Pli 10 (2000), 24-49.

Shaping Thought: Organic Form in Post-Kantian "Philosophical Mythology"

ELAINE P. MILLER

> "Nature," Klingsohr replied, "is to our soul (*Gemüt*) what a body is to light. [The body] restrains [the light], refracts it into particular colors; it kindles on its surfaces or in its interior a light such that when the light equals its darkness, it makes the body clear or transparent, and when it exceeds the darkness it emerges from it to illuminate other bodies. But even the darkest body can by water, fire, and air be made bright and shining."
>
> "I understand you, dear master. Human beings are crystals for our souls. They are transparent nature.... But tell me, dear master, whether or not I am right: it seems to me that just when one is most intimate with nature, one is least able and least willing to say anything about it."
>
> "That depends on how one takes it," Klingsohr replied. "Nature is one thing for our enjoyment and our heart, another for our understanding (*Verstand*), for the directive ability of our worldly powers. One must be careful not to neglect either one in favor of the other. There are many people who know only one side and disregard the other. But one can unite (*vereinigen*) the two and thereby come out well (*sich wohl befinden*). It is a pity that so few think of this capacity to shift freely and easily within themselves, so that through a proper separation they can secure for themselves both the most purposive and the most natural uses of their powers. Generally one [use] hinders the other, and a helpless inertia gradually arises, so that if such people really want to rise up with all their powers, they fall into confusion and conflict, and everything stumbles clumsily all over itself."
>
> Novalis, *Heinrich von Ofterdingen*

In the above quotation from the nineteenth-century novel *Heinrich von Ofterdingen* by the German Romantic novelist, poet, and philosopher Novalis (Friedrich von Hardenberg), one sees the Kantian project of the *Critique of Judgment* translated into fiction. Novalis puts this articulation of Kant's project to unite the two sides of nature, namely, as object of understanding and as source of beauty and enjoyment, into the speech of a character who has often been assumed to represent Goethe, namely the poet Klingsohr.[1] Such a juxtaposition is hardly surprising. The Romantic incorporation of an explicitly aesthetic dimension to scientific inquiry and the implications of this incorporation for the thinking of subjectivity and the human relationship to nature has its roots in the transcendental philosophy of Kant and in the aesthetico-scientific project of Goethe. Goethe recognized his own fortuitous proximity to Kant - fortuitous, for, while the two thinkers were writing contemporaneously, neither was influenced by the other's work - when he read a copy of the *Critique of Judgment* and proclaimed it in exact accord with his own *Metamorphosis of Plants*.[2] What both Kant and Goethe strove to accomplish in intertwining the realms or "infinite worlds," as Goethe put it, of art and nature, was twofold: first, to discredit unreflectively ontological eighteenth-century scientific assumptions of final causes in nature, and second, to reintroduce purposiveness in nature as an *aesthetic* requirement for the creation of satisfactory scientific explanations. In addition, conceiving science aesthetically provided justification for a specific understanding of subjectivity as molded by the human conceptualization of nature. Finally, an important facet of the legacy of Kant's transcendental philosophy for German Romantic literature and Idealist philosophy was the complication of theories of beauty and nature through the critique of reflective judgment. Such a development allowed for a plethora of creative conceptualizations of the human mind as the source of creativity and truth in and through its very connectedness to nature. Rather than being faithful mirrors of nature, varying philosophical

[1] Novalis, *Werke, Tagebücher und Briefe Friedrich von Hardenbergs*, ed. Hans Joachim Mähl and Richard Samuel, 3 vols. (Munich: Carl Hanser Verlag, 1978), *1*: [illegible]1-413/*Henry von Ofterdingen*, trans. Palmer Hilty (Prospect Heights, IL: Waveland Press, 1964). Translation modified. Epigraph from p. 108.

[2] '*Einwirkung der Neuern Philosophie*', *Gedenkenausgabe der Werke, Briefe und Gespräche*, 24 volumes, ed. Ernst Beutler (Zürich: Artemis Verlag, 1949), hereafter GA/ 'The Influence of Modern Philosophy', *Scientific Studies*, ed. and trans. Douglas Miller (New York: Suhrkamp Publishers, 1988), hereafter SS. GA *16*, 875/SS, 29.

and literary descriptions and conceptualizations of nature and humans' relationship to it (such as that articulated by Novalis, above) allowed nature to appear to humans in multiple perspectival and fruitful ways. Thus the language in which nature and human thinking are described matter deeply. If nature can never be approached by human beings without being altered, then tracing the form such structuring has taken becomes the focus of philosophical inquiry rather than the establishment of an opposition between ways of approaching nature that violate it, and those that follow its "natural" coming-to-presence, since to approach nature is to transform it.

In what follows, I will present Kant's rationale and method for combining aesthetic and scientific perspectives on nature through his conception of a "technic of nature." Understanding the intimate imbrication of these two perspectives allows for a complete and integrated comprehension of Kant's project in the *Critique of Judgment*,[3] namely the reconciliation of nature as a realm of determinate laws with judgments about nature that attribute to nature beauty, meaningfulness, and purposiveness beyond the scope of mechanistic cause and effect relationships. I will then consider the example of Goethe, as someone who not only practiced both art and science, but who considered the two endeavors to be closely related to each other in a manner analogous to that described in the third *Critique*. Finally, I will look at specific examples from Romantic literature that illustrate Kant's claim that the human demand for a congruence between the highest kind of thinking and the integrity and totality attributed to nature can best be symbolized as an organic form. The amalgamation of scientific methodology and aesthetic form has implications not only for our consideration of Romantic literature and its roots in transcendental philosophy, but also for the way in which we think about the language of description in general, and metaphoricity in particular. Nature and culture, in Kant's *Critique of Judgment* and even more markedly in Romantic literature, no longer appear as oppositional terms, but as mutually shaping components of a complete system. Metaphors no longer can be understood either as merely decorative and dispensable terms of description or as the dead sensory coverings of abstract concepts.

In the first Introduction to the *Critique of Judgment*, Kant discusses the tension that arises between the attempt to describe the natural world

[3] Immanuel Kant, *Kritik der Urteilskraft* (Ak. V)/ *Critique of Judgment*, trans. Werner S. Pluhar (Indianapolis: Hackett, 1987), hereafter KU, with pages from the *Akademie* edition (marginal pagination of the English translation).

solely in terms of empirical observations, on the one hand, and the need that the human mind feels to classify nature under laws and classes, and ultimately as a system, on the other. Kant determines an exigency of going beyond the classificatory system of the *Critique of Pure Reason*, which describes the determinate structures of human cognition as the basis for finding regularity and predictability in nature. Such structures describe a formal pattern that explains the uniformity of human experience of the world of natural appearances, but do not lend a systematic wholeness to this pattern, a wholeness that alone will satisfy the human need to find a purposiveness in nature. Kant calls this demand for integrity and totality "artificial" (*künstlich*) in that it is not derived from ordinary empirical cognition; he goes further to state that "so far as we think of nature as making itself specific in terms of such a principle, we regard nature as *art*." This necessity of conceiving nature as constituting a purposive whole is something that judgment carries *a priori* within it. Kant calls the *a priori* principle that makes only a holistic explanation of nature satisfactory to the human mind a "technic of nature," taking "technic" from the Greek word, *techne*, for art. Kant also claims that certain natural forms have an absolute purposiveness, by which he means that:

