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From Cosmogenesis to *Naturphilosophie*: Tracing a Path Between Kant’s *Allgemeine Naturgeschichte* and Schelling’s *Erster Entwurf*

Abstract

Whilst Kant’s work has been important for understanding the orbit of Schelling’s *Naturphilosophie*, this is often considered only in relation to the Critical philosophy. The aim of this paper is to suggest a connection between the pre-Critical Kant and Schelling’s *Naturphilosophie*. Whilst on the surface this may seem like a futile task, in this paper I hope to show that Schelling was engaged with Kant’s early work and that he even offers a critique of it, opening the path to an until now understated area of scholarship on the relationship between the two thinkers. I analyse one section (the *Siebentes Hauptstück*) from Kant’s 1755 work, *Allgemeine Naturgeschichte und Theorie des Himmels* followed by an analysis of one section (the *Zweiter Hauptabschnitt*) from Schelling’s 1799 work, *Erster Entwurf eines Systems der Naturphilosophie*.

Keywords: pre-Critical Kant, Schelling’s *Naturphilosophie*, infinity, cosmos

Introduction: The Reception of *Allgemeine Naturgeschichte* and *Naturphilosophie*

The relationship between Kant's Critical philosophy and the young Schelling's *Naturphilosophie* has fascinated scholars for many years, having become a significant entry point into Schelling's thought. Some scholars argue that Schelling transgresses the Critical bounds set up by Kant¹ whilst others argue that there are problems endemic to the transcendental philosophy itself that Schelling locks onto and exacerbates.² Yet, none of these analyses comment on the relationship between the pre-Critical Kant, especially his cosmology found in the 1755 work *Allgemeine Naturgeschichte und Theorie des Himmels*, and Schelling's 1799 work *Erster Entwurf eines Systems der Naturphilosophie*. This is a missed opportunity, for as I will argue, the *Allgemeine Naturgeschichte* sets out an infinite vision of the world, an ambition shared by Schelling's *Naturphilosophie*. Even more compelling is that Schelling explores cosmological topics in the *Erster Entwurf* precisely along the lines of and through a critique of Kant's early cosmology to the extent that we can ask whether Schelling drew, not only upon Kant's *Kritik der Urteilskraft* and *Metaphysische Anfangsgründe der Naturwissenschaft* as is usually asserted, but also from *Allgemeine Naturgeschichte*. It is this question that the present paper seeks to explore.

Allgemeine Naturgeschichte has had a complex relationship to the history of natural science. In the mid-nineteenth century it was taken up by no less a figure than Hermann Helmholtz, whilst in the early twentieth century one of its first English-language proponents William Hastie, proclaimed it a work of scientific genius (Hastie, "Introduction," xi) and it was given an extensive reading by Erich Adickes based on its scientific calibre (Adickes, *Kant als Naturforscher*, vol.2, 206). Since then, however, the text has largely fallen by the way-side, having become over-shadowed by Kant's more famous Critical work. Indeed, one of the text's harshest critics, Stanley Jaki, attacked Kant based on a perceived lack of rigour in 1981 (Jaki,

“Introduction”, 1-76) ultimately calling for a discounting of the text altogether. More recently, scholars have revitalized the text, specifically exploring its anticipation of modern cosmology.³

Whilst this recent scholarship is pathbreaking in opening the text to a framework of modern cosmology, it is important to remember Kant’s own view of the text. He recognized that “generally, the greatest geometrical acuity and mathematical infallibility can never be requested from a treatise of this kind” rather, as he continues, his system is “established on analogies and harmonies” (AA 1:235).⁴ That is, to try to elevate aspects of the text to scientific demonstration is not the lens through which the young Kant saw what he was doing. He is even more revealing in an earlier draft preface where he provides a useful overview for its method: “to discover the systematic in the whole scope of creation and to look over the binding (*Verbindung*) of all world orders with a philosophical eye” (AA 23:11). When the text attempts to ascend toward the construction of an infinite universe (e.g., in the *Siebentes Hauptstück*) it must be indexed as fundamentally metaphysical or even ideal.⁵ For Kant is not claiming an empirical-physicalist reality when he attempts to “present the infinity of the entire creation, the formation of new worlds, the expiration (*Üntergang*) of old ones and the unlimited space of the chaos of imagination (*Einbildungskraft*)” (AA 1:235). Infinitude of formation is inaccessible either to direct observation or to the Newtonian mechanics Kant was working with because it goes beyond the phenomenal towards metaphysics. This metaphysical aspect of the text is underexplored in the secondary literature, but it is this which may be conducive to opening a connection to Schelling’s early idealism.

Schelling’s *Naturphilosophie* has also had a complex relationship with natural science. Briefly, it has been criticised for its lack of scientific rigour and its use of outdated concepts. But the demand that it be read philosophically seems to have been upheld and its rich secondary-literature shows us the variety of interpretations possible of texts which contain scientific vocabulary whilst aiming for the philosophically ideal.⁶ *Naturphilosophie* is, after

all, explicitly ideal in so far as it attempts to construct the unconditioned, the infinite development or “idea” of nature (SW 2:47-8, SW 2:54, SW 3:102 and SW 3:268).⁷ For this reason, *Naturphilosophie* has been more explicitly treated as a philosophical project rather than an explicitly scientific one. But Schelling also thinks that “the ideal must spring from and be explained by the real” (SW 3:272), or that a more primordial grounding of the ideal is at stake. In this connection, one could also understand Schelling’s *Naturphilosophie* as identical to the naturalism being practiced at the end of the eighteenth century.⁸ Although this seems like a reasonable position, it makes it difficult to understand Schelling’s own statements – e.g., “To philosophize about nature means to create nature” (SW 3:13) – and how *Naturphilosophie* knots the ideal-real into a “speculative physics” (SW 3:274).⁹ But above all, what is important is that Schelling’s *Naturphilosophie* experiments with the ideal-real divide in such a way that it cannot always be neatly classified as a purely scientific project, perhaps fulfilling the role of a “metaphysics of nature” much better.

