming itself’ in ‘a certain prolonged rhythm of activities’” (147, 149).

The same is true of even the simplest living being, which “is never ‘fully assembled’; it can never confine itself to functioning, it incessantly ‘forms itself’” (147). Every cell, Ruyer notes, “has to be an absolute form with self-survey to control the beginning of its own division, progressively diminishing the unity of the system for the benefit of the individuality of its components” (109). One of Ruyer’s recurrent examples on this score are unicellular animals such as the amoeba. An amoeba digests food, even though it does not have a digestive tract; it reacts to its environment, even though it does not have sense organs or a nervous system. Lacking such organs, the amoeba is nonetheless capable of “unified” behavior—self-direction, conditioned reflexes, habits, learning, adaptation, instinctive habits, and so on.<sup>13</sup> One could say that the amoeba has its own subjectivity, a “primary psychism,” which is another way of saying that it is a form-in-itself.<sup>14</sup>

When Ruyer considers the relation between molecules and cells (or between the inorganic and the organic, in the usual parlance), he writes: “The emergence of life, considered as an absolutely novel mode of being, is no longer a philosophical problem. There is no longer any reason to believe that from a chemical molecule to a bacillus, the abyss is greater than from a bacillus to a vertebrate” (154). Writ-

ing in the 1950s, Ruyer observes that numerous physicists—Bohr, Jordan, de Broglie, Schrödinger—had already had their say on the problem of life, even though Ruyer remained critical of certain works in this genre such as Schrödinger’s classic *What is Life?*.<sup>15</sup> Nonetheless, Ruyer notes that Schrödinger’s theory of a generalized molecule is not that different from Whitehead’s seemingly opposite theory of a generalized organism, since both insisted on lines of continuity between individual forms (156). To affirm that microorganisms are molecules is to affirm, at the same time, that molecules are microorganisms—or rather, that both are absolute forms.

■

But perhaps the most probing analysis Ruyer provides in *Neofinalism* is found in the chapter entitled “The Brain and the Embryo” (45-67), in part because Ruyer’s analysis approaches these two domains of absolute survey through the somewhat unusual prism of *technology*. It has often been argued—by Leroi-Gourhan, for example (20-21)—that technical objects are “prosthetic,” that is, they are extensions of the body or “externalizations” of the organs. A hammer externalizes the forearm and fist in wood and iron; clothing externalizes the skin; a baby’s bottle externalizes the mother’s breast; a kitchen stove externalizes the stomach; and so on. The evolutionary conditions that made such externalizations possible are tied to the morphology of the human body. In assuming an upright position (bipedalism), two of our own organs became “deterritorialized,” to use Deleuze’s language. Our front paws lost their faculty of locomotion and became *hands*, which are prehensive, and capable of doing many more things than simply walking (grasping, pounding, rotating, etc.). At the same time, the mouth lost its own capacity for prehension, which was taken over by the hand, but in the process it gained the capacity for *speech*. In other words, when the hand and the mouth were de-territorialized, they were simultaneously *re-territorialized* on new actions, primarily language (for the mouth) and tool-making (for the hand). It is not simply our large brains that give humans their specificity, since our brains would have had far less to do if our bodies did not have a mouth that speaks or hands that fabricate.

It is true that other animal species produced externalized technologies—spiders weave webs, beavers build dams, birds construct nests—but their technical activity seems to be directly derived from their genetic makeup as a kind of “extended phenotype.”<sup>16</sup> What seems specific to the human species, by contrast, is that its externalized organs become *detachable*, removeable, separated from the body, to

