PRODUCTIVE INTUITION OF AN ORGANISM'S VITAL FORCE IN GOETHE AND STEINER

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CONTENT

Abstract

This paper investigates the epistemological problem of understanding the formative principles of living organisms, proposing that such knowledge requires a non-discursive mode of cognition. Revisiting the philosophies of Johann Wolfgang von Goethe and Rudolf Steiner, the study explores an alternative method of understanding life—not through mechanistic models or speculative vitalism, but through what is termed "intellectual intuition." It is demonstrated how Goethe's concept of the *Urpflanze* and Steiner's interpretation enable a mental reconstruction of organic development as a lawful, self-generating process. Drawing parallels with Fichte's notion of self-awareness through productive cognition, the paper argues that organisms can be known through a productive act of thinking in which the generative principle of life is intellectually intuited. This yields a scientifically grounded, though non-empirical, mode of "empirical vitalism," in which the organism's entelechy—its vital laws and force—can be observed through active, intuitive cognition. The study suggests that such a methodology could offer a viable epistemic and metaphysical framework to overcome the limitations of both reductionist biology and speculative vitalism.

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Organicism; Vitalism; Goethean Science; Urpflanze; Immanuel Kant; Johann Gottlieb Fichte; Intuitive Understanding; Intellectual Intuition

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1. *Introduction – the riddle of the organism and its epistemological root*

Is it possible to gain direct insight into the force and laws that animate and shape a living organism? Such insight might hold the key to resolving the old and enduring question of how organic life can be understood—for although we ourselves are living beings and know life, as it were, "from within," the nature of the living organism continues to elude clear scientific explanation. For some time, it was thought that the synthesis of genetics and Darwinism had resolved the issue. Yet it is becoming increasingly evident that this mechanistic framework is insufficient to explain life, for both the existence and function of genes, as well as the process of organismal variation and natural selection, presuppose the living organism rather than account for its origin or nature (Noble and Noble 2023; Woese 2004).

Vitalism, by contrast, which posits the existence of a specific, non-physical force that animates and structures living beings (Bechtel and Richardson 1998), has long suffered from a notoriously poor reputation (Chen 2024). On one hand, it stands at odds with the prevailing physicalist worldview; on the other, it is dismissed as subjective and anthropocentric. Critics argue that it "virtually leaves the realm of science by falling back on an unknown and presumably unknowable factor" (Mayr 1982, 52) and merely replaces one mystery with another, offering alternative labels for life phenomena without elucidating the precise nature of the vital force and laws it invokes (Nicholson and Gawne 2015, 354–60).

Even the so-called "organicism"—advanced by many philosophers as an alternative to reductionist mechanism and postulated vitalism (cf., e.g., Baedke 2019; Gilbert and Sarkar 2000; Nicholson 2014)—tends more to describe life than to explain it. Although organicist concepts such as holistic organisation, autopoiesis, teleology, adaptivity, autonomy, and agency (Di Paolo 2005; Moreno and Mossio 2015; Mossio 2024; Rosslenbroich 2023; Švorcová 2024; Walsh 2008) provide a more realistic portrayal of organisms than the metaphor of genetically programmed survival machine or vague notions of entelechy, they do not explain how the existence of such entities can be reconciled with a physicalist worldview. Thus, even in an organicist perspective, the ontological status of organisms remains problematic (Wolfe 2010, 2024).

Gertrudis van de Vijver and Levi Haeck have recently drawn attention to the epistemological dimension of the organism problem—namely, the interplay between sensual experience and logical thought. They argue that the contribution of thinking to scientific knowledge is often overlooked, as natural scientists tend to be more concerned with their results than with a reflection on the nature of knowledge itself. However, they contend that "the workings of the 'logical realm' (…) become manifest first and foremost where something resists the investigatory procedures pertaining to natural science" (Van de Vijver and Haeck 2024, 60). Thus,

> "[i]n relation to the living organism, the conceptual space itself comes under pressure and cannot but change gear, moving from 'knowledge about the object' to 'knowledge about knowledge.' The attention to the organism appears to be the point where the conceptual space is compelled to investigate its own structural procedures and dynamics—i.e., where it is compelled to fold back onto itself" (Van de Vijver and Haeck 2024, 61).

One might therefore ask why living organism pose a problem to the understanding at all. Can they be apprehended under the same conditions as non-living entities? If so, why then does the knowledge of organisms remain so problematic? If not, might there be an alternative mode of knowing that could resolve the issue?

The very heart of this epistemological question was already analysed by Immanuel Kant in the *Critique of Judgment* (Kant 2008), where he explored the conditions under which we come to know an organism at all. Kant argued that like we must ascribe the generation of a regular hexagon drawn in the sand to purposive human action—guided by a "unity of principle (...) that only reason can give and compare the object with" (Kant 2008, 370)—we are necessarily compelled to judge an organism according to the concepts of holistic organisation, purposiveness, and self-generation. Without these concepts, the organism would be utterly unintelligible to us. Yet, due to the discursive mode of thinking—which, according to Kant, is the only mode available to us—we can conceive of the generation of a material whole only through the aggregation of its parts (Kant 2008, 408), but are unable to account for how the parts might be determined

by the whole, or, respectively, how a process could be directed by its end. Such concepts operate in the human creation of artifacts but not in nature, for "we do not take [nature] to be an intelligent being" (Kant 2008, 359).[1]

Kant concluded that the concepts of holistic organisation, teleology, and self-generation cannot truly account for the nature of organisms but serve only as heuristic tools to aid our understanding. Yet might there not exist an alternative, non-discursive mode of cognition which makes possible the empirical determination of the formative laws and force operative within living beings? Such insight could disarm the arguments traditionally raised against vitalism and open a path toward a scientific resolution of the problem of the living organism.