1. *Allgemeine Naturgeschichte*: A Metaphysical Odyssey

As its title suggests, *Allgemeine Naturgeschichte* is concerned with developing a natural history of the universe, from its origin to its present state and beyond. Kant begins the preface to the text by staging two apparently conflicting conceptions of such a history. One can think of it mechanistically, according to the Newtonian laws of motion or one can think of it theistically, according to the religious doxa of the day, which held that the universe had been created *ex nihilo* by an omnipotent God. Kant was not happy with either of these options solely on their own, for the purely mechanical way of understanding origin would reduce the universe to a deterministic “blind mechanism” in which God is entirely negated such that “Epicurus lives again amidst Christendom” (AA 1:222). On the other hand, the purely theistic way of viewing

origin would entirely obliterate the necessity of the mechanical laws governing nature, caching it entirely in God, who would have to continuously act behind the scenes. Both sides can already be seen as endemic to Newton's own view that on the one hand mechanical laws of motion dominate, whilst on the other, God periodically revivifies planetary motion so that cosmic bodies never fall into rest.¹⁰ Newton did not attempt to properly synthesize these two aspects, nor did he see any reason to do so since he opted to stay mute regarding origin for fear of "feigning hypotheses" (Newton, *Principia*, 589).

For Kant, far from entirely negating one or both sides, he sought a binding of them in which the necessity of a theistic God is indexed in the necessary mechanical unfolding of nature itself. He sought a theory of origin in which the being of God is identified in the becoming of the universe and its tendency toward greater unification. Amidst his staging Kant provides an initial sketch of this: "I assume the matter of the whole world as in a [state of] universal dispersion (*Zerstreuung*) and make from this a complete chaos. I see the material (*Stoff*) form itself according to the established laws of attraction and its motion modified through repulsion" (AA 1:225). Kant starts with chaos, which is identified with a dispersal of matter, followed by a gradual process of formation through the play of attractive and repulsive force. A bit further on, Kant provides a more detailed view:

Matter, which is the primordial material (*Urstoff*) of all things, is thus bound by certain [mechanical] laws, which when left freely [to develop] must necessarily bring about beautiful bindings (*Verbindungen*). It has no freedom to deviate from this plan of perfection. Therefore, since it is subjected to a supreme aim (*Absicht*) it must have necessarily been offset (*versetzt*) towards such harmonious relationships through one overarching first cause (*Ursache*), and *there is a God precisely for this reason, because nature can proceed in no other [way] than orderly and regularly, even in chaos* (AA 1:228).

There is much in this quotation which helps to navigate the broader picture of how a mechanistic origin might be bound up with a theistic one. For a start, it tells us that Kant conceived of a matter which is an *Ur-stoff*, a primordial material which develops from a state of chaos towards a state of order. In so far as it unfolds mechanically, that is, without the freedom to deviate from the singular goal of attaining greater unity, Kant infers that the limited harmony we can directly observe must have been initially *versetzt*, offset and set off, by a *Ursache* (literally a “primordial thing” or “cause”). In other words, Kant’s implicit vision of genesis starts with an unbalancing or dispersal of primordial material. But from this state of dispersal matter gradually organizes itself into increasingly harmonious structures guided only by the mechanical play of attraction and repulsion. Yet it is precisely in this gradual ascent toward harmony that the young Kant infers his God as the first cause which initially unbalanced matter. Unlike Newton’s continuously intervening hand of God, Kant’s God did not *directly* create the universe but was its initial condition, which offsets, differentiates or sets matter off course so that it may develop towards unity via mechanical laws alone.¹¹ In a nutshell, *Allgemeine Naturgeschichte* envisions a world in which cosmos is an involution from the conditions of a theistically initiated chaos through nothing other than what is at work in nature.

From this angle Kant develops his universal history without the need to attribute it to the whims of an omnipotent God, a notion that was as bizarre to the pre-Critical Kant as it was to the Critical Kant, but also without overtly upsetting the religious doxa. Indeed, Kant treads lightly where the cross-over between God and nature is concerned, implicitly signifying their identification whilst extrinsically sticking to their difference. It would not be too hard to construe the text through a “God as big bang” lens, however, if one wanted to open it to a modern cosmology. For Kant does not rule out that God as first cause entirely expends itself, just as cause expends itself in effect. But perhaps a more conservative reading would simply

see that Kant's nature is a binding of mechanistic and theistic tendencies, such that calling it "physico-metaphysical" would be apt. Whilst the text's physical side has been the territory on which many readings ostensibly situate themselves, the metaphysical side is often overlooked. Of course, that Kant wanted to develop a physical "world science" (*Weltwissenschaft*) from which one could understand the origin of cosmic bodies is beyond dispute (AA 1:230), but a coherent understanding of the more subterranean metaphysical content of the text is seldom discussed but will occupy us in the following.¹²

