

## **Outside and In: Hegel on Natural History**

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*Abstract: For Hegel, nature embodies the necessary structures described in his Logic, but spread out in space, the realm of externality. Human culture, on the other hand, develops by a complex process of internalizing its history through time. But this way of reading a Matter/Spirit dichotomy is too straightforward. For nature includes its own modes of internalization and its own kind of external recapitulation. Hegel knew that the face of the earth had been shaped by long-term geological processes that can be read in the current formations. If rocks and hills have a temporal dimension, what about current natural kinds and the fossils found in those rocks? Though Hegel rejected the theories of evolution current in his day, he had room for a historical unfolding of the Idea of Nature.*

### **Introduction**

Hegel, so the story goes, was a philosopher of spirit, an idealist, interested in logic and society. So why should we pay much attention to what he might say about nature and natural history? We are told he said that nature has no history.

In Hegel's published works long volumes of lectures are devoted to history, religion, spirit, and logic. Nature is treated more briefly in the second part of his *Encyclopedia of the Philosophical Sciences*. This text is dense, abbreviated. There are added notes taken from student records of Hegel's lectures, but these are not well linked with one another. The people who prepared Hegel's lectures for publication after his death apparently didn't feel the lectures on nature needed to be assembled together, whereas they synthesized (not always well) many years' lectures on history, art, and religion.

So why even ask about natural history in Hegel? There are several reasons. First, he does suggest novel ways to think about nature. Hegel was closely associated with Schelling and other figures in German Romanticism who had creative theories of nature, and while Hegel came to reject their overall views, he was marked by the encounter. Second, Hegel was interested in the science of his day and relatively well read on its developments and controversies. From our perspective, he took the wrong side on some of those controversies, but his comments on them remain interesting and often insightful.

It remains true nonetheless that Hegel's is preeminently a philosophy of spirit, self-consciousness and culture. Not for him the romantic exultation of nature in itself, and not for him Schelling's

attempt to use categories derived from nature to understand spirit and history. For Hegel the dependence goes the other way, for nature shows us structures and processes that echo in primitive form the more developed processes revealed in culture and history.

### **Studying Nature**

To find out about Hegel's conceptual analysis of the natural world, we look to his *Encyclopedia* and his *Science of Logic*. To find out what it means to live in nature and to be confronted by its energy and diversity, we look to his texts on art and religion. Hegel's rhetoric about the way nature enters our lives seldom sounds like a romantic exaltation of nature, and he does not believe in an unreflective life in unity with nature. Our goal not an immediate but a resultant connection.

A natural unity of thought and intuition is that of the child and the animal, and this can at the most be called feeling, not spirituality. But man must have eaten of the tree of the knowledge of good and evil and must have gone through the labour and activity of thought in order to become what he is, having [opened up and then] overcome this separation between himself and nature. (EN par. 246z)<sup>1</sup>

We need to distance ourselves from any immediate feeling of unity and mythological identification with nature, then reintegrate ourselves with nature by studying it and finding there the lineaments of spirit.

Hegel wants us to conduct a double study.<sup>2</sup> First we derive by a self-investigation of pure thought the logical categories required for thinking about any being on any level. These are valid in both nature and culture. They provide the framework Hegel is willing to call "metaphysical."

For metaphysics is nothing else but the entire range of the universal determinations of thought, as it were the diamond net into which everything is brought and thereby first made intelligible. Every educated consciousness has its metaphysics, an instinctive way of thinking, the absolute power within us of which we become master only when we make it in turn the object of our knowledge. Philosophy in general has, as philosophy, other categories than

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<sup>1</sup> References to Hegel's philosophy of nature in the second part of his *Encyclopedia of the Philosophical Sciences* are here abbreviated EN, followed by the paragraph number, followed by "z" if the extract is material added from Hegel's lectures. I have occasionally modified the translations.