Kant maintained that only a science whose laws are constructed purely in thought ("in inner intuition") and subsequently validated in outer perception could be deemed a "proper science" (Van den Berg 2014). Might it not then be conceivable that a science of the organic could similarly formulate the force and laws of life through inner intuition and apply them to the understanding of living phenomena? Just as physical and chemical processes are explained by forces and laws which are intuitively intelligible in mechanistic and mathematical terms, so too might an intuitive—albeit non-mechanistic and non-mathematical—apprehension of a vital force and vital laws and their empirical confirmation give rise to a genuine science of the living.

Kant referred to such hypothetical form of knowing an organism as "intuitive understanding" (Kant 2008, 406), though he denied it to human beings. Yet, such a mode of cognition was, in fact, developed by Johann Wolfgang von Goethe with respect to cognition of developing plants (Goethe 1987, 109–52; Goethe 1987, 447–48), and was later elucidated by the Austrian philosopher Rudolf Steiner (Steiner 2010; cf. Hueck 2025d).

In what follows, I examine Steiner's interpretation of Goethe's intuitive approach. Section 2 offers a brief introduction to Goethe's epistemology. Section 3 outlines Goethe's intuitive grasp of the plant and presents Steiner's interpretation of it. In section 4, I argue that the perception of an organic force and organic laws must be inherently productive. In Section 5, I explore how the vital force of the organism may be apprehended through a mode of cognition which was described by Johann Gottlieb Fichte and has been termed intellectual intuition. I argue that while Fichte used intellectual intuition in self-perception of the "I," it can likewise be applied to cognition of the vital principle of the organism. Section 6 elaborates on the concept of "living ideas," which, according to Steiner, are essential for the cognition of an organism. Section 7 considers how the approach developed here relates to vitalism and how it may open a path toward resolving the riddle of the organism.

Although I focus on Goethe and Steiner, my approach is not historical but systematic, addressing the problem of cognising organic life. And although there is an extensive body of literature on Goethe's intuitive morphology (cf., e.g., Brady 1987; Califano 2020; Hindrichs 2011; Holland 2006; Lambrecht 1956; Maatsch 2012; Mensch 2009; Petteni 2022; Pfau 2010; Portmann 1987; Troll and Wolf 1940; Weatherby 2014; Ziguras 2014), I focus specifically on Steiner's interpretation, because it offers a concrete explanation of how the effective formative force and laws of an organism may be intuitively known.[2]

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[1] Kant focused his analysis on teleology, self-generation, and holistic organisation, but his argument also applies to other "organicist" concepts like adaptivity, autonomy, and agency (cf. Bich 2012). For those concepts, Kant's dictum applies that "natural science (…) requires determining, and not merely reflective, principles for the purpose of assigning objective grounds of natural effects. (…) The exposition of the ends pursued by nature in its products (…) belongs strictly speaking only to a description of nature that follows a particular guiding thread. Here reason does fine work (…), [b]ut it gives no information whatever as to *the origin and intrinsic possibility of these forms*. Yet this is what specially concerns the theoretical science of nature" (Kant 2008, 417; emphasis added).

[2] Rudolf Steiner (1861-1925) is primarily known for his Anthroposophy but was also a philosopher and one of the earliest editors of Goethe's scientific writings. In 1882, being a student of natural sciences at the Technische Hochschule in Vienna, Steiner was recommended to serve as editor of Goethe's scientific works for the monumental *Deutsche National-Litteratur* series, edited by Joseph Kürschner. Steiner edited four volumes of Goethe's *Natural Scientific Writings*, each with an extensive introduction (CW 1; Steiner 2010). Further reflections on Goethe's science are

2. *Goethe's alternative approach – seeing the organism with the "mind's eye"*

Kant's analysis in the *Critique of Judgment* suggests that the problem of the organism cannot be resolved through the classical, objectifying methods of natural science, which exclude the knowing subject. Instead, it appears essential not only to examine the object of inquiry but also to account for the cognising subject and its mental faculties. For since it is precisely these faculties that render the organism problematic to our understanding, the key to a solution may lie in an alternative mode of cognition (cf. Hueck 2025a).[3]

Goethe himself was highly aware of his mental processes involved in researching natural phenomena. His morphological writings are natural scientific studies, but also epistemological descriptions of a living mode of engagement with animate nature. For example, he wrote in his classical treatise on *The Metamorphosis of Plants*:

> „And so we *have followed nature as carefully as possible* in its steps; we have *accompanied* the external form of the plant in all its transformations, from its development from the seed to its new formation, and *without presuming to discover the first driving forces* of natural effects, we *have directed our attention* to the manifestation of the forces by which the plant gradually transforms one and the same organ" (Goethe 1965, 46; emphasis added).[4]

Goethe's epistemic self-awareness is particularly obvious in his account of the first conversation with Friedrich Schiller. In July 1794, after attending a botanical lecture, Schiller expressed dissatisfaction with a "fragmented approach to nature," prompting Goethe's reply that "surely there must be another approach—one that portrays nature not separately and in isolated parts, but represents it as effective and living, striving from the whole into the parts" (Goethe 1987, 436). Goethe then outlined his conception of the "primordial plant" (*Urpflanze*), claiming that it "arises from experience." Schiller, however, objected that the Urpflanze was not an experience, but an idea, to which Goethe famously replied: "It can be very dear to me that I have ideas without knowing it, and even see them with eyes" (Goethe 1987, 437).[5]

Goethe's report, written in 1817, clearly alludes to Kant's *Critique of Judgment*, with which he was deeply engaged at that time.[6] As mentioned above, Kant had asserted precisely the opposite of Goethe's view: that we are fundamentally incapable of grasping nature as "effective and living, striving from the whole into the parts."[7] Goethe's notion that one can "*see* the idea of the plant with one's eyes" thus strikes at the heart of Kant's argument and touches the core of the epistemological problem of understanding an organism.

