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The Emergent Organism

Kiellmeyer, Röschlaub, Schelling, Novalis

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ABSTRACT

The word *Organismus* came into usage in German in the 1790s to hold certain paradoxes in suspension. Referring to the dynamic processes of a living being rather than to the being itself, the concept of the organism attempted to navigate the complexity of identity for an interactive system in flux. This article analyzes four interconnected theories of the organism. Carl Friedrich Kiellmeyer conceptualized an open, interactive system of all living beings in development over time. Andreas Röschlaub adapted John Brown's concept of excitability into a theory of the organism as that which integrated internal self-determination with responsiveness to an external world for each living being. Friedrich Schelling developed a theory of a world organism as a system of forces and incorporated thinking from both Kiellmeyer and Röschlaub to account for differentiated existence as such. Finally, Novalis rendered the very concept of boundaries indistinct through his emphasis on perviousness and communicability.

Keywords: history of science, *Naturphilosophie*, history of medicine, history of ecology

ZUSAMMENFASSUNG

In den 1790er Jahren kam das Wort *Organismus* im Deutschen zur Verwendung, um bestimmte Paradoxien in der Schwebe zu halten. Indem sich das Wort auf die dynamischen Prozesse eines Lebewesens statt auf das Lebewesen selbst bezog, trat das Konzept des Organismus aus dem Versuch, die Komplexität der Identität für ein System im Wandel zu formulieren, hervor. Dieser Artikel analysiert vier anverwandte Theorien des Organismus. Carl Friedrich Kiellmeyer konzipierte ein offenes, interaktives System aller Lebewesen in Entwicklung im Lauf der Zeit. Andreas Röschlaub adaptierte John Browns Konzept der Erregbarkeit und entwarf daraus eine Theorie des Organismus als Integrierung der internen Selbstbestimmung mit einer Empfänglichkeit für eine externe Welt. Friedrich Schelling entwickelte die Theorie eines Welt-Organismus als System von Kräften und nahm dazu Kiellmeyers und Röschlaubs Überlegungen auf, um auch differenzierte Existenz als solche begründen zu können. Schließlich ließ Novalis das Konzept der Grenzen an sich durch seinen Fokus auf Durchdringlichkeit und Übertragbarkeit verschwimmen.

Schlüsselwörter: Wissenschaftsgeschichte, Naturphilosophie, Medizingeschichte, Geschichte des Ökologiebegriffs

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Historians and literary critics have recognized the organism around 1800 as a boundary object, one that attempts to mediate between the extremes of mechanistic and vitalistic understandings of living beings.¹ Whether labelled by critics teleo-mechanism or vital materialism, various theories of the living or organized being arose in this period to reconcile its paradoxical status, evidently governed by natural law and yet simultaneously capable of independent activity or behavior.² Naturalists, philosophers, and literary authors alike grappled with finding ways to unite these features within a natural rather than supernatural framework and saw their coincidence as a defining characteristic of living beings. However, there is another way in which the emerging concept of the organism mediated between competing perspectives on living beings, namely between an older focus on the anatomical body, i.e. organized matter, and a newer focus on forces and interactive processes.³ While there is a relationship between these two polarities, they are not identical. In addition, as in the case of mechanistic and vitalistic thinking, no strict boundary between body and force can be upheld. At stake in the shift in emphasis from body to activity is a more complicated notion of the identity of living beings in relationship to the world with which they interact that puts pressure on the establishment and maintenance of boundaries, while acknowledging their permeability.⁴ The increasing emphasis on physiology and on life processes permeated medicine and the emerging fields of biology in German-speaking areas, as

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¹ To avoid confusion, I will use the term “living being” throughout this article to refer to what is generally known in English as an organism. The argument of this article hinges on the distinct definition of the word *Organismus* or *organism* around 1800, not as a living being, but as a form of dynamic activity that could be descriptively applied to systems, including those of living beings.

² The clear division of thinkers into opposed camps of mechanists and vitalists, as well as the older tendency to understand Romantics in general as anti-mechanist have been challenged repeatedly over the past few decades. See Timothy Lenoir, Robert Mitchell, Stefani Engelstein’s *Anxious Anatomy*, Leif Weatherby, Jocelyn Holland’s *German Romanticism and Science* and *The Lever as an Instrument of Reason: Technological Constructions of Knowledge around 1800*, and Joan Steigerwald (cf. bibliography at the end of this article).

³ As Georg Toepfer notes, “Nicht mehr die beschreibenden Disziplinen der Biologie, etwas die *Morphologie*, *Anatomie* oder *Systematik*, sondern *physiologische* Untersuchgen, die Organismen als besondere kausale Systeme konzipieren, rücken in den Mittelpunkt der Beschäftigung mit den Lebewesen” (787).

⁴ Tobias Cheung has traced the history of the relationship of *inner world* to *external world* as the basis of the concept of the *organism* as living being from 1780-1860. In this article, I will focus on the ambiguities of these distinctions. See Tobias Cheung, *Organismen: Agenten zwischen Innen- und Außenwelten, 1780-1860*.

well as *Naturphilosophie* and Romantic literature and theory. Simultaneously, the word *Organismus* came into general usage for the first time. In the closing years of the eighteenth century, it shifted its meaning from a descriptive term for a particular mode of operation to the term for a living being with such a mode of operation.⁵ During this brief moment of transition, the organism served as a conceptual place-holder for a paradox rather than as a defined and circumscribed object. This unresolved ambiguity continues to haunt the living being.

1. The Transformations of the Organism: An Overview

Zedler's *Universal Lexicon*, which appeared from 1731-1754, has an entry for *Organismus*, which the entry author defines as a subset of mechanism. The entry is a repudiation of the influence of the animist physician Georg Ernst Stahl, who, beginning in the 1680s, had used the previously very rare word *Organismus* in his Latin texts as a contrast with *Mechanismus*.⁶ He thereby distinguishes between two orders of motion, the first due to a vital principle or soul and the second purely mechanical. Zedler's entry, without naming Stahl, states in contrast:

Organism [*Organismus*] is nothing other than the arrangement [*Einrichtung*] of the parts of an organic body. It is little or not at all different than mechanism [*Mechanismo*], far less can it be opposed to mechanism as some do...; the mechanism [*Mechanismus*] refers to the arrangement of the parts of each and every body; the organism, however, to the parts only of organic bodies. And from this it is clear that the organism is also a mechanism, although the mechanism cannot also be called an organism... The organic mechanism or the organism becomes increasingly simple from the human being all the way to the most contemptible and smallest worm, from the zoophyte all the way to the lowest plant.⁷ (25.1868 [947])

Organism here is an arrangement, neither anatomical structure nor physiology alone. It is a feature of a living being, the particular mechanism by which it functions, without, however, identifying any uniquely organic element. Zedler's entry for *Mechanismus* provides further guidance. In this case, mechanism is said by the entry author to entail both "the operations

⁵ For an historical overview of this shift with copious helpful citations, see Cheung, "What is an 'Organism?'" and Georg Toepfer. Both are interested in the larger movements of the term.

⁶ See Cheung, "What is an 'Organism?'" 166-168 and Toepfer 787. For a more detailed and recuperative view of Stahl's organism, see also John Zammito 19-36.

⁷ All translations from German are mine when not otherwise noted.

[*Würrkungen*] of the natural body, in so far as they emerge from the several configurations comprised of figure and motion” and also “the essential configuration of the body... by means of which all change in the world occurs that comes about naturally” (20.24; 1739). Mechanism is then both the characteristic of a body that enables or facilitates movement or change according to regular laws, and also the operations themselves that arise from such characteristics. This ambiguity between physical facilitation and patterns of activity not only persists but also expands in the case of organism, in which the cause of the activity, unlike for non-living bodies, appears immanent and remains contested. As structure, activity, and possibly cause, organism becomes the underlying object of physiology. Interestingly, while the author of Zedler’s *organism* entry rejects Stahl’s vitalism, the author of his *mechanism* entry rejects mechanical views of living beings such as that of Descartes, which, he declares, mistakenly “try to explain miraculous works mechanically” (20:26). The lexicon itself therefore incorporates the dilemma of organism without even a gesture towards resolution.