<sup>2</sup> For discussions of Hegel's methodology, see the essays collected in Stephen Houlgate, ed., *Hegel and the Philosophy of Nature*, Albany, NY: SUNY Press, 1998, as well as Houlgate's own discussion of the philosophy of nature, in his *An Introduction to Hegel: Freedom, Truth and History*, Oxford: Blackwell, 2005.

those of the ordinary consciousness: all education (*Bildung*) reduces to the distinction of categories. All revolutions, in the sciences no less than in world history, originate solely from the fact that spirit, in order to understand and comprehend itself with a view to possessing itself, has changed its categories, comprehending itself more truly, more deeply, more intimately, and more in unity with itself. (EN par. 246z)

Hegel calls the result of the logical investigation "the absolute Idea," which is the involuted final category that includes all the others as its moments and aspects of its self-referential unity. The content of the absolute Idea is its own self-development. The final section of the logic reflects back on the earlier sections and discerns the dialectical motions of its subsidiary concepts, especially the move from concepts describing simple immediate presence, to kinds of mediated unities, to self-differentiating unities that hold together unity and diversity.

The key to understanding nature, for Hegel, is a prior understanding of the internal distinctions and divisions within this complex conceptual unity. Often he refers to it as *das Begriff*, which is etymologically "what grasps together," and is the standard German word for "concept." This is translated as "Concept" (sometimes, confusingly, as "Notion"), but it not a single concept such as "cow" or "cause" but more like a whole set of categories with their complex internal connections mutually constituting one another and describing their own logical connections and transformations.

Having derived categories that describe the way different kinds of being and unity come together, we then study how nature, as revealed by contemporary science, embodies the various moments of this complex movement. Logic comes first; we do not derive our basic categories from the always incomplete empirical sciences.

One must start from the Concept; and even if, perhaps, the Concept cannot yet give an adequate account of the "abundant variety" of Nature so-called, we must nevertheless have faith in the Concept though many details are as yet unexplained. The demand that everything be explained is altogether vague; that it has not been fulfilled is no reflection on the Concept, whereas in the case of the theories of the empirical physicists the position is quite the reverse: these must explain everything, for their validity rests only on particular cases. The Concept, however, is valid in its own right; the particulars then will soon find their explanation. (EN par 353z)<sup>3</sup>

We can trace how nature approaches more closely to spirit's unity-in-difference as we study more and more complex natural systems and organisms. Hegel works with *a priori* definitions of what it means to be a mechanism, a chemical unity, an organism. He leaves to empirical contingencies

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<sup>3</sup> In Kolb 2008 I discuss the ways in which the relation of the logical categories to nature has been wrongly interpreted as the operation of a separate level of causality, when instead their power is in defining the dispositions and potentialities of things.

just what develops to fulfill these definitions. He distinguishes the general categorial structure from the contingent detail of nature. The logic shows the general types that must be thought, but no natural being appears as only a general type. What philosophy provides is the general scheme, so we know, for example, that an animal organism must have subsystems for mobility, perception, for gathering energy from its environment. But whether it has two legs or eight, one eye or a hundred, and what precise species of bird it is, these are contingent details. Also, how the organism came to have its particular features is an empirical question that is not of philosophical interest to Hegel. Overall his investigation is more like devising a periodic table of the elements than an evolutionary tree. When he said that nature has no history he did not mean that individual species were eternal; he meant that the logical categories for nature's general types were derived and valid in pure thought without reference to empirical history.

Put very abstractly, for Hegel spirit aims at becoming fully self-present to and in its own complex unity and development. That development requires that each of the basic moments and aspects studied by the logic be brought forth explicitly, be posited more or less independently on its own, and then be brought back into a larger overarching unity. Spirit develops by having all its logically necessary moments and movements posited "outside" and then brought "inside" its self-awareness.

