

DELEUZE, JONAS, AND THOMPSON
TOWARD A NEW TRANSCENDENTAL AESTHETIC
AND A NEW QUESTION OF PANPSYCHISM

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INTRODUCTION

The talk will connect the Thompson / Jonas idea of “biological space and time” (*Mind in Life*, 155; *Phenomenon of Life*, 86) to Deleuze’s work in *Difference and Repetition* (hereafter DR) in terms of a “new Transcendental Aesthetic.” As we will see, the question will intersect that of panpsychism.

Both Deleuze in DR and Thompson / Jonas can be fairly said to be biological panpsychists. That’s pretty much what “Mind in Life” means: mind and life are co-extensive: life = autopoiesis and cognition = sense-making. Thus Mind in Life = autopoietic sense-making = control of action of organism in environment. Sense-making here is three-fold: 1) sensibility as openness to environment; 2) signification as positive or negative valence of environmental features relative to the subjective norms of the organism; 3) direction or orientation the organism adopts in response to 1 and 2. (“Sense of the river” is archaic in English, but “sens unique” for “one-way street” is perfectly clear in French.)

Deleuze is not just a biological panpsychist, however, so we’ll have to confront full-fledged panpsychism. At the end of the talk we’ll be able to pose the question whether or not we can supplement Thompson’s “Mind in Life” position with a “Mind in Process” position and if so, what that supplement means for panpsychism.

To begin, let’s notice that Mind in Life continues the twentieth-century trend of displacing human, language-expressed, top-level, reflective rational consciousness, as sole or prime or most basic or most important candidate for “cognition,” which would have corporeal practical engagement as a privative form, as sloppy or distorted or approximate theory. We see this displacement in the phenomenological tradition, in Husserl’s analyses of passive synthesis, and his analyses of the life world, as well as in Heidegger and Merleau-Ponty, where embodied practical engagement is primary. This displacement is echoed in the Derridean critique of “logocentrism”; in the Marxist critique of the privilege of mental over manual labor; in the

postcolonial critique of racist Eurocentrism vs local knowledges; in the feminist critique of the patriarchal privilege of masculine thought forms.¹

In this displacement of rational reflective conscious thought, we also see the connection with Deleuze, who picks up the post-Kantian demand, explicit in Solomon Maimon, for genesis rather than mere conditioning.² Rather than the Kantian deduction of conditions of human rational reflective consciousness, we have to show the genesis of real experience from within experience. The post-Kantian challenge is to show space and time, categories, and Ideas as developing in “dynamic genesis,” starting with the sheer atomic exteriority of sensations to one another, what Deleuze will call *mens momentanea*. As opposed to “static genesis” as movement from virtual Idea through intensive individuation to actual extended and qualified beings, with dynamic genesis we move from actuality of sensation to virtuality of Ideas. In tracing this genesis of real experience, we’ll concentrate on space and time as a new Transcendental Aesthetic rather than on sense-making as a new Transcendental Analytic.

The key concept shared by Deleuze and *Mind in Life* is that the sort of cognition for which Kant posited his transcendental conditions develops from a fundamentally biological cognition. The *Mind in Life* claim is that fully conceptual recollection and recognition, the active intellectual relation to past and future, is founded in metabolism (what Deleuze will call “organic syntheses”). This founding of cognition in can be read in a transcendental sense: for our thinkers, metabolism is a new transcendental aesthetic, the a priori but always concrete genesis of organic time and space. We should note that for Deleuze organic time, the synthesis of habit producing the living present, is only the “foundation” of time. Deleuze’s full treatment of time in *Difference and Repetition* posits a second synthesis of memory producing the pure past as the “ground” of time, while the third synthesis, producing the future as eternal return of difference, we might say unfounds and ungrounds time.³

The essential temporal structure of any metabolism is the rhythmic production of a living present synthesizing retentions and protentions, conserved conditions and expected needs. The essential spatiality of metabolism comes from the necessity of a membrane to found the relation of an organism to its environment; there is an essential foundation of an inside and outside by the membrane, just as there is an essential foundation of past and future by the living present. We thus see the necessity of (at least) a notion of biological panpsychism: every organism has a subjective position, quite literally a “here and now” created by its metabolic founding of organic time and space; on the basis of this subjective position an evaluative sense is produced which orients the organism in relation to relevant aspects of its environment.

AN “EVOLUTIONARY” GENETIC PHENOMENOLOGY?

In the de-centering of reflective consciousness we sketch above we see three moves, two familiar, the other being the novelty of the *Mind in Life* positions.

First, the familiar move of showing how high-level thought / science is a transformation of life world / Dasein's practical involvement (classic Husserl / Heidegger maneuver, echoed in *Mind in Life*). This is a synchronic shift of position within adulthood: adults are not first and foremost scientists in everyday life; they are instead practically and corporeally engaged with the world. In other words, we have to show how "know-that" (science) is a transformation of corporeal space-time (reformed Transcendental Aesthetic) and corporeal "know-how" (transformed categories and Ideas). As Donn Welton puts it: "the objects that we do find in Kant's Analytic, full-blown objects of science, belong to a higher order and are not experientially basic. Constitution at this higher level must be understood not as elementary but as a transformation of what is elemental...." (*The Other Husserl*, 299).

Second, another familiar move: genetic phenomenology. Or at least it's familiar now thanks to the efforts of Donn Welton, Tony Steinbock, and the New Husserlians. Here we have to trace the development of corporeal space-time and corporeal know-how from embryo to adult, that is, along the developmental or ontogenetic time scale.

This is where we get a first reformulation of the Transcendental Aesthetic. In *The Other Husserl*, Donn Welton shows how Transcendental Aesthetic is renamed in Husserl: instead of the Kantian opposition of sensibility and understanding (judgment) we have Husserl's opposition of experience and judgment (understanding). Because we have passive synthesis in what Kant would have as merely passive sensibility, there is a noematic sense in perception, prior to active understanding / judgment.⁴ Passive synthesis includes associative, kinesthetic, and time-consciousness syntheses. Directly addressing Husserl's genetic undercutting of Kant's Transcendental Aesthetic, Welton writes:

At yet a deeper and final level of genetic analysis Husserl discovers that space and time themselves are not just "forms" but are generated, on the one hand, by the interplay of position, motility, and place, and on the other, by the standing-streaming flow of the process of self-temporalization itself. Husserl's studies of the self-generation of space and time are clearly the most difficult of all his genetic studies. (Welton, *Other Husserl*, 254)

Key question: is "dynamic genesis" or Husserlian "genetic phenomenology" restricted to the ontogenetic time scale, that is, the development from embryo to adult?