2. Concentric Spheres: Infinite Space, Infinite Time

The *Siebentes Hauptstück* of *Allgemeine Naturgeschichte* is arguably the most substantial part of the text. Around twenty five *Akademie* pages long, it develops a vantage point on infinitude. The markers Kant ascribes to it from the "Contents of the Whole Work" (*Inhalt des ganzen Werks*) are revealing: "Infinity of creation", "successive continuation of creation in the entire infinitude of time and space through constant formation of new worlds", "gradual expiration (*Üntergang*) and decay (*Verfall*) of the world construct (*Weltbaues*)" and "regeneration of decayed (*verfallenen*) nature" (AA 1:239). We may begin by asking what Kant means by infinitude here. To answer this question, we can tease out two hues of infinitude that Kant darts between: (1) temporal infinitude and (2) spatial infinitude.

(1) The temporal infinitude is the line describing the gradual development of basic, disparate material (what Kant often calls "*elementarischen Grundstoff*") toward complex, unified structures. To simplify it somewhat, it is the "*Geschichte*" part of *Allgemeine Naturgeschichte*. I quote a long passage to illustrate what is at stake for the young Kant:

It is true [that] formation (*Ausbildung*), form, beauty and perfection are relationships of basic pieces (*Grundstücke*) and substances, which constitute the material (*Stoff*) of the world construct (*Weltbaues*); and one observes it in the establishments which God's wisdom still applies to all the time; it is also most befitting to it that they [world constructs] evolve (*herauswickeln*) through an unconstrained sequence from these implanted (*eingepflanzten*) universal laws. And therefore one can posit with good grounds that the ordering and arrangement of world structures (*Weltgebäude*) occurs gradually in the unfolding of time from the inventory (*Vorräte*) of created natural material; only the basic matter (*Grundmaterie*) itself, whose properties and forces lie at the ground of variation, is an immediate consequence of divine existence; this must at a stroke be so rich, so perfect, that the development (*Entwicklung*) of its compositions could spread out in the outflow (*Abflüsse*) of eternity over a plan which encloses in itself everything that can be, which accepts no measure, which is, in short, the infinite (AA 1:310).

Let us pause over this quotation. The initial point Kant makes here is that world constructs (which we can interpret to mean any cosmic body or collection of cosmic bodies) must have developed from initial "basic parts" (*Grundstücke*) which have coalesced into material through the lawful forces (attraction and repulsion) planted into them. But for this to occur we must think of a temporally unfolding theatre in which structure arises gradually through the constant conflict between these forces. It is a process of realization in which the initial act of creation is a chaotic outflow from an originary "inventory" or "store" (*Vorrat*) of basic matter which is dispersed in all directions. Following this, the conflict of forces funnels this dissipated matter into ever-larger cosmic structures. It is from this view that the famous nebula hypothesis stems: the universe gradually evolves from cosmic dust, ossifying into larger bodies such as comets, planets and suns as well as even larger structures such as solar systems and galaxies. This process is infinite for the young Kant. Because there is an unending flow of material from this inventory so too must development towards unification be unending. In short, the development of nature seeks to actualize everything that can exist and accordingly engages in an infinite

temporal unfolding to do so. A bit further on from this quotation Kant claims that even “formed nature” contains within it “the seed (*Samen*) of worlds-to-be” and still “strives to evolve (*auszuwickeln*) out of the raw condition of chaos” toward greater harmony and unity (AA 1:314). In other words, “creation is never complete” (AA 1:314); even if higher unities such as galaxies and clusters of galaxies seem to express completion, at some level they are still in gradual temporal development. How Kant develops this temporal infinity, however, is not quite as linear as it first seems as we will see towards the end of this section.

(2) The other type of infinitude Kant tries to capture is spatial, perhaps the “*Allgemeine*” part of *Allgemeine Naturgeschichte*, although it is often quite difficult to unpick from the temporal infinitude and is eventually conflated with it entirely. Kant explains that all cosmic bodies must be thought as originating from a common *Ursprung*, or from the conflict between an “unlimited and universal” attraction and the “similarly continuously efficient” repulsion. It follows that the systems of planets which have gradually formed from this conflict must “have assumed a related constitution and a systematic binding among themselves” (AA 1:307). In other words, cosmic bodies coalesce together into larger totalities (galaxies) such that they can be seen as “links in the great chain of total (*gesamten*) nature” (AA 1:308), or as constituting a system. It is this chain of galaxies which constitutes a spatial infinitude for the young Kant, defined as a “power that cannot be measured by any scale” (AA 1:309). But there is also a much more profound tarrying with spatial infinitude as the chapter goes on.

The previously mentioned inventory is in fact a middle-point of nature, a high density *Klumpen* from which basic matter flows and towards which all cosmic bodies tend. It is the “the universal middle-point (*Mittelpunkt*) of the sinking of all nature” (AA 1:311) but also its antithesis, the “supporting point” of all nature (AA 1:312).¹³ This is because it is the point from which all matter first emerges in which “all possible formations of nature can be found [...] buried in a silent night” (AA 1:313), but it is also the point toward which all cosmic bodies

return such that it is only through this contradictory middle-point that we can “grasp the whole of nature in the whole infinitude of its range in one single system (*Systema*)” (AA 1:312). That is, when all structures are judged according to their relationship towards the middle-point they are immediately placed in the same total system.