At just the same time that Zedler was producing his lexicon, Albrecht von Haller was developing a system of physiology for animals that rested on the two interacting forces of irritability and sensibility. Haller tied these capacities to specific anatomical structures. Irritability was a property of muscles, which react immediately to physical stimuli, and sensibility was a property of nerves, which Haller identified as the carriers of sense impressions, but also as responsible for the *experience* of such impressions. Because some muscles function independently of volition, Haller’s theory of irritability located the power of movement in a diffuse and distributed organic system independent of centralized will. Nonetheless, Haller’s material physiology coexisted with, and indeed invited, an ongoing dualism or vitalism because the mechanism that enabled a voluntary response to impressions, i.e. the transition from perception to motive force, remained a black box. This dualism was not strictly Cartesian. Unlike Descartes, who famously considered animals machines and denied them experience, Haller attributed sensibility – the power to *experience* perception in some form – to animals as well as humans. While irritability can be directly observed experimentally, however, the sensibility of another living being cannot be ascertained in any unmediated way. Humans rely on language to convey internal experience to one another, but Haller needed a different marker of internal perception for other living beings. One predictable effect of Haller’s experimental practice, which relied on vivisection, was pain, and Haller depended in particular on the observer’s recognition of pain response as

evidence of sensibility, in direct contradiction of Descartes's account of animals as insensible to pain.⁸ Even if the existence of both sensibility and irritability could therefore be grounded on evidence, their separation remained contentious. The point of interchange between nerves and muscles in voluntary motion, as well as the indwelling and distributed motile power of involuntary muscles, remained open invitations to explanatory supplementation, whether vitalistic, mechanistic, or dialectic.⁹

In the 1790s, a number of thinkers in the German-speaking world attempted to unify Haller's concepts of irritability and sensibility into a general system, and did so by way of theories that depended on a concept of organism.¹⁰ In 1793, Carl Friedrich Kielmeyer, a chemistry professor at the Höhere Karlsschule and later professor of chemistry and botany in Tübingen gave an influential lecture in which he formed a coherent, unified system that incorporated Haller's two independent forces of irritability and sensibility.¹¹ He combined the two with a third foundational force, reproductive capacity, and posited the proportional distribution of the forces across all living beings, understood collectively. At the same moment, the young Bamberg physician Andreas Röschlaub encountered the theories of the Scottish physician John Brown, who had combined irritability and sensibility into a unified theory of excitability as the definition of life in 1780.¹² In other words, where Kielmeyer had unified

⁸ Haller, 16. See Joan Steigerwald for a fascinating account of the discussion among naturalists about the pain caused to animal subjects, both in terms of an ethics of suffering and in terms of the uncertainty it introduced into experimental results (58-70). See also François Duchesneau, "Degrees & Forms of Sensibility in Haller's Physiology," 207-210.

⁹ For the distributed nature of the forces in Haller, as well as for an account of his theory in relation to mechanism and vitalism, see Duchesneau, Gaukroger 225-226, and Tsouyopoulos *Andreas Röschlaub* 103. For the difficulty of distinguishing sensibility from irritability and the system of nerves from that of muscles, see Steigerwald 58-70.

¹⁰ Many physicians and naturalists had adapted and altered Haller's propositions in the intervening time. See Hubert Steinke for an overview of the reception of Haller over the course of the second half of the eighteenth century.

¹¹ See Gabrielle Bersier (19) for the publication history of the lecture, "On the Relations between Organic Forces in the Series of Different Organizations, and on the Laws and Consequences of These Relationships." See Bersier also for a very clear account of Kielmeyer's system and for an analysis of Kielmeyer's influence on Goethe. Bersier suggests that Goethe's support for Schelling arose from Schelling's extension of Kielmeyer's theory (20). Further valuable general discussions of Kielmeyer can be found in Kai Torsten Kanz's introduction to the lecture, in Steigerwald (195-205) and in John Zammito (256-261 and 265-285).

¹² Röschlaub's advocacy resulted in a number of translations into German: in 1795 by Adam Weikard, in 1796 by Christoph Pfaff, and by Röschlaub himself in 1805-6. See Nelly Tsouyopoulos, "The Influence of John Brown's Ideas in Germany" 63-64. Weikard translated Brown's original Latin edition, while Pfaff translated Brown's own English

irritability and sensibility into one system across the organic spectrum, Brown had done so within each living being. In the 1790's Röschlaub reconceptualized Brown's system into a theory of the *organism* to integrate both internal self-determination and a necessary responsive interaction with the external world through a dynamic disposition of forces he posited as the basic unit of life.¹³

When simultaneously with Röschlaub's first influential publication of his ideas, Friedrich Schelling wrote in his 1798 essay *On the World-Soul* that a "universal organism" encompassed the organic and inorganic universe, the reference was not to a living thing – not a proto-Gaia theory – but rather to a dynamic but organized interplay of reciprocal forces that render a system *such as* a living being coherent, and which, Schelling posited, could also be seen at work in the world as a whole.¹⁴ Schelling acknowledged his debt in this work to Kiehmeyer's theory of forces. A year later, having read Röschlaub as well as Kiehmeyer, Schelling released the *First Outline of a System of the Philosophy of Nature* in which he adapted and wove their theories together into an overarching system of natural forces that, he postulated, permeated individual living beings as well as the larger universe, while still allowing for the crucial differentiation of internal from external, and hence for the sustained distinctions that characterizes existence.¹⁵ This adaptive fusion allowed Schelling to posit under the term *organism* conditions of possibility for nature as such, for living activity within natural laws, and simultaneously for human knowledge about the objective world.

In these same years of 1798-1799, the notebooks of Friedrich von Hardenberg, whose literary works were published under the pen name Novalis, show considerable engagement with Brownian medicine. Novalis was reading both Röschlaub and Schelling, but unlike them, Novalis does not build a theory around the word *organism*. Nonetheless, like both, he

translation, which included cases and examples as well as a controversial quantification of excitability.

¹³ Werner Gerabek oversimplifies Brown to some extent when he notes that "Röschlaub modifizierte das starre, eindimensionale, auf bloße Aktion und Reaktion ausgelegte Modell Browns durch ein prozesshaftes, dynamisches und betrachtete die Lebensprozesse als Ausdruck komplexer Wechselbeziehungen zwischen Umwelt und Organismus" (187).

¹⁴ The concept of the organism in Schelling has received wide-spread attention and has attracted particular interest in the context of ecology in the last 10-15 years. For a variety of perspectives, some more focused on living beings in Schelling and others on the system-mechanism he calls *Organismus*, see Marie-Louise Heuser, Camilla Warnke, Lara Osteric, Dale Snow, Stefani Engelstein's "Schelling's Uncanny Organism," Jason Wirth's *The Conspiracy of Life: Meditations on Schelling and His Time* and *Schelling's Practice of the Wild*, and Iain Hamilton Grant.

¹⁵ Rie Shibuya makes a somewhat parallel claim that Schelling's conception of illness specifically arose "as a Brownianism modified through Kiehmeyer's physiology" (318).

works through the idea of stimulus and expressive response as regulation of identity to speculate on boundaries in flux. Novalis extends these ideas to develop a theory of language that implicates literary works themselves.

In the following years, the meaning of the word *organism* began to migrate, even in Schelling's own works, towards the individual living being for which we currently use the word *organism* in English. This article will trace the ambiguity and oscillation that the term *organism* attempted to suspend rather than to resolve during the brief period in the 1790s: the precarious reciprocity between becoming and being, between active forces and organized form, between volition and law-governedness, between self-identity and interactivity.