the point where they enter their own evolutionary history. In a sense, evolution bifurcates: the human organism has been sculpted over thousands of years by an extremely slow-moving evolution, but these organisms in turn have produced externalized artifacts that connect together to create a new technological body, which is evolving at a faster and increasingly accelerated pace. But Ruyer develops this thesis in a new direction. In so-called higher animals, “functions” like digestion and thought become localized in specific organs such as the stomach and the brain, but clearly—as the example of the amoeba shows—the functions do not require the specialized organs.<sup>17</sup> Ruyer drew the obvious conclusion: *bodily organs are themselves technical artifacts*; they are specialized “tools” that have been fabricated by the organism over the course of evolution. Ruyer thus distinguishes three levels of technicity: bodily organs as an originary technicity; externalized organs as an extended phenotype (webs, dams, nests); and the detachable artifacts that enter into a circuit external to the body. “Organic formation, instinctive external circuit, and intelligent external circuit” (33; cf. 20).

The consequences Ruyer draws from this analysis are immense. Most obviously, it explains the title of *Neofinalism*. Ruyer is not a traditional “finalist,” presuming a teleology or purpose throughout nature or for nature as a whole. Rather, he defends a “neofinalism” that begins, uncontroversially, with the presumption that humans act in a purposeful manner when they fabricate technical artifacts: we have a finalist aim in fabricating cooking utensils, which depend on mnemonic themes or senses that exist in a “transspatial” dimension (126-33). But here again, Ruyer draws the inevitable conclusions: what is true for *intelligent* behavior must be equally true of *instinctive* behavior. “It is impossible to recognize a finalist sense in the invention of cooking utensils and to deny it to the organs of ingestion, digestion, and assimilation” (19). In other words, neither consciousness, nor the brain, nor the nervous system has a monopoly over memory, habit, invention or signifying activity in general (37). Consider the fact that humans are currently attempting to fabricate an artificial brain or an artificial intelligence whose capacities may soon exceed those of human intelligence (the so-called “singularity”).<sup>18</sup> Yet every human embryo *already* knows how to fabricate a human brain, as well as a stomach, lungs, kidneys, and a circulatory system. In epistemological terms, one could say that an embryo has a knowledge that exceeds that of the brain—a brain, moreover, that the embryo itself has created. If Ruyer sometimes calls the embryo our “primary organic consciousness” (38, 43-44, 72, 74, 100), it is because the creation of the body and its organs is the neo-finalist activity of the embryo, just as the creation of technical artifacts is the neo-finalist creation of the brain,

our “secondary consciousness” (73-4, 94, 98-99, 215). The equipotentiality of the embryo is prolonged in the plasticity of the brain.

But this is another way of saying that the embryo and consciousness, like molecules and cells, are absolute forms, with all their attendant characteristics: absolute survey, non-localizable bonds, zones of indetermination. It was in his first book, *Consciousness and the Body* (1937), that Ruyer began to analyze consciousness as a form-in-itself, and these analyses reach their culmination in the ninth chapter of *Neofinalism* on “Absolute Domains of Survey” (90-103), which is no doubt the crucial chapter of the book. Ruyer shows that my visual field is “surveyed” by consciousness without ever having to position itself at a distance from it (97). In other words, the details of perception are not linked to each other through causal links, like the parts of a machine, but are grasped in the immediacy of an absolute time-survey and space-survey, independent of any supplementary dimension (100). Philosophy has often considered consciousness to be knowledge, but for Ruyer, consciousness is primarily a domain of absolute survey and nonlocalizable bonds (107). It is the concept of absolute survey, Ruyer claims, that holds “the key not only to the problem of consciousness but also to the problem of life” (94). It is not an exaggeration to say that the pages where Ruyer develops his concept of absolute survey are among the most original passages in twentieth-century philosophy, and they merit close study. Nor is it by chance that Deleuze and Guattari, in *What is Philosophy?* (1991), presented philosophical concepts as absolute forms in the Ruyerian sense, thereby adding concepts to the continuity of individualities that populate the universe.<sup>19</sup>