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contained in Steiner's monographs *Outlines of an Epistemology of Goethe's Worldview* (Steiner 2008), *Goethe's Worldview* (Steiner 1994), in several essays on Goethe's approach to nature (Steiner 1989a, 1989b, 1989c, 1989d, 1989e), in his *Autobiography* (Steiner 2006), and in many of his lectures. Steiner's works are edited in the *Rudolf Steiner Gesamtausgabe* (complete works, GA in German, CW in English). He gave more than 6200 lectures, approximately 4500 of which were transcribed, 3700 from co-stenographs. Online translations of most of Steiner's books and lectures can be found under https://rsarchive.org/. For a growing collection of Steiner's quotes on Goethe's natural science, see https://publish.obsidian.md/steiner-goetheanism. Except for quotes from CW 1 (Steiner 2010), other translations of Steiner's texts cited here are my own.

[3] According to Kant, even physical objects can be recognised as such only by virtue of specific mental faculties (Meer 2018). However, the mental contribution of the subject is not taken into account in the knowledge produced by physics and chemistry, whereas in the inquiry into life, it is precisely the consideration of the mental component that proves essential.

[4] Translations of Goethe are my own.

[5] It appears that Goethe's rendering is not a verbatim report but rather crafted to convey "both the essential and the symbolic character of the encounter" (Gerhard 1940). Indeed, the conversation appears profoundly significant, for at its heart lies one of the most fundamental questions of epistemology: the relationship between experience and idea—or, as Goethe himself put it, the "greatest contest, perhaps never fully to be resolved, between object and subject."

[6] Cf. his diary entries from April 1–3, May 27, and May 30, 1817 (Goethe 2004, 976, 01.04.1817; WA III, 6:29; Goethe 2004, 987, 27.05.1817; WA III, 6:52).

[7] According to Kant, "the very peculiarity of our understanding (…) prevents this being done in such a way that the whole contains the source of the possibility of the nexus of the parts. This would be self-contradictory in knowledge of the discursive type" (Kant 2008, 407).

How, then, is such "seeing with the mind's eye" possible, and what exactly is apprehended through it?

3. Reconstructing the organism in "inner intuition"

In contrast to Kant, Goethe did not seek to understand the organism through abstract concepts such as "teleology," or "wholeness," but through ideas that could be vividly imagined. He described the various organs of an annual flowering plant as metamorphoses of the "leaf," which, however, was not a designation for a physical organ, but rather the idea of a fundamental principle that appears in metamorphoses in different parts of the plant—seed, cotyledons, stem leaves, calyx, corolla, generative organs, and fruit (Goy 2019).[8]

The development of this basic organ unfolds in three cycles of expansion and contraction: from seed to stem leaves and to calyx; from calyx to petals, stamens and pistil; and from ovary to fruit and to seeds again. Along the growing stem, expansion and contraction occur successively; in the flower, adjacent and simultaneously; and in the fruit and seeds, the expanded and the contracted state are nested (Voigt 1817, 440–41). Thus, the progression follows an inherent spatio-temporal logic, according to which no further step in this sequence is possible, and so the cycle begins anew.

With this insight, Goethe had discovered a universal principle, which he called the "primordial plant" [*Urpflanze*], enabling him to mentally construct the plant's organs and their development:

> "The archetypal plant will become the most wondrous creature in the world, for which nature herself will envy me. With this model and the key to it, one can then invent plants ad infinitum that must be consistent, that is to say, they may not actually exist, but they could exist and are not mere pictorial or poetic shadows and illusions, but have an inner truth and necessity" (Goethe 1993, 346).

Eckart Förster, in his seminal work *The Twenty-Five Years of Philosophy*, interpreted this notion to mean that the idea of the "Urpflanze" comprises two elements: the *model* (the "transcendental leaf") and the *key to it* (the spatio-temporal logic of threefold expansion and contraction with progression). Förster proposed that the "leaf" may be seen as a "constructive element," while expansion and contraction with progression are the "constructive rule," by which the Urpflanze can be mentally recreated—and even new plants imagined.

Thus, with the constructive element and the corresponding rule, one can mentally construct the plant by envisioning its metamorphic unfolding in imagination. To be sure, this visualisation is not a mere reproduction of external observations, but rather an inner, spontaneous, and intuitive act in which both the generative element and the dynamic rule are as clearly grasped as geometrical concepts.

Steiner regarded this mental reconstruction of an organism's structure and development as the core of Goethe's approach to organic nature. Already in his first text on Goethe's natural science, the *Introductions to Goethe's Natural Scientific Writings* (1884), he wrote that

> "[w]hat is significant in the metamorphosis of plants (…) is the magnificent thought structure of a living whole consisting of mutually interpenetrating, formative principles. This dynamic thought structure (…) determines out of itself the details and individual stages of plant development. The greatness of this idea (…) dawns on us only when we try to bring it to life in our own mind and attempt to rethink it. That is when we become aware of how this thought is the very nature of the plant itself, translated into the form of an *idea*, and living in our mind just as it lives in the object" (Steiner 2010, 3).

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[8] Goethe also referred to this concept of the leaf as a "transcendental primary concept" [*transzendenteller Hauptbegriff*] (Goethe 1987, 91). The botanist Andreas Suchantke interpreted Goethe's "leaf" as the idea of a living surface, through which—in interaction with sunlight, air, and water—a dynamic exchange and transformation of substances occurs (Suchantke 1983).

Thus, Steiner claimed that Goethe's idea of plant metamorphosis, when "brought to life in our mind," achieves both an understanding of how an organic whole can determine its parts, i.e., its formative *law*, and an insight into the self-generation life of the organism, i.e., its formative *force*.

Later, Steiner elucidated that he understood Goethe's method as scientifically explanatory, since it constructs this principle in a rational way and then re-discovers it in nature. In this sense, it could even be seen as equivalent to Kant's gold standard of "proper science"—namely, mechanistic explanation:

> "[M]echanics satisfies the desire for understanding because it generates concepts in the human mind in a rational way, which it then finds realised in the sensory experience of the inanimate. Goethe stood before me as the founder of an organic science that relates to the animate in the same way" (Steiner 1982, 113).