2. John Brown and Andreas Röschlaub: The Organism as the Object of Physiology

In 1780, John Brown published *Elementa medicinae*, in which he purported to lay out no less than “a science of life” (*Elements of Medicine*, I.xvi) applicable not only to humans, but also animals and plants (I.2). Brown's theory attributed to every living being a reservoir of excitability which is acted upon by stimulation to instigate all of the living functions. Brown listed the functions of the living being as “muscular contraction, sense, and the energy of the brain in thinking and in exciting passion and emotion” (I. 3-4), thus splitting Haller's sensibility into the discrete properties of sense perception, on the one hand, and intellectual and emotional activity, on the other, and listing both alongside muscular activity. Moreover, since all of these functions originate, according to Brown, in a nervous *system* composed of both nerves and muscles, this system must be the seat of excitability (I. 38), which unites them. Brown's newly conceived capacity for excitability enables a response to stimulus, whether external, physically internal, or consisting of thoughts and passions. This process of incitement and response is continuous throughout the various systems, rather than being centralized (in the brain, for example). Illness describes the negative impact on functionality that results from an imbalance between incitement and excitement. Disease is therefore not a state fully distinct from health (I.51-2), but rather a description of the ill effects on life functions caused by an over- or under-expression of excitability (I.55-56). The degree of excitement, however, is not a simple proportionate reaction to the strength of the stimulus, as the level of available excitability can be suppressed by previous overstimulation or heightened by insufficient previous stimulation. It is, in other words, the internal condition of excitability that determines the

response to external prompts. Brown here establishes a relationship between the living being and the external world that extends from nourishment and breath to passion and emotion, locating temporal priority for activity outside the living being, but granting regulatory agency to the internal functioning of the living being itself. The living being thus constitutes itself through but also against external provocation. The ability to do so is *life*, a “forced state” (I.59), as he famously declared.

As Nelly Tsouyopoulos notes, nothing in Brown’s system had changed between the first publication of his theory in 1780 and his belated reception in Germany. However, in the 1790s something changed in Germany that caused his work to be understood differently. Tsouyopoulos perceptively identifies that novel cultural element with Fichte, whom Röschlaub read alongside Brown as a student.¹⁶ For Fichte in his *Science of Knowledge* of 1794-1795, it is a *Tathandlung*, an activity, that brings the I, the subject, into being out of the absolute subject and through its encounter with the Not-I, the object. The subject’s awareness of itself is mediated through its perception, one might say its sensibility, which it experiences as caused by the external world for which its own body is a mediator, but to which the body ultimately also belongs. To Röschlaub under the influence of Fichte’s *Science of Knowledge*, Brown’s account of excitability no longer looked like a mechanist’s account of passive reactivity. Röschlaub instead reinterpreted the claim as the foundation of a theory of the organism – a word nowhere used by Brown – as that which instantiates itself, i.e. which lives, insofar as its own impulses respond than merely react to the impressions of an outer world. In his 1798 *Investigations on Pathogenesis or Introduction to the Theory of Medicine*, Röschlaub advocated for an embrace of theory within medical science. Indeed, medicine called for two theories: a theory of practical medicine (“praktischen Heilkunde”), and also a theory of theoretical medicine (*Pathogenesis* 4). To heal illness, it would be necessary to understand the cause of the illness – hence the book’s title. Meanwhile, an understanding of causes could only come from a theory or philosophy of nature, of living bodies, or, ultimately, of the “Nature of living organisms, and the studies [*Lehre*] it encompasses are therefore called natural studies [*Naturlehre*] (physiology of living organisms” (6).¹⁷ Theory and practice would then form a beneficial circle of reciprocal augmentation (28-29). Startlingly like Schelling’s *On the World-Soul* of the same year, as we will see below, Röschlaub presents a theory of the organism, *Organismus*,

¹⁶ Tsouyopoulos mentions the influence of Fichte on Röschlaub’s interpretation of Brown. *Andreas Röschlaub und die romantische Medizin* 112.

¹⁷ The parenthesis lacks a closure in the original.

as the center of a new kind of intellectual endeavor that seeks to establish a proper relationship between philosophy and empirical natural knowledge.

While Brown never used the words organization or organism, they are central to Röschlaub's understanding of life, health, and disease. In his *On the Influence of the Brownian Theory in the Practical Medicine* of 1798, he spells out these definitions.

... for the possibility of life two conditions are necessary, an outer, namely organization, and an inner, the life-principle, which Brown places in the excitability of the organism. Under organization we understand a particular mixture, form, a specific constitution [*Zusammenhang*] of bodies that are capable of life. The appropriate configuration of the organization..., as well as the appropriate degree of the life-principle (that is specified by this configuration of the organism) produce the health of the living body. (16)

Life here relies on an inner and outer condition of possibility. The outer condition or *Organisation* is not merely the structure of the body, the anatomy, but includes the relationship of the parts to each other (their constitution/*Zusammenhang*). The inner condition is a principle of life, namely its excitability, its ability to respond. This ability adheres to its *Organismus*. The organization and the organism form a polarity of external and internal. While the organization is subject to local illness through injury (17), the negative effects of an impaired life principle cause “allgemein” (18) or general illnesses of the whole organism that permeate the system. The organism is thus consistently identified with the general, universal operations of life. Directly following the description of these two distinct classifications of illness that divide the local organization from the universal organism, however, Röschlaub notes that a universal and a local disease can hit simultaneously so that both coexist in the same *organism*, suddenly expanding the term to cover both sides of the duality. The meaning of the term *organism* thus hangs suspended between the active, internal component of the individual life principle – its excitability – on the one hand, and the integration of this principle with its material body, its form, and its internal living functioning into a larger whole, on the other.

3. Karl Friedrich Kielmeyer's System of All Living Beings

For Röschlaub as for Brown, medicine encompassed questions of health and definitions of life not only for humans, but for all living beings. However, it focused on the treatment of human diseases and handled each human being as a distinct entity. The unified theory of life it promulgated

thus functioned analogously, but separately, for each individual living being. Karl Friedrich Kielmeyer, on the other hand, in the brief space of a single lecture in 1793, attempts a consolidation of the living world over time and space into a single system of forces. The lecture was a sensation, subsequently circulated even before its publication. In it, Kielmeyer postulated a generally inverse relationship between sensibility and irritability. The greatest sensibility and lowest level of irritability was to be found in the most complex organisms. As one descends in a series towards the simpler living beings, sensibility decreases while irritability increases. At a certain point, however, both activities recede and energy instead is spent on reproduction, manifested either in the generation of vast numbers of offspring, or in the ability to regenerate lost parts or to undergo metamorphoses of various kinds.¹⁸ One could conceive of this proportional relationship as a law of conservation of forces.

The sweep of Kielmeyer's project is ecological and evolutionary, both *avant la lettre*. Kielmeyer frames his task as the question: "how, namely, can a course of change [*Gang*] and persistence [*Bestand*] in this animated [*belebten*] nature be explained from the laws that concern changes in the relations of forces of organizations?" (my trans. 40). Alteration and continuity, becoming and being, *Gang* and *Bestand*, are necessary elements of a system that encompasses transformation over time and yet comprises at any given moment distinct individuals and distinguishable species.¹⁹ The system is neither homogenous nor chaotic, but rather maintains differentiation at discrete organizational levels.

As Kielmeyer's title indicates, it is not living beings in themselves, but rather the "Relations between Organic Forces" (29) that are the primary topic of his concern. The field in which Kielmeyer locates these forces, moreover, is the "Series [*Reihe*] of Different Organizations," i.e. the series of living beings.²⁰ Indeed, both the words *series* and *organization* are here ambiguous, as a series can exist in either space or time, and the specificity

¹⁸ Two additional forces make an appearance in the lecture, a force of secretion, which would include the assimilation of nourishment and other necessary elements from the external world alongside the elimination of waste, and a force of propulsion, the internal movements of the fluids and digestive organs, for example. Because Kielmeyer did not expand on these forces, other thinkers influenced by Kielmeyer tended to group them under one of the three theorized forces. See Zammito 259 for explanations of these forces.

¹⁹ Iain Hamilton Grant describes species for Kielmeyer as the medium through which "time becomes momentarily phenomenological" (134). Thomas Bach notes how extraordinary it is that Kielmeyer chooses as his overarching goal a question that historicizes living beings collectively (45-46). As Zammito notes, Kielmeyer historicized nature from an empirical, rather than metaphysical or eschatological, perspective (258).