It would be tempting to characterize the metaphysics that Ruyer develops in *Neofinalism* as *pan-psychist* (everything is consciousness) or *pan-vitalist* (everything is life). Ruyer himself sometimes has recourse to such language, as when he calls the embryo, for instance, a primary consciousness. In making such links, Ruyer would certainly be in good company, since others have taken the organism or life as a model for metaphysics. Whitehead, who exerted a strong influence on Ruyer (second only, perhaps, to Samuel Butler) called his process philosophy a “philosophy of the organism,” and Deleuze appropriated the tradition of vitalism when he spoke of “non-organic life.” But such characterizations miss the true radicality of Ruyer’s thought. “It would be obviously absurd,” he insists, “to imagine that a molecule’s mode of unity is the same as an organism’s.”<sup>20</sup> The differences between the two are manifest, and Ruyer’s deeper claim is that they both share in

a common problem: “the primary mystery of the form-in-itself” (110). They are both individualities or forms that persist and reconstitute themselves in a self-forming activity. The point of Ruyer’s philosophy, as he himself says, “is not to define the atom, the molecule, and the physical individuality as organisms or as psychological consciousnesses, but instead to see what is schematically common to the molecule, the organism, and consciousness. In all these cases, the common schema is a domain of *absolute survey* and *activity*” (162). Ruyer’s work thus implies an entirely new philosophy of nature, which in turn implies a reconception of the role of the various sciences in exploring nature.

Most generally, it does away with an obsolete vision of science, inspired by Auguste Comte, which presumed a hierarchy among the various sciences, with physics as the base, followed by chemistry, biology, and the human sciences. Already in his early work, *Elements of Psychobiology* (1947), Ruyer demonstrated that what the sciences show us are not levels, but rather *lines of continuity* between absolute forms or individuals.<sup>21</sup> In *Neofinalism*, Ruyer calls this a “fibrous” conception of the universe (140-153) that follows the lines of continuity between molecules, viruses, organisms, and consciousnesses.<sup>22</sup> The fibrous universe envisioned by Ruyer poses a fundamentally new problem for the sciences, namely, how to *differentiate* between absolute forms along these line of continuity. Ruyer gives passing hints on how he might have pursued this still-nascent project in *Neofinalism*, which revolves around that status of memory. “The main difference, no doubt, between physical beings and the most complex organisms does not derive from the instantaneity or the absence of memory in the form, but from a lack of *detachment* of this memory” (149). It has often been noted that, for the human species, the invention of the technology of writing was an externalization of memory: information could be henceforth stored in documents (and, now, computer files) rather than being retained in the brain.<sup>23</sup> Likewise, in supposedly lesser organisms, “organic memory [genetics] constitutes specific potentials that can be reincarnated in innumerable individuals” (149), even in the self-replicating reproduction of viruses. What seems unique about physical individualities, by contrast, is that this semi-substantialization of activity into memory does not take place: atoms are “uninterrupted activity” that “lack a detachable memory” (151-2). Indeed, “they have no need for one, because they never have to take up again the thread of their uninterrupted activity” (152). This theme of the *detachment of memory*, as a criterion for differentiating among absolute forms, is an ongoing project that Ruyer has bequeathed to subsequent thinkers.

More specifically, as we have seen, Ruyer's work implies a new distribution of the diverse sciences based on the distinction between the *molecular* and the *molar*. For Ruyer, the fibrous line of continuity that links atoms, viruses, embryos, and brains is entirely "molecular" (Ruyer, to be sure, is giving this term a new concept), to the point where he can say that an elephant is a molecular, micro-scopic being, far more so than, say, a soap bubble (106). Much traditional science deals with the secondary and statistical *molar* relations between absolute forms. If we watched, from the air, a massive crowd of human beings moving through a city during a demonstration, negotiating their trajectory through streets and around obstacles, their motion would be entirely explainable by the laws of fluid dynamics, but these molar and statistical properties of the crowd would say nothing about the individual subjects, which are absolute forms capable of equipotentiality. Similarly, a sedimentary limestone strata can be described entirely in terms of its deterministic physical and geological properties, but nonetheless it cannot be confused with the individual mollusks of which it is made up (143). The mistake of many traditional sciences is that "they went illegitimately from 'molar' and statistical properties to individual properties" (143). The innovation of Ruyer's work in the philosophy of science will be to have shown the priority of the sciences that follow the fibrous lines of continuity between absolute forms, such as quantum physics (for molecules, atoms, and sub-atomic realities), biology and embryology (for uni- and multi-cellular beings), psychology (for consciousness) and sociology (for culture). The secondary sciences, some of which have hitherto been the privileged sciences, are those that only study individuals from their molar or statistical side, such as classical physics (e.g., thermodynamics), physico-chemical physiology, neuro-psychology, population biology (the mathematical study of the struggle for life) and classical political economics (crowd phenomena).