In this development, everything is interdependent, despite initial appearances of separation. Nothing stands purely on its own; everything is mediated through relations and processes with other aspects, moments, and things that in their turn are mediated. Their interrelation may be simplified and mechanical, but there is always interrelation. There are no simple units that can be fully just what they are without any connection to anything else. There is no level of fundamental, totally independent atomic entities in nature (nor in psychology, thought, or society).<sup>4</sup>

Nature's levels of increasingly complex empirical interrelations might be seen as developing over time. Hegel had little interest in whether or not they did. Nature's fertility works both in the past

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<sup>4</sup> Hegel was in every area opposed to theories that postulated a basic layer of isolated independent entities (material atoms, isolated sense data, pre-social rational individuals, self-contained concepts) with no necessary connections to one another and to larger unities. What is fundamental for Hegel is the logical structure of the processes of mediation and interaction. This led him to deny the atomic theory of chemistry as it was proposed at his time. He was mistaken, but his emphasis was correct. For even at that time the atomic theory was no longer a theory of fundamentally self-sufficient independent entities. Hegel pointed out how Newton's theory of gravity compromised the strict independence of the atoms, and he saw that new observations of chemical and electric forces were also undermining strict atomism. He might feel vindicated today since our atoms are even less independent and self-sufficient; their particles are also waves and transform themselves into one another, while quantum nonlocal effects and decoherence indicate further entanglements that we do not yet fully understand.

and present; what was important for philosophy was not tracing the details of what developed from what, but showing how the different logical moments of spirit's processes were embodied externally in nature's immense variety.

Hegel was well aware of the bountiful variety of nature. He followed Aristotle in distinguishing the three broad categories of mineral, vegetable, and animal. However he was also aware that the world revealed by the microscope showed vast new ranges of living things, among which Hegel seemed most interested in plankton and other tiny creatures that show the ocean to be a natural womb from which life constantly emerges. "The fecundity of the Earth causes life to break forth everywhere and in every way" (EN par. 370z).

Hegel also read reports about types of animals that differed from those alive today. He interpreted the fossil record as showing extinct species and experimental forms intermediate between the usual types. He claims these, along with present-day intermediate forms such as the platypus, reveal both nature's fertility and its inability to embody precise categorical distinctions.

Almost less even than the other spheres of nature, can the animal world exhibit within itself an independent, rational system of organization, or hold fast to the forms prescribed by the Concept, preserving them, in face of the imperfection and medley of conditions, from confusion, degeneration, and transitional forms. (EN par 370z)

The variety of nature exceeds the set of categories that Hegel argued are the *a priori* structure of nature. But far from this undermining the categories, it shows that in its externality nature is not able to embody the full complexities of the logical concept.

## **Outsides**

Nature is the primal and ultimate "outside." The different levels and types within nature exist spread out in space, externally connected to one another. Individual natural things in their turn show sets of properties that may have no necessary connections.

The contradiction of the Idea, arising from the fact that, as nature, it is external to itself, is more precisely this: that on the one hand there is the necessity of its forms which is generated by the Concept and their rational determination in the organic totality; while on the other hand, there is their indifferent contingency and indeterminable irregularity. In the sphere of nature contingency and determination from without has its right. This contingency is at its greatest in the realm of concrete individual forms, which however, as products of nature, are concrete only in an immediate manner. The immediately concrete thing is a group of properties, external to one another and more or less indifferently related to each other. For that very reason, the simple subjectivity which exists for itself is also indifferent and abandons them to contingent and external determination. This is the impotence of nature, that

it preserves the determinations of the Concept only abstractly, and leaves their detailed specification to external determination. (EN 250)

However, this externality is not the whole story. Hegel's picture of nature is a complex balance between individuals that show forth the different aspects of spirit and interactions that link them into natural wholes. Nature's variety is not a pile of completely separate items. Gravity unites separated bodies into physical systems. Chemistry and electricity show how seemingly independent beings intimately influence one another. Different organisms form complex networks as they share space, rely on and prey upon one another. Yet these kinds of dependencies remain external and do not form a tight unity such as is found inside a single organism or in the history of self-aware individuals and cultures.<sup>5</sup>

At every level of nature the entire Concept is present, but not in its fully explicit and mediated unity. For instance, in the abstract consideration of matter we see both the self-division of the Concept, in the separate points of space, and its unity, in the gravity that holds space and its contents together.

