Hegel. The force of dialectics.

I will treat Hegel's contribution to the history of the concepts concerning force in a way which differs slightly from the method of exposition I have hitherto used. The reasons for this are rather obvious. Hegel's philosophical works which pertain to the matter in hand, viz. his Wissenschaft der Logik (The science of Logic, henceforth to be referred to as Logic) of 1812 ff. and Encyclopädie der philosophischen Wissenschaften im Grundrisse (Encyclopaedia of the philosophical sciences in outline, henceforth to be referred to as Encyclopaedia) of 1817, 1827 and 1830, were published during his lifetime, contrary to what is the case with Leibniz. Moreover, these texts offer a system of philosophical thought in a very clear way; the Encyclopaedia was primarily a teaching book, designed mainly for undergraduates (1), and although the Logic may impose some hardship on its readers one cannot possibly fail to notice its systematical structure. It is also very clear from the texts themselves (contrary to what is the case with Kant) that they offer one and the same system, for the Logic is (with some variations), in an abridged form, part of the Encyclopaedia. There is no call, therefore, for a separation between historical and systematical exposition here (2).

The exposition of Hegel's system of thought concerning force will start with his philosophy of nature which is a part of the Encyclopaedia. This is done not only to maintain the order which I have applied in the previous parts of this thesis, but also because the concept of force offered in