If Ruyer's philosophy ultimately cannot be characterized pan-psychist or pan-vitalist or even pan-physicalist, it is because the matter-life-consciousness hierarchy on which these characterizations are based on what might be said to constitute a "folk metaphysics" that is no longer supported by science itself. Neither matter, nor life, nor consciousness can be reduced to the other; all are absolute forms, at once spatiotemporal and transspatiotemporal (249). The fundamental line of demarcation in nature can no longer be drawn between the organic and the inorganic, or between mind and body, but must be relocated in the distinction between absolute forms, as unitary domains of action, and the molar aggregates into which they enter. These domains of absolute survey implicate "a *metaphysical* 'dimension'" of transspatial mnemonic themes that is "altogether different from the

geometric dimensions of space-time” (249), and it is the development of this new metaphysics that is Ruyer’s fundamental contribution to philosophy. Despite having been written more than sixty-five years ago, *Neofinalism* retains an extraordinary topicality and immediacy that makes it, even now, an essential contribution to the concerns of contemporary philosophy.

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## NOTES

1. Raymond Ruyer, *La Gnose de Princeton: Des savants à la recherche d'une religion* (Paris : Fayard, 1974). A mass-market paperback edition of the book was issued in 1977 by Hachette in its "Pluriel" series. The book was succeeded three years later by a follow-up volume, *The Next 100 Centuries: The Historical Destiny of Humans according to the New American Gnosis*: Raymond Ruyer, *Les Cent prochains siècles: Le destin historique de l'homme selon la Nouvelle Gnose américaine* (Paris: Fayard, 1977).
2. For a more detailed analysis of The Gnosis of Princeton "affair," see Fabrice Colonna, "Retour sur une étrange affaire: « La Gnose de Princeton »,» in Fabrice Colonna, *Ruyer* (Paris: Les Belles Lettres, 1977), 13-28. Colonna's book is a superb study of the entirety of Ruyer's oeuvre.
3. Raymond Ruyer, *Éléments de Psycho-biologie* (Paris: Presses Universitaire de France, 1946).
4. Raymond Ruyer, *L'embryogenèse du monde et le Dieu silencieux*, ed. Fabrice Colonna (Paris: Klincksieck, 2013).
5. Raymond Ruyer, *Neofinalism*, trans. Alyosha Edlebi (Minneapolis: University of Minnesota Press, 2016). Pages references to *Neofinalism* are included in the text in parentheses.
6. Raymond Ruyer, *La genèse des formes vivantes* (Paris: Flammarion, 1958). An English translation, *The Genesis of Living Forms*, by Jon Roffe and Nicholas B. de Weydenthal, is scheduled to appear from Rowman and Littlefield shortly.
7. See Gilles Deleuze, *The Fold: Leibniz and the Baroque*, trans. Tom Conley (Minneapolis: University of Minnesota Press, 1993), 104, translation modified: "The great difference does not pass between the organic and the inorganic, but crosses both of them by distinguishing what is an individual being from what is a crowd or mass phenomenon, what is an absolute form and what are massive, molar figures or structures." On this distinction, see Ruyer, *La genèse des formes vivantes*, 54, 68.
8. See Gilles Deleuze, seminar of 10 March 1981.
9. See Ruyer, *Éléments de Psycho-biologie*, 23: A form-in-itself is "the immediate unity of a multiplicity of coordinated elements."
10. Deleuze, *The Fold*, 102, translation modified. Chapter 8 of Deleuze's book, "The Two Floors" (100-120) analyzes the relation between Ruyer and Leibniz.
11. Ruyer notes that atomic individualities have extraordinary binding energies, which is why the disintegration of an atom is much more violent than the disintegration of a human being (103).
12. Ruyer, *Neofinalism*, 148, citing R. J. Collingwood, *The Idea of Nature* (Oxford: Clarendon Press, 1945), 146.
13. Ruyer, *Éléments de psychobiologie*, 22-23. See also « Le paradoxe de l'amibe et la psychologie », in *Journal de psychologie normale et pathologique*, July-December 1938, 472-92 ; and « Du vital au psychique », in the collection *Valeur philosophique de la psychologie*, Centre international de synthèse (Paris: PUF, 1951).
14. See Ruyer, *Éléments de Psycho-biologie*, 23-24.
15. Ruyer, *Neofinalism*, 158-62. See Erwin Schrödinger, *What is Life? The Physical Aspect of the Living Cell* (Cambridge: Cambridge University Press, 1944).
16. See Richard Dawkins, *The Extended Phenotype: The Long Reach of the Gene* (Oxford: Oxford University Press, 1982).
17. This argument applies equally to plant life. See Stefano Mancuso and Alessandra Viola, *Brilliant Green: The Surprising History and Science of Plant Intelligence*, trans. Joan Benham; forward by Michael Pollan (Washington DC: Island Press, 2015). Plants are not "individuals" (in, "not" +