If it is so restricted, then we need a new name for the third move, which is the key novelty of the *Mind in Life* position: we have to do dynamic genesis on the evolutionary time scale. That is to say, we have to show how single-celled organisms generate their own concrete space and time (a biological or metabolic Transcendental Aesthetic) as well as display "sense-making" (a biological or metabolic Transcendental Analytic) AND how this develops along the evolutionary time scale into the potentials for what will develop along the human developmental time scale, that is, genetic phenomenology as the constitution of corporeal space-time and corporeal know-

how, from embryo to adult. And then finally we can trace the synchronic transformation of corporeal space-time and categories / Ideas into science / human high reason.

So, to repeat, with this third move, “evolutionary dynamic genesis” or “evolutionary genetic phenomenology,” we have to investigate the Transcendental Aesthetic (space-time) and Transcendental Analytic (categories or “sense-making”) of single-celled organisms, and how they develop evolutionarily into the space-time and sense-making of the embryo, which then develop ontogenetically (“genetic phenomology proper”) into the space-time and sense-making of adult practical life (the reformed Husserlian Transcendental Aesthetic of passive synthesis), which are then finally synchronically transformed into the “normal” Kantian Transcendental Aesthetic, Transcendental Analytic, and Transcendental Dialectic (space-time, categories, and Ideas) as the conditions of adult scientific / rational reflective consciousness, or “rational experience.”⁵

Now if we can still have a genetic phenomenology on the evolutionary time scale – if “evolutionary genetic phenomenology” makes sense – then we have to talk about its basis, an empathy condition based on our living experience. To address what the sense-making / affective-cognitive “metabolic situation” of the single-celled organism we ourselves have to be living beings. Jonas writes in “Is God a Mathematician,” one of the great essays in *The Phenomenon of Life*:

On the strength of the immediate testimony of our own bodies *we* are able to say what no disembodied onlooker would have a cause for saying: that the mathematical God in his homogeneous analytical view misses the decisive point—the point of life itself: its being self-centered individuality, with an essential boundary dividing ‘inside’ and ‘outside’...” (PL, 79; italics in original)

Thompson agrees:

empathy is a precondition of our comprehension of the vital order, in particular of the organism as a sense-making being inhabiting an environment... [A] bodily empathy ... widened beyond the human sphere to ground our comprehension of the organism and our recognition of the purposiveness of life [references to Husserl, *Ideas II* and *Ideas III*]. Empathy in this sense encompasses the coupling of our human lived bodies with the bodies of other beings we recognize as living, whether these be human, animal, or even—particularly for biologists with at “feeling for the organism” [reference to Keller’s bio of McClintock]—bacteria.” (ML,165)

MIND IN LIFE AND A BIOLOGICAL TRANSCENDENTAL AESTHETIC

Using this empathy condition to explore the experience of even the simplest living beings, Thompson and Jonas straightforwardly talk of a new transcendental aesthetic as “biological time and space” (Thompson 2007: 155; citing Jonas 2003: 86). We find this expressed as a living present found in the simplest of organisms, a synthesis of retention and protention in the concrete form of metabolism and need (Jonas 2003: 85-86).

For Jonas, a reductive, physico-mathematical account misses the ontological emergence that makes of life an “ontological surprise,” and the organism a system, a “unity of a manifold.” (We will return to the question of emergence and panpsychism.) The organism is “whole” as “self-integrating in active performance,” an “active self-integration of life” (79). The “functional identity” of organisms relative to the materials it metabolizes is constituted “in a dialectical relation of needful freedom to matter” (80; emphasis in original).

Both elements, need and freedom, constitute the “transcendence” of life, and this transcendence constitutes a living present, a metabolically founded transcendental aesthetic or a priori form of organic time: “self-concern, actuated by want, throws open ... a horizon of time ... the imminence of that future into which organic continuity is each moment about to extend by the satisfaction of that moment’s want” (85). For Jonas, echoing Heidegger in *Being and Time* #70, organic space is founded by organic time: an organism “faces outward only because, by the necessity of its freedom, it faces forward: so that spatial presence is lighted up as it were by temporal imminence and both merge into past fulfillment (or its negative, disappointment)” (85).

Jonas then draws the consequences for the question of the adequacy of purely mathematical physics for the phenomenon of life; in other words, he shows the necessity of a dynamic genesis from instantaneity to the living present: “with respect to the organic sphere, the external linear time-pattern of antecedent and sequent, involving the causal dominance of the past, is inadequate.” With life on the scene, “the extensive order of past and future is intensively reversed,” so that the determination of “mere externality” by the past has to be supplemented by the recognition that “life is essentially also what is going to be and just becoming” (86).

DELEUZE AND BIOLOGICAL TIME

When we move to Deleuze, we’ll have to first discuss biological time, then move to Simondon to discuss fully articulated biological space-time. Chapter 2 of Difference and Repetition is devoted to Deleuze’s work on “repetition for itself.” The first step, on which we concentrate, is the discussion of the first passive synthesis of time, or habit, which produces the “living present” as the a priori form of organic time.⁶

The first section deals with only the first passive synthesis of time, the most basic or “foundational” in this dynamic genesis. To begin his genetic account, then, Deleuze must get down to the most basic synthesis; he must show how beneath active syntheses (thought) are passive syntheses (perception) and beneath passive perceptual syntheses are passive organic syntheses (metabolism). The challenge is to describe passive syntheses in differential terms, so as to avoid the “tracing” of empirical identities back to transcendental identities.

Syntheses are needed to join together a disjointed matter or sensation, since in themselves, material or sensory instants fall outside each other: “a perfect independence on the part of each presentation ... one instant does not appear unless the other has disappeared – hence the status of matter as *mens momentanea*” (96 / 70). Deleuze goes on to distinguish three levels of synthesis of the zero-degree level of instantaneity:

0. Instantaneous presentation and disappearance: “objectively” as matter and “subjectively” as sensation
1. Passive syntheses (contraction or habit producing a living present)
 - a. Organic syntheses (metabolism synthesizing matter)
 - b. Perceptual synthesis (imagination synthesizing sensation)
2. Active synthesis (memory as recollection and thought as representation synthesizing perceptions)

Deleuze will distinguish the organic and perceptual syntheses by showing that organic syntheses have their own form of contraction or habit.⁷ For Hume and Bergson, the psychological imagination moves from past particulars to future generalities: from a series of particulars we come to expect another of the same kind. Deleuze will abstract the process of “drawing a difference from repetition” as the essence of contraction or habit and show that it occurs at the organic level as well as on the level of the passive perceptual imagination (101 / 73).

In order to isolate organic syntheses as prior to perceptual syntheses (themselves prior to active intellectualist syntheses), Deleuze radicalizes Hume and Bergson. These two “leave us at the level of sensible and perceptive syntheses” (99 / 72).