> their shape or inner structure is of such a character that we must, in our power of judgment, base their possibility on an idea. We must do so because purposiveness is a lawfulness that something contingent may have insofar as it is contingent. Insofar as nature's products are aggregates, nature proceeds *mechanicially, as mere nature*; but insofar as its products are systems - e.g., crystal formations, various shapes of flowers, or the inner structure of plants and animals - nature proceeds *technically*, i.e. it proceeds also as *art*. The distinction between these two ways of judging natural beings is made merely by *reflective judgment*" (KU, 217'-218').[4]

According to Kant, reflective judgment, unlike determinative judgment, is characterized by a certain freedom of expression in that it results from a spontaneity in the play of the cognitive powers whose harmony with

[4] All references to the first, longer, introduction that Kant wrote for the third *Critique*, an introduction that is not included in many standard contemporary German editions of the *Critique of Judgment*, will be indicated by a prime after the page number. This introduction can be found in Volume 20 of the *Akademie* edition of Kant's works.

each other contains the basis of this pleasure, a spontaneity that makes the concept of purposiveness suitable for mediating the connection of the domain of the concept of nature with that of the concept of freedom (KU, 197).

Kant privileges the form of natural structures, and of the organism in particular, as the shape or figure that best manifests the nature of the relationship of human cognition to nature in general. The human mind, Kant believes, is attuned to and reflects forms of nature like the crystal, the plant, and the animal, and it is this affinity to these forms that requires human thinking to value and preserve nature as its kin. This observation was to have an enormous influence on the literature and philosophy of the nineteenth century in Germany. Kant privileges organized beings in nature, stating that they have an "absolute purposiveness" (KU, First Introduction, 217'). The absolute nature of the purposiveness of the organism has its origin in the human apprehension of it, and not (at least not demonstrably) in itself. Insofar as humans cognize nature on the basis of cause and effect or dissection of its parts, Kant implies, natural explanations can be mechanical ones. As soon as one attempts to make any claims about the whole, however, Kant maintains the *absolute necessity* of human cognition proceeding *technically*, making of nature an art in which organisms viewed purposively play a central part.

Understanding the two halves of the *Critique of Judgment*, namely, the 'Critique of Aesthetic Judgment' and the 'Critique of Teleological Judgment' in a similarly organic way, that is, as interdependent and mutually informing components of an attempt to unify the realms of nature and freedom through art, allows for a complete understanding of the third *Critique* as a unified project. Kant's seemingly odd juxtaposition of critiques of aesthetic and teleological judgment has a strong inner coherence that cannot be sufficiently demonstrated by merely pointing out that both types of judgment are reflective rather than deterministic. Rather, judgments of teleology in nature can be included in scientific explanations precisely and only because these judgments are aesthetic in nature. Teleological judgments' status as "art" allows Kant to include them in descriptions of nature without thereby permitting an unreflective, romantic, or "enthusiastic" element to intrude into science without severe qualification or pruning.

In a well-known passage of the *Critique of Pure Reason*, Kant writes, "Human reason is by nature architectonic. That is to say, it regards all our knowledge as belonging to a possible system, and therefore allows only such principles as do not at any rate make it impossible for any knowledge that we may attain to combine into a system with other

knowledge" (KrV, A 474 = B 502). Since humans can cognize only by making systems, nature itself will have to be encompassed by that architectonic.[5] The *Critique of Judgment* attempts to provide a reconciliation of nature - as a system of deterministic laws that conform to human understanding - with human reason as a product of that natural system that possesses a freedom that exceeds it. The power of judgment, Kant is careful to remind us, is of a particular kind, one that does not on its own produce any cognition, either theoretical or practical. It does not, according to Kant "supply a part [of] transcendental philosophy as an objective doctrine, but constitutes only the connection [*Verband*] of two other higher cognitive powers (understanding and reason)" (KU, 243'). Since as such judgment can be the object only for a critique and not for a doctrine, Kant concludes that he "may be permitted to depart from the order that is indeed necessary elsewhere" (KU, 243').

Explanations that are teleological for aesthetic reasons force judgment simultaneously to address nature and to go beyond it. Aesthetic judgment has its roots in sensation; at the same time, the explanation of the constitution of aesthetic judgment must make manifest why judgment cannot be derived from rules or determined by concepts. Teleological judgment can never be matched by a corresponding cognition of the human mind, but by assuming that nature is purposive the philosopher can resolve a series of antinomies that the human mind could never otherwise overcome. Kant approaches the lacunae inherent in aesthetic and teleological judgments by immediately emphasizing the performative aspect of aesthetic and teleological judgment. There are always two levels on which both theoretical and practical philosophy can be understood, that is, in terms of the principles that ground them, and in terms of applications of these principles. For example, Kant might distinguish between geometry and the practical applications of geometry to illustrate the two levels of the theoretical, and between the categorical imperative and an actual decision to act morally to illustrate the practical.[6] Reflective judgment, by contrast, manifests only the performative aspect, that which can be reduced neither to the purely theoretical nor to the purely practical. Reflective judgment is always an *act*: it consists in deeming something to be beautiful, sublime, or purposive.

---

[5] Kant's point is that it is impossible to speak of nature "itself." The circumvention of nature presumed by Kant's philosophy remained a problem that captivated post-Kantian philosophy in Germany. On the one hand, thinkers such as Schelling and Holderlin tried to return the sublime to "nature itself" rather than to a fiction about nature, while, by contrast, Hegel radicalized Kant's elimination of the natural.

[6] See KU, 197'f.

In the first introduction to the *Critique of Judgment*, Kant distinguishes between several different types of practical propositions around which rational decisions orient themselves. The first two, *a priori* and empirical practical propositions, "assert the possibility of an object through our power of choice" and thus always belong to our knowledge of nature and to the theoretical part of philosophy. This is because in such a case the will has no choice but to follow principles according to which the understanding functions. The third type of practical proposition has its principle in the idea of freedom and can give us no insight into the possibility of the object, but rather directs action in such a way that it can be called a moral precept. "All other propositions of performance," Kant writes, might be called "*technical* rather than practical," since these performatives "belong to the *art* of bringing about something that we want to exist," rather than reacting to something that already exists. Immediately after this Kant writes, "Hence all precepts of skill belong, as consequences, to the *technic* of nature." In addition, Kant specifies that he will "*also*" henceforth use the term "technic" in other cases, "namely, where we merely *judge* [certain] objects of nature *as if* they were made possible through art" (KU, 199'-200'). These judgments are thus based neither in the theoretical nor in the practical insofar as "practical" is understood to imply grounding in freedom. Technical judgments, then, will always rest upon a kind of sophisticated "wishful thinking" in which one desires something to be what one can never *know* it to be, or one behaves as if something were what it is not. Specifically with reference to nature, Kant defines the "technic of nature" as "nature's ability to produce [things] in terms of causes...[which is] basically quite identical with the mechanism of nature," such that "we have *falsely* interpreted the contingent agreement of that ability with our concepts and rules of art...whereas it is merely [the result of] a subjective condition under which we judge that ability" (KU, 391, my emphasis). Although the interpretation is "false," we retain it because we have none that better serves to explain nature and the affinity of our minds to it.