- dividuous, “divisible”), since even if a plant is cut in half, the two parts can still live independently (36), primarily because plants have not localized their life functions in organs (“they can see without eyes, taste without taste buds, smell without a nose, and even digest without a stomach,” 73)
18. See Ray Kurzweil, *The Singularity is Near: When Humans Transcend Biology* (New York: Penguin, 2005).
19. See Gilles Deleuze and Félix Guattari, *What is Philosophy?*, trans. Hugh Tomlinson and Graham Burchell (New York: Columbia University Press, 1994), 210, where they explicitly acknowledge that their analysis of concepts (in the first chapter of the book) has the exact same status as Ruyer’s analysis of the brain as an absolute form.
20. Ruyer, *Neofinalism*, 110. See also *Éléments de Psycho-biologie*, 2: “It would be artificial to put living species and chemical species on the same plane.”
21. Ruyer, *Éléments de Psycho-biologie*, 1.
22. See Ruyer, *Neofinalism*, 142: “Since quantum physics, it has become impossible to represent the universe—the real universe of individual beings—as made up of a series of superposed layers, the lowest bearing the others. The universe has, instead, a fibrous structure in time, and each fiber represents the continuous line of an individualized existence.”
23. See, for instance, Walter J. Ong, *Orality and Literacy: The Technologizing of the Word* (London: Methuen, 1982).

## logic of digital worlds

**yuk hui, on the existence of  
digital objects (university of  
minnesota press, 2016)**

jason larivière

In “The End of Philosophy and the Task of Thinking” (1964), Heidegger famously takes stock of the present and future of philosophy in the time of cybernetics. “Philosophy is ending in the present age,” he writes. “It has found its place in the scientific attitude of socially active humanity. But the fundamental characteristic of this scientific attitude is its cybernetic, that is, technological character. The need to ask about modern technology is presumably dying out to the same extent that technology more decisively characterized and directs the appearance of the totality of the world and the position of man in it.”<sup>1</sup> For the late Heidegger, writing near the last decade of his life and well ensconced in his mountain chalet, the rapid technological development of the global north spells an impending doom: the end to philosophical thinking and to a properly authentic relationship to the world. The planetary control apparatuses that we subsume under the sign of “cybernetics” have replaced the traditional role of metaphysics and, thus, usurped philosophy. “Philosophy is metaphysics. Metaphysics thinks beings as a whole—the world, man, God—with respect to Being, with respect to the belonging together of beings in Being.”<sup>2</sup> Now, for Heidegger, it is cybernetics that thinks the totality. So, new questions are raised. Whither philosophy in the half century since Heidegger announced its death knell? Can philosophy survive the complete digitization of the world? Can metaphysics still have currency in an age of ubiquitous computation?