But these syntheses refer back to “organic syntheses,” which are “a primary sensibility that we *are*” (99 / 73; emphasis in original). Such syntheses of the elements of “water, earth, light and air” are not merely prior to the active synthesis that would recognize or represent them, but are also “prior to their being sensed” (99 / 73). So, each organism, not only in its receptivity and perception, but in its “viscera” (that is, its metabolism), is a “sum of contractions, of retentions and expectations” (99 / 73).

Here we see the organic level of the living present of retention and expectation. Organic retention is the “cellular heritage” of the organic history of life and organic expectation is the “faith” that things will repeat in the ways we are used to (99 / 73). So Deleuze has isolated a “primary vital sensibility” in which we have past and future synthesized in a living present. At this level, the future appears as need as “the organic form of expectation” and the retained past appears as “cellular heredity” (100 / 73).⁸

Now we must distinguish two genres of contraction: (1) contraction as activity in series as opposed to relaxation or dilation, and (2) contraction as fusion of succession of elements. With the second form of contraction, we come upon the notion of a “contemplative soul” which must be “attributed to the heart, the muscles, nerves and cells” (101 / 74). Deleuze knows the notion of an organic “contemplative soul” might strike his readers as a “mystical or barbarous hypothesis” (101 / 74), but he pushes on: passive organic synthesis is our “habit of life,” our expectation that life will continue. So we must attribute a “contemplative soul” to the heart, the muscles, the nerves, the cells, whose role is to contract habits. This is just extending to “habit” its full generality: habit in the organic syntheses that we are (101 / 74).

We cannot follow all the marvelous detail of Deleuze’s text in which he discusses “claims and satisfactions” and even the question of pleasure, of the “beatitude of passive synthesis” (102 / 74). Nor can we follow his wonderful analyses of rhythm, which will reappear in the notion of the refrain in *A Thousand Plateaus*.⁹ We have to move to the question of membranes and organic spatiality.

SIMONDON: MEMBRANES AND ORGANIC SPACE-TIME

As we have seen with Jonas, the essential spatiality of metabolism comes from the necessity of a membrane to found the relation of an organism to its environment; there is an essential foundation of an inside and outside by the membrane, just as there is an essential foundation of past and future by the living present. The interest of the new biological Transcendental Aesthetic is to see its intertwining of space and time in the relation of membrane and metabolism.

Prior to ATP, Deleuze only mentions biological space founded by membranes a few times, always with reference to Simondon. So let us turn to the section of Simondon’s *L’Individu et sa genèse physico-biologique* entitled “Topologie et ontogénèse.” We’ll just look at membranes and metabolism as a biological Transcendental Aesthetic, not at sense-making as biological Transcendental Analytic, that is, sense-making as the “schematization of the categories” of the organism.

The key for Simondon is the process of individuation or “transduction” starting from a metastable field. Metastability is pre-individual, but poised for individuation: Simondon’s usual figure is crystallization. In the super-saturated field, there are gradients of density, but no crystalline forms. There is the potential for crystallization, made actual when provoked by an external shock. From a metastable field, a process of individuation allows for distinction of an

ever-processual individual and milieu. Individuation as “transduction” is an always-ongoing maintenance of relation of metastability between individual and milieu.¹⁰ Deleuze will call the pre-individual the realm of the virtual, and the individuation process the realm of the intensive. Staying in touch with the metastable field is keeping your Body without Organs close by (not regression, but potential for transformation).

Let us follow Simondon’s treatment of biological space-time, the new biological Transcendental Aesthetic, in *L’Individu*. To establish the singularity of the living being [*le vivant*] “it would be necessary to exhibit [*produire*] the topology of the living being, its particular type of space, the relation between a milieu of interiority and a milieu of exteriority” (223). The key is that the new biological Transcendental Aesthetic is topological, not Euclidean. We cannot be fooled by the seemingly Euclidean or “absolute” inside-outside in single-celled organisms,¹¹ for “the essence of the living being is perhaps a certain topological arrangement that cannot be known on the basis of physics and chemistry, which utilize in general a Euclidean space” (223).

While it’s the case that there is an “absolute” inside-outside of the single-celled organism, it’s not a Euclidean spatiality, but the dynamic and topological maintenance of metastability that counts:

For this organism, the characteristic polarity of life is at the level of the membrane; it’s in this region [*à cet endroit*] that life exists in an essential manner as an aspect of a dynamic topology which itself maintains the metastability by which it exists. (224)

So we see how it’s the dynamic topological process of individuation that constitutes biological space-time. The interior is the accumulated past, the exterior the forthcoming future. Concerning the relation of interiority and the past: “the entire mass of living matter which is in the interior space is actively present to the exterior world at the limit of the living being: all the products of the past of the individuation [*de l’individuation passée*] are present without distance and without delay” (225). While interiority constitutes the past, exteriority constitutes the future: “The fact that a substance is in the milieu of exteriority means that that substance can come forth [*peut advenir*], be proposed for assimilation, [or] wound [*léser*] the living individual: the substance is to come, is futural [*est à venir*]” (225).

The full contours of the new, biological Transcendental Aesthetic come into focus as past and future combine in a living present constituted by the membrane:

At the level of the polarized membrane, the interior past and the exterior future face one another [*s’affrontent*]: this face off [*affrontement*] in the operation of selective assimilation is the present of the living being [*le présent du vivant*], which is made up of this polarity of passage and refusal, between substances which pass into the past [*substances passées*] and substances which come forth futurally [*adviennent*], [substances which are] present [*présentes* used here as an adjective] one to the other by means of [*à travers*] the operation of individuation... (226)

However, we must never reify the membrane: it is the process of individuation maintaining a dynamic topology that constitutes the new Transcendental Aesthetic of living present as relation of interior and exterior, past and future: “the present is that metastability of the relation between interior and exterior, past and future; it’s in relation to this allagmatic¹² activity of mutual presence that the exterior is exterior and the interior is interior” (226).

That the new, biological Transcendental Aesthetic—brought about by focusing on the process of individuation—is a departure from Kant is clear in Simondon: “Topology and chronology are not a priori forms of sensibility, but the very dimensionality of the living being as it individuates itself [*la dimensionnalité du vivant s’individuant*]” (226).

LIFE AND CREATIVITY

This is something of an excursus, but the topic is important. Let us consider Simondon’s definition of life, which is quite close to that of autopoiesis.

Life is self-maintenance [*auto-entretien*] of a metastability, but a metastability that requires a topological condition: structure and function are linked, for the most primitive and profound vital structure is topological. (224)

It’s quite close to the definition of life in autopoiesis, but there are some notable differences. The similarity comes the notion of self-maintenance of a topological dynamics in which structure and function are linked. But the “metastability” is an interesting twist. The binary logic of autopoiesis—conservation or dissolution—had to be supplemented by the dynamic notion of “adaptivity” developed by Ezequiel DiPaolo, and explicated by Thompson in *Mind in Life*. The reason for this supplement is that autopoiesis is only sufficient for maintenance of identity. To account for sense-making, Thompson turns to Ezequiel Di Paolo. “A distinct capacity for ‘adaptivity’ needs to be added to the minimal autopoietic organization so that the system can actively regulate itself with respect to its conditions of viability and thereby modify its milieu according to the internal norms of its activity” (Thompson 2007: 148).