To show the different levels of unity in nature, Hegel several times compares the solar system with an animal organism. In the solar system different aspects of the Concept are embodied in the different motions of the planets, moons, and comets, which exist as independent bodies externally related to one another. The unity of the system is expressed abstractly as the gravitational force that holds them together, and concretely in the existence of the sun as the center of the system.

The Sun, comets, moons, and planets appear, on the one hand, as heavenly bodies independent and different from one another; but, on the other hand, they are what they are only because of the determined place they occupy in the total system of bodies. Their specific kind of movement as well as their physical properties can be derived only from their situation in the system. This interconnection constitutes them in the unity that relates their particular existence to one another and holds them together. Yet the Concept cannot stop at this purely implicit unity of the independently existing particular bodies. For it has to make real not only its distinctions but also its self-relating unity. This unity now distinguishes itself from the mutual externality of the objective particular bodies and acquires for itself at this stage, in contrast to this mutual externality, a real, bodily, independent existence. For example, in the solar system the sun exists as this unity of the system, over against the real differences within it. But the existence of the ideal unity in this way is itself still of a defective kind, for, on the

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<sup>5</sup> Hegel does not follow the Stoics for whom nature as a whole is a single living organism, in which each thing keeps to its appointed role. Nature's externality means that there will be many different unities and kinds of unity, all expressing the Concept, but unable to come together into a whole in the way spirit can unify and totalize itself in politics and community, and more completely in art, religion, and philosophy.

one hand, it becomes real only as the relation together of the particular independent bodies and their bearing on one another, and, on the other hand, as one body in the system. (*Hegel's Aesthetics*, vol. I, 117-18)

Externality, unity, and interdependence can all be found in the solar system, just as in animal organisms. But in organisms the individual moments of the Concept are expressed in subsystems and organs that are more deeply interdependent and cannot exist independently on their own as do the planets.

The sun, planets, comets, the elements, plants, animals, exist separately by themselves. The sun is an individual other than the earth, connected with the planets only by gravity. It is only in life that we meet with subjectivity and the counter to externality. The heart, liver, eye are not self-subsistent individualities on their own account, and the hand, when separated from the body, putrefies. The organic body is still a whole composed of many members external to each other; but each individual member exists only in the subject, and the Concept exists as the power over these members. (EN par. 248z)

In organisms, there is no separate organ expressing unity, as does the sun in the solar system. The unifying principle of the organism is present in every piece but not itself identified with any one of them. The organism is thus a more complex expression of the logical process of unity in diversity. Yet the animal organism is not yet fully unified, for while animals have a sense of themselves as individuals, they have no conceptual self-knowledge.

What this comparison shows is how Hegel is constantly looking for how the variety of nature expresses logically defined moments of the Concept, as the externality of nature is overcome by more and more organic modes of unity. His understanding is top-down, for the principles of unity are fully expressed only in the most developed levels, whose development consists in expressing all the moments and their interrelations in their full concrete complexity.

In order to understand the lower grades, one must note the developed organism, since it is the standard or archetype for the less developed animal; for in the developed animal, every function has attained to a developed existence, and it is therefore clear that it is only from this animal that undeveloped organisms can be understood. (EN par. 370z)

To our eyes Hegel's treatment of the variety of nature is a strange mixture of the *a priori* and the empirical. He is eager to read the latest discoveries about ocean creatures or geological features or chemical phenomena, yet on the other hand he does not attempt to derive his categories for nature from these phenomena, but rather to bring the categories already established in the logic to the phenomena. There may, of course, be a mutual cross-fertilization going on as he revises the logic, but the official method of the system is that a set of categories derived on their own is to be the lens through which we see and organize nature's incredible variety.

The infinity of forms of animal life is not to be rigidly conceived as if they conformed absolutely to a necessary principle of classification. On the contrary, therefore, it is the general determinations that must be made the rule, and natural forms compared with it. If they do not tally with it but exhibit certain correspondences, if they agree with it in one respect but not in another, then it is not the rule, the characteristic of the genus or class, which is to be altered, as if this has to conform to these existences, but conversely it is the latter which ought to conform to the rule; and insofar as this actual existence does not do so, the defect belongs to it. (EN par. 370z)<sup>6</sup>

Externality is nature's defining characteristic but also its weakness. Nature's unities are not inward enough to contain the full movements described in the Concept. Nor can nature keep to the strict divisions conceived in the logic.