The past decade or so has seen a number of important monographs reckoning with precisely the problem (and potential) of thinking philosophy together with the high-powered computers that are all pervasive in contemporary life, including works from scholars such as Brian Massumi, Reza Negarestani, Luciana Parisi, Stamatia Portanova, to name just a handful. To this group we can add Yuk Hui's impressive new book. *On the Existence of Digital Objects* is first and foremost a work of philosophy, of philosophical synthesis, rereading the western canon retrospectively from the point of view of a subjectivity thoroughly imbricated with digital technics. It stakes a strong claim for the continuation of metaphysics after the age of cybernetics, because as Hui puts it, "a fundamental Ontology can no longer be fully grounded without taking technical systems into account" (248). Hui's work is not *philosophizing on* the nature of the digital from a remove, or, even worse, an *application* of digital tools in the pursuit of traditional humanistic inquiry as in the enthusiasm for the so-called digital humanities, but rather a transductive fusion of philosophy and digital technics into an original expression of a *digital philosophy* that is worthy of the name. As he puts it, "this book is the result of an endeavor to read the history of philosophy through digital objects and at the same time to read the history of digital objects through philosophy" (50). Both terms are thereby constituted in their relation to each other. For philosophy to continue to exist, for it to evade the obsolescence that Heidegger saw as its destiny, the role of technics in the development of human social life must be brought to the fore. The technics that Hui is questioning toward are the multitudes of digital objects that abound in our lives: YouTube videos, gifs, emails, all those objects "that take shape on a screen or hide in the back end of a computer program, composed of data and metadata regulated by structures or schemas" (1).

One of the chief innovations in *On the Existence of Digital Objects* is alluded to on the very last page while recapitulating the book's task of meditating on digital objects: "Some art practices may have given us some insight into the development of techniques, but a more systematic approach must be developed" (252). Hui's advantage over much of the more cultural studies-inflected works on the digital is his deep knowledge of both philosophy and computer science. The book evinces a *technical knowledge* of both major subjects—one humanistic, one scientific. As such, there is little need to fall back on the crutch of buttressing speculative claims about current or emerging technology with recourse to artistic examples as if they were actually existing states of the world—an unfortunate holdover from the proliferation of cyberculture theory in the 1990s that often outpaced by some distance the real state of computing power.<sup>3</sup> Instead, Hui's work is grounded

in an uncommon philosophical and technical rigor that may alienate those used to a culturalist reading of digital technology. Hui's approach is to consider what it will mean for humans to interact with what he calls a "machine hermeneutics" in the 21<sup>st</sup> century. The resulting tension between formal computational logic and the imagination of *Dasein* is a guiding theme throughout the book, and it is to Hui's credit that his work doesn't resort to science fictional imaginaries to goose the already fraught convergence.

Hui's stated method is another one of the book's strengths, and it addresses one of the pressing problems for the scholar of digital culture, new media, and the like. In doing this work there will always be a question of where to focus one's attention when studying networked computer systems. Where precisely does the scholar insert themselves? On what side of the proverbial screen: the "human" side of the everyday interaction of people with gadgets, or the "machine" side of the hardware? And once that decision is made, what scale ought one to operate from: electronic voltage differences, an individual user, the global network of infrastructures that make the internet possible?