Conceiving of this contradictory spatial centre has some interesting consequences. It provides us with a rudimentary cosmography of Kant’s universe, which he even describes at one point as his “map of infinity” (AA 1:315). The cosmography plots out an image in which a middle-point is surrounded by concentric spheres of increasingly greater unity.¹⁴ But a point is reached on this map in which the structures begin to decay, until one gets to the outer spheres in which structures have entirely decomposed into the disparate matter from which they came. This decomposed matter, dispersed into something akin to the original chaos (a second-order chaos), forms an outer border of the cosmos. Hence, worlds and galaxies emerge only in between the middle-point of potential nature and the outer point of exhausted nature (AA 1:319-20). The spatial infinity is only infinite in so far as the development of cosmic bodies is plotted out in concentric spheres of ascending and descending composition until, finally, the outer edges are composed of absolute decomposition.

It is clear from this that the temporal and spatial infinities are bound up with one another to such a degree that trying to separate them in any systematic way would be futile. To pinpoint a structure in this cosmography would simultaneously be to view it at some point in its temporal development. Thus, the closer it is to the middle-point the younger it will be and the further it will be from decomposition. On the other hand, the further it is from the middle-point the older it will be and the closer it will be to decomposition. On the one side there is the generative chaos, on the other – what is essentially identical to this – ruinous decomposition. Indeed, even the image of concentric spheres which informs Kant’s spatial infinity gets transposed onto the temporal infinity.

At the end of this chapter, Kant provides us with the most famous image with which to think the binding of temporal and spatial infinity. He describes nature as a phoenix, which “burns itself only to come to life again, rejuvenated (*verjüngt*) from out of its ashes through all infinity of time and space” (AA 1:321). The insignia of nature is the phoenix in so far as it describes a process of development from chaos to structure and gradual dissipation into dissolution. But for Kant the point is that it does not stop here, for nature continues to produce ever more structures from out of this dissolution such that in the final instance the temporal and spatial angles are bound together in a sphere. Just as the middle-point is the holding together of contradictory predicates (source of sinking and source of support) nature is indexed as simultaneously the source of organization and the source of disorganization without any clear line between them. For Kant, the highest beauty in nature is not only its striving for unified harmony but also its decay back into chaos; the point is to construct a system which can hold both together and only then will we have a theory which can adequately capture the two sides of infinitude.

As I will argue, it will be these themes which feed into the young Schelling’s conceptualization of nature and his engagement with Kant’s early cosmology.

3. Schelling’s *Erster Entwurf*: Approximation of a Summary

Composed in 1799 for use in lectures, *Erster Entwurf* is a “first sketch” in the double sense of the term: a propaedeutic search for a system of *Naturphilosophie* and an announcement of a new project in the post-Kantian epoch (SW 3:3). It consists of three *Hauptabschnitte* which treat the organic, the inorganic and a synthesis of both, respectively.

Whilst Schelling’s previous two works (*Ideen zu einer Philosophie der Natur* and *Von der Weltseele*) held a rather ambiguous position on the transcendental,¹⁵ the *Erster Entwurf*

attempts to deduce a dynamical system of nature which grounds the transcendental itself. Put another way, the Critical philosophy, or the subjective thinking of the conditions of possibility, does not include its own objective conditions of possibility for Schelling. It is the task of *Naturphilosophie* to deduce this objective condition of possibility. This is best expressed at the end of the text where a reversal is indicated:

It was presupposed that nature is development from one original involution. But this involution cannot, according to the above, be anything real: thus it can only be represented as *act*, as *absolute synthesis*, which is only ideal, and denotes the turning point, as it were, of transcendental [philosophy] and *Naturphilosophie* (SW 3:268).

But the text is far from a systematic treatise and more like a collection of loosely knitted scenes from a play. It is ironic, then, that the text ends by viewing nature as a “framework” (*Gerüste*) (SW 3:261-8), which is translated as “theatre” in the standard English edition. Indeed, Schelling inadvertently performs the type of dynamism he hopes to deduce by composing, decomposing and recomposing concepts. This makes the text difficult to summarize in any satisfactory way.

Schelling begins the text by viewing nature as absolute activity, stating that the aim of *Naturphilosophie* is to capture this “absolute unconditioned” (SW 3:11). In the early post-Kantian epoch, the unconditioned was a popular exit route from the strictures of the Critical philosophy, albeit highly problematic. As Manfred Frank explains in his analysis of Friedrich Heinrich Jacobi’s influential position, the unconditioned is that which puts a cap on the infinite regress of knowledge, it is what does not need any further grounding from the outside (Frank, *Unendliche Annäherung*, 664-5). The problem is that when we try to capture the unconditioned directly it ceases to be unconditioned, instead transforming into a thing: “Present the

unconditioned itself under the schema of an infinite striving [and] it remains unconscious. Present it as itself limited [and] it contradicts its own concept.” (Frank, *Unendliche Annäherung*, 746).¹⁶ The German also makes this clear: when we try to capture the *unbedingt* (the “unthinged”) we crystallize it into the *bedingt* (the “thinged”). To access the unconditioned, then, requires an altogether different orientation.