²⁰ Kielmeyer quotations will be from Grant's translation unless otherwise noted.

of organization fluctuates between the individual and the species, all members of which share a common form and set of processes. Kiehmeyer's series of species inhabits the earth simultaneously, but his transformationist theory also posits that species develop one from the other over vast stretches of time. In order to arrange his series of beings over the scope of deep time into a grand system (although one, as we will see, that resists closure), Kiehmeyer depends on establishing ambiguities between individual and species. Just as the organs make up a system that constitutes the organism of an individual (as we will see below), individuals of a single species interact with each other so intimately, "that we should believe, according to our manner of speaking and representing, that nature had interwoven the nerves of an individual with those of the others into a web, and the impressions of one would be felt in the sensorium of the other" (30). The terms are not haphazardly given – sensibility, the prerogative of the nerves in Kiehmeyer as in Haller, is a self-directed function, through which impressions register internally, and hence ostensibly the least communal of all forces. Here, however, even sensibility is acknowledged to form interconnections between individuals and to unite a species not only in any given moment, but over time, from parent to offspring, into what "one may call the life of the species" (5).

Unlike Brown and Röschlaub, then, Kiehmeyer takes the species as his primary setting for forces, and he requires a longer temporality. Kiehmeyer begins his essay by drawing time quite explicitly into the consideration of living beings, whose organs are not only incorporated into a system in which they serve mutually as means and ends, as Kant had defined the living being in his *Critique of Judgment* of 1790, but also into one in which the organs themselves undergo continuous changes, which occur both simultaneously and in sequence (4):

Each of the living individuals, thus animated [*belebt*] by their organs, endures for a greater or lesser stretch of time, and, at each point in this course of time, the system of operations [*Wirkungen*] that we call its life, and the system of organs that constitute its organism, change, one emerging from the other as its cause. (30 [4], trans. mod.)

Kiehmeyer here parses the available words for living bodies, living forces, and living systems differently than Zedler had. For him, it is *life* itself that represents the system of operations or activities (for which the German word *Wirkungen* also means effects), while the living individual's *organism* is its system of organs, their interconnection and interactivity. Organism and life cause each other reciprocally. Both the system of operations and the

system of organs are dynamic, however interdependent each also is with the form of the living being; each remains in flux and they affect each other reciprocally as well as being affected in tandem. Kielmeyer binds the active organs of a single living being into a unit, unifies all individuals of a type into a species, and connects all living beings into one system that, like the individual, also participates in developmental temporality. We can see what a developmental system of forces looks like by turning to Kielmeyer's theory of recapitulation. Kielmeyer posits that embryos in their earliest form begin with the distribution of forces that characterizes the simplest life forms and then progress through the proportions that characterize more complex forms before arriving at the proportionality characteristic of their own species (36-38). In its focus on forces and hence the workings of life, this theory differs from Ernst Haeckel's more famous later account of ontogeny recapitulating phylogeny in which embryos manifest the *form* of simpler living beings in ascending sequence as they develop.

The principle for Kielmeyer here and throughout the essay is thus a physiological theory of compensation, both at the level of each force, and among forces at the level of individuals as representatives of species.²¹ Kielmeyer notes, for example, that the reproductive force can take various forms, such as growth, generation of offspring, metamorphosis, or regeneration. However, any given species must balance these options against each other. He then embeds this description in the larger system in which reproductivity as a whole is inversely proportional to sensibility. Sensibility allows more flexible and varied response to danger, a strategy that serves the same ultimate purpose as prolific generation or extraordinary healing abilities, namely, to prevent destruction from outpacing preservation, that is to pervert the life of the species (43).²² As Thomas Bach points out, Kielmeyer here offers "already a physiological interpretation... no longer established through the description of differences among living beings, but rather explained through the interrelationship of functions with respect to their self-constitution" (55). To the extent that the particular combination

²¹ See Gabrielle Bersier for an account of the various laws of compensation Kielmeyer sets out within each force, in relationship to the larger law of compensation that governs the relationship of the forces to each other (21-23).

²² For example, Kielmeyer gives an extraordinarily observant description of what would eventually come to be known as r and K survival strategies, by which simple species that require less investment during embryonic development propagate profusely, while formally complex species that require greater parental investment during embryonic development propagate sparsely (28-30). Kielmeyer is interested here in physical and physiological investment of offspring, while modern descriptions of r and K strategies also incorporate the energy spent raising offspring.

succeeds, we see “persistence in animated nature” (Kielmeyer 43 [41], trans. mod.), i.e. a species that endures for some period of time.

Kielmeyer’s assumption that such strategies are not always successful – that there have been species extinctions (43-44) foreshadows Darwinian natural selection without positing survival as an actual mechanism of change. As Joan Steigerwald notes, for Kielmeyer species are nature’s experiments (198). While Kielmeyer celebrates sensibility as “the best” and rarest of the forces (33), its effects highlight the contingency that characterizes nature for Kielmeyer. The abundance of sensibility in humans means that humans, alone of all living beings, have “obtained the capacity to freely alter (within certain limits) the relation of the other forces that it has in common with the other animals” (44). Intelligence, itself a function of sensibility, allows humans to increase sensory perception through tools like microscopes and telescopes, to increase mobility by harnessing faster animals, and generally to adapt to changing circumstances (44). The likely result, Kielmeyer speculates, is that humans will soon overwhelm the ability of other species to persevere and will drive some to extinction, if we have not done so already (44).

While Kielmeyer’s main point in this text is the proportional distribution of the forces of sensibility, irritability, and reproductive power among species, he also projects this law of compensation into two other dimensions, first, into human psychology, and second, outward into an expansive ecology. Kielmeyer ends his text with speculations about the intellectual development of the human species, and of each human individually, through a similar law of proportionality between forces. In spite of his language of a series, the path of development reveals itself here as non-unidirectional. The balance of mental capacities – sensitivity, fantasy, and rationality – should ensure that humans with varying personal strengths can achieve happiness in a variety of circumstances. And yet, he goes on, it is possible to suppress or to fail to develop any one of the human potentialities, leaving any given individual unable to achieve success in the particular circumstances of their life (45-46).

In addition to encompassing the interior life of humans, Kielmeyer throws out one more speculative gesture. Not only over time as a result of transformation, but also at any given moment, life on earth is interconnected in a vast and complex system of interactions, he observes:

Finally, the operations [*Wirkungen*] of the individuals of a species are linked together with the operations (to which they are so often opposed) of individuals of other species into a system of operations to

form the life of the great machine of the organic world. This machine also appears to be progressing along a path of development that we may best represent to ourselves through the image of a parabola [*Parabel*] that never circles in on itself. (30, trans. mod. [5])

Kielmeyer here imagines all life as a single dynamic unit.²³ The developmental path of the living world is a *Parabel*, a word that means both *parabola*, an open curve, and *parable*, an exemplary narrative through which we picture the natural world to our own reason. Rather than the circle long held to represent perfect plenitude, the elliptical revolution around a sun, the hyperbola's advance towards infinity, or a progressive straight line, Kielmeyer gives us an eye-brow-raising open-ended curve. The system itself thus neither gestures towards transcendence nor is it closed in the end; harmony does not reign. In the potential for extinction as in the human vulnerability to a lack of adaptive fit to a given environment, the absence of definitive closure in Kielmeyer's laws – their ultimate contingency – leaves humans as well as nature undefended against future shocks. As a parable, then, Kielmeyer's theory is not only a metaphorical narrative, but one that includes an important lesson, here a warning. Kielmeyer's natural world tumbles through a series of trials and errors in which imbalance is not generally visible only because it leads to destruction and disappears from our view. From this perspective, Kielmeyer's *Gang und Bestand*, transience and continuity, raises the specter of a fragile universe. Each living being, in which organism and life animate and cause each other, participates in a complex web of active relations with members of its own and other species. Meanwhile, it represents a single point both in a distributive field of possible relations of force and in the ongoing life of a species itself always in flux and always at risk.