Hui's solution is to develop a method that attends to the *orders of magnitude* that make up the complex interactions between these multiple layers. Hui's book "aims to produce a system of thoughts that bridges different orders of magnitude through developing a theory of relations" (31). This articulation of the relation between a variety of pertinent literatures and technical orders of granularity is a model for how the problem of scale can be broached in the new modes of digital philosophy. As Bernard Stiegler states in his enthusiastic foreword, Hui's synthesis of "analytical and continental philosophy, cognitivism and phenomenology, and computational theory alongside the human and social sciences" points to the ways in which "the relations and nonrelations between them are to a large extent the result of unconceptualized questions of scale" (viii). Stiegler's influence on the project can't be overstated. Hui, who has worked with Stiegler on developing a theory and praxis of digital tools at his Institut de Recherche et d'Innovation in Paris, takes the emphasis on the co-constitution of the human being and technics from Stiegler, whose works—especially the *Technics and Time* series—have had a great impact on the philosophy of technology since the first volume's English translation in 1998. Several of Stiegler's key concepts, such as epiphylogenesis—the evolution of the living through nonliving means—and tertiary retentions—the exteriorization of human memory into archivable media—are prevalent in Hui's approach to the necessity of thinking the cultural and technical realms together.

And when Hui claims that what is at stake in his project is “the synthesis of time produced by algorithms” (252) we hear Stiegler’s insight into the persistence of memory through time by instilling technical objects with cultural information.

Readers sympathetic to Stiegler’s overall project but who have perhaps been disappointed by the lack of technical specificity in his works will have an ally in Hui, who has taken the core insights of Stiegler and applied the expertise of a practitioner. That said, Hui, for better or worse, adopts much of Stiegler’s philosophical archive, which is to say, the European canon: Kant, Husserl, Heidegger—not the most diverse bibliography to be sure. But we gain truly innovative readings of some well-worn figures. For example, Hui takes from Stiegler an abiding interest in the philosophy of Gilbert Simondon, known for decades in French philosophy circles but only now becoming widely translated in the Anglophone world. The title of Hui’s book pays obvious homage to Simondon’s *On the Existence of Technical Objects*, recently published in English by Univocal Press. Especially relevant to Hui’s discussion of the digital object is the theme to which Simondon dedicated his magnum opus, that of individuation. Examining how exactly digital objects become individuated, the processes of becoming that concretize into a metaphysics of objects, makes up the first part of the elegantly structured book. Interrogating the consequences of living in what Simondon would call an “associated milieu” of human and machine interrelation will be one of the vital intellectual tasks in the years ahead. As Hui says, “A project concerned with the existence of digital objects wants to rearticulate the positions of both objects and human in the technical system in favor of an individuation proper to humans and objects. In other words, underlying this project is a political agenda of individuation” (33). The political stakes of the project—which may appear opaque at first—come into greater focus by the end of the book, as we’ll see in a moment.

This is a major contribution to the subfield of the philosophy of technology, and as such, takes on two of the towering figures in the 20<sup>th</sup> century thinking on humans’ relationship with technics: Heidegger and Simondon. Hui puts them into productive conversation with each other, complexifying a standard reading of Heidegger, the technophobe, and Simondon, a kind of proto-tech guru. Hui applies his unique methodology to this diode: “I will not situate Simondon and Heidegger in opposition to each other but rather will consider them as representatives of different orders of magnitude. It is easy to come to the conclusion that Heidegger’s critique of technology originates in an understanding of objects, whereas for Simondon, technology is no less than the evolution of objects. In fact, Heidegger

and Simondon both want to move humans from the conception of themselves as the center of the world” (104-105). This decentering of the human could be seen as positioning the text squarely within the recent “non-human turn” in the humanities, which includes various modalities of speculative realism, new materialism, affect theory, thing theory, and related pursuits. But if the reader’s yen for yet another inquiry into the fetishizing of *materiality as such* has begun to wane they shouldn’t be put off by the potential association with the by-now rote discussions of “vibrational intensities” and watered-down Deleuzianisms that can populate these works.