In the impotence of nature to adhere strictly to the Concept in its realization, lies the difficulty and, in many cases, the impossibility of finding fixed distinctions for classes and orders by an empirical consideration of nature. Nature everywhere blurs the essential limits of species and genera by intermediate and defective forms, which continually furnish counter examples to every fixed distinction; this even occurs within a specific genus, that of man, for example, where monstrous births, on the one hand, must be considered as belonging to the genus, while on the other hand, they lack certain essential determinations characteristic of the genus. In order to be able to consider such forms as defective, imperfect and deformed, one must presuppose a fixed, invariable type. This type, however, cannot be furnished by experience, for it is experience that also presents these so-called monstrosities, deformities, intermediate products, etc. The fixed type rather presupposes the self-subsistence and dignity of the determination stemming from the Concept. (EN par 250)

This "impotence" of nature is also its strength, for nature's overall role within the development of spirit is precisely to show forth externality, separation, and to provide the necessary framework and background on which spirit can erect culture and history.

### **Insides**

Nonetheless, the transition from nature to spirit is not a Cartesian jump from a purely external nature to a purely internal soul. The unity of an animal organism is already internalized in the sensations of the animal, especially in higher animals who feel their own individuality and assert their own individual habits. Even magnetic and chemical phenomena show that natural beings have internal connections.

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<sup>6</sup> In the third edition of the EN this is par. 368



There is no sudden leap from the final paragraphs about nature in the *Encyclopedia* to the first paragraphs about spirit. Hegel starts his treatment of human spirit with animal feelings and environmental influences, and only gradually builds up to self-conscious thought.

On the social level, human culture develops by internalizing its earlier historical phases. Different partial moments of what will become a fully developed rational society have their time in the sun and then become subsidiary moments in more complex social formations. As opposed to nature, where the different moments are scattered about spatially and continue to exist on their own, in European history different moments succeed one another temporally. They appear as societies dominated by principles of unity and institutions based on partial aspects of the Concept: autocracy, slavery, feudalism, democracy, and so on. They eventually change due to their internal contradictions, and their principles of unity are retained as self-consciously secondary moments in new and more complex unities. So the struggle to the death that Hegel takes to be the initial form of the search for mutual recognition persists in modern society as the discipline in educational systems. Absolute monarchical forms persist in a constitutional limited monarchy. Older forms have their one-sidedness and claims of totality cancelled as they take their places in a more adequate unity. The past is taken up anew. Spirit's ability to look back upon this history of its becoming completes its present-day self-understanding, and this presentation of itself to itself is a key to its complete development.

Nature does not perform such self-aware retrospection. In this sense, too, nature has no history. Recall that for Hegel, tribes and peoples do not "have a history" until they begin to reflect on themselves as a people and record unified narratives of their own development. A chronicle of events is not yet a history. Hegel sees primitive tribes and nomads as having developed through a sequence of events, but not as having a self-aware history.

In external nature, the more complex builds on the simpler, so more primitive kinds of natural unities do get taken up into more complex systems. But the simpler also remains independent. As we ascend the scale of nature toward the animal organism, we see simpler levels of nature incorporated, for instance when hydraulic and chemical processes are domesticated into the higher purposes of an organism. However there remain other free hydraulic and chemical processes occurring spatially scattered about on their own. Nature never comes together, neither spatially nor temporally. So although Hegel is no dualist, it is tempting to tie nature to outside and space, and culture to inside and time.

### **Inside Out, Nature's Time**

However, Hegel's external/internal division is not as sharp as it might seem. There is spatial externality in culture, and there is a kind of external history in nature.