4. Theories of the Organism: Schelling and Röschlaub, 1798

Schelling's indebtedness to Kielmeyer in his early works, *On the World-Soul: A Hypothesis of Higher Physics as an Explanation of the Universal Organism and First Outline of a System of the Philosophy of Nature* has never been in question, given Schelling's own description of Kielmeyer's lecture as "a speech which the coming age will doubtlessly consider the beginning of an epoch of an

²³ Bach notes the metaphoricality of the term "machine" to absolve Kielmeyer of a mechanistic worldview (107-108), but as Jocelyn Holland argues, the two were not opposed for Kielmeyer, who was willing to use concepts of mechanism and mechanics in his understanding of the organic ("Mechanics beyond the Machine in Kelmeyer and Eschenmayer").

entirely new history of nature” (Schelling *World-Soul*, VI.253, my trans.). Schelling was attracted to Kiehmeyer for a variety of reasons: for his focus on forces rather than material organization, for his integration of these forces into a system that allowed for increasing complexity and that functioned universally (at least among living beings), and finally, for his formulation of an issue of fundamental significance to Schelling, namely the coincidence and reciprocity of being and becoming. In *On the World-Soul*, Schelling takes up a similar task, and he does so by developing a new concept of the organism. Unlike Kiehmeyer, however, Schelling prefers circles to parabolas, and he extends his system to include the world itself.

If Kiehmeyer’s foundational question had to do with the co-existence of stability and alteration, Schelling’s goes beyond explaining phenomena, however broadly envisioned. As Marie-Luise Heuser notes, for Schelling the question driving *Naturphilosophie* is “‘How is nature possible?’: what necessary premises must we posit so that we can a priori see in its inner necessity that which we experience as nature” (17-18). Schelling begins the work of answering this question by tackling the definitions of *Mechanismus*, *Organismus*, and *Organisation* in the context of a “graduated sequence of stages of all organic beings” (VI.68) influenced by Kiehmeyer.²⁴ Like Leibniz and the author of Zedler’s encyclopedia entry on *organism*, Schelling denies the opposition of organism and mechanism. However, the difference between them for him far exceeds setting. Rather, organism disrupts and adjusts mechanism, which Schelling sees as a series of causes and effects, and hence an infinite process, but also a simple one. If dammed, however, the simple sequence of mechanism becomes an *organization* with its own complex *organism*.

Only where nature has not inhibited this stream, does it flow forward (in a straight line). Where nature has inhibited it, it turns back (in a circular line) into itself... this concept [of the organism] merely designates a succession, which *enclosed within certain limits* flows back into itself.²⁵

The world itself is such an organization and its organism is the resulting dynamic shape of its agitation; it is formed, self-directed churning. As he will explain later in the work, “*Organization and life* do not express anything **persisting in themselves** [*an sich Bestehendes*], but only a specific form of

²⁴ While I focus here on the *Organismus*, Leif Weatherby has discussed the *organ* as a device by which Schelling moves across the fields of science, metaphysics, and theology (173).

²⁵ VI.69 trans. mod. This and remaining translations from Schelling’s *World-Soul* are by David W. Wood in private correspondence unless otherwise noted.

being, that *joins in common several causes working together*” (VI.254; bold emphasis added). Adapting Kielmeyer’s reflection on *Gang* and *Bestand*, Schelling moves even further in the direction of dynamism. The living thing’s defining quality, as in the quote above, is the absence of *Bestand* in anything other than the process of change, indeed of disturbance: “The immediate goal of nature ... is only the process itself, is only the **persistent** [*beständige*] disturbance and restoration of the equilibrium of the negative principles in the body” (VI.203, bold emphasis mine). And yet, in his insistence that the stream of cause and effect does circle in on itself, Schelling creates a system less precarious than Kielmeyer’s. Schelling’s titular claim in this work, his bold hypothesis of the title, is that the world itself possesses such organism, consisting of a universal gyre of complex interactions, within which other, more individual organizations form their own organisms, their own eddies, “the *particular* [*einzelnen*] things in nature are *just many limitations* or *particular ways of looking at the general* [*allgemeinen*] *organism ... the organism is the principle of the things*” (VI.189). The organism is the principle of natural objects, itself not a thing, but a precondition for the existence of things.

Producing this particular concept of the organism allows Schelling to extend Kielmeyer’s apparatus in two ways. First, by integrating the inorganic into an active world, Schelling creates a unified field for knowledge and activity. Second, in this work, Schelling takes up Kielmeyer’s rhetorical challenge to improve upon language that Kielmeyer had described as a crutch, redefining what he referred to “with the makeshift word [*Behelfwort*] ‘forces’ [*Kräfte*], and with the names of different forces. As long as the differences between classes are not cancelled out by a higher understanding [*Witz*] and converted into similarities, then the following distinguishable...different forces, can be established for now” (Kielmeyer 32). Abandoning humility, Schelling answers this appeal to a higher understanding and makes of Kielmeyer’s three forces a unity in trinity, “branches of one and the same force” (Schelling, VI.252). It is only in the following year, in the *First Outline of a System of the Philosophy of Nature*, that Schelling will synthesize this universal system inspired by Kielmeyer with the individual system of forces he begins to adapt from Röschlaub’s understanding of John Brown. In the process, his understanding of organism will shift to take greater account of the boundaries between inner and outer.

While writing *On the World-Soul*, Schelling was already familiar with Brown's work through the 1796 translation by Christoph Heinrich Pfaff.²⁶ Unlike Brown's 1795 translator Weikard and 1806 translator Röschlaub, Pfaff was not an adherent, and he introduced Brown's work with a critical essay. Schelling's sharp criticism of Brown in *On the World-Soul* echoes two of Pfaff's objections. First, both complain that Brown oversimplifies, misusing Newton's famous *hypothesis non fingo* as an excuse (Pfaff, *John Brown's System der Heilkunde* xix-xxiv) or failing to recognize that forces like excitability are synthetic rather than simple (Schelling VI.196). Second, both view Brown's principle of life as thoroughly passive (Pfaff, *John Brown's System* xx; Schelling VI.196), rather than in fact "in every respect an effective, self-acting [*wirksame selbstthätige*] force" (Pfaff lxxxvii).

However, Pfaff was not the only one interpreting Brown for a German audience in 1798. Röschlaub's *Pathogenesis* appeared at the same time as Schelling's *On the World-Soul* and the two reveal remarkable similarities in the definition of the organism although in different contexts. As we saw above, Röschlaub is still not using the word *organism* to refer to a living being, but instead to a kind of arrangement. He is, however, only interested in such organisms when they are found in living beings. As a result, he confines his theory to "living organisms" or the "living organism" (*Pathogenesis* 6). The living organism can neither be equated with its anatomy, "that construction of its parts...that we call organization" (79) or its physiology [*Lebensverrichtungen*] (50), but represents a regulative disposition that interrupts a chain of cause and effect, just as for Schelling: "as long as the forces [*Kräfte*] of the individual elements operate on each other continuously with the same force [*Gewalt*]" and without disturbance, there can be no expression of activity (Röschlaub, *Pathogenesis* 266). The organism, however, mediates actively, causally, and self-directedly between external stimulus and living function. Physiology has its foundation in this organism (51).

The ability to disrupt and redirect the series of causes and effects is not a vitalistic force for Röschlaub, but rather the descriptive equivalent of life which inheres in matter: "We must therefore imagine the life-principle as a mere capacity of organic material to operate against [*entgegenzuwirken*] impressions from outside" (231). We see examples of this principle in the

²⁶ Schelling had learned about Brown from Pfaff in Leipzig when Pfaff was composing the translation in 1796. Pfaff spent a week visiting Schelling in early 1798 while Schelling was writing *On the World-Soul* and Pfaff the second edition of his translation. Pfaff familiarized Schelling with galvanic experiments (VI.6-8). Pfaff had also been an enthusiastic student of Kiemeyer's and promoted his theories. See Zammito 334, 255.

fact that the organism reacts with decreasing intensity to a stimulating drug over time, or is less reactive to light in the afternoon than upon waking up in the morning (282). Moreover, the body readjusts to its original degree of reactivity if a pause in the stimulus or incitement allows it to recover. The cause of the organism's excitement is therefore only indirectly the outside incitement; directly, the cause is excitability, the organism's own inherent ability to respond (280). Even injuries rarely exact only direct physical damage. A simple splinter causes inflammation whose impact outlasts the extraction of the original injuring cause. Excitability (*Erregbarkeit*) differs from simple irritability (*Reizbarkeit*) because of this "self-efficacy" (235); its "capacity...for self-operation, for action" (235). In other words, life only appears in deviation from smooth and immediate reactivity, which can be thought of as the indifference of non-living matter. Eventually, even the sober incitements of a well-regulated life will wear down the ability to moderate responses, and once the organism's excitability is fully exhausted, it returns to indifference and life ends (288).