In making the transition from the 'Analytic of the Beautiful' to the 'Analytic of the Sublime' in the *Critique of Judgment*, Kant makes a similar distinction between the proximity of beautiful objects and the relative isolation of beautiful (natural) views whose "distance prevents us from recognizing them distinctly." The distance of the view gives the human being a certain leeway to see nature "as if" it were other than it actually is. Humans usually find nature (as opposed to crafted objects) beautiful, Kant claims, not because they actually like what is presented before them, but because "taste seems to fasten not so much on what the imagination *apprehends* in that area, as on the occasion they provide for it to engage in *fiction* [*dichten*], i.e., on the actual fantasies with which the mind entertains itself as it is continually being aroused by the diversity that strikes the eye" (KU, 243). Nature in itself is not beautiful, Kant implies, but only becomes so by virtue of the fictions that humans create about it. These fictions, in turn, require a certain distance from the object upon which they are based. When we find a bird's song beautiful, for example, we are, Kant says, projecting our affection for what we consider to be a cheerful little creature onto the song, so that if we heard an artificial reproduction of the exact notes (and knew that they were artificial), we would not find them beautiful (KU, 243). Likewise, if we had the anatomy of the bird's vocal chords before our eyes as we heard its song, we would lose our liking for the sound. Our taste for the beauties of nature is largely constructed on the fictions we involve it in; from a distance we see nature as alive, animated, and constantly growing, but these are qualities we admire in human creativity that we project onto "nature" as a "false" unity in the sense of falsity indicated above.

The technic of nature informs the notion of "organism" or "organized being" as the privileged individual that underlies Kant's discussion of teleology. These beings, Kant writes,

> first give objective reality to the concept of a *purpose* that is a purpose *of nature* rather than a practical one, and which hence give natural science the basis for a teleology, i.e., for judging its objects in terms of a special principle that otherwise we simply would not be justified in introducing into natural science (since we have no *a priori* insight whatever into the possibility of such a causality) (KU, 376).

The perception of organized beings as *self-organizing*[7] allow them to be referred to as natural purposes, according to Kant (KU, 374). Natural purposes, in turn, form the basis for judging nature as a whole teleologically, as a system of purposes. This principle applies only subjectively as the maxim that "everything in the world is good for something or other; nothing in it is gratuitous" (KU, 379), and is a regulative rather than constitutive principle. This principle then relies on the peculiarity (*Eigentümlichkeit*) of human understanding, namely, that it cannot rest satisfied with purely mechanical explanations, but must

[7] Kant defines organized beings as follows: "an organized product of nature is one in which everything is a purpose and reciprocally also a means" (KU, 376).

follow the demand of reason that "subordinates such [natural] products...to the causality in terms of purposes" (KU, 415).

The relationship between human understanding and the perceived final causes of the particulars of nature (either products or laws), like that between understanding and imagination in the judgment of beauty, is called a harmony (KU, 407). The word "harmony," which recurs constantly in the critique of aesthetic judgment and the critique of teleological judgment, comes from the Greek *harmos*, meaning "joint," and is related to the English words "arm" and "art." A harmony is a fitting together of parts, a jointure, and for Kant this word always retains its relationship to *techne*. The technic of nature, which understands nature as purposive, is necessary for us in addition to the mechanistic picture of nature in terms of natural laws and causes because our understanding proceeds in one direction only, according to Kant. We can cognize natural objects only by beginning with a universal, supplied by our understanding, and then by subsuming particulars under it. If our understanding could proceed from particulars to universals, Kant implies, there would be no need to distinguish between mechanistic principles and teleological ones. However, since we always begin with universals, only then making judgments about particulars, "the particular, as such, contains something contingent." Even laws of nature can be taken as particulars by the faculty of reason, which then demands a unity (*Einheit*) in which these particulars can be joined. The principle under which even the contingent becomes law, or the "lawfulness of the contingent," is called purposiveness (KU, 404).

The danger that now arises is that the discussion of the necessity of a teleology of nature appears to turn the idea of a natural purpose into a principle that is constitutive of natural purpose itself (KU, 405). Kant writes, "The universal supplied by *our* (human) understanding does not determine the particular; therefore even if different things agree in a common characteristic, the variety of ways in which they may come before our perception is contingent" (KU, 406). A cognitive power that could proceed synthetically from whole to parts, rather than analytically from concepts to empirical intuitions, would be one of a "complete spontaneity of intuition (*Anschauung*)." Although such a spontaneous intuition can be conceived of by us only negatively, that is, as *not* discursive, we can characterize it as a power of cognition something like the one Kant mentions in the 'Analytic of the Sublime', where he emphasizes that if humans were pure intelligences, there would be no need for judgments of beauty and sublimity (KU, 271).

The limitations of the human mind lead humans to create artworks; the technic of nature is the primary example of this art. Among all the sensory things that humans intuit and cognize, it is only with reference to the beautiful, the sublime, and the purposive, though in different ways, that the mind makes no appeal to concepts. The beautiful and the sublime, along with the teleological explanation, reverse the directionality of cognition: the mind begins from the particulars rather than from a universal. The particular has a contingent aspect that is not present in the universal. Thus, the reflective judgment of beauty or sublimity is faced with a predicament parallel to that of the mind when it attempts to unify the manifold in nature. Our understanding achieves cognition only through a harmony between natural characteristics and our power of concepts, a harmony that Kant calls "very contingent" (KU, 406). Unlike the products of nature, laws of nature are not subsumed under the concepts of the understanding, and thus they are particulars from the point of view of human understanding, since it is unable to determine them. Because the laws are multiple, the mind feels the need to bring them together into a unity (*Einheit*). The technic of nature is deployed as the answer whenever the mind is confronted with a series of particulars that precede any universal concepts it can provide. This is the fundamental connection between aesthetic judgments and teleology: both begin with particulars and work towards a unity. Kant makes this explicit in the first introduction to the *Critique of Judgment*, where he mentions characterizations of nature in vogue at the time which describe its "wisdom, parsimony, foresight, or beneficence" (KU, 383). Kant calls these formulas the "transcendental utterance of judgment [by which] it stipulates to itself a principle for [considering] experience as a system, and hence for its own needs." The basis of such an utterance is a "presupposition" that "judgment makes for its own use, for the sake of unifying empirical laws, so that it can always ascend from what is empirical [and] particular to what is more general." Only by presupposing such a principle can we "engage in experiences in a systematic way" (KU, 399).