In his account of world history Hegel sees different cultural units remaining spatially exterior to one another. The Chinese, the Indians, the Africans are seen by Hegel as having become frozen

at earlier stages of spiritual development. He never really explains why these cultures failed to progress, except by making Eurocentric judgments about the capabilities of other peoples. Nor does he explain how these scattered cultural "species" deal with one another, except to imply that the expansion of European capitalism and colonialism may transform the older cultures as they are dragged into the worldwide market and civil society. In any case, the relations between different cultural units show a spatial externality of different moments of spirit's development scattered around the globe, similar to the mutual externality of natural phenomena.

On the other hand, nature includes its own modes of internalization and its own kind of temporality. When Hegel was writing in the 1820s, it was becoming evident that the earth had developed over a long time, with huge variations in its organic populations and geological forms. Looking at the developments in the new science of geology, Hegel asserted they showed a very long period, "and in the matter of years one can be generous" (EN par. 339z), during which the current geological face of the earth had been shaped by slow processes whose sequence can be read in the current formations.

If the strata written in rocks and hills show a temporal dimension, what about the fossils found in those rocks? Though Hegel rejected the theories of evolution current in his day, he did leave room for historical unfolding of the Concept. True, his overriding interest is in natural phenomena as examples for a table of necessary types and features. But given the empirical evidence he was willing to consider the possibility that different systems and levels of complexity may have appeared in history at different times.

Hegel knew contemporary theories of evolution. Unlike Darwin's they employed teleological descriptions of nature as moving from indefinite beginnings to highly differentiated organisms, culminating in humans. Although Hegel did not accept these theories, he admitted that it was possible that animal species emerged sequentially. His doctrine of the role of contingency in nature allows for flexibility in the handling of natural history. Hegel did not think that contemporary biology proved (or disproved) evolution. He regarded the origin of species as an empirical question that did not impact the crucial investigation of just what logical categories were necessary to comprehend nature. He said that even if organisms did evolve through a series of stages, that fact was not of philosophical interest. How things developed is a contingent matter; he was interested in what they are, and the necessary conceptual moments of the Idea.

The concept tirelessly and in a universal manner posits all particularity in existence. It is a completely empty thought to represent species as developing successively, one after another, in time. Chronological difference has no interest whatever for thought. If it is only a question of enumerating the series of living species in order to show the mind how they are divided into classes, either by starting from the poorest and simplest terms, and rising to the more developed and richer in determinations and content, or by proceeding in the reverse fashion, this operation will always have a general interest. It will be a way of arranging things as in

the division of nature into three kingdoms; this is preferable to jumbling them together . . . .  
But it must not be imagined that such a dry series is made dynamic or philosophical, or more intelligible, or whatever you like to say, by representing the terms as producing each other.  
(EN par. 249z)<sup>7</sup>

Hegel knew that the earth had once supported quite different types of animals. His dominant interpretation of this was that nature in its impotence and inability to adhere to categorically necessary divisions had produced monsters and unsuccessful mixed forms, some of which have failed and some of which exist even now as do the platypus and marine mammals.

But there is more to be said, for nature does recapitulate itself, externally. One way is in the animal organism. But we can see that recapitulation clearly in the rocks. There we see an external internalization: geological formations are made out of older formations, and current formations show that sequence. Consider the strata revealed on a hillside. Hegel admits that it has taken eons for the geological formations to achieve that present form. He admits that their chronology can be read from the formations. And since Hegel claims that the different kinds of rocks and different geological formations express different necessary moments of the Concept, contemporary geological features sum up the necessary moments.

In the study of geology then, we must first direct our attention to the general mass of rocks and the Concept of the moments, rather than thoughtlessly enumerate the different kinds, straightway converting a small difference into a fresh genus or species. What is most important is to follow the transitions from one layer to another. Nature keeps to this order only in a general way and numerous variations occur, although the basic features of the order