But what about Simondon’s “metastability”? Can this term, discussed in terms of virtuality by Deleuze, be covered by “adaptivity”? It would take more time than we’re able to devote to it here, but we can pose a few points for further development. The key for us is to see that adaptivity requires a dynamic emergent self unifying a multiplicity of serial processes. We might say that autopoiesis entails synchronic emergence, whereas adaptivity entails diachronic emergence. Notice the dynamic monitoring of multiple processes Di Paolo isolates here as necessary for generating singular norms of each organism:

Only if they are able to monitor and regulate their internal processes so that they can generate the necessary responses anticipating internal tendencies will they also be able to appreciate graded differences between otherwise equally viable states. Bacteria possessing this capability will be able to generate a normativity *within* their current set of

viability conditions and *for themselves*. They will be capable of appreciating not just sugar as nutritive, but the direction where the concentration grows as useful, and swimming in that direction as the right thing to do in some circumstances. (DiPaolo, 437).

It's complicated however, by Deleuze's notion of intensive individuation processes. Deleuze is a process philosopher, but also one focused on creativity and novelty. We can truly say that autopoiesis is not a substance concept: what is conserved is not organism as substance, but organism as self-maintaining membrane-metabolism recursive process. But what of the notion of creativity in life on which Deleuze focuses? I think we can turn to the notion of "developmental plasticity" here, as developed by Mary Jane West-Eberhard, and under the name "phenotypic plasticity," by Massimo Pigliucci.¹³ Deleuze and Guattari say in ATP that "the organism is that which life turns against itself to limit itself" (ATP, 503). So life is creativity, even if in their more sober moments Deleuze and Guattari admit, perhaps even grudgingly, that the organism or autopoietic conservation is the condition of biological creativity. "Dismantling the organism has never meant killing yourself.... Staying stratified ... is not the worst that can happen" (ATP, 160-161).

I guess the key is time scales. Deleuze is an evo-devo thinker: creativity in developmental plasticity provides the variation with which evolution by natural selection works.¹⁴ But autopoiesis and adaptivity seem limited to the behavioral time scale. Even granted that autopoiesis is a process term, we might say that the notion of autonomous system overemphasizes stability, while individuation as always ongoing process, even if it doesn't emphasize creativity per se, at least provides the conditions for it. From this perspective, the embryo as paradigmatic "larval subject" is merely a more intense site of individuation than the adult; however sclerotic and habitual, the adult is only the limit of the process of individuation; it is never actually reached; no more than the virtual does the actual exist, rather than insist. There's always the chance for change, for development of new behavior patterns. Of course they have to fit within limits of viability, as autopoiesis insists, but it's a matter of emphasis: autopoiesis with its emphasis on conservation, and adaptivity with its emphasis on homeostasis versus Deleuze's emphasis on creativity, for which Simondon's notion of transductive maintenance of metastability serves as its condition. In terms of autopoietic synchronic emergence, then, we might say that enaction relegates the metastable field to coupled environment and limits transduction to metabolism, while in terms of adaptivity's diachronic emergence, it neglects ontogenesis in favor of adult function and restricts transduction to homeostatic regulation.

DELEUZE AND "SPATIO-TEMPORAL DYNAMISMS"

To this point we have discussed the new, biological Transcendental Aesthetic. But Simondon's notion of individuation extends below the organic level. Individuation is prebiotic as well as biotic. There are important dynamic topological differences between crystallization and organic

individuation, but “there might be an intermediary order of phenomena, between parcellary microphysics and the macrophysical unity of the organism; this order would be that of genetic processes, chronological and topological, that is to say, the processes of individuation, common to all orders of reality in which an ontogenesis operates” (227).

Let’s spend a minute on the fascinating difference between crystals and organisms as individuation processes as Simondon articulates it.

vital individuation does not come *after* physico-chemical individuation, but during this individuation, before its completion, by suspending it at the moment when it has not attained its stable equilibrium.... The living individual would be in some manner, at its most primitive levels [*niveaux*], a crystal in the state of being born [*à l’état naissant*], amplifying itself without stabilizing itself. (150; italics in original)

Simondon appeals to neoteny (slowing down) to explain this idea. So within the organic realm we also see individuation as suspension of metastable process. In a startling image, the animal is the “inchoate plant”:

developing and organizing itself by conserving the motile, receptive, and reactive possibilities which appear in the reproduction of vegetative life [*la reproduction des végétaux*].... animal individuation feeds on [*s’alimente*] the most primitive phase of vegetative individuation, retaining in itself something anterior to the development of the adult plant [*végétal adulte*], and in particular maintaining, during a longer time, the capacity of receiving information. (150)

The general, prebiotic “genetic processes” as suspension of stability or maintenance of metastability are what Deleuze calls “spatio-temporal dynamisms.” In his terms, they are intensive processes rather than virtual structures or actual products.

Let’s turn to Deleuze’s 1967 essay “The Method of Dramatization,” which has a somewhat more clear presentation than *Difference and Repetition*. Spatio-temporal dynamisms “create particular spaces and times.” This is a non- or pre-biotic Transcendental Aesthetic.

Beneath organization and specification [the actual], we discover nothing more than spatio-temporal dynamisms: that is to say, agitations of space, holes of time, pure syntheses of space, direction, and rhythms. (“Dramatization,” 96)

Spatio-temporal dynamisms as a second new Transcendental Aesthetic, this time non- or pre-biotic, as intensive process of impersonal individuation with its own space-time, presuppose a pre-individual virtual / metastable field. Although individuation is a general case, covering the prebiotic, Deleuze finds biology a better model than Simondon’s crystallization. But biology is only a model. So, when he unleashes one of his most infamous gnomonic utterances, “the whole world is an egg” (96), we cannot reduce the universality of spatio-temporal dynamisms. It’s not

the “egg” we should concentrate on, but “the whole world.” In other words, for individuation, you need a pre-individual or virtual field with potentials that are not individuated, that do not “resemble” their products.

We can't go into all the details here, but Deleuze will claim that “What I am calling a drama particularly resembles the Kantian schema” (99).¹⁵ Spatio-temporal dynamisms as the analogue to schematisms is linked to the post-Kantian demand for genesis of the Transcendental Aesthetic, rather than it being posited as a condition: “We would have to distinguish what belongs to space and what to time in these dynamisms, and in each case, the particular space-time combination. Whenever an Idea is actualized, there is a space and a time of actualization” (111).