The importance of this notion of unity is brought to the fore in the final section of the 'Critique of Teleological Judgment', entitled 'Of the Union (*Vereinigung*) of the Principle of the Universal Mechanism of Matter with the Teleological in the Technic of Nature' ('*Von der Vereinigung des Prinzips des allgemeinen Mechanismus der Materie mit*

dem teleologischen in der Technik der Natur').[8] The technic of nature must specifically reconcile the assumption that every particular in nature can be subsumed under a universal with the obviously wide range of specifics that distinguish one particular from another of the same general kind by explaining the diversity in terms of purposiveness. Reason must be disciplined into neither being seduced into a transcendental explanation of pure purposiveness without mechanical causes ("poetic raving"), nor explaining everything natural only mechanically ("fantasizing") (KU, 410-11).

Goethe goes even further than Kant by describing this "peculiarity" of human reason as a necessary adjustment of the thinking of the scientist to the structure of the natural forms that he or she studies. Such a demand would construct thinking itself, not simply the form thinking ascribes to nature, as a unified, organic whole. Goethe writes appreciatively of the compliment given him by a reader who characterized his scientific thinking as "objective" (*gegenständlich*) in the very particular sense of conforming to (natural) objects: "He says that my thinking works objectively. Here he means that my thinking is not separate from objects; that the elements of the object, the perceptions of the object, flow into my thinking and are fully permeated by it - that my perception itself is a thinking and my thinking a perception."[9] Goethe inaugurated the idea of a kind of bodily thinking, thinking as vigilant receptivity that waits for the body to be imprinted by the other natural forces about it, for their truth eventually to manifest itself, however partially, upon it, rather than an aggressive setting upon nature and attempting to force its secrets from it, in the Kantian or Hegelian manner. In response to the compliment, Goethe seeks to make this thinking explicit. He writes: "Nature will reveal nothing under torture; its frank answer to an honest question is Yes! Yes! - No! No!"[10]

This understanding of the ambivalence of nature's manifestations when subjected to observation and experiment has lost some of the radicality it must have had when Goethe first put it forth. In the late

[8]Pluhar's rendering of the title as 'How the Principle of Universal Mechanism and the Teleological Principle can be Reconciled in the Technic of Nature' is somewhat misleading. There is no question of a struggle between conflicting forces which will then become reconciled with each other. Rather, as I have attempted to show above, in the drive towards unification, an actual merging (*Vereinigung*) of the two principles, is at stake.

[9]*'Bedeutende Fördernis durch ein einziges Geistreiches Wort'*, in GA *16*, 879/ 'Significant Help Given by an Ingenious Turn of Phrase', SS, 39.

[10]*Maxims and Reflections*, SS, 307.

eighteenth and nineteenth century, as is well known, Newton's influence had just worked something of a revolution in scientific method. Scientists believed it was possible to obtain results that were untainted by theological assumptions, outdated world views, and subjective projection through strictly empirical methods. Goethe's proviso that the scientist, too, must be as open to metamorphosis as the nature he or she is observing admits from the outset that the scientist is as likely to get no comprehensible answer as he or she is to be enlightened by the dominant scientific method of observing - and prodding - nature. Goethe's method of observation is not "objective" in the well-worn, little-reflected-upon sense in which it is often used in contradistinction to "subjective". Rather, Goethe was well aware of the impossibility of observation without bringing a host of assumptions to bear upon the "facts", the impossibility of "objectivity" as it is commonly assumed. In the preface to his *Theory of Color*, Goethe writes:

> An extremely odd demand is often set forth but never met, even by those who make it: i.e., that empirical data should be presented without any theoretical context, leaving the reader, the student, to his own devices in judging it. This demand seems odd because it is useless simply to look at something. Every act of looking turns into observation, every act of observation into reflection, every act of reflection into the making of associations; thus it is evident that we theorize every time we look carefully at the world.[11]

This observation sounds quite familiar today, but it was written almost two hundred years before the time of Thomas Kuhn.[12] In his essay 'The Experiment as Mediator Between Subject and Object', Goethe observes that the propensity to make connections between isolated phenomena increases in an inverse ratio to the lack of instances upon which the unity is posited, a tendency that he links to the pleasure the human mind takes in projecting coherence onto what appears to be chaotic. Goethe, like Kant, finds this tendency to be unavoidable; unlike Kant, however, he does not specify the conditions under which such a systemization would be acceptable, but rather outlines the method through which its rashness

[11]'Vorwort', *Zur Farbenlehre*, GA *16*, 11/ 'Preface', *Theory of Color*, SS, 159. See also *'Erfahrung und Wissenschaft'*, GA *16*, 869-871.

[12]I am referring of course to *The Structure of Scientific Revolutions* and the revolution that this work generated in the philosophy of science in the 1970's.

can be mitigated. Again like Kant, Goethe specifies that this tendency "springs by necessity from the organization of our being".[13]

Both botany and chromatics, the subjects of *The Metamorphosis of Plants* and *Theory of Color*, Goethe's two most important scientific works, deal with what one commentator calls "boundary situations," contexts in which "it can become immediately evident that all perception is grounded in a realm beyond the split between subject and object."[14] When analyzing both botanical development and the play of light, we do not actually *see* plant growth or light itself, but rather must construct them out of our knowledge of their structure: "Thus for Goethe, botany and chromatics were valuable not only for the intrinsic interest and dignity of their subject matter, but above all because of their propaedeutic value; because there the contribution of the perceiving subject to the construction of the phenomenon is immediately apparent".[15] Although Goethe also conducted studies in animal skeletal metamorphosis (osteology) and meteorology, studies that also took metamorphosis as their basis, the principles of transformation of form were not as immediately evident in these areas.

Goethe's method of studying plant morphology consisted in both careful observation and expectant waiting for his thinking to develop internally according to the principle of natural growth. He writes, "My question to the object is answered by what is in me", thus rejecting a simple opposition between inside and outside, or between subjective and objective knowledge. Goethe believed that the only way a human being can have access to the truth of nature was by letting nature imprint itself on the human body. Goethe was aware that nature is not independent of the way in which it is approached by the human observer, that we structure nature in turning our thought to it. The method of objective thinking assumes a mutual influencing between natural and cultural development in the very way an organism interacts with its physical environment. As the same commentator puts it, "Goethe's scientific ideal is to allow oneself to be transformed in following the transformations of the phenomena. Thus, for Goethe, the ultimate aim of science is nothing other than *the metamorphosis of the scientist*".[16] Scientific discoveries in

[13] '*Der Versuch als Vermittler von Subjekt und Objekt*', GA *16*, 844-855/ 'The Experiment as Mediator between Object and Subject', SS, 11-17.
[14] Frederick Amrine, 'The Metamorphosis of the Scientist,' in *Goethe Yearbook*, Volume V, ed. Thomas P. Saine (Columbia, SC: Goethe Society of America, 1990), p. 202.
[15] Ibid., p. 202.
[16] Ibid., p. 194.

their early stages, writes Goethe, conceal as much as they reveal, and can paralyze the very progress they hope to set in motion: "Like an architect who enters a palace by the side door and then tries to relate everything in his descriptions and drawings to the minor aspect he encountered first."[17] If the scientist and thus science metamorphose along with nature, there can never be only one "natural" way for humans to pursue their knowledge of nature. In the end the notion of a whole (or a totality, in Kant's sense) can only be constructed from the point of view of the observer in his or her capacity as synthesizer, but this whole has none of the implications of stability or endurance in space and time because form is understood as rhythm. Unity becomes a purely discursive concept.