Life unites two elements, the significant disruption of either of which amounts to a state of illness that will have repercussions for functionality, namely "a) an *outer*, the organization, b) an *inner*, the life-principle" (88). The entirety of the material body, i.e. the *Organisation* is here rendered external, while only the life principle, namely excitability, is internal. This life principle is both pervasive and undetectable to the senses except through its effects. As in his work on Brownian medicine discussed above, the dichotomy between inner and outer here can also be understood as that between the local and the universal or general (93). The position of Röschlaub's concept of the organism can be discerned from the possessive pronouns used with it. The human being possesses "my organism" (55); the living organism possesses "its living activities" (88). Organism as a concept here transitions from an abstract description of how processes unfold, as in Zedler, to a singular possession of an individual. In this form, the word begins to allow for a plural.²⁷ However, even "individual living organisms, i.e. that of the human being, of the horse, etc., the oak, the mosses, etc." (9) can still refer to a type, an arrangement common to all humans or all oaks, although unique to the species. The line between organism as a quality proper to a type, organism as the property of an individual, and organism as that individual itself remains indistinct throughout writings by Röschlaub and also in Schelling's work after 1798. The modern organism that emerges remains a kind of placeholder for

²⁷ Toepfer credits Schelling for the earliest usage in the plural in German (785, 795).

being, a suspension of characteristics that refuses definition as an object while allowing inquiry to progress.

Röschlaub integrates his theory of excitability as a principle of life into the long debate over a “universal world spirit” (101), tracing a history from the ancient world to his own time. Given Schelling’s equation of *world-soul* with a *universal organism* in that same year, one can hardly wonder at the immediate intellectual attraction between the two authors, which developed into a friendship and active collaboration before a later break, with Schelling eventually repudiating Röschlaub and Brown.²⁸ For Röschlaub and for Schelling, the organism in their works of 1798 is a site of interruption of simple mechanism. For Schelling, self-identity then results from the diversion of a running series of causes and effects that becomes knotted, that tarries, that remains temporarily stable. For Röschlaub, self-identity inheres in the regulation of reactions throughout a single sphere of activity. For both, the interruptions of mechanism are temporary and fragile; dissolution or death is synonymous with a point of indifference, the lost ability to hold mechanism in check, to turn it inward.²⁹

5. Schelling’s Unified Theory of the Organism

In April, 1799, Schelling published a fascinating review in the second volume of Röschlaub’s *Magazine for the Perfecting of Theoretical and Practical Medicine* that indicated an alteration in his view since *On the World-Soul*. Here, he defended Brown’s system against claims that it was purely mechanistic. Rather, Schelling insisted, the theory of excitability rested upon “something self-supporting [*Selbstständige*], that is presupposed by the exciting forces, and therefore is independent from them, founded, as it were, in a higher order, entirely outside the sphere in which it is possible to be affected without mediation [*unmittelbaren Affizirbarkeit*]” (II.2 257-258). This unnamed autonomous and higher source of excitability in living beings, which is its cause, Schelling goes on to suggest, can only find its grounding outside the experimental sphere in “the higher physics, which does not observe the phenomenon of life in so isolated a way as physiology, much less common medicine, has done up to now” and which might find that “the phenomenon of organic excitability was like that of electrical excitability and quite similarly had its final foundation in the dynamic order

²⁸ See Tsouyopoulos, “Der Streit” and Zammito 333-340.

²⁹ For reflections on sexual division as the primal manifestation of this inhibition of the *Indifferenzpunkt* for Schelling, see my “Sexual Division and the New Mythology” and also David Farrell Krell, 90-99.

of the universe” (259). Including inorganic nature in the inquiry and moving beyond the experimental to first principles, or the preconditions for differentiated existence, Schelling suggests, would elucidate the chain of reasoning that Brown presupposed but neglected to expand on. To fill these gaps, Schelling recommends his forthcoming “Outline of a System of the Philosophy of Nature” (261).

In fact, the challenge Röschlaub’s work issued to Schelling lay in the difficulty of conceptualizing organism beyond the living being, as Schelling had attempted in the previous year. In spite of Röschlaub’s care in restricting his discussion to *living organisms*, and thus leaving open the possibility of other forms of organism, he defines *organism* only with respect to life. Schelling saw in Röschlaub’s definition of the boundaries of the organism through function however, a way to theorize differentiation as such, and by abstracting the excitability of the organism to a universal level, a way to characterize more clearly the *world-soul* of his earlier work. Schelling extrapolates from Kielmeyer the notion of a series of beings that points to a theory of nature as a whole and from Röschlaub a mechanism for individuation. For Röschlaub, the living organism offers resistance to the mere stimulation of the outer world, and can be defined by the sphere of this activity. Schelling understands this activity of resistance not as a mere property of the boundary between objects, but as its generator:

It order that it not *be* assimilated, it must *assimilate*; in order that it not *be* organized, it must *organize*. In this act (of opposition) the internal divides itself from the external for it...Its RECEPTIVITY to the external is conditioned by its ACTIVITY against it. Only insofar as it strives against external nature can external nature act upon it as upon something internal. (*First Outline* 54, trans. mod. [VII.118])

At a minimal level, this resistance exists even for the inorganic world and explains how objects come to be in a world of becoming. The forces at work include repulsion and attraction, as well as chemical processes (57). Brown’s and Röschlaub’s excitability, which unites receptivity with activity, thus migrates from principle of life to a function of the universal organism, the world-soul. Merely because the same mechanism is at work at each level does not mean that Schelling’s system is one of lateral equality. Rather, nature as a whole manifests a “DYNAMIC GRADUATED SEQUENCE OF STAGES” (6) in which objects are not only varied, but organized into a series of ascending complexity. Nature is “one product that is inhibited at various stages” (6 trans. mod.). Unlike for Kielmeyer, however, the rungs in Schelling’s series are organized according to a systematic hierarchy of

complexity and not historically.³⁰ Just as each living organism encompasses a material organization, so must this higher organism – namely nature itself.

As complexity increases, so does the cost of maintaining difference. If all boundaries already entail resistance against indifference as a condition of existence, this oppositional force is still stronger for living beings. Already for Röschlaub and Brown, “we must think of life and every state of living functioning therefore also a priori as a forced state” (*Pathogenesis* 240), one that exists only through its excitability, its response to and against its surroundings. Kielmeyer sees this defensive activity much more concretely as a struggle to preserve life which “withstands each attempt to annihilate it” (43) against destructive depredations. Kielmeyer’s forces of destruction (43) refer not only to the inertia of inorganic indifference, as for Röschlaub and Schelling, but also other living beings such as predators and other external circumstances and situations. Schelling brings Kielmeyer’s forces of destruction back to Röschlaub’s first principles and intensifies them:

Life, where it comes into existence, comes against the will of external nature..., as it were, by a tearing-away from it. External nature will struggle against life; most external influences which one takes as life-promoting, are really destructive for life. (*First Outline* 62)

Schelling’s definition of the organism through its resistance to an external world poses a clear challenge to his positing of nature collectively as an organism. Where can this universal organism find its outside? Here again Röschlaub is useful for Schelling. Röschlaub has offered the glimpse of a solution by relegating the organization to the outer world, and theorizing only excitability itself as truly interior to the organism, which is then composed of both aspects.³¹ Schelling doubles the duality, so that the organism can be the world and still have an outside, an external world [*Außenwelt*] (112, VII.179), which is its own product. This coarser organism that mediates the influence of the external world, the “organism of the organism – ... would be the one that is continually reproduced through the excitement [*Erregung*] of the higher” (108, trans. mod. [VII.174]). Each organism can be perceived as dual, split between higher and lower. The organism is thus divided against itself, acting in its subjectivity as a force of differentiation which intervenes in the inertia of the organism as object, which is the outer world. As Gabriel Trop maintains, for Schelling “Individuated matter... is nothing but a manifestation of this

³⁰ For more on the connection between Schelling and Kielmeyer in the notion of a natural series, see Bach 276-279.