To locate the space and time of actualization we must first distinguish three registers, virtual, intensive, actual. The intensive is the space-time of individuation processes, that is, actualization of the virtual.

In the virtual register, we have virtual space: the meshed continuum of Ideas with zones of indiscernibility between them. And we have virtual time as progressive determination of Ideas, the “movement” from determinable but undetermined differential elements, their reciprocal determination in differential relations, and the ideal of complete determination in the singularities these relations generate. We can compare this to Donn Welton's notion of “transcendental space” of constitutive phenomenology, and “transcendental time” of genetic phenomenology.¹⁶ Deleuze calls virtual space “depth” or *spatium* and virtual time “Aion.”

Next we find intensive spatial processes: foldings, cascades, convection currents, etc. With intensive time, we see the time of thresholds and critical points, the time of kairos.

Finally, extensive or actual space has universal measurements: millimeters, meters, etc., while extensive / actual time is similarly universally measurable with same units: the time of Chronos or clock / calendar time.

The difference of intensive space-time and extensive space-time is the existence of “critical” points and moments in the former: the moment of process reaching a threshold that produces a qualitatively new pattern is not just any old moment or “time T1” just as the point at which currents bend is not just any old spatial point at specific values of co-ordinates x, y. Rather, critical times and spaces are immanently determined *as* critical in the intensive process that unfolds with its own concrete space and time; it cannot be compared in a universal framework to some other moment or point.

The dynamism is spatial and temporal: 1) in the physical register, the spatial density gradients and temporal critical points are reciprocally determining in crystallization; 2) in the ontogenetic organic register, cellular displacement and temporality of gene expression networks are linked in embryonic development; 3) and in the evolutionary organic register, the distribution of plastic developmental systems (multiplicity of concrete space and time of ontogenesis in a population)

provides the variation for the temporality of genetic accommodation in Mary Jane West-Eberhard's work.

The contrast then of concrete intensive space-time dynamisms and abstract universal extensive time is the contrast between the new Transcendental Aesthetic of Deleuze and Simondon and that of Kant in which universal space and time are the *a priori* forms of intuition.

THE QUESTION OF PANPSYCHISM

When we realize that each spatio-temporal dynamism for Deleuze has a larval subject, we're forced to tackle the question of panpsychism. Although he uses many biological examples in *Difference and Repetition*, they are only examples. As we will see, rocks and islands are spatio-temporal dynamisms too, so they will have a "larval subject"! Deleuze writes:

Dynamisms are not absolutely subjectless, though the subjects they sustain are still only rough drafts, not yet qualified or composed, rather patients than agents, only able to endure the pressure of an internal resonance or the amplitude of an inevitable movement. A composed, qualified adult would perish in such an environment. The truth of embryology is that there are movements which the embryo alone can endure: in this instance, the only subject is larval. ("Dramatization" 97)

Now one of the great advantages of *Mind in Life* is that it enables us to escape from the badly-posed Cartesian problem of the relation of the mental and the physical. But then we have a problem with emergence of life and mind: the move from the abiotic to the biotic, from the non-cognitive to the cognitive. And with this move, we come upon the question of panpsychism.

Recent work has gone back to the problem of panpsychism.¹⁷ To the Cartesian mechanists, it's laughable if not maddening, the abject of thought. Panpsychism is inconceivable: extended substance is dead, inert. (Hence for Jonas, life is a scandal [*skandalon*: stumbling block] for the Cartesians as much as mind is. It's there, but we can't explain how it gets there.) But there have been great thinkers who were panpsychists, because they weren't Cartesians. Treating matter as dead extension has yielded all sorts of scientific achievements (as well as political, ecological, and psychological disasters), but do we really want to let our methodology become our metaphysics, especially with such mixed results?

So panpsychism, as inconceivable, is just laughable to Cartesians. Which is exactly why we need to take it seriously: anything that drives these guys crazy we need to know more about! We know by now that laughter can be a defense mechanism protecting a self-image as realist tough guy physicalist scientific naturalist, etc. Recall the macho existentialism of Monod's *Chance and Necessity*: do we have the courage to confront the sheer improbability of life in a universe of dead matter? So let's see what's going on. Just on the level of an appeal to authority (not *always*

a fallacy, after all), do we really want to be laughing at Leibniz? Or in the twentieth century, do we really want to laugh at Whitehead? I mean there's smart, and then there's Whitehead-smart, so let's be a little careful. How about David Bohm? I'm not in the habit at laughing at quantum physicists! And in contemporary philosophy we find Galen Strawson explicitly affirming panpsychism. I don't like laughing at colleagues, so let's see what we can make of this connection.

In his discussion of emergence in Appendix B of *Mind in Life*, Thompson counters the Cartesian extended substance picture of nature. No atoms, no physical stuff, just process all the way down, and what looks to be a substance is a "relatively stable process." Well, the major process philosopher of our time, Whitehead, was a panpsychist.¹⁸ So we have at least a *prima facie* connection that warrants a little attention. Here's Thompson:

In the context of contemporary science ... "nature" does not consist of basic particulars, but fields and processes ... there is no bottom level of basic particulars with intrinsic properties that upwardly determines everything else. Everything is process all the way "down" and all the way "up," and processes are irreducibly relational—they exist only in patterns, networks, organizations, configurations, or webs.... There is no base level of elementary entities to serve as the ultimate "emergence base" on which to ground everything. (ML, 440-441)

So, just indulge me a little with the radical processualism of *Mind in Life* and panpsychism. We can start with the fact that they both have a common enemy: the Cartesian substance mechanists. So with the co-extension of mind and life we come to the question by the panpsychists: is *Mind in Life* as a philosophical position too restrictive with its definition of mind? If there's no mind prior to life, then mind must radically emerge with life. But with the process view there's no *radical* emergence as we see above. There's emergence in the sense of new structures generating new capacities, but the panpsychist would say these new capacities are the development of potentials in the "lower level." For a panpsychist, mind gets more complex as we find life, but it doesn't radically emerge with life. (There's an ontological continuity assumption at work here, which can be merely methodological, or full-fledged ontological.) A Cartesian radical emergentist would say there's dead unmindful matter that when properly arranged becomes living and minded. But is that really less strange than the panpsychist position? In fact, Strawson will say radical emergence is no better than "magic," so it's actually a more rigorous position to be a panpsychist.