In an essay on style, Goethe stipulates that an artist becomes great and decisive only to the degree that

> in addition to his talents he is also an educated botanist; when he knows, from the roots up, what the influence of the various parts are on the thriving and the growth of the plant, when he recognizes its identifying characteristics and its reciprocal effects, when he observes and reflects upon the successive development of the leaves, flowers, the fertilization, the fruit and the new seeds. Then he will not simply show his taste by choosing among appearances, but through a proper presentation of qualities he will also set us to wondering and instruct us. In this sense one would be able to say that he has a style.[18]

Goethe himself, following his tireless search for the *Ur-pflanze*, or original plant at the origin of all vegetative life, strove to be "plant-like": to wait, listen, write, to claim no overarching morality nor any theory that refused the possibility of constant revision. Goethe's literary characters, too, almost always have the quality of being strangely unformed. They do not themselves know exactly where they are going or how they will reach their goals. Any person who seems to know and to plan in advance for his or her future will inevitably go astray through circumstances beyond human control. In *Elective Affinities*, each of the four main characters is magnetically drawn against his or her explicit will to cross-pollinate - this metaphor is not made explicit but is entirely consonant with Goethe's scientific knowledge and his belief in the interrelatedness of all natural phenomena - with the mate or intended mate of the other. In *Wilhelm*

[17] J.W. von Goethe, "A General Observation, " SS, 42.
[18] "*Einfache Nachahmung der Natur, Manier, Stil*" (1789), GA *13*, 66.

Meister's Apprenticeship the protagonist constantly makes plans to leave the squalid theatrical company with which he becomes involved while on a business trip for his father, and then sinks back into it without any reason given for his lack of resolve. These characters are plants that grow and twist towards the light no matter what direction it comes from, but the light represents no ultimate good or even a consistent path.

Following this lead, many literary and philosophical theorists in eighteenth and nineteenth century Germany advocated the unfolding of the plant, or "vegetable genius", as the ideal form that literary and philosophical creation take. These "organic" theories emerged, like their counterparts in natural history, in reaction to mechanistic theories of science and literature, and in sympathy with Kant's outline of the technic of nature in the third *Critique*. Analogies drawn between the workings of the animal body and the functioning of a machine make the advocacy of a plant figure rather than, for example, an animal one not as surprising as it might initially seem. The terms "organic" and "organism" in the sense of "having an organized physical structure" as applied to a living being, only came into common usage in the late eighteenth and early nineteenth centuries. Long after Aristotle, the usage of *organon* from *ergon*, or "work", referred to the opposite of what would now come to mind with the word "organic", namely, to a tool or instrument. In French anatomical studies of the fourteenth and fifteenth centuries, "organic" was used to refer to the organs of the animal body in analogy with tools, in what was observed to be their mechanical functioning.[19] Although the figure of body as machine is admittedly one that would be seriously contested by contemporary theorists of the body,[20] the shift to the notion of "vegetable genius" allowed theorists to avoid the description of individuals primarily as self-enclosed purposive centers. The plant moves around the opposition of inside and outside, for in the process of the metamorphosis of the plant what was contracted and contained expands and becomes surface; the plant moves beyond the opposition of male and female, for both sexes often exist side by side in the same flower; the plant renders the opposition between passive and active superfluous, for the motivating force of the plant cannot be identified as consciousness or intention.

In early writings, Kant, by contrast, had explicitly opposed himself to the notion of "plant thinking" or "vegetable genius," instead using plant

[19] Oxford English Dictionary

[20] Much contemporary research has been done in changing conceptions of human bodily form from machine- or fortress-like to a more flexible and open-ended system of self-regulating forces. I am responding primarily to nineteenth-century conceptions of bodily form.

metaphors to characterize what was most sluggish and unresponsive in human thought. In his *Universal Natural History* (1755), Kant explicitly compares the human being to a plant - precisely at that point where human sensuality occludes the possibility of attaining reason:

> When one regards the nature of most men, man seems to be created as a plant, to draw in sap and grow, to propagate his kind, and finally to grow old and die. Of all creatures he least achieves the end of his existence, because he consumes his more excellent fitnesses for such purposes as lower creatures achieve more securely and decently with less. He would indeed be the most contemptible of all, at least in the eyes of true wisdom, if the hope of the future did not lift him up, if there were not a period of full development in store for the forces shut up in him.[21]

He continues, "If one seeks the cause of the obstacles that keep human nature in such deep abasement, it will be found in the grossness of the matter in which his spiritual part is sunk, in the inflexibility of the fibers and sluggishness and immobility of the sap/fluid that should obey its stirrings".[22] By contrast, in the turn towards the ideal and the totalizing power of reason, the human mind rediscovers its animal vigor (a word that Kant uses to describe the sublime) in its fundamental opposition to the forces of nature.

Kant and Goethe's contemporary, the British literary theorist Edward Young echoed a popular view when he wrote in his 1758 manifesto *Conjectures on Original Composition* that "an Original may be said to be of a vegetable nature, it rises spontaneously, from the vital root of Genius; it grows, it is not made".[23] Kant's description of genius in the third *Critique*, written thirty-five years after the *Universal Natural History*, contrasts strikingly with his earlier description of vegetable nature by following this common eighteenth century conceit in making genius the unconscious channel for the forces of nature as they provide the closest possible expression of the supersensible in finite form. For Kant, however, the fact that genius could never know the rules for its own art placed artistic achievement forever below the power of rational

[21] Immanuel Kant, (*Ak* I), 356/*Universal Natural History and Theory of the Heavens*, trans. Edmund Jaki, (Edinburgh: Scottish Academy Press, 1981), pp. 188-89.

[22] Ibid.

[23] Edward Young, 'Conjectures on Original Composition', in *The Complete Works, Poetry and Prose*, ed. James Nichols (Hildesheim: Georg Olms Verlagsbuchhandlung, 1968), p. 552.

thought, for "judgment, which in matters of fine art bases its pronouncements on principles of its own, will sooner permit the imagination's freedom and wealth to be impaired than that the understanding be impaired" (KU, 320). Finally, Kant's directive that organic unity may be projected upon products of nature in order to understand them through the subjective *a priori* principle of reflective judgment seems to point to the more self-enclosed form of the animal organism to direct the way in which we judge nature as beautiful or purposive. [24] Nevertheless, Kant's description of the involuntary spontaneity of the active, transcendental subject inspired German Idealism's understanding of *Geist*, or spirit, as the interdependent relationship of this dynamic spontaneity with the ontological ground of nature.