Schelling’s way of thinking this is that unconditioned nature inhibits (*hemmt*) itself into a conditioned product (SW 3:16). His most vivid presentation of this scene is the “whirl” (*Wirbel*)¹⁷ found in a footnote added after the initial publication of *Erster Entwurf*. Schelling tells us that “a stream flows forward in a straight line so long as it encounters no resistance. Where [there is] resistance, [there is] a whirl (*Wirbel*). Every original nature-product (*Naturprodukt*), every organization (*Organisation*)¹⁸ is such a whirl (*Wirbel*)” (SW 3:18). Resistance creates an inhibition, a whirl or vortex, marking out a finite product, which is simultaneously distinct from *and* constituted by the stream. Eventually the inhibition relaxes and the whirl dissipates, the finite product merges back into the stream, back into the infinite. But we should not be fooled, says Schelling, for that is not the end of the matter. Other whirls form, other products emerge: “in every moment comes a new shock (*Stoß*), as it were, which fills this sphere anew” (SW 3:18). With each dissipation a new impulse brings about another inhibition, another product, such that we can also speak of an infinitude of finite products. This forms the nexus around which Schelling visualizes nature: finite products emerge as points of limitation which then dissipate back into the infinitude of the unconditioned.

Some themes also crop up more often than others, such as the attempt to capture the various recursions of “diremption” (*Entzweiung*), which provides a clue as to the type of dynamics Schelling strives after. Nature is construed as always splitting with itself, unbalancing itself in an oscillation between two polar points or what Schelling calls “the drama of a struggle *between the form and the formless*” (SW 3:33). For Schelling, this continual

unbalancing is identical to the condition of nature's existence since if we conceive of a completed equilibrium ($A=A$) the two sides cancel one another out.¹⁹ It follows for Schelling that the essential property of nature is not harmony but "original duplicity" (*ursprünglichen Duplicität*). For this reason, nature never reaches absolute form or absolute formlessness but modulates infinitely between the two,²⁰ which constitutes Schelling's dynamics: nature "transforms itself into all [shapes] like an ever-shifting Proteus" (SW 3:33).²¹ Just as in the image of the whirl, nature is never harmonized; as soon as it forms a particular shape, it deforms back into another shape. The original duplicity (or diremption) of nature recurs at all stages of development, or in ever "narrower spheres" (SW 3:55), dividing into increasingly more localized polarities. At the highest points of these polarities the two poles are exhibited in a bound state, which is the closest nature gets to unification (i.e., magnetism in inorganic nature). This will be an important theme for understanding the cosmological resonances in Schelling's text.

The infinitude at stake in the text is vital to seeing its relationship with Kant's pre-Critical cosmology. Rather than approximating an infinitely deferred end point (as it is with the regulative idea of reason), nature is infinite because it continuously transitions from productivity to product, from product to productivity: "since [nature] is *infinitely active*, and since this infinite activity must present itself through finite products, it must return to itself through an endless *circuit (Kreislauf)*" (SW 3:53). Infinity is conceived of as a circuit rather than a line, such that infinite productivity and finite products are locked into looping embrace. This also applies to the transcendental: finite products are both condition and conditioned of infinite productivity, for without them there could not be an aperture through which to view nature as unconditioned, but infinite productivity is also both condition and conditioned of finite products since there could not be an initial finite product without infinite productivity. In this connection, finite products are both the prism through which to see the infinite *and* the

obstacle which stands in the way of seeing the infinite. To put it neatly: the infinite can only be accessed by circumscribing the finite, a formation which takes the text beyond the Critical restriction to linear infinitude of regulative ideas and back to a cyclical infinitude.

The proximity of *Erster Entwurf* to Kant's work does not go unnoticed by Schelling as he reveals that Kant is very much on his mind in an *Anmerk*:

Up to now, *natural history* has actually been *natural description*, as Kant has very rightly remarked. He himself suggests the name natural history for a special branch of natural science, namely the knowledge (*Kenntniß*) of the gradual changes that the various organizations (*Organisationen*) of Earth [have] suffered through influence of outer nature, through migrations from one climate to another and so on (SW 3:68).

Schelling could be referring here to a note in the *Kritik der Urtheilskraft* in which Kant lays out natural history as a field which engages in the “description of nature” (AA 5:428).²² Another source for this reference might be the Preface to *Metaphysische Anfangsgründe* where Kant makes a distinction between a “*historical nature doctrine*” – which contains a “*natural history*” – and “natural science” (AA 4:468). Alternatively, he could be referring to *Allgemeine Naturgeschichte* – which is itself being referenced in *Metaphysische Anfangsgründe* – framing it as a useful account of cosmic bodies but reproaching it for staying at the level of description. But if Schelling is referring to this work, he would know that in its first two parts organism is not accounted for at all. After all, one of the key lines from *Allgemeine Naturgeschichte* clearly states that “we will understand the formation of all cosmic bodies [...] before the generation of a single herb or caterpillar [...] on mechanical grounds” (AA 1:230). Regardless of whether Schelling is directly alluding to *Allgemeine Naturgeschichte* here, he still takes up its core motivation that “everything in the whole scope (*Umfange*) of nature interconnects (*hangt* [...]

zusammen) in an uninterrupted graduated sequence (*Gradfolge*)” (AA 1:365) but he bases this interconnection on a dynamics which is not just a description but an ideal “construction” (SW 3:12) grounded on the organic.²³ Accordingly, Schelling is critical of the Kantian reading of “*Naturgeschichte*” but he still seeks to construct his own cosmogenesis, which is what we will investigate in the following.