We can't get into the details here, but we can focus on Thompson's work in *Mind in Life*: what about the border cases Thompson examines, for example, Stuart Kauffman's auto-catalytic loops? Recall the *Mind in Life* position that links autopoiesis and cognition: "cognition is behavior or conduct in relation to meaning and norms that the system itself enacts or brings forth on the basis of its autonomy" (126). You need the physical instantiation of metabolism-membrane-metabolism recursivity to have that "autonomy" so that life and organismic sense-

making are linked. Thus Thompson will rule out Kauffman's autocatalytic loops as the basis or minimal example of life: they don't have a recursive membrane / metabolism structure, so they don't have autonomy, so they don't enact a subjective position. Later he examines other borderline cases, Bourguine and Stewart, and Bitbol and Luisi. These minimal or proto-autopoietic systems are not cognitive, on the strict autopoietic definition of cognition.

But there is information transfer and self-organization in autocatalytic loops. This cybernetic definition of mind is that of Gregory Bateson in his 1970 "Form, Substance, and Difference" (collected in *Steps to an Ecology of Mind*, 1972): "mind as synonymous with cybernetic system—the relevant total information-processing, trial-and-error completing unit" (1972, 460). (Though as Skrbina notes, Bateson backs away from it in 1979's *Mind and Nature* [Skrbina 2005: 196-198].

Deleuze will have such a cybernetic outlook: in self-organizing systems or "spatio-temporal dynamisms" there's a "dark precursor," then "internal resonance" and then "forced movement." "Dark precursor" is information transfer between heterogeneous series (DeLanda 2002).

... since intensity is difference, differences in intensity must enter into communication. Something like a "difference operator" is required, to relate difference to difference. This role is filled by what is called an obscure precursor [*précurseur sombre*; Patton translates as "dark precursor" in DR]. A lightning bolt flashes between different intensities, but it is preceded by an *obscure precursor*, invisible, imperceptible, which determines in advance the inverted path as in negative relief, because this path is first the agent of communication between series of differences. ("Dramatization," 97)

Just like with "the whole world is an egg," Deleuze seems to be unnecessarily gnomic with his term "dark precursor." But in fact it is plain old meteorology. Actually, there are a number of steps here: 1) the formation of ionized air called "plasma" which is much more highly conductive than normal air; 2) formation of "step leaders" or channels of ionized air which propagate from cloud to ground in stages; 3) "positive streamers" which reach from objects on the ground to cloud; 4) the meeting of positive streamer and step leader, which allows the current to pass. So "dark precursor" could be either 2 or 3. The term *précurseur* is used straightforwardly in any number of French-language websites on lightning.

If we push it, we can see a total panpsychism in *Difference and Repetition* that surpasses the biological to the level of "spatio-temporal dynamisms" or self-organizing cybernetic mind level. Deleuze notes that the mathematical and biological notions of differentiation and differentiation employed in the book are only a "technical model" (285 / 220). Now if "the entire world is an egg" (279 / 216), then every individuation is "embryonic" we might say, even rocks: "On the scale of millions of years which constitutes the time of their actualization, the hardest rocks in turn are fluid matters which flow under the weak constraints exercised on their singularities" (219). Now if rocks and islands as individuation processes are embryonic, then they too have a

psyche: “every spatio-temporal dynamism is accompanied by the emergence of an elementary consciousness” (284 / 220).

By the time of *Anti-Oedipus* and *A Thousand Plateaus* Deleuze and Guattari explicitly thematize that the syntheses are fully material syntheses, syntheses of nature in geological as well as biological, social, and psychological registers.¹⁹ With this full naturalization of syntheses, the question of panpsychism is brought into full relief, since material syntheses are as much syntheses of experience as they are syntheses of things, as we see in the title of Chapter 3 of *ATP*: “The Geology of Morals: Who does the earth think it is?” “La géologie de la morale (pour qui elle se prend, la terre?)”

We thus have a second new Transcendental Aesthetic here with Deleuzean “spatio-temporal dynamisms.” It’s the Transcendental Aesthetic of larval subjects, of mind in physical self-organizing processes, echoing Bateson’s cybernetic mind.

So the question is: how do we relate this to *Mind in Life*? Can we have a coherent defensible notion of mind that’s broader than that of sense-making of an autopoietic organism, one based on information transfer and self-organization in physical processes (crystallization, convection currents, lightning, hurricanes...)? Then the question of emergence of mind is pushed down below emergence of life. How far down? Is there a point of emergence we can locate? That’s what the panpsychists deny. It’s mind all the way down.

Thompson will say it’s process all the way down, but doesn’t say whether there’s a non-autopoietic notion of mind that accompanies process. Is there a “Mind in Process” position we need to think about? Thompson’s subtitle is “Biology, Phenomenology, and the Sciences of Mind.” Is there a “Physics, Phenomenology, and the Sciences of Mind” book to be written? (A possible starting point might be a realist interpretation of Jean Petitot’s “pheno-physics” in *Naturalizing Phenomenology*.)²⁰

We’ve discussed self-organizing processes at the abiotic but still “classical” level: autocatalytic loops, for example, but also simpler cases of self-organization, such as crystallization, convection currents, lightning, hurricanes, etc., as meeting at least some formulations of a “cybernetic theory of mind.”

But what about the quantum level? If it’s process ALL the way down, then in the full extension of the question of “Mind in Process” we have to confront the quantum panpsychists, Bohm, and the quantum consciousness position, Penrose and Hameroff. This is past my competence, but it’s out there and I guess I’ll have to work on it sooner or later.

Myself, until now, I’ve always taken a pragmatic, “politics of science” stance when pushed on this radical emergence vs panpsychism point by Dan Smith in a number of conversations over the years (it’s natural Dan would be interested in this question due to his work on Leibniz). Up til now, I’ve always told him, “are you crazy? It’s hard enough to get scientists to listen to

autopoiesis and cognition and you want me to talk to them about panpsychism? Have you never heard that ‘discretion is the better part of valor’?”

Now that I’m forced to think more carefully about it, I could imagine a more rigorous response based on being careful with our use of the principle of parsimony: we can’t push parsimony too far, because the fewer principle we have, the more we risk stretching them beyond their useful extension. So we have to worry that a definition of mind as mere information transfer / self-organization is so broad as to be meaningless: if convection currents in a pot of boiling water are mind, what good is such a broad definition? But on the other hand, what’s exciting about dynamic systems modeling is that it shows self-organizing processes in an extremely wide range of registers, from convection currents through neurodynamics (e.g., Varela’s “resonant cell assemblies”). So if self-organization is a univocal concept, that is, if there is a non-trivial shared structure between convection currents and neurodynamics, then we have identified a fundamental principle that links the inorganic and organic registers. So we’re back to the cybernetic challenge: is information transfer and self-organization capable of being called “mind” in a defensible fashion? It wouldn’t be autopoietic cognition, because it’s doesn’t involve a membrane-metabolism recursive process and hence an autonomous subject position. But wouldn’t it be “Mind in Process,” even if it’s not “Mind in Life”?