Goethe's method mentally constructs the principle of a living organism with the same clarity and coherence with which mechanical (e.g., geometrical) concepts are constructed in the mind. Correspondingly, Förster wrote: "This we could call a construction of the plant in inner intuition, whose governing law can be re-discovered in outer intuition" (Förster 2012, 274).[9] However, even if it becomes possible to understand an organism's formation by mentally generating it from a constructive element (Goethe's "model") and a constructive rule (Goethe's "key to it"), a central question remains unanswered: *can we understand the actual force that generates the organism*? In case of a mechanistic device, the constructor's action needs to be taken into account in order to explain its existence. So, is it possible to apprehend an organism's real, formative force—that is, its inherent vitality and self-generating agency?

4. *Organic intuition as productive apprehension*

Inner, intuitive construction of a plant's development relies on the spontaneous activity of the cognising subject. For Steiner, this activity represents the most significant element of Goethe's approach to the organism, because through it—and within it—we "become aware that this thought is the very nature of the plant itself, translated into the form of an idea, and *living in our mind just as it lives in the object*" (Steiner 2010, 3). Here, Steiner related our own mentally productive activity to the plant's self-production. To fully appreciate the significance of this approach, one must distinguish between the cognition of inorganic and organic beings. Steiner explained, that

> "[k]nowledge of inorganic nature is based on the possibility of comprehending the external world through the senses and expressing its interactions through concepts. (…) *What* we wish to know is an external perception; the concept, or combining unity, is merely a means" (Steiner 2010, 50).

We perceive, for example, that the hands of a clock start to move after the spring has been wound, and we link these perceptions through the concept of causality. The concept itself is an empty form that derives its content from sensory observation of the clock's parts and their specific assembly and interactions. Such mode of cognition, however, is not sufficient to grasp the nature of an organic being. For in an organism, the different parts, which are perceived through the senses, cannot be linked by the concept of causality:

> "It is not the form of the root that determines that of the stem, and not the form of the stem that determines that of the leaves, and so on. All of these forms are determined instead by something that exists above them and whose form is inaccessible to the senses. The perceptible elements exist for one another, but not as a result of one another. They are not mutually determined by one another but by something else. Here what we perceive with our senses cannot be reduced to other sensorial factors; we must include in our concept of events elements that do not belong to the world

[9] A similar approach can be applied to the understanding of animals, though it must begin from a different "constructive element"—specifically, from an inner space that relates to the external world in multiple and varied ways (Hueck 2025b).

> of the senses; *we must go beyond the sensory world.* What we *perceive* is no longer enough; to comprehend the phenomena, we must conceptually grasp the *unifying principle*" (Steiner 2010, 44).[10,11]

This notion aligns with Kant, who also stated that the organism must be judged according to unifying concepts which are not given in experience.[12] However, while Kant concluded that such concepts (e.g., purposiveness, wholeness) are only of heuristic value and do not state anything reliable about the real organism, Steiner gave the argument a different turn. He claimed that

> "[i]f we wish to comprehend organic nature, (…) the unity that our mind merely abstracts in the case of the inorganic would have to build upon itself, forming itself *out of itself.* (…) We need a kind of thinking that can give a thought a substance [*Stoff*] not derived from outer sensory perception, a thinking that comprehends not only what is perceived externally by the senses, but also apprehends pure ideas apart from the sensory world. A concept that is not abstracted from the sensory world but whose content [*Gehalt*] develops (…) only out of itself can be called an *intuitive concept,* and the comprehension of such a concept may be called 'intuitive knowledge.' What follows from this is clear: *A living organism can be comprehended only through an intuitive concept*" (Steiner 2010, 50).

In *The Science of Knowing* (Steiner 1979), Steiner further explained:

> "Our mind must (…) work much more intensively in grasping the [organic] type [e.g., the idea of the *Urpflanze*] than in grasping the [inorganic] natural law. It must generate not only the form, but also the content. It must undertake an activity that, in inorganic natural science, is performed by the senses and which we call intuition. At this higher level, the mind itself must therefore be intuitive. Our power of judgment must *view in thinking* and *think in viewing*. Here, as Goethe first set out, we are dealing with an intuitive power of judgment" (Steiner 1979, 109).

Thus, Steiner identified a mode of mental activity that does not merely reconstruct the organism in thought—not simply forming an internal image of its outward appearance—but one that inwardly generates the living, self-forming principle of the organism itself. This assertion reveals the distinctive and original core of Steiner's interpretation of Goethe, for he maintained that we are indeed capable of knowing the effective, living principle of an organism—which encompasses both its formative laws and force—by bringing it forth through thinking. Steiner thus argued that the essential, self-generating nature of the organism can be apprehended within a generative act of cognition.

5. *Apprehending the principle of organic life in "intellectual intuition"*

Steiner's assertion that we must "view in thinking and think in viewing" highlights a mode of cognition that is simultaneously productive and receptive. This bears an intriguing resemblance to the way Johann Gottlieb Fichte described the cognition of the self through "intellectual intuition" (Beiser 2009; Breazeale 2013; Neuhouser 2010; Zöller 1998)—a resemblance I will explore in the following discussion.

Fichte conceived of the self, the "I," as an active being who knows what it does in an immediate, non-discursive intellectual intuition:

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[10] This consideration applies to *all* components and functions of an organism. The cell structure and its compartmentalised functions do not cause, but condition each other; genetic information and an organism's life mutually depend on but do not cause each other; and so on. In this regard, Kant's dictum that "the parts of [an organism] combine of themselves into the unity of a whole by *being reciprocally cause and effect of their form*" (Kant 2008, 373; emphasis added) is not correct and even misleading.

[11] A similar consideration holds true for the temporal development of an organism: "It is determined by the nature of the whole that a particular state is set as the first, another as the last; and the succession of the intermediate states is also determined in the idea of the whole; the before is dependent on the after and vice versa" (Steiner 2010, 17–18).

[12] "[S]trictly speaking, we do not *observe* the ends in nature as designed. We only *read* this concept *into* the facts as a guide to judgement in its reflection upon the products of nature. Hence these ends are not given to us by the object" (Kant 2008, 399).