Indeed, *On the Existence of Digital Objects* may be a difficult register for those coming to these discourses for the first time. Without a strong background in Kant and various trains of phenomenology, for example, the reader may be lost in the patient but difficult explication of texts and scaffolding out of these philosophical layers into a coherent system. Those turned off by a discussion of, say, the differences between the logic of the early Husserl and late Husserl will want to refresh themselves with some additional secondary texts before tackling this book.

While the sophistication of such a philosophical analysis of scale is perhaps unprecedented here, what one doesn’t find is much attention paid to anything like the quotidian experience of using electronic devices and the interaction with digital objects in our everyday lives as consumers and makers. This again arises as a by-product of the book’s primary emphasis on peering “under the hood” of our machines, as it were, and trying to understand the ontology of the algorithms that shape our lives. Much of the popular writing on new media is made up of this register, of course, but it could have helped to ground the dense philosophical explication in an experience of digital objects that would be familiar to most non-engineers. We do get a few examples attenuating the discussion to this scale, as in the case of navigating YouTube at the end of Chapter 3, “The Space of Networks,” or the description of the practice of tagging digital objects in Chapter 5, “Logic and Object,” but the book could have benefitted from more extended case studies of this variety.

The chapter in which the political stakes of the individuation of digital objects are the most explicit is the last on “Logic and Time.” While not on its face an overly political topic, Hui turns in this chapter to a fundamental concept in both Heidegger and Stiegler, that of *care*. This opens up the perspective of what Stiegler calls the “organological-political” (xiii), projecting existential questions about

the appropriate political posture vis-à-vis the reality of planetary computation and control networks. How might one develop a structure of care that is responsive to the everyday confrontation with algorithmic governmentality? Should we work inside the milieu or seek alternatives outside of it? Following Simondon, we would have a rather pessimistic idea about the possibility of structural change from within. Hui quotes Simondon on this score: “One changes tools and instruments, one can construct or repair a tool oneself, but one cannot change the network, one doesn’t construct oneself a network; one can only tie in with the network, adapt to it, participate in it; network dominates and encloses the action of individual beings, dominates even every technical ensemble” (27). This would be a way of describing what Alexander Galloway has called “the problem of reticular pessimism,”<sup>4</sup> that is, only ever conceiving of the world as a series of networks—and all that such a diagram pharmacologically entails.

But in Hui’s closing section, we are offered a chance to develop new architectures and structures of care from a position that acknowledges our indissoluble place within the technical milieu. The digital object, while still thoroughly enmeshed in its network relations, has the ability to resist the foreclosure and atomization brought on by the decision to grammatize all of life according to digital logics. By its very relationality, the digital object “opens up worlds, unifies them, and discloses to users of the other possible worlds that objects are not passive syntheses but refer you to somewhere else, out of anticipation; this is usually called serendipity” (219). In order for new *forms* to emerge we have to understand the *ground* from which they emerge. Hui provides us with the conceptual tools for understanding the ontological ground of our digital objects within a technical system. Adapting the network to more than just ends remains the task ahead, perhaps even allowing us to escaping its reticular enframing altogether.

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## NOTES

1. Martin Heidegger, *Basic Writings*. Ed. David Farrell Krell (New York: HarperCollins, 2008, 434).
2. Heidegger, *Basic Writings*, 432.
3. For an entertaining critique of this tendency in tech writing in the 1990s, see: Jeffrey Sconce, "Tulip Theory," in *New Media: Theories and Practices of Digitextuality*, eds. Anne Everett and John D. Caldwell (New York: Routledge, 2003, 179-93).
4. David M. Berry and Alexander Galloway, "A Network is a Network is a Network: Reflections on the Computational and the Societies of Control," *Theory, Culture & Society* 33, no. 4 (2016).