Friedrich Hölderlin turned to the structure of plant life with its manifold growth and metamorphosis to express the relation between

[24] In her study of Kant, *The Embodiment of Reason: Kant on Spirit, Generation, and Community* (Chicago: University of Chicago Press, 1999), Susan Meld Shell observes that in both the *Anthropology* (X:165) and the *Universal Natural History* (I:357), as well as in the *Critique of Judgment*, Kant reworks the traditional divide between the male as active principle (efficient cause) and the woman as passive recipient (material cause) in the sexual act. The obliteration, in Cartesian science, of the traditional Aristotelian distinction between efficient and material causation tended to undermine this hierarchy. Shell suggests that Kant's description of the predicament of human reason of being hopelessly hindered by sexual desire, physical attraction and sensory enticements points to a larger problem with generation itself. She writes that the dreaded contingency of "The very act of generation - traditionally the emblem of man's rational, and formal supremacy - threatens to dissolve into unregulated and hence 'loathsome' fecundity." Against this threat, "only God's inseminating spirit (which assures, among other things, the eternity of biological species) is proof, while man's physical generative power descends to the level of the plants. The plantlike passivity traditionally associated with the female principle of generation infects, in Kant's account, the male principle as well, at least insofar as it remains within the nexus of the physical. It is not in generating, but in resisting generation for the sake of a higher sort of attraction, that man's spirit uplifts itself" (69-70). The same problem can be seen in Kant's advice to young men in the *Anthropology* to "If we want to keep our power of sensing lively we must not begin with strong sensations ... we must rather forego them at first and mete them out sparingly so that we can always climb higher" (X:165). English translation by Mary J. Gregor, *Anthropology from a Pragmatic Point of View* (The Hague: Nijhoff, 1974), p. 42. To the extent that "plant-like" refers to this Stoic deferral of immediate gratification, perhaps we could understand this mixture of pleasure-seeking with self-denial, as Shell does, as Kant's revision of the traditional principles of male and female. However, it is also clear that to the extent that "female" or "plant-like" is understood as "languid" it will be excluded from the realm of the sublime.

human thinking and nature. Plants manifest the alert receptivity that Hölderlin understood to be the role of the human soul (*Gemüt*) within the natural world. In her study of Hölderlin and tragedy, Françoise Dastur describes Hölderlin's understanding of the relationship of the *Gemüt* to nature as a "system of receptivity," that encompasses on one side the human heart and spirit, and on the other the "fire of heaven, the dimension of the divine under whose influence man develops in following the law of succession."[25] Goethe's writing provides only one example of the late eighteenth and early nineteenth century's fascination with the trope of plant life. Botanical terminology taken directly from scientific works began to pervade writing, from literary criticism to literature itself to philosophy. This cross-pollination of science and art can be seen in literary works from Friedrich Schlegel's *Lucinde* to Friedrich Hölderlin's *Hyperion*, and in philosophical works such as Friedrich Schelling's *System of Transcendental Idealism* and G.W.F. Hegel's *Phenomenology of Spirit*. What is particularly interesting about these thinkers' appropriation of the plant trope is their refusal to understand metaphor and analogy as purely decorative devices. As with Kant's third *Critique* and Goethe's literary and scientific writings, aesthetics and science were assumed to mutually inform each other.

In the fragment entitled 'The Oldest Program Towards a System in German Idealism' (1796), whose authorship has to this day not been unequivocally established,[26] the question of the relationship between philosophy and art, science, and nature comes to the fore. It is interesting to note that the fragment could have been written either by the poet Hölderlin, or by the supreme philosopher of reason, Hegel (or for that matter by their mutual friend, Schelling). These three thinkers, while studying at Tübingen Seminary, read Kant's third *Critique* together and plotted a new union of science and art, one that might effect in German philosophy a rebirth of the glory of Ancient Greece. The author(s) write(s):

> Mythology must become philosophical, and the people rational, while philosophy must become mythological, in order to make the philosophers sensuous. Then eternal unity will prevail among us.

[25] Françoise Dastur, *Hölderlin: Tragédie et Modernité* (Paris: Encre Marine, 1992), p. 94.

[26] The fragment is written in Hegel's hand, but contains ideas more often associated with Schelling or Hölderlin; it has variously been attributed to all three writers. Translated as 'The Oldest Program Towards a System in German Idealism' by David Farrell Krell, *Owl of Minerva* 17:1 (Fall 1985), 8-13.

> No more the contemptuous glance, no more the blind quaking of the people before their sages and priests. Only then can we expect the *equal* formation of *all* forces, in particular persons as well as in all individuals. No longer will any force be suppressed; then universal freedom and equality of spirits will prevail![27]

This injunction that philosophy must become sensuous points to the importance placed on including aesthetic judgments in the conceptualization of thinking. Whether the text was written by Hölderlin, by Hegel, or by Schelling, the dispute as to its authorship shows the proximity of the three thinkers' views with reference to the project of unifying science and art by lending philosophy a sensuous nature and art a philosophical grounding.

Of the three, however, Hölderlin took Kant's philosophy to its furthest extreme. The final chapter of the first book of Hölderlin's novel *Hyperion*[28] takes a polemical stance against Kant's *Critique of Judgment* by castigating German philosophy for privileging reason over beauty. Hyperion's figuration of human existence as "plant"[29] gives less importance to consciousness of purpose than to moments of vision. Humans can hope for no more than flashes of pure joy in the face of beauty, to be followed inevitably by suffering and lack of comprehension. "Philosophy", Hyperion states in a climactic speech, "springs from the poetry of an eternal, divine state of being". For its part, poetry is "the beginning and the end of philosophical knowledge" (H, 66). The person who has not "at least *once*" in a lifetime felt "full, pure beauty in himself",

> when the powers of his being played interwoven with each other (*ineinander spielten*) like the colors in the rainbow, who has never felt the intimate harmony that arises among all things only in hours of exaltation - that person will not even be a philosophical skeptic,

[27]Ibid., pp. 12-13.

[28] *Hyperion*, trans. Willard R. Trask (New York: The Continuum Publishing Company, 1994), hereafter H.

[29]This interpretation could be contested with reference to a letter from Hölderlin to his friend Neuffer in September, 1792, where Hölderlin expresses some of the vegetable associations we have discussed above in the following line: "You will laugh that the idea came to *me*, here in my plant-life, of composing a hymn to *audacity*. Indeed, a psychological riddle!" *Werke und Briefe*, ed. Friedrich Beißner and Jochen Schmidt (Frankfurt am Main: Insel Verlag, 1969), 2: 807.

> his mind is not even capable of tearing down, let alone of building up (H, 66).

The words "play of powers" are reminiscent of Kant's description of judgments of beauty, which result in a free play of the imagination and the understanding. Hölderlin declares poetry to be the originator and the terminator of philosophy, and not the reverse. In the third *Critique*, Kant separates the philosopher from the genius in making the philosopher the "pruner" who "clips the wings" of the too-enthusiastic poetic genius, introducing "clarity and order" and "guidance," making the ideas of genius "durable, fit for approval that is both lasting and universal, and [hence] fit for being followed by others and fit for an ever advancing culture" (KU, 319). The philosopher is thus, in Kant's words, "far superior to those who merit the honor of being called geniuses," for the art of genius is limited, "a boundary is set for it beyond which it cannot go" (KU, 309). Hölderlin upsets this hierarchy. Intellect and reason (*Verstand* and *Vernunft*),[30] rather than genius, are severely limited in Hyperion's view. Intellect alone simply remains in a state of impoverishment:

> Intellect is without beauty of spirit, like a servile journeyman who constructs the fence out of rough wood as it has been sketched out for him, and nails the prepared posts together for the garden that his master intends to plant. The entire business of intellect is makeshift. By putting things in order, it protects us from folly, from injustice; but to be safe from folly and injustice is, after all, not the highest level of human excellence (H, 68).