> "Intellectual intuition is the immediate consciousness that I act and of what I do when I act. It is because of this that it is possible for me to know something because I do it" (Fichte 1845a, 463).[13]

In this productive act, the "I" becomes conscious of itself. Its mental activity of will—which Fichte referred to as "pure willing," yet regarded as identical with "pure thinking" (Zöller 1998, 102)—is the source and the ground of its self-awareness:

> "[The I] is at once the agent and the product of the action; the active and that which is brought about by the activity" (Fichte 1845a, 96).

Thus, in intellectual intuition, subject and object are one:

> "Who am I? Subject and object in one, the omnipresent conscious awareness and consciousness, the observer and the observed, the thinker and the thought" (Fichte 1845b, 250).

Intellectual intuition, therefore, is not a mode of cognition that simply produces a representation of the content it apprehends, but rather a volitional act that actively generates that very content while being simultaneously and immediately aware of it. In this mode of knowing, cognition and experience, understanding and intuition, the ideal and the real, are one and the same.

Fichte employed a variety of expressions to articulate this unusual mode of cognition, as is already evident from the quotations above. He also asserted that intellectual intuition is "creative" and "living," and produces "reality:"

> "This mode of seeing is immediate and creative *life* in itself. (…) A force with an eye inserted [*Kraft, der ein Auge eingesetzt ist*], (…) the absolute *identity of seeing and living.* (…) *Reality* is produced [*hingesehen*] in the act of seeing, (…) without the use of any other organ, produced as reality, not as a mere image" (Fichte 1835, 17; emphasis added).[14]

Thus, Fichte's intellectual intuition overcomes Kant's strict dichotomy of (sensory) intuition and understanding. However, Fichte maintained that its true significance can only be recognised through the actual performance of this act of self-cognition—not by mere discourse about it. He consistently underscored the necessity of living through this idea in order to comprehend its meaning:

> "That description now: the I is what posits itself absolutely, what is both subject and object at the same time (…) is a mere formula which, to those who do not enliven it through inner intuition produced within themselves, remains an empty, dead, and incomprehensible phrase" (Fichte 1845b, 442). "The existence of such intellectual intuition cannot be demonstrated by concepts, nor can its nature be derived from concepts. Everyone must find it directly within themselves, or they will never come to know it" (Fichte 1845a, 463).[15]

In his numerous and persistent efforts to articulate the paradox of productive cognition, Fichte employed expressions such as "life in itself," "creativity," and "agency," which closely resonate with the problem at hand: the cognition of the nature of the living organism. Indeed, Steiner's assertion that, in order to apprehend this nature, the mind must become productive—"it must generate not only the form, but also the content" (Steiner 1979, 109)—bears clear affinity to Fichte's conception of intellectual intuition. Just as in Fichte the experience of the "I" is brought about through inner, productive activity, so too, in Steiner's interpretation of Goethe, is the experience of the living achieved through such inner activity: we must "*bring* [the idea of the organism] *to life in our own mind*, [to] become aware of how this thought is the very nature of the plant itself" (Steiner 2010, 3; emphasis added). Thus, Steiner maintained that in generating the idea of the organism, we are not merely thinking it, but simultaneously and intuitively perceiving it as the organism's essential reality.

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[13] Translations of Fichte are my own.

[14] Similarly: In intellectual intuition "is the source of life, and without it, there is death." (Fichte 1845a, 463).

[15] However, Fichte lamented that "[m]ost people would find it easier to believe that they are a piece of lava on the moon than to believe that they are an I" (Fichte 1845a, 175).

The comparison between Steiner's "intuitive knowledge" and Fichte's concept of intellectual intuition may appear problematic. For whereas in Fichte's philosophy the "I" perceives its own activity, in the Goethe-Steiner approach it is something other—namely, the plant—that is grasped intuitively by the "I." Even if the plant is mentally constructed, it nonetheless remains distinct from the "I." In Fichte's intellectual intuition, the "I" creates and recognises itself; by contrast, in the Goethe-Steiner conception, the "I" creates and recognises the principle of an external object.

This problem was extensively discussed by Förster in *The Twenty-Five Years of Philosophy*, though not in relation to Steiner, but rather to Friedrich Wilhelm Joseph Schelling's *Naturphilosophie* (Förster 2012, 247 ff.). I will take up Förster's arguments but set aside the reference to Schelling here and concentrate solely on Förster's objection that a natural object cannot be apprehended in intellectual intuition, for, as he maintained, "'I am' and 'it is' express two wholly distinct modes of being" (Förster 2012, 249).

Förster emphasised that we have to distinguish between *intuitive understanding* and *intellectual intuition* (Förster 2012, 145). Intuitive understanding pertains to Kant's *Critique of Judgment*, specifically to the problem of comprehending the relationship between a whole and its parts. Intellectual intuition, on the other hand, is associated with the *Critique of Pure Reason*, particularly with the distinction between possibility and actuality. Whereas Kant maintained that for human beings actuality can only be given by receptive, sensory intuition—while spontaneous thought yields mere possibility—for a mind endowed with intellectual intuition, thinking and being would be one and the same (Förster 2012, 144–45).

Thus, if one applies Förster's reading to the cognition of an organism, intuitive understanding concerns the relationship between the organic whole and its parts, whereas intellectual intuition pertains to the force that brings the organism into actual being. Förster argued that we cannot grasp an organism in intellectual intuition, but only through intuitive understanding, for in case of a natural object "that which is intuited (that which is doing the producing) and the one doing the intuiting (the philosopher) are not identical" (Förster 2012, 239).

Strictly speaking, according to Förster, Steiner's interpretation of Goethe's morphological approach would thus be incorrect, for while the "I" can create itself, it cannot create an organism:

> "[I]t is not we who create nature, but nature itself which has already created itself, and in order to re-create nature we would have to learn its laws through experience, rendering a recreation of nature superfluous for cognition" (Förster 2012, 247).

This stands in contrast to Steiner's claim that in intuitive cognition of an organism, "our mind (…) must generate not only the form, but also the content" (Steiner 1979, 109). Given, however, that Förster undeniably has a point, how, then, are we to understand Steiner's assertion?