4. Spiralling the Spheres: Beyond the Infinite

In the *Zweiter Hauptabschnitt* Schelling aligns the inorganic with “mere *mass*” (SW 3:94). For Schelling mass signals a relationship of bodies which stand “next to and outside one another” (*Neben- und Aussereinander*) (SW 3:94) or in external relationships where one body is determined by others outside it.²⁴ But to properly grasp this, masses “must be sustained in a certain proximity (*Nähe*) or distance (*Ferne*) from one another” (SW 3:95); that is, there must be a principle governing the bodies as different from one another. Gravity is the term Schelling uses to describe this principle, which he conceptualizes in two ways: as a physical system (SW 3:96-99) or as a metaphysical system (SW 3:99-104). The first is the Newtonian limitation of gravity to motive effects on bodies. The second is the tying of gravity to an immaterial principle or *Grundkraft* of matter, or a transgression of motive effects towards an essential substrate of gravity.²⁵ This is an echo of Kant’s binding of the mechanical and theistic in *Allgemeine Naturgeschichte*, but Schelling’s call for these two systems to be united in an all-important third sees him critiquing Kant’s early cosmology.

The *Drittes mögliches System* (SW 3:104-127) unites the physical and the metaphysical in a picture of cosmological origin. Schelling starts with the *Allgemeine Naturgeschichte* by situating the origin of gravity “in the history of universal world formation (*Weltbildung*)” and “assuming the most original state of nature [...] as a universal dissolution (*Auflösung*) of cosmic

matter (*Weltmaterie*) in[to a] vapour-like shape” (SW 3:114). He continues by setting out his reading of the text, reintroducing the whirl (*Wirbel*) to show how inhibition must also be at work in the *Allgemeine Naturgeschichte* without Kant’s explicit acknowledgement of it. Whilst the accretion of cosmic matter into larger constellations is very much like the formation of an infinitude of whirls, for Schelling Kant’s early cosmology fails in so far as it defers origin to a more primordial cause: “this equality of direction [of the whirls] presupposes a more determined and powerful cause (*Ursache*) which has pressed this movement into them (*die ihnen diese Bewegung eingedrückt hat*)” (SW 3:115). Schelling thinks there is too much order for an authentic origin to be at stake in Kant’s cosmology because his whirls are all travelling in the same direction. In short, Schelling accuses Kant’s cosmology of lacking temporal development because at its core it rests on preformationism: before the swirling formation of cosmic bodies around the middle-point there is a preformed *Urstoff* which is chaotically distributed throughout cosmic space. Thus, we can still ask where this *Urstoff* came from and how it came to be distributed, meaning that Kant takes all the “*Ur*” out of “*Ur-Stoff*”. Much of this critique hinges on the fact that Kant’s early cosmology stays bound to mechanical analysis and so can only describe physical bodies in motion. In other words, the metaphysical aspect of Kant’s early cosmology is obscured. The issue Schelling has with this is that motion alone cannot explain temporal development or origin because it goes no further than impact or the world of traditional causality. This also contributes to the notion that Kant’s infinities are not authentic infinities at all but rather machinic repetitions; they can no more account for cosmic genesis than a clock can account for the origin of time.

For Schelling, the solution is to try to break down Kant’s over-emphasis on the mechanical and sublimate it into the dynamical. Moreover, because Schelling thinks both inorganic and organic nature as “*product* into infinity” (SW 3:115) he is led to wonder “whether one should not think the origin of the world system (*Weltsystems*) *organically* rather

than mechanically, through an alternation of expansion (*Ausdehnung*) and contraction (*Zusammenziehung*) as that through which all organic formation occurs” (SW 3:116). Is it possible, asks Schelling, to ground Kant’s inorganic mechanism on an even more primordial organic dynamism?

It is important to remember that Schelling is a skilled appropriator of texts and that he does not outright discard but rather *reconfigures* Kant’s early cosmology.²⁶ Where Kant reads the genesis of cosmic bodies mechanically, Schelling reads it dynamically as an expression of the “universal organism” (SW 3:115). In this connection, instead of constructing a cosmogenesis based on attractive and repulsive force, Schelling constructs it based on their organic analogues, contraction and expansion. At this point we can see how Schelling reverses Kant’s assumption of how the organic feeds into the mechanical picture of the cosmos. For Kant, the genesis of the cosmos is primarily inorganic; the inorganic must precede the organic as cause precedes effect. For Schelling, the situation is inverted through the prism of contraction and expansion, wherein the genesis of the cosmos is primarily organic; the organic is to be viewed as the ground for the inorganic, not *vice versa*. The young Kant was blocked from locating the organic in a more primordial seat by his clinging to a mechanical model of the cosmos whereas Schelling is focused on *unbinding* himself from this stricture.

In this connection, Schelling also mounts a critique on Kant’s conception of spatial infinitude, suggesting that a universal middle-point is contradictory: “To assume a common middle-point of the whole universe from which *all* formation goes out (*ausgegangen*) would mean making the universe finite” (SW 3:125). That is, there can be no middle-point of a spatial infinitude unless all points were umbilic centres. Accordingly, we must transform Kant’s middle-point into many “ideal centres” (SW 3:125) if we are to conceive of a proper spatial infinitude. Again, Schelling reconfigures Kant’s cosmology by porting in contraction and expansion:

One could suppose that the first beginning of formation occurred through one contraction, starting from *one* point and extending through an immeasurably large part of space wherein the primordial material (*Urstoff*) of the world was spread out, but that simultaneous with this universal *acquirement* which that *one point* exerts on all matter spread out in an infinite space, an antithetic effect (*Wirkung*) arises; namely, that it thrusts matter of an antithetical condition from its sphere of formation and that in such a way the universal process of formation began simultaneously at many points. (SW 3:116).