To be human, to reach for the highest level of excellence, requires a willingness to make oneself vulnerable, to expose oneself. German philosophy has demanded the reverse, according to Hyperion: "One must be reasonable, must become a self-conscious spirit (*selbstbewußte Geist*) before one is a human being (*Mensch*), must be a shrewd man (*Mann*) before one is a child; the oneness of the whole person, Beauty, is not allowed to thrive and ripen in him before he cultivates and develops himself" (H, 68).

From the beginning of *Hyperion*, Hölderlin uses the trope of plant life to criticize the excessive analysis that kills, exemplified in German

[30]In *Hyperion* Hölderlin uses *Vernunft* (Kant's "Reason") and *Verstand* (Kant's "Understanding") interchangeably.

philosophy and science. In the preface, Hölderlin calls the novel a delicate plant that will wilt in human hands if treated wrongly: "Whoever merely smells my plant, knows it not, and whoever merely picks it, in order thus to learn about it, also does not know it" (H, 1). This becomes a theme that recurs throughout *Hyperion*: thinking, real thinking, requires a kind of vital juice that excessively disciplined and hyperrational philosophy will kill as surely as the superficial glance of an unreflective observer. The ideal or spiritual, like Nature itself, must be treated with reverence by a thinker who is both truly involved in what he or she is examining and not overly inclined to dissect.

Similarly, in Novalis' novel *Heinrich von Ofterdingen* one encounters the striking analogy cited as an epigraph to this essay, in which the relationship between the innermost nature of the human being (the German word is *Gemüt*[31]) and the natural world is compared to the visual interaction of body (*Körper*) and light. The analogy of the relationship of human thinking and nature to that of a crystal and light expresses a relationship that concords with Goethe's understanding of the way in which human thinking and the natural environment interact in the creation of philosophy, science, and art. The human being is only to be privileged by virtue of the power of human thinking to manifest truths about nature, and not by virtue of its capacity to dominate nature which will only hinder true understanding.

Nature is to our *Gemüt* what a body is to light, the poet Klingsohr explains to Heinrich von Ofterdingen, the protagonist of Novalis' story; the body restrains the light and refracts it into particular colors. The light in turn kindles a glow on the surface or in the interior of the body such that when the light equals the darkness of the body, it makes the body first translucent and then transparent, and when the light finally exceeds the darkness it issues forth to illuminate other bodies. In the same way, Klingsohr implies, nature restrains human *Gemüt* and refracts it into particular forms of determinate knowledge, including studies of nature

[31]The German word *Gemüt* means something like "ownmost disposition" or "inner nature," or what is "in one's heart of hearts." Hölderlin will refer to something similar when he writes of what is most *innig*, most intimate or intense. *Gemüt* is sometimes translated as "mind" or "intellect" or "spirit". The first two translations are particularly misleading, since, as can be seen here, the *Gemüt* is at times specifically contrasted to the narrower faculties of cognition such as *Verstand* or *Vernunft*. Because of the importance of the word *Geist* for German Idealism, in a sense that in no way corresponds to what we might think of as an individual's "spirit," this word is also not appropriate. Since none of these expressions tersely captures what *Gemüt* means, I will leave the word untranslated.

itself. However, before the *Gemüt* can serve to illuminate *other* things (which occurs when the light exceeds the darkness), it first must make the original body (nature itself) transparent. Self-knowledge, too, as a particular form of knowledge, proceeds only out of knowledge of nature; each kind of knowledge can be achieved only by virtue of the illumination of the human *Gemüt* after it has passed through nature. Self-knowledge and knowledge of nature implicate each other, as is indicated by a reversal of direction in the analogy. Initially, the *Gemüt* is compared to light and nature to a body. The sentence begins with what *nature* does, namely, it *restrains* and refracts the power of the *Gemüt*. But then what *kindles* a glow on the surface or in the interior of the body cannot be nature illuminating the human mind, but must be the reverse, since nature was compared to a body. Knowledge of nature and self-knowledge are mutually dependent.

Novalis equates restraint (*zurückhalten*) with refraction, the breakdown of a unity into its parts. The German for "refraction" is simply *brechen*, "to break". As human powers of understanding direct themselves against nature, the "heart of hearts" of the human *Gemüt* is transformed into the specific powers of understanding, reason, will, and judgment, just as white light is refracted into the colors of the spectrum upon striking a body. Without the particular radiance produced by the prism-like quality of nature, we could not know ourselves; in other words, we know ourselves only in and through nature. Heinrich understands Klingsohr to mean that "human beings are crystals for our *Gemüt* - they are transparent nature." Yet "transparent" here does not mean self-evident. Nature is the crystal through which human knowledge, on the one hand, and enjoyment of nature, on the other, can arise. The human being is limited to knowledge of the refraction of his or her own disposition through nature. As light bends and separates as it passes through a prism, human nature becomes evident to itself only as it passes through nature.

Novalis and other German thinkers of his time considered an intimate and direct knowledge of nature to be the *sine qua non* of knowledge of any other sort. The period of German Idealism historically coincided with the beginning of the movement to separate the disciplines of empirical science from those of philosophy, literature, and art. At the same time, however, all these disciplines merged and complemented each other to a degree unparalleled before and since then, as if to reach their greatest unity before inevitably having to diverge. Paradoxically, this tension prefigures the reduction of nature to the object of scientific and technological research in the century following it, as the act of separation

had become cut off from the original phenomenon of refraction. Klingsohr's vision of human powers united with nature, yet prone - through an overabundance of knowledge - to forgetfulness of the source from which all forms of knowledge came, illustrates the human tendency towards fragmentation, on the one hand, and towards an overly lyrical relationship with nature that neglects understanding, on the other.

Novalis chose the prism or the crystal because it encapsulates an activity within a particular object. By itself, the crystal is nothing but a transparent piece of glass. Light, too, is invisible and unremarkable until it is refracted into the colors of the spectrum. The conjunction of light and crystal - and by virtue of the analogy, between human disposition and nature - causes *both* to fundamentally change, but in such a way that they remain transformed only when they are together. Alone, each goes back to its former state. What is interesting about the analogy is the depiction of an active mutual influencing that cannot be said to be "contained" in any determinate thing or image but is purely relational. Thus, as it was for Kant, the analogical structure is crucial to the articulation of this relationship between human being and nature. Just as in Kant's analogy of the technic of nature to an organized being, for Novalis (and for Hölderlin) the *choice* of the figure upon which the analogy is based is crucial; whatever represents the relationship must be capable of presenting both form and transformation, both the distinction between and the mutual interdependence of the relata. The prism and the light define and transform each other.