I would like to emphasise that we are faced here with a question of fundamental significance—a pivotal threshold in the realm of cognition: Is it possible to intuitively apprehend the essential being of a natural object, the generative principle from which it arises? Can we observe the creative, formative *force* through which an organism brings itself into existence? Or does intuitive understanding merely allow us to comprehend the *laws* governing the organism's self-formation? While the latter is already a remarkable accomplishment, the former would be indispensable if we are to approach the question of the living, self-generating life force in scientific—and therefore necessarily empirical—terms. As long as this entelechial force of life remains beyond empirical reach, the essence and origination of the living organism will remain an enigma; for even if we were to understand the laws by which an organism shapes itself, we still would not know *how* it is able to do so.

For Steiner, Goethe's approach allows for such an intuitive grasp of the self-generative, organic principle, which he called the organism's *entelechy*, and by which he meant "a force that calls itself into being" (Steiner 2010, 50):

> "[The idea of the organism] is not merely an intellectual concept but the truly organic aspect of every organism, without which it would not be an organism at all. (…) [It] works actively within the organism as its entelechy—it is the essence of the entelechy itself in a form apprehended by our

> reason. The idea is not a summary of experience; it *brings about* that which is to be experienced" (Steiner 2010, 51).

In a lecture from 1907, Steiner compared Goethe's intuitive approach to mathematical construction, and also pointed at what he called "a secret bond between the human inner being and what is spread throughout the plant world:"

> "We can form a circle in our mind and thereby form within ourselves the laws of the circle. Thus, we must draw the circle forth from our own spirit. (…) Mathematics (…) is the only [common] form of thinking free from sensory perception. (…) One who conceived such perception-free ideas not for spatial forms in geometry but for other realms was Goethe, and what he achieved with the archetype of the plant is a marvellous, a profound accomplishment in the spiritual life of humanity. (…) There exists a secret bond between the human inner being and what is spread throughout the plant world. When a person conjures forth the primordial plant within, he evokes that very form according to which the plants have been created. In this way, we experience ourselves as spiritual participants in the productions of nature. For Goethe, it is a submergence into things and a calling forth of the spirit that lives within them, into his own spirit" (Steiner 1985a, 114–117, 28.11.1907).

Similarly, Steiner wrote in *The Riddles of Philosophy* (1914):

> [Goethe's idea of the Urpflanze] "puts him on the path to finding within the self-conscious I (…) the *living* idea. The self-conscious I *experiences within itself* a realm that proves to belong both to itself and to the outside world, because its creations testify to being images of creative powers. (…) Goethe developed an idea through which the self-conscious I (…) feels *at one* with the creative beings of nature" (Steiner 1985b, 170–71).[16]

These notions face the same difficulty that Fichte identified in relation to intellectual intuition of the "I:" "to those who do not enliven it through inner intuition produced within themselves, [it] remains an empty, dead, and incomprehensible phrase" (Fichte 1845b, 442). Similarly, Steiner's assertion can only be understood if we "try to bring [the entelechial principle of the organism] to life in our own mind and attempt to rethink it." It is only then that "we become aware of how this thought is the very nature of the plant itself, translated into the form of an idea, and living in our mind just as it lives in the object" (Steiner 2010, 3).

Steiner's interpretation, therefore, accounts for both, the organism's formative law *and* its formative force. Together, they are what Steiner called "the magnificent thought structure of a living whole consisting of mutually interpenetrating, formative principles [which] (…) determines out of itself the details and individual stages of plant development" (Steiner 2010, 3). This is an integration of the very aspects Förster cites in distinguishing intellectual intuition from intuitive understanding: the concept's possibility (what Steiner called a thought structure) and the organism's actuality (its determination out of itself), as well as the (living) whole that determines its parts (the details and individual stages of development).

Thus, bringing the idea of the organism "to life in our own mind" is precisely the aspect of Steiner's assertion that enables us to transcend Förster's distinction between intellectual intuition of the "I" and intuitive understanding of the organism, or between "that which is intuited (that which is doing the producing) and the one doing the intuiting (the philosopher)" (Förster 2012, 239). For in the active generation of the living organic principle, knowing and being, idea and reality, converge.

However, Förster is certainly right in that we do not genuinely create the organism but *re-create* it. We first "have to learn its laws through experience" (Förster 2012, 247) before we can intuitively re-create them. Nevertheless, what we experience and cognise in such re-creation is the entelechial principle by which the organism "brings about that which is to be experienced," namely, itself. Indeed, this is precisely what

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[16] Goethe himself described such mental unification with the cognised object in a way "that through the contemplation of an ever-creating nature we make ourselves worthy of mental participation in its productions" (Goethe 1987, 447–48), or, in another notion, that there is a "point where the human mind can approach objects in their generality most closely, bring them to itself, amalgamate with them (as we usually do in common empiricism) in a rational way, as it were" (Goethe 1989, 125–126).

Goethe's method comprises: the meticulous observation of the phenomenon in its entirety and its active, mental reproduction. As Goethe stated:

> "If we can see an object in all its parts, grasp it correctly and bring it forth again in our minds, then we may say that we intuit it in a proper and higher sense, that it belongs to us, that we have attained a certain mastery over it" (Goethe 1987, 142).

In intuiting the living idea of the organism, we mentally step into the very centre of the generative principle of the organism, as it were. In re-creating the organism, we consciously experience its lawful, self-generating force from within.

This notion may prove difficult to accept from a natural scientific perspective, which rests upon a strict separation between the knowing subject and the known object. Yet, while such dualism is deeply engraved in the habitual framework of the natural sciences, it does not preclude the possibility of an alternative mode of relating subject and object—or, in Kantian terms, intuitions and concepts. The phenomenon of the living organism calls precisely for such a reconfiguration: one in which intuitions assume conceptual form and concepts acquire an intuitive character, and in which the boundary between subject and object is not drawn as sharply as it is in the study of the physical, sensuously perceived world (cf. Hueck 2025c). Accordingly, Goethe claimed that he practiced a mode of thinking which

> "does not separate from the objects; that the elements of the objects, the observations, enter into it and are most intimately permeated by it; that my viewing itself is a thinking, my thinking is a viewing" (Goethe 1987, 595).