Anyway, to conclude somewhat abruptly: if there is Mind in Process, that is, mind all the way down just as there is process all the way down, that means we really have our work cut out for us in discussing this second new Transcendental Aesthetic, the non- or pre-biotic one. It’s not that we don’t have enough to talk about with a biological Transcendental Aesthetic, but if we want to follow Deleuze all the way, we’ll have to go not only “beyond the turn in human experience” as Bergson puts it, but “beyond the turn in living experience,” out into the Cosmos or Earth or plane of consistency we find posited in *A Thousand Plateaus*.

NOTES

¹ There are many feminist positions on this issue: from “liberal” or “identity” feminist idea of rationality as a human potential unjustly kept from being developed in women by cultural restriction, thus harming society by not allowing half the population to develop its rational potentials (because the problem with society is its irrationality, and the answer is more rationality) all the way to more or less “radical” or “difference” feminisms that would call for the affirmation of the difference and / or superiority of feminine thought or feminine ways of life.

² Long an important point in Dan Smith’s writing, the attention to Maimon in Anglophone Deleuze circles has received a boost by the translation of the *Essay on Transcendental Philosophy* (London: Continuum, 2010) and by an article in the new collection, *Deleuze’s Philosophical Lineage* (Edinburgh UP, 2009). For Smith’s latest on the topic, see “Genesis and Difference: Deleuze, Maimon, and the Post-Kantian Reading of Leibniz” in *Deleuze and the Fold: A Critical Reader* (London: Macmillan, 2009).

³ James Williams has a forthcoming book on Deleuze’s philosophy of time.

⁴ Donn Welton, *The Other Husserl*, page 298-299:

The basic opposition between sensibility and understanding (judgment) that organized Kant’s theory is replaced in Husserl’s phenomenology by the contrast between experience and judgment (understanding). The form-content dyad employed in *Ideas I*, and Husserl’s conception there of noematic form animating or interpreting hyletic content, came rather close to Kant. Husserl, however, quickly grew unhappy with this analysis of perception and replaced that very provisional theory.... In essence, Husserl approached his new theory, itself framed as he was developing his genetic method, by constructing an alternative transcendental aesthetic to Kant’s. While the Transcendental Aesthetics part of Kant’s first *Critique* dealt only with the forms of sensible intuition (time and space), Husserl flooded that part of Kant’s system with a rich account of (non-epistemic) perception as well as a genetic analysis of the interplay not only of spatial and temporal but also what he called associative syntheses, a notion that echoes Hume’s concept of association even as the addition of the term “synthesis” dismantles it. “Prescientific” objects, understood as the basic or, at least, one of the limiting types of experience, are located there, which means that we have “appearances” before the Transcendental Analytic section to which they were restricted in Kant. What Kant called the manifold, Husserl shows, is not formless but preformed, yet it has a type of perceptual or aesthetic significance that Kant could only think of as “preconceptual” and, therefore, “precategorical.” In addition, Husserl’s late [299] work might also place there artifacts that have become “sedimented” into everyday experience. If Husserl were to put this directly to Kant, he would argue that understanding, treated as a form of active synthesis, does not

work upon blind data but brings its categorial apparatus to bear on what already possesses structure and “form,” i.e., that already has what Kant could only call a categorial structure.

⁵ So the Mind in Life position has an implicit evo-devo, as dynamic genesis / genetic phenomenology has two time scales: evolutionary and ontogenetic. The variation needed for evolution comes from developmental or phenotypic plasticity.

⁶ We should note that organic time, the synthesis of habit producing the living present, is only the “foundation” of time. Deleuze’s full treatment of time in *Difference and Repetition* posits a second synthesis of memory producing the pure past as the “ground” of time, while the third synthesis, producing the future as eternal return of difference, we might say unfinds and ungrounds time.

⁷ The major commenters on *Difference and Repetition* – Hughes 2009; Bryant 2008; Beistegui 2004; Williams 2003 – do not isolate the level of organic synthesis. The exceptions are Ansell-Pearson 1999 and DeLanda 2002.

⁸ Deleuze cannot go directly to his key notion of the organic synthesis qua contemplative soul because he must first free a notion of habit from the illusions of psychology, which fetishizes activity. Psychology, by fear of introspection, misses the element of passive “contemplation.” Indeed, psychology says the self cannot contemplate itself due to fear of an infinite regress of active constituting selves. For a treatment of the infinite regress problem in philosophical psychology, see Zahavi 2005.

⁹ In *Difference and Repetition*, Deleuze claims that organic syntheses operate in series, and each series has a rhythm; organisms are polyrhythmic: “the duration of an organism’s present, or of its various presents, will vary according to the natural contractile range of its contemplative souls” (105 / 77). There are thousands of rhythmic periods that compose the organic being of humans: from the long periods of childhood, puberty, adulthood and menopause to monthly hormonal cycles to daily cycles (circadian rhythms) to heart beats, breathing cycles, all the way down to neural firing patterns. Everything has a period of repetition, everything is a habit, and each one of these repetitions forms a living present that synthesizes the retention of the past and the anticipation of the future as need. Now “need” can be “lack” relative to active syntheses, but “satiety” relative to organic passive syntheses. Deleuze writes: “need marks the limits of the variable present. The present extends between two eruptions of need, and coincides with the duration of a contemplation” (105 / 77).

¹⁰ Metastability is well-known in dynamic systems theory. It’s a key term in J Scott Kelso’s *Dynamic Patterns* (MIT, 1995).

¹¹ “The simplest organism, which we can call “elementary,” is that which does not possess a medial interior milieu, but only an absolute interior and exterior.” *L’Individu*, 225.

¹² From the excellent resource on Simondon's vocabulary

[<http://fractalontology.wordpress.com/2007/11/28/a-short-list-of-gilbert-simondons-vocabulary/>], we find this definition: “**Allagmatic** - The Greek word *allagma* can mean change or vicissitude, but it can also mean that which can be given or taken in exchange, which more genuinely captures the idea of energy exchange in Simondon's usage....Simondon will also define the allagmatic as “the theory of operations” (*IGB*, 263), complementary to the theory of structures that the sciences elaborate. On the same page, Simondon will define an operation as “a conversion of a structure in another structure.”

¹³ Mary Jane West-Eberhard, *Developmental Plasticity and Evolution* (Oxford, 2003) and Massimo Pigliucci and Gerd Müller, eds., *Evolution—The Extended Synthesis* (MIT, 2010).