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<sup>7</sup> Theories of evolution in Hegel's day conceived of a goal-directed movement from undifferentiated to differentiated organisms. Hegel rejected this, though his logic agreed that beginnings in any sphere were relatively undifferentiated. His point against evolution was that the concepts of the fuller, more differentiated natural systems could be developed on their own in the Logic; they were not just variations of more primitive systems. The paragraph cited in the text continues: "Animal nature is the truth [the completion or richer reality summing up a process or development] of vegetable nature, vegetable of mineral; the earth is the truth of the solar system. In a system, it is the most abstract term that is the first, and the truth of each sphere is the last; but this again is only the first of a higher sphere. It is the necessity of the Idea that causes each sphere to complete itself by passing into another higher one, and the variety of forms must be considered as necessary and determinate. The land animal did not develop naturally out of the aquatic animal, nor did it fly into the air on leaving the water, nor did perhaps the bird again fall back to earth. If we want to compare the different stages of nature, it is quite proper to note that, for example, a certain animal has one ventricle and another has two; but we must not then talk of the fact as if we were dealing with parts which had been put together. Still less must the category of earlier spheres be used to explain others: for this is a formal error, as when it is said that the plant is a carbon pole and the animal a nitrogen pole" (EN par 249z).

persist. Heim, with a truly philosophical view of the matter, has very clearly exhibited this transition, the breaking forth of one rock in another. (E 340z)<sup>8</sup>

These different geological moments do not interact as do the necessary subsystems of an organism. Older formations are simply adjacent to one another, or have been deformed to lie on top of one another, or new formations been made out of fragments of the older. They incorporate one another, rest upon and support one another, get folded into mountains, and show the transition from one rock type to another.

The hillside thus presents an external summation and history. The various moments and necessary kinds of rocks are scattered about in contingent ways but together the contemporary landscape reveals all the essential types. The mountain is not aware of the way it is composed of fragments of previous geological formations or of the way in which the different geological strata and formations express different moments in the processes of spirit. But that unity and those processes are there, externally united and recapitulated, open to be read and already formed into a historical "text."

There is no historian for this external text but there is a sequence; nature recapitulates its own temporality in an exterior history shown by coexistence and reuse in geology and by organic unity in the plant and animal kingdoms. This is not a history as written by a self-consciousness, but it bears some analogy to the non-history of those tribes and peoples who went from one event to another without proper recollections or self-awareness.

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<sup>8</sup> Hegel's desire to see all the moments of the Concept revealed and summed up in contemporary geological formations means that he attributed more unity to those formations than we would do. Hegel also thought that whatever the empirical processes may have been, they are finished, now that they have produced an essentially complete repertory of species and geological forms. "There were events which shaped the present earth, but that becoming of the earth occurred in a kind of absolute past, something over and done with, which has now produced the repertory of rock types that reveal the moments of the Idea. Formerly, history applied to the earth, but now it has come to a halt: a life which, inwardly fermenting, had time within its own self; the earth-spirit which has not yet reached the stage of opposition—the movement and dreaming of one asleep, until it awakes and receives its consciousness in man, and so confronts itself as a stabilised formation" (EN 339z). We might connect this with the much discussed "end of history" in Hegel. Hegel does seem to think that whatever the defects of actual European societies of his day, the general principles of a fully rational and free society have now been developed. History has ended, in the sense that all the dimensions of social life have been revealed. This does not mean that events will not continue, as nations rise and fall. But the stage is fully set; no new principles are needed. Similarly, nature has revealed all its essential moments. What matters to Hegel are those moments; whether or not they developed in history is not as crucial to nature as it is to culture. So he can accept or reject evolution depending on the empirical evidence. But even if he accepted evolution he would not see the present as just one contingent stage in an ongoing process of change. See Kolb 2008 for a discussion of this point, and its connection to Hegel's curious silence about uniformitarianism in geology.

In concluding we should note that Hegel's treatment of nature's forms and levels does not yet enter into what has become an enormous discussion from Darwin and Nietzsche onward about how natural and social forms might emerge contingently without either teleological guidance or conceptual necessity. For these thinkers, externality invades the spiritual sphere. Hegel's play of externality and internalization continues but the ways in which later natural and cultural formations incorporate and reuse earlier forms resembles more the loose unities of external geological accumulations than the tight conceptual unities that Hegel sought.

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