Anyone who genuinely enacts the metamorphosis of a flowering plant as described—by imagining three cycles of expansion and contraction with the progressive transformation of the "leaf"—experiences a living force governed by a formative law. That this force and law are the same as the ones operative in the plant itself is suggested by the epistemological analysis of cognition involved in plant metamorphosis and becomes evident if one actually engages in this intuitive and imaginative process.

6. *Spiritual seeing with "living concepts"*

Goethe envisioned the essence of a flowering plant as the unfolding of the "transcendental leaf" according to the law of expansion and contraction with progression, and Steiner explained that this process is driven by the entelechial principle of the plant, that is, by "a force that calls itself into being" (Steiner 2010, 50). According to Steiner, the cognition of this dynamically unfolding process cannot be followed with "rigid thinking" and "dead concepts" (Steiner 1982, 112), but rather requires concepts which can be transformed into each other. Thus, he wrote that in his studies on Goethe, he intended to show

> "how the living form of ideas [*lebendige Ideengestalt*], through which the organic can be recognised, relates to the unformed [*ungestalteten*] idea, which is suitable for grasping the inorganic. (…) In recognising the inorganic, concepts are linked together in order to grasp the interrelationship of forces that produce effects in nature. In the case of the organic, it is necessary to allow one concept to grow out of another in such a way that, in the progressive living transformation of concepts, images arise of what appears in nature as formed beings. (…) If one allows these forms to emerge one from the other in the mind, one constructs the entire plant. One recreates in an ideal way the process through which nature shapes the plant in a real way" (Steiner 1982, 113–14).

Thus, Steiner asserted that to understand the development of the plant, one must employ concepts that can be dynamically changed. Sharply defined concepts are suited to linking physical facts and forces. Yet, in the realm of the living, transformation prevails, and it is thus evident that the concepts—or more precisely, the mental images they generate—must themselves be capable of transformation if one is to gain true insight into the living organism. Steiner maintained that Goethe's approach requires an "inner mobility of thinking:"

> "Those who have rigid thinking (…) form fixed concepts of the green leaf, the flower petal, and so on, but cannot move from one concept to another. In doing so, nature falls apart into mere details.

> Because their concepts lack inner mobility, they are unable to penetrate the inner mobility of nature. (…) For Goethe, cognition is a submerging into the world of essences, a pursuit of that which grows and becomes and is constantly changing, such a pursuit that his thinking itself is constantly changing" (Steiner 1992, 81–83, 21.02.1918).

Goethe himself described this inner flexibility of thought in the following way:

> "If we consider all forms, especially organic ones, we find that no static existence, no rest, nothing closed, but rather that everything is in constant motion. That is why our language makes proper use of the word *Bildung* for both that which is produced and for production. If we want to introduce a morphology, then we must not speak of form, but if we use the word, we must think only of the idea, the concept, or something that can be captured in experience only for a moment. What has been formed is immediately reformed, and if we want to achieve a certain degree of living intuition of nature, we have to keep ourselves as mobile and flexible as the examples with which it guides us" (Goethe 1987, 392).

And Steiner further maintained that through and within this internally mobile thinking, a thought does not stay a mere thought, but becomes an inner, intuitive experience, "an idea which can be seen with eyes:"

> "Goethe sets in motion that which is otherwise mere thinking. Then it is no longer mere thinking (…) but is a life in thought. (…) Then reflection about thinking is transformed into a spiritual perception of thinking, and then one has thinking in front of oneself in the same way as one otherwise has external objects in front of oneself, except that one (…) has thinking in front of the soul filled with spiritual perception. Goethe wanted to move from mere thinking (…) to a 'seeing' consciousness" (Steiner 1992, 81–83, 21.02.1918).

Whereas in discursive thinking the content of thought is drawn from the perception of external objects, in flexible thinking one is able to intuit thought-content directly, as such. This is made possible by the thinker's inner act of will, through which the content is being produced and actively enlivened in the mind, an activity which is at once productive and receptive and corresponds to what Fichte described as intellectual intuition. The distinction, however, lies in its object: in Fichte, the thinker generates awareness of himself; in Goethe, the thinker generates awareness of the organism's active and formative principle.

Steiner thus referred to the same mode of "seeing" that Fichte described in regard to self-knowledge: an inner, mental perception of a non-physical reality that "is produced in the act of seeing, (…) without the use of any other organ, produced as reality, not as a mere image" (Fichte 1835, 17), which Fichte called "the true nature of (…) spirituality" (Fichte 1835, 17). Similarly, Steiner referred to this mode of cognition as "spiritual perception," and asserted that Goethe achieved a spiritual perception of the vital principle of the living organism. Thus, according to Steiner, "Goethe discovered how one must think about the organism in order to come to an understanding of it" (Steiner 1982, 112).

7. *Empirical vitalism and a metaphysical outlook*

Organisms are physical entities perceived through the outer senses, yet life itself—something that appears to function in ways quite different from mere physical matter and forces—is imperceptible. As a result, life is often dismissed either as a mere heuristic—its formative force and generative laws deemed inaccessible to human understanding—or as an illusion, owing to our current inability to fully comprehend its inner mechanical workings. For those unwilling to accept epistemic resignation, and who—on sound logical grounds—do not anticipate that the "riddle of life" will be resolved through mechanistic explanations in the future, so-called "organicism" has been the matter of choice. Organicism is often praised as a scientifically acceptable middle-ground, which avoids the pitfalls of both materialistic reductionism and speculative vitalism (Baedke 2019; Nicholson and Gawne 2015). However, although organicist concepts seem more attuned to our experience of living beings than the notion of genetically programmed survival machines, organicists typically refrain from addressing the question of how the "properties of life"

(Rosslenbroich 2023) might be reconciled with the prevailing physicalist world view.[17] If organisms are indeed purposive, self-generating, autonomous, and agential wholes, how do these properties arise? While sophisticated theories have been developed to address this question (Kauffman and Clayton 2006), real organisms are far more complex than theoretical "minimal biological agents." Moreover, the frequently invoked notion of "emergence" (Clayton 2008) functions more as a heuristic descriptor (Bich 2012) than an ontologically grounded explanation, serving primarily to underscore the irreducibility of life (Paolini Paoletti 2024) but not to explain it, for scientists struggle with articulating the ontology of emergent properties (Emmeche et al. 1997).