³¹ Both Röschlaub and Schelling are also influenced by Fichte here.

primordial frustration” (115). And yet here, Schelling acknowledges the threat of an infinite regress that he tries to evade through a Möbius strip, in which “the dynamic organization of the universe as an infinite *involution* (as presented in the previous division), where system within system is dynamically grasped [*begriffen*], is demonstrated to be necessary in a new respect” (112-113 trans. mod. [VII.179-180]).

In the process of this multiplication, *organism* takes on its most complex role, not only the mediator of force and matter, as for Röschlaub, but as the coincidence of object and subject in a dynamic that nonetheless prevents their collapse. To capture this principle, Schelling reaches back to the older physiological dichotomy of irritability and sensibility but, significantly, in the form in which it been expanded into a triad with the addition of reproductive force by Kiemeier.³² While Schelling both praises and summarizes Kiemeier (141-149), he makes this theory his own. Kiemeier’s three forces inhabit organism at least incipiently at all its levels for Schelling. Sensibility, however, unfolds itself only in the higher organism, the organism as subject, i.e. either the living being or nature as the universal organism of the universe: “only the inception of *sensibility* is the inception of life” (*First Outline* 114), it is “something reverting [*zurückgehendes*] into the subject of the organism, indeed, even first constituting the latter – in a word, that absolute-innermost element [*Absolut-Innerste*] of the organism itself” (114 trans. mod. [VII.182]). It is this Absolute, the subject, that is not accessible to senses, is not objective, and can only be deduced through its effects (114-115). It is easy to trace the association with sensibility, which Haller had also described as the source of experience for the individual living being, and yet as inaccessible to the observer except through its effects. According to Schelling, sensibility, as both inner experience and confrontation with the external world, as perception and yet not perceptible in itself, is thus duplicity itself, it “stands on the boundary of all empirical phenomena, and to its cause as the highest, everything in Nature is connected” (116 trans. mod).³³ Once again, the living organism gestures towards the universal organism, not just analogously as microcosm to macrocosm, but as joined by a shared cause and shared forces which become a single, triadic force. Excitability is the

³² Schelling is also building on Friedrich Blumenbach’s formative drive here and making this force the foundational one for existence, in the form of a *formative force* for the inorganic world and a *formative drive* for the organic world. For Schelling’s multiple influences, see Leif Weatherby 180-187.

³³ Cheung notes that Schelling has here grounded Brown’s stimulus-response mechanism in this duplicity, which converts excitability into a cause of life rather than natural product (*Organismen* 115).

umbrella term for this force, which consists of the operation of sensibility as a source of activity, that manifests itself in the sensory world in irritability, as part of a process of self-constitution and reproduction (172 [VII.218]). In this way and through a detour through Röschlaub, Schelling has fulfilled Kiehmeyer's gesture towards a grand, unified theory of a single force more fully than in *On the World-Soul*.

Returning then to the new role of the word *organism*, we see that it arises to fill a conceptual gap, not only as the mediator between force and form and between vitalism and mechanism, but as the carrier of identity in the absence of solidity, an identity created by the directedness of swirling motion itself. Organism conjures up temporary balance in order to produce itself at all as a product, and yet organism would cease to exist if this rest, this indifference became absolute (118). Schelling's theory of existence allows for Kiehmeyer's *Gang* and *Bestand*, change and persistence within a system of difference and identity resting under the descriptive term, organism, that resists determinacy.

6. Novalis and Living Language

In the years 1798-1799, Novalis was a student at the Mining Academy in Freiberg. His unpublished *Physicalische Fragmente* notebooks from the period refer to chemical and engineering material, but are also suffused with Brownian speculations.³⁴ Like Schelling, Novalis in these fragments appropriates those properties Brown and Röschlaub used to define living beings and expands their purview to include the inorganic.³⁵ While Schelling, however, is particularly focused on the way that Brown and Röschlaub enable the drawing of boundaries between inside and out, Novalis is more interested in the inextricability of the natural object – living or not – with its surroundings, indeed with its permeability and resulting state of flux. While Brownian language makes an appearance in several of the texts he worked on in these two years, both published and unpublished, I will suggest at the conclusion of this article that one text without such

³⁴ See Neubauer on Novalis's familiarity with Brown from at least 1797 (45), Röschlaub in 1798 (104), and Kiehmeyer at an indefinite point (22). He also read and commented on Schelling's works in the notebooks.

³⁵ Novalis not only applies the concept of the stimulus (*Reiz*) to the inorganic ("Physicalische Fragmente" III.73), but also speculates about oxygen as nourishment for which metals have an appetite, and which they eat (III.82). Nonetheless, he locates a major distinction between living and non-living objects in the absence or presence of entrails, which lead to different constitutions in relationship to internality-externality (III.86).

obvious references is nonetheless deeply responsive to Brownian theory, namely *The Novices at Sais*.

Novalis' decision not to focus on the word *organism*, as Schelling and Röschlaub had at this same moment, is instructive.³⁶ While I have argued here that the term organism itself serves to designate a dynamism rather than a definite object, the world would seem to indicate a drive to concretize such dynamism, or a need to supply such an object. However open the organism remained to the workings of forces and the interactivity with an outer world, however alert to paradox and suspended oppositions in both of their works, the tendency of the concept towards boundary-setting remained too restrictive for Novalis. He carries the thought experiment to its logical extreme, theorizing a liminal cohesiveness of objects that remain radically open to stimuli with dynamic interactions. Moreover, he draws out an association with language already latent in the frequent appearance of the word *Ausdruck* or expression to refer to the organism's response to stimuli in Brownian texts.

To understand the connection between language and life, we need to look first at Novalis's own language in adapting Brown, and how it differed from that of Schelling, Röschlaub, and the translators:

We call the body dead – which is merely the conductor of solicitation – which solicitation does not awaken. The absolute non-conductor of solicitation can be called dead in turn. So we see that sensible life is in itself a halfway-condition. We discover here at the same time...that life and death are relative concepts. (III.92)

If health and illness were already relative for Brown, Novalis takes this concept to a new level. Life is an ambiguous circumstance in which the body receives a solicitation or call and conducts or transmits it, but only imperfectly, neither reacting merely according to physical laws nor failing entirely to interact with it. The word *Leiter* or conductor reflects his

³⁶ Novalis does occasionally use the word, generally in order to bring together body and soul, the processes of living bodies with those of philosophy, or inner and outer. For example, in the *Allgemeinen Broullion* (#655), he notes “Only organic philosophism, or the philosophical organism, is the subject of medical algebra or analysis. (Brown has attempted to present its fundamental principles)” (121 trans. mod. See also #702). Novalis did frequently use the word *Organ* and related words such as *Instrument* and *Werkzeug* in his writings on life and mind. See in particular, Weatherby (206-250) on Novalis's *organology*, through which he blends “novelistic self-construal, regulatory and technical understanding, and interest in statecraft” (215), and Holland, *German Romanticism and Science* 85-112 and *The Lever as an Instrument of Reason* (71-86), in which she notes Novalis's turn towards forces (80) and his understanding of motion as a result of their interplay, even in unaccompanied by change of physical location (78).

merging of Brownian concepts with theories of electricity (III.80). But solicitation comes from a legal framework (as in the English word solicitor) or one of anxiety and appeal (as in the English formulation solicitous). Associating life principally with the sensible, while not unique to Novalis, further emphasizes experiential sensitivity. The juxtaposition of conduction and solicitation strengthens the connection between organic and inorganic implicit in the potential for bidirectional transmission of both. One might think that the ideal condition of the living body would be an attitude both receptive and responsive, positioned halfway between the two disquieting forms of death. And yet, in another formulation, Novalis posits a seemingly harder line of defense against intrusion of the external that then slowly dissolves, claiming:

Health is: the ability to repulse the foreign... That which is healthy is a conductor of stimulus. That which is *more, than healthy* – a non-conductor of stimulus (conductor – non-conductor, female – male.)³⁷ Shouldn't there be in this regard another more accurate *construction figure* [*Constructionsfigur*]? Where, for example, health would be presented as a force of repulsion and illness as a force of attraction condensed together in specific quantities... The actual health would then consist [*bestände*] merely in the consistency in reduction [*gleichbleibenden Verminderung*] of both – and would be nothing other than the original individual relationship (constitutional [relationship]) of the forces that were condensed together... one should be the force of intention – the other the force of extension... (III.80)

This torrent of shifting associations with health and sickness is interrupted by the self-conscious staging of helplessness in the face of linguistic framing, a solicitation of empathy for the difficulty of explaining indistinct phenomena. In this passage, health is a moving target, first identified as the ability to repulse the foreign, then as the attribute of conductivity for an external stimulus after all, but only when re-evaluated as inferior to something *more than health* which would resist such conduction. When the connection between health and repulsion is reiterated, it is quickly subjected to yet another correction, in which repulsive and attractive forces exist in a balance particular to a given individual. Finally, repulsion and attraction are tentatively reframed as intention in relation to extension, terms that allude both to occupying space and to interior will, while sustaining the tension between them. Questions and subjunctives abound in

³⁷ Analyzing sexual differentiation in Novalis lies outside the scope of the present sketch. David Krell focuses on sex in Novalis's thinking in *Contagion*, and Jocelyn Holland in *German Romanticism and Science* 56-84.

this ricocheting volley, as well as ambiguous phrases with the grammar of questions though lacking its punctuation. What emerges from this apparent chaos is the idea of a flexible relationship to a spectrum of health and illness that privileges oscillation between a defensive and an open stance towards external influences, while simultaneously registering expansion or externalization into an outer world. The self, the subject, the individual is here neither given nor fixed but emerges from an accrual of assertion that occurs beneath a border of perceptibility, until it reaches an I-point [*Ichpunkt*] at which I-ness [*Ichheit*] could be said to materialize (III.78).

Novalis gives us a concrete example of how this interchange might work in a particular experience. Absolute light, Novalis claims, is never visible (III.96). Rather, a sense organ, an eye, responds to a stimulus of light through resistance to it. When the stimulus prevails, there is an experience of light; an equilibrium between stimulus and organ produces the more nuanced experience of day; when the eye, the sense organ, prevails, dusk or night is the experiential result: “light stimulus and eye are here *mixed* and One” (III.96). The result of the amalgam of stimulus and sense organ belongs neither strictly to the perceiver nor to the world. It is instead a transmission in which both participate: eating light, the eye excretes visible things (III.96). As a result, “sensible light in shining [is] a sign that the Doubled substance that has now been generated has enough energy to excite other bodies – or even indeed to overwhelm and infect” (III.97). Novalis envisions experience as a transmission that can be characterized as nourishment and excretion, as a language of signs, as the production of offspring (*erzeugte*), and also as contagion which may be further transmitted by the perceiver in one or another form. Novalis’s understanding of transmission as communication, in both the sense of contagion and language, radically opens the boundaries of bodies and minds, rendering them both flexible and vulnerable, as David Farrell Krell has analyzed in depth.³⁸

While a reading of Novalis’s extraordinarily complex, unfinished novel, *The Novices at Sais* lies outside the scope of this article, I want to suggest here at my conclusion that the very texture of the novel fragment incorporates Novalis’s interest in exteriorizing and interiorizing, in touching, meeting, and sharing. This communal understanding of the boundary-drawing of objects and subjects belongs in conversation with Brown, Röschlaub, Kielmeyer, and Schelling. Novalis’s entire fragment is

³⁸ Krell traces this connection between sexuality, speech, excrement, and contagion in Novalis’s notebooks (29-69). Verena Anna Lukas has also analyzed language as both speech and text as a form of *incitement* for Novalis. See also Uerlings 382-386.

composed of juxtaposed voices and perceptions of voices. Rather than interpreting the voices and the perceptions as belonging to unnamed, but discrete, characters (speakers and listeners), I would suggest understanding the fragment's structure as focused on the flow of stimuli in the form of expression, out of which figures materialize and dematerialize. These eddies in which the flow becomes temporarily "*verdichtet*" (I.79) – either thickened or poetically composed – do not receive names, but they do have paths and directions. The fragment's methodology, I would suggest, is laid out in its famous opening passage:

Various are the paths that humans travel. Whoever pursues and compares them will see fantastical figures emerge; figures that seem to belong to that great cipher script that we glimpse everywhere, in wings, in eggshells, in clouds, in snow, in crystals and formations of stone, on freezing waters, in the interior and exterior of mountains, of plants, of animals, and of humans, in the lights of heaven, on discs of pitch and glass scored or touched,³⁹ in the iron filings around a magnet, and in strange conjunctions of chance. We suspect in them the key to this miraculous script, its linguistic teachings, only the suspicion refuses to acquiesce to any fixed form and seems unwilling to become a higher key. (I.79)

This novel follows and compares the manifold paths of humans declared in the opening sentence, and both observes and reveals figures in their traces that give the impression of being readable and interpretable.⁴⁰ However, there is no key. Nature's expression is not a code or set of signifiers, but is composed of multiple forms of assertion, effects of objects' responsiveness to the exterior world through internal mediation that absorbs with changes and also repels.⁴¹ As in Schelling, patterns gesture towards the invisible presence of sensibility, of spirit inhering in the world as a whole. Unlike Schelling, however, Novalis focuses on the way that each object, living or not, calls to each other; there is outreach and there is response. Even if

³⁹ Novalis is likely referring to electrical experiments originally performed by Georg Christoph Lichtenberg in which patterns that came to be known as Lichtenberg-Figuren were produced on plates of varying materials.

⁴⁰ Bergengruen (61-63), Theisen (248), and Uehrlings (387-390) also discuss the bi-directionality of this passage.

⁴¹ Because Novalis's engagement with nature, with its examination, and with language in *The Novices* is quite evident, many valuable interpretations of the fragment from this perspective are available. My own reading intervenes here in contextualizing processes of interiorization and exteriorization and including the fragment itself as one such expression. For relevant readings of language and nature in *The Novices*, see in particular Bianca Theisen, Maximilian Bergengruen, Herbert Uehrlings, and Gabriele Rommel.

deciphering is the wrong approach, the ushering of the solicitation and its reception are meaningful.

One might note that human language is not included in the list cited above, so that language might be thought to work in more explicit, if also more mediated ways. It is notable, however, that speech is bound up with the comings and goings of figures in the novel, with their literal paths or *Wege*.⁴² Language occurs at a higher level of consciousness than the patterns of crystal, wings, or the intricacies of living bodies, but it is a similar activity. *The Novices* itself must then be understood as what Novalis calls in *Pollen*, in one of his few uses of the word *organism*, “stimulation [*Incitament*] of the organism” (*Philosophical Writings* 25, trans. mod. [II.418]).⁴³ The novel functions, as the *Pollen* fragment suggests, as nourishment to develop the germ which is already within. In this case, however, it makes sense to read the sequentially following aphorism as linked to this one: “The seat of the soul is the point where the inner and the outer worlds touch. Wherever they permeate each other – it is there at every point of permeation” (26, trans. mod. [II.418]). While the image of the pre-existing germ may close the individual, the interpenetration of inner and outer world immediately re-opens it. For Novalis, the soul is not a unique, divinely individuated property, nor is it a principally differentiating life-principle, but it is rather a vehicle of communicative interaction. This partial saturation of internal and external worlds does not annihilate the differentiation of objects – living or not – for Novalis, but does preclude their static identity.

What I hope to have traced in this article is the circulation and alighting of a concept that was generally given the name *organism*, namely the figure of a problem or paradox consisting in the coincidence of *Gang* and *Bestand* in the natural world in the last years of the eighteenth century, at the origin of biology. For a brief period during which the term came into common usage for the first time, it resisted reification and made space for complex philosophical speculation about the differentiated nature of existence, of life, process, boundaries, and community in time.

⁴² Dalia Nassar posits that the novel traces inward and outwards paths between nature and the moral self (49-52).

⁴³ These two fragments appear both in the published version of *Pollen* and in the handwritten collection. I have taken the English from a translation of the handwritten set, also called *Miscellaneous Observations*.

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