The use of organic metaphors to characterize human thinking in its intimate relationship with nature manifests more than simply a striking image, however. The very definition of metaphoricity as a structure of substitution of sensory and evocative terms for abstract concepts is here put into question, as is the story we tell ourselves of how language evolved. The relationship between what we loosely call "nature," on the one hand, and the human creativity that includes the attempt to make sense of that same "nature," on the other, has often been conceived of as the locus of the earliest of metaphors. Metaphor itself has been described, by Nietzsche, among others, as the result of a slow progression in human cognition from the immediate and the sensory to the abstract and conceptual. The story goes something like this: the earliest humans had much more intimate contact with the natural environment, which they strove to master and in the face of which they were extremely vulnerable, but whether in domination or in subordination they had a fundamental relationship with the raw, natural elements that is unknown to most human beings today. The first civilizations arose as a result of the taming

of nature through the development of agriculture and the domestication of animals, as well as the taming - through a social contract that exchanges certain freedoms for the guarantee of protection - of naturally hostile initial relationships between human beings. "Culture" itself could not emerge until this initial double mastery of nature and of human nature had reached a stage of some stability, so that the visual arts, music, and writing were all products of leisure and of a secure and sedentary life. The earliest mythologies were personifications of the forces of nature and allegorizations of natural processes. As culture and language progressed, a transfer slowly took place from raw, immediate, sensuous experience to more abstract notions. These non-sensory concepts could only be put into language by referring them in turn to the elements of original experience, which explains the etymological derivations of many abstract words whose roots point to sensory experience yet which designate ideas that cannot be empirically presented. The nouns of our language, as a result, are a complicated mixture of names of things that can be ostensively designated and conceptual or metaphysical terms which have lost all contact with the experience from which they were derived.[32] Such metaphysical terms may be called "dead" metaphors. For example, the word "subject," so important a term both in the grounding of modern philosophy and in the contemporary critique of the metaphysics of presence, originally referred not to a human being or thinking, but to a material substratum (from *subicere*, 'to throw under'), a bearer of states and activities, a word that today would be more closely associated with subject's counterpart, the object.

One of the many problems with such a reading of metaphor is that from the outset it presupposes a clear division between nature and culture, between sensory and non-sensory, between metaphorical and literal meanings in language, and it further presumes a parallel structure between the opposing terms of this set of contraries, so that, for example, metaphorical language results from the replacement of a primitive language closely bound to nature with a "higher" language of abstract terms which nevertheless can only be articulated with reference to the sensory. Classical metaphysical thinking is inaugurated in such assumptions even before one begins to look at the history of philosophy. Furthermore, such a story presumes a uni-directional progression from

[32]In 'White Mythology,' Jacques Derrida discusses this description of the relationship between metaphor and metaphysical language with reference to Anatole France's *The Gardens of Epicurus* (210-18). In *Margins of Philosophy*, trans. Alan Bass (Chicago: The University of Chicago Press, 1982), pp. 209-271.

the natural and the sensory toward the cultural and the intelligible, without taking into account the influence of particular assumptions about culture that already orient the way in which nature is understood. Indeed, there may be no pure experience of nature; in order for "nature" to appear to us in an intelligible way, it must be signified through a historical discourse. In the eighteenth and nineteenth centuries in Germany the question of how one articulates nature formed an important part of scientific and philosophical discourse, producing many thinkers - among them, Kant, Goethe, Hölderlin, Novalis, and even Hegel - who were acutely aware of this reciprocal relationship between nature and culture.

The word "culture," itself has a complicated history. The original network of meanings surrounding "culture" linked it to the controlled cultivation of plants in an agricultural setting. The meaning of "culture" underwent a transition in the eighteenth century from a noun of process, referring to the tending of something (usually a plant or animal) to a usage that designated everything human that did not spring directly from nature.[33] This development parallels the eighteenth century modification of the way the two sexes were viewed, from a continuum-based differentiation predicated on the assumption of a basic homology between both the genitals and the roles of men and women, to a binary opposition that presupposed the incommensurability of the two.[34] Both developments probably arose from the gradual shift from an agriculture- to an industry-based economy. Both thus show the way in which the description of nature can fundamentally change depending on the way in which culture has already been transformed. The move from organism as machine to organism as self-organizing being equally reflects the shift, with modernity, to a metaphysics grounded in self-organizing subjectivity.

Perhaps the most telling difference between the understanding of "organic" in nineteenth century literary and philosophical theory and the way in which we use the word today can be seen through Hölderlin's designation of the term "organic" (*organisch*) for human activity, the organized reflected principle of spirit and of art in the sense of the Greek *techne*. "Organic" in Hölderlin's theoretical work indicates all human projection onto nature, all giving of form to what inherently cannot be captured in form, whereas "aorgic" (*aorgisch*) refers to nature prior to any human representation of it. Hölderlin understood that every human

[33]See Ludmilla Jordanova, *Sexual Visions: Images of Gender in Science and Medicine between the Eighteenth and Twentieth Centuries* (Madison: The University of Wisconsin Press, 1989), p. 37.
[34] See Thomas Laqueur, *Making Sex: Body and Gender from the Greeks to Freud* (Cambridge, MA: Harvard University Press) for more on this connection.

turn towards nature, whether as a purportedly "neutral" observing scientist or as an artist, was in some way an appropriation and thus a transformation of it. The debate that arose in eighteenth century European literary circles between the relative merits of "mechanical" and "organic" theories of literature is ironic, given the etymology of "organic". Hölderlin's was one of many efforts to "unite" mechanical and vitalistic views of nature, to overcome a distinction that he recognized as fruitless.[35]

Kant's technic of nature and Hölderlin's designation of the organic as that which is shaped by human intervention into nature fueled the Romantic belief that poetry and truth manifested themselves "organically" both in nature (insofar as it was an object of aesthetic appreciation) and in art. To be organic is both to impress nature and to allow nature to impress one with plastic power. As Novalis put it, "What I am to understand must develop organically within me - and what I seem to learn is only nourishment - stimulation of the organism".[36] Kant's directive that the interior purposiveness of organisms gave rise, in the careful human observer, to the critical principle of reason that allows human thinking to shape itself most reflectively, guided the creation of artworks that manifested the organic understood as the mutual influence of thinking and nature. Such an understanding has implications for the position of the scientist and the artist vis-à-vis the natural world, and perhaps indicates a more fruitful direction for an environmental ethics that would go beyond the oppositional stance of agent versus natural world, or of culture versus nature, or even, for that matter, of science towards art.

[35] For more on this debate, see M. H. Abrams, *The Mirror and the Lamp: Romantic Theory and the Critical Tradition* (Oxford: Oxford University Press, 1953), especially Chapter VII, 'The Psychology of Literary Invention: Mechanical and Organic Theories'.
[36] 'Miscellaneous Observations', in *Novalis: Philosophical Writings*, trans. and ed. Margaret Mahony Stoljar (Albany: State University of New York Press, 1997), p. 25.