Here, I propose and argue that an adequate explanation of the apparently irreducible properties of a living organism requires an epistemic stance that transcends the strict subject-object divide characteristic of the natural sciences. Neither objective material and mechanistic processes nor a speculative vitalistic life force can satisfactorily grasp or explain life. As Kant already demonstrated, the cognition of specifically organic properties is dependent on the observer (Bich 2012). However, this does not imply that such properties are merely conceptual heuristics. Rather, I contend that the life of the organism—its self-generating, formative force and the determination of its parts by the living whole—can be empirically discerned within an actively (re)constructing intellectual intuition.

I therefore argue that it is possible to empirically observe the non-sensory, holistic, and purposive vital force at work within an organism in its ontological efficacy—though not through a sensory and passive mode of observation, but rather through an intellectual, active, and productive one. I would like to refer to this approach as an "empirical vitalism."

Vitalism is typically rejected on epistemological, methodological, and metaphysical grounds (Chen 2024; Donohue and Wolfe 2023; Nicholson and Gawne 2015). A classic example is Ludwig von Bertalanffy's formulation of the *epistemological* objection:

> "The vitalists explain the vital phenomena by means of an unknown vital principle—just as Moliere's celebrated physician explained the action of opium by means of a *vis soporifera.* It is evident that in both cases we are only given an explanation *ignotum per ignotius.* The interpretation of the puzzling purposefulness of life by a still more puzzling active entity offers merely a mythological treatment of biology. Psycho-vitalism, which attempts to give a concrete content to the vital principle as 'soul,' suffers from the same weakness. For a sub-human *psyche* is equally unimaginable: we shall not claim to call the organo-genetic and instinctive mental life conscious; but if we call it unconscious, we have assumed a mental entity to which is denied the fundamental character of the only mental life known to us, namely, our own consciousness. Hence we are again given a word instead of an explanation" (Bertalanffy 1933, 43).

Here, I have sought to demonstrate that a vital principle need neither remain unknowable nor be conceived—speculatively—as a conscious entity. Through productive, intuitive re-creation of an organism, we can empirically grasp its formative principle as "the essence of the entelechy itself in a form apprehended by our reason" (Steiner 2010, 51).

Methodologically, von Bertalanffy criticised that

> "[t]he source of every vitalism is intuition; for a satisfactory explanation the observer of living things must feel himself into an inner being which he conceives according to the image of his own active ego. The original source of the vitalistic view thus lies not in the intellect but in the realm of feeling.

[17] An exception is Denis Walsh, who, albeit indirectly through quotations from philosopher Lee Smolin (Smolin 2013), referred to an "agent theory of the universe" (Walsh 2018, 176). Also worth mentioning is Thomas Nagel, who wrote in his courageous and hotly debated *Mind and Cosmos*: "[E]ven though natural selection partly determines the details of the forms of life and consciousness that exist, and the relations among them, the existence of the genetic material and the possible forms it makes available for selection have to be explained in some other way. The teleological hypothesis is that these things may be determined not merely by value-free chemistry and physics but also by something else, namely a cosmic predisposition to the formation of life, consciousness, and the value that is inseparable from them" (Nagel 2012, 123).

> In 'intuitive vitalism' this origin is plain and unconcealed, but it is demonstrable even in the theory of entelechy" (Bertalanffy 1933, 45).

This argument, too, is refuted by my analysis, as I demonstrate that it is not a vague feeling through which we empathise with the life of the organism, but rather a productive intellectual activity—one as transparent and rigorous as the operations employed in mathematical mechanics or the intellectual self-intuition of the "I."

The *metaphysical* critique of vitalism ultimately rests on the prevailing physicalist worldview, which, however, is rather a "meta-theoretical commitment" (Hein 1972) and cannot be regarded a priori as the sole valid perspective (Masi 2022). After all, it remains unresolved how life and consciousness could have emerged within a cosmos conceived as purely material (Nagel 2012). In this context, it is worth recalling Edward Stuart Russell, another classic voice in biophilosophy:

> "We have now surveyed a number of examples (…) which illustrate what I have called the active, persistent and regulatory character of organic activities. (…) Now we as conscious subjects have direct and immediate knowledge or experience of this element of drive or striving towards biological ends which appears from objective evidence to be a characteristic common to all or many organic activities. We are part of Nature, and there must therefore be some relation between our experienced striving and that observed in other organisms. What then can be the relation between this experienced drive and the objective 'drive-character' of organic activities in general? Must we not think of them as two aspects—internal and external—of the same basic reality? Must we not postulate a general, supra-individual *hormé* or drive in life, after the fashion of Schopenhauer's 'Wille'? To do so would be to go beyond the bounds of science into the realm of metaphysical speculation" (Russell 1950, 115).

With this notion, Russell came close what I would like to propose in conclusion: if we are to truly understand life, we must ask about a new metaphysics which transcends a purely physicalist worldview and allows to include spiritual aspects. The Goethe-Steiner approach offers a methodology that shows such a metaphysics need not be speculative but can, in fact, be empirically grounded. This, however, requires the scientist to move beyond a passive stance of observation toward a supposedly independent external world and to actively include both himself and his own cognitive processes as constitutive elements into his worldview. When we not only represent natural objects but also actively and mentally re-create their formative principles, we come to observe and comprehend that nature—like we ourselves—possesses both a physical and a spiritual dimension—and that, as conscious, sensually perceiving and intellectually understanding beings, we are capable of cognising the unity of these two aspects within acts of productive intuition.

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