Whilst this is a complex sentence, there are two main points we can take from it:

(1) Schelling conceptualizes the origin of the cosmos as a contraction of a single point pulling inward and stretching outward. The simultaneity of pulling in and stretching out results in a catastrophic tear and distribution of original products into infinite nucleal points from which formation springs. Schelling considers this an appropriate cosmogenesis in which the dynamics of organism or of “productivity *merging into the* [original] *product*” (SW 3:117) grounds Kant’s mechanical picture.

(2) The original products stand in for Kant’s universal middle-point. Their operation is to “decay (*verfallen*) infinitely into new products” (SW 3:117) expanding outwards into “always narrower spheres of affinity” (SW 3:116).²⁷ Schelling’s cosmogenesis, then, is premised on a single original tension which splinters into an infinitude of recursive and ideal middle-points from which formation begins. Before Kant’s physical chaos there is an ideal tension of opposites in nature. Or stated another way, Schelling puts the metaphysical before the physical and the ideal before the real. Whilst this still does not explain exactly what the first cause is, it grounds Kant’s cosmology on more metaphysical terrain. More precisely,

Schelling pushes Kant's cosmology through the mesh of transition: from the grounding of the cosmos in the real to its grounding in the ideal.

Hence, whilst Kant's spatial infinity is premised on physical concentric spheres which move from a chaos of *Urstoff* towards order and then back into a second-order chaos, this only accounts for one cross-section according to Schelling. Schelling's spheres recur from a contracted to an expansive point and back to a newly established contracted point, opening Kant's concentric spheres onto one another to create a contracting and expanding spiral²⁸ or helix.²⁹ At each level of the spiral the original splintering of nature recurs, resulting in various polarities, from the polarity of the Sun-Earth system to the North-South pole of the Earth itself; from the organic-inorganic polarity to the female-male polarity, all the way to the polarity between nature and life. The spatial infinity in *Erster Entwurf* is therefore much more fractal than in *Allgemeine Naturgeschichte*, where what occurs at a large scale truly recurs at a smaller scale. Each contracted/expanded level creates anew the original duplicity such that every element reflects the whole from a different angle.³⁰ It is in this sense that Schelling later describes the organism as a "contracted, miniaturized image of the universal organism" (SW 3:198).

Schelling concludes his reconfiguration of Kant's cosmology by also calling for a temporally circular system. But because the organic must now be thought to precede the inorganic and lie at the basis of cosmic genesis, and because this involves a tension of contraction and expansion (SW 3:125), the temporal infinitude of the phoenix is transformed into a sort of cosmic accordion. For Schelling, the universe is engaged in an infinite movement from a highly compressed to a highly dilated state and *vice versa*. When it contracts, matter approaches absolute identity, which is equated to the movement of sinking or returning to the ideal centre. When it expands, matter approaches absolute difference, which is equated to the

movement of departing from the ideal centre. With this in mind, Schelling feels he can now paraphrase Kant's most famous line from *Allgemeine Naturgeschichte*, cementing it as his own:

If we suppose such a universal falling back (*Zurückfallen*) of each system into its centre, then according to the same law with which this system organized itself at its first formation, each system will arise again, rejuvenated (*verjüngt*), from out of its ruins; and so we have deduced simultaneously that eternal metamorphosis going through the whole universe [and] the continuous return (*Zurückkehren*) of nature into itself, which is its proper character (SW 3:126-7).

In conclusion, Schelling explicitly tries to bring out the elements of Kant's cosmology which parallel the early *Naturphilosophie* whilst also critiquing them, grounding them on a more idealist landscape. Where Schelling expresses that "This is thus the point from which Kant begins the dynamical philosophy – the same point at which our theory stops" (SW 3:264) in relation to *Metaphysische Anfangsgründe*, this also expresses the relationship between the *Zweiter Hauptabschnitt* of *Erster Entwurf* and *Allgemeine Naturgeschichte*.

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¹ Grant, *Philosophies of Nature After Schelling*, 59-60 and Woodard, *Schelling's Naturalism*, 26-46. Vater's, "Did Schelling Misunderstand?" tables this theme through Schelling's reception of Fichte's *Wissenschaftslehre*.

² Beiser, *German Idealism*, 509-23; Di Giovanni, "Kant's Metaphysics of Nature and Schelling's *Ideas*;" Garcia, "Nature at the Core of Idealism;" Förster, *Die 25 Jahre der Philosophie*, 242-3 and 251; and Jacobs, "Schelling im Deutschen Idealismus," 66-73.

³ See Cooper, "Kant's Universal Conception of Natural History;" Massimi, "Kant's Dynamical Theory of Matter;" Schönfeld, *The Philosophy of the Young Kant*, and Shea, "Filled With Wonder."

⁴ All citations of Kant's work are from *Immanuel Kants Gesammelten Schriften* (AA) with the volume number followed by page number apart from *Kritik der reinen Vernunft* which is quoted according to the A/B pagination (as is customary). All translations are my own.

⁵ In his paper, "The Early Kant's (anti-) Newtonianism" Watkins presents a compelling case for emphasizing the criticisms of Newton contained in the *Allgemeine Naturgeschichte* based on the argument that Kant had recourse to a more metaphysical, "philosophical theology". Also see Waschkies "Kosmogonie als Physikotheologie beim jungen Kant."