¹⁴ West-Eberhard does not deny natural selection, but claims it will favor the spread of a particular environmentally-induced phenotypic variant when it has positive effects on individual fitness, that is, when it is adaptive. Now you may want me to stop right here, because this sounds Lamarckian. It's not though, West-Eberhard emphasizes, because there is no direct influence of environment on genotype. In other words, Lamarck thought that adaptive phenotypic changes were the source of variants that could be inherited (in contemporary terms, adaptive phenotypic changes produce genetic variation). But that's not West-Eberhard's scheme. What she says is that some adaptive phenotypic change is the result of developmental plasticity calling upon previously hidden, i.e., unexpressed, genetic variation. In other words, neither the phenotype nor the environment produces genetic variation.

The above sketch needs to be made more precise. The key concept for West-Eberhard is "genetic accommodation." The process goes like this: a new phenotype develops (developmental plasticity) by being induced via a genetic mutation or an environmental difference. What has happened in the latter case is that the new environment has brought forth an untapped potential of the pre-existing genetic variation. This is a key assumption of West-Eberhard's argument: unexpressed genetic variation that was previously screened from selection by developmental robustness, that is, the fact that there are many genetic pathways to the same phenotypic expression. It makes sense given our previous discussion that not all genetic variation is expressed; remember that genetic expression depends on cellular / environmental conditions. We have to also remember that such unexpressed genetic variation can be inherited, but that's okay, given gene interaction and hitch-hiker genes: lots of genes can get inherited without being selected for – this is only a problem for gene selectionists.

The key and controversial assumption is that this new phenotype is adaptive. The notion of adaptive phenotypic accommodation is called the "two-legged goat effect" from the example of a goat born with two legs which changed lots of things in its phenotype to survive to reproductive age (though it didn't, in fact, reproduce). The principle is that organisms can adaptively change in response to mutations or environmental changes, and that these adaptive changes can become genetically accommodated (again, this sounds Lamarckian, but really isn't).

This change in phenotype creates new selection pressures (because selection is all about interaction of phenotypes; remember, genetic changes simply keep track of real world interactions). The new phenotype starts to spread (as long as, in the case of environmentally induced change, the new environmental conditions reliably recur). Then the new selection pressures go to work on the regulatory gene networks of the pre-existing unexpressed genetic variation (this is why it's not Lamarckian). The new selection pressures can cause the spread of phenotypes which rely upon the expression of the previously unexpressed genes, so that it (the new phenotype) can eventually become a fixed expression (that is, the regulatory gene networks can be selected for), even when the original environmental novelty is no longer present.

If the trait appears without recurrence of the environmental stimulus, there is "genetic assimilation" (going back to Waddington's work). "Genetic accommodation" is the general case in which the trait appears with or without the environmental stimulus. If it occurs only with the environmental stimulus, it's said to be an "environmentally sensitive" trait expression. In this latter case, what gets selected for is, conservatively speaking, the regulatory gene network, or, radically speaking, the life cycle that includes the extended network encompassing the recurrent environmental stimulus and the regulatory gene network. So, to recap, when an adaptive phenotypic change has a genetic component, the regulatory gene networks (or, radically speaking, the life cycle that includes the extended network encompassing the recurrent environmental stimulus and the regulatory gene network) for this adaptive phenotypic variant (networks that were only "virtual," that is, only potentials of the pre-existing but unexpressed genetic variation) will now be selected (if the environmental change reliably recurs), so these gene networks are thus "followers", as opposed to "leaders" in evolution. Instead of being the sole causal factors, they are often just "bookkeeping."

What I'd like to do sometime is to use Deleuze's notion of the virtual to conceptualize West-Eberhard's thought of genetic accommodation. The idea is this: the "pre-existing unexpressed genetic variation" doesn't *actually* pre-exist its activation by environmental inducers, but *virtually* insists. It's only the intensive individuation process exhibiting developmental plasticity that determines / actualizes / integrates what had been the purely differential field of the genome.

Deleuze treats these issues in the very dense Chapter 5 of *Difference and Repetition*. In a key passage (250-251), we read that "the nucleus and the genes designate only the differentiated matter – in other words, the differential relations which constitute the pre-individual field to be actualized; but their actualization is determined only by the cytoplasm, with its gradients and its fields of individuation" (251 / 323). Again, the virtual is "pre-individual," while the intensive is "impersonal." (thus the actual must be personal.) We have seen this as the movement away from a genetic program to a distributed / differential network controlling development. We should recall here the Deleuzian principle of critique, the outlawing of the tracing relation between transcendental and empirical or virtual and actual: the non-resemblance of actualized species/parts to virtual differential relations / singularities / intensities. And the non-resemblance of both to the intensive processes of morphogenesis: the lived experience of the embryo – its

twists and folds – do not resemble either the virtual network of relations among DNA strings and epigenetic factors or the actual structures and qualitatively different cell types of the adult organism.

¹⁵ [cf DR 216-217: s-t dynamisms and space and time; 218, mentions Kant and schema explicitly; 246: two heterogeneous orders – but K is not named, nor schema].

¹⁶ “This gives us yet another interesting way of understanding the difference between constitutive and genetic analysis. We can say that constitutive phenomenology schematizes the structural transformations making phenomenal fields possible according to transcendental *space*. They are framed as layers or strata beneath each field, providing it with its supporting ground. Genetic phenomenology schematizes those transformations in terms of transcendental *time*, and thus as a process of development in which the earlier gives rise to the later, and in which the later draws and gives direction to the now” (Welton, *Other Husserl*, 254; italics in original).

¹⁷ Two new books caught my attention about this long and now I think unjustly ridiculed position. David Skrbina, *Panpsychism in the West* (MIT, 2005) and David Skrbina, ed. *Mind that Abides: Panpsychism in the new millennium* (Johns Benjamin, 2009).

¹⁸ Technical note. Skrbina explains that like Leibniz, Whitehead distinguishes real unities (e.g. organisms) from mere aggregates. A real unity has a dominant monad that makes it conscious as a whole, while an aggregate (a table, say) is only a collection of monads, each one conscious of (in touch with) the universe in its way, but not conscious as a whole. There’s a “political physiology” at work here that merits attention.

¹⁹ On Anti-Oedipus as fully materialist, see Alistair Welchman, “Deleuze’s Post-Critical Metaphysics,” *Symposium* 13.2 (2009): 25-54.

²⁰ A notorious passage in *A Thousand Plateaus* will show that Deleuze and Guattari boldly go where no Cartesian has gone before:

What metal and metallurgy bring to light is a life proper to matter, a vital state of matter as such, a material vitalism that doubtless exists everywhere but is ordinarily hidden or covered, rendered unrecognizable, dissociated by the hylomorphic model. Metallurgy is the consciousness or thought of the matter-flow, and metal is the correlate of this consciousness.... Not everything is metal, but metal is everywhere.... And thought is born more from metal than from stone: metallurgy is minor science in person, “vague” science or the phenomenology of matter. The prodigious idea of Nonorganic Life—the very same idea Worringer considered the barbarian idea par excellence—was the invention, the intuition of metallurgy. (411)