⁶ E.g., see Richards, *The Romantic Conception of Life*, 128-51 and 289-306; Sandkühler, "Natur und geschichtlicher Prozeß", 40-7 and Kossler, "Der Evolutionsgedanke in Schellings Naturphilosophie."

⁷ All citations of Schelling's work are from *Schellings sämtliche Werke* (SW) with the volume number followed by page number. All translations are my own.

⁸ See Woodard, *Schelling's Naturalism*.

⁹ Which could speculatively be paired with Kant's proposed "metaphysics of corporeal nature" (KrV A846/B874). For more on this connection see Di Giovanni, "Kant's Metaphysics of Nature and Schelling's *Ideas*."

¹⁰ E.g., see Newton, *Principia*, 586 and *Opticks*, 403.

¹¹ See Ferrini, "Heavenly Bodies", 281-2.

¹² Three exceptions are Peter Fenves' riveting analysis in *A Peculiar Fate*, 13-82, Martin Schönfeld's account in *The Philosophy of the Young Kant*, 96-127, and Susan Meld Shell's masterful reading in *The Embodiment of Reason*, 32-5 and 46-76.

¹³ For an elaboration of this constellation see Shell, *The Embodiment of Reason*, 32-3.

¹⁴ See Rubenstein, *Worlds Without End*, 139, for a slightly different version of this "revised bird's-eye view". Also see Fenves, *A Peculiar Fate*, 56-9 for how Kant pulls this view from his understanding of Saturn's rings.

¹⁵ See Beiser, *German Idealism*, 529 and Nassar, "From a Philosophy of Self to a Philosophy of Nature", 305.

¹⁶ Also see Frank, *Eine Einführung in Schellings Philosophie*, 90-1.

¹⁷ By "Wirbel" Schelling references a few things. It can mean an oceanographic "eddy" or "whirlpool", but it also indicates a more abstract process of swirling turmoil and cyclical inhibition. To preserve all these meanings I have translated this term as "whirl" in the following. My thanks go to the editors of *Idealistic Studies* for suggesting this to me.

¹⁸ In using the term "Organisation" we can understand Schelling to mean "organism" although he does also use the term "Organismus" elsewhere in *Erster Entwurf*.

¹⁹ Also see SW 2:179.

²⁰ As Walter Ehrhardt puts it: "Nature is everything that is not absolute identity, or one can also say: the realm in which only a relative identity is predicated." (Ehrhardt, "Die Naturphilosophie und die Philosophie der Offenbarung", 344).

²¹ It is interesting to note that Schelling is often considered a Protean thinker owing to his constant shifts and changes. Willhelm Metzger's work *Die Epochen des Schellingschen Philosophie* takes this notion to its extreme, reading different strata of Schelling's work between 1795 to 1802. Ehrhardt takes issue with this reading, arguing for "only one Schelling." See Ehrhardt, "Nur ein Schelling", and "Die Naturphilosophie", 338-9. What is clear is

that the *Erster Entwurf* in some places performs the dynamism Schelling wants to capture, thus rendering it necessarily and profoundly Protean.

²² See Grant, *Philosophies of Nature*, 49, for more on this.

²³ For a problematization of Schelling's thinking here see Förster, *Die 25 Jahre*, 245-8.

²⁴ It is noteworthy that Salomon Maimon also uses this phrase to describe "things in space" (Maimon, *Versuch über die Transzendentalphilosophie*, 15). Also see Kant's reflections on metaphysics, AA 18:390, 466, 616, and his use of the term in *Opus postumum*, AA 21:451 and 22:184.

²⁵ Schelling points to Kant's *Metaphysische Anfangsgründe der Naturwissenschaft* as his source for reading the metaphysical aspect of force, arguing that Kant runs into problems by aligning attractive force and gravity. He points to the famous "problem of density" in the *Zweiter Hauptabschnitt* (SW 3:101-3) and brings it up again in the *Dritter Hauptabschnitt* (SW 3:265).

²⁶ After all, Schelling had a great respect for the young Kant's work, claiming that "the bold impulse of [Kant's] spirit [was] to strike out in search of the grounds for the determination of the world system and its movement in the territory of matter and its natural forces." (SW 6:7). It is also worth noting that Schelling frequently echoes themes from *Allgemeine Naturgeschichte* throughout the *Naturphilosophie*. E.g., in the *Einleitung zu seinem Entwurf eines Systems der Naturphilosophie*, he says: "that nature, where it is left wholly to itself in every transition from a fluid to a solid state freely produces, as it were, regular shapes (*regelmäßige Gestalten*)" (SW 3:272).

²⁷ Fischer tells us that this term "sphere of affinity" is appropriated by Schelling from Lichtenberg's "determinate sphere of affinity" (Fischer, *Schellings Leben*, 402), also expressing that Schelling is never clear about what he means by it.

²⁸ As Heidegger, *Schellings Abhandlung über das Wesen der menschlichen Freiheit*, 236, plots out.

²⁹ The helix is now a typical image denoting organic nature, but in 1799 Schelling would have perhaps gleaned this image from Goethe's "spiral vessel" (*spiralgefäße*) which he used to describe the stamens of particular plants. See Goethe, *Versuch die Metamorphose der Pflanzen zu erklären*, 40-1.

³⁰ See Jantzen, "Die Philosophie der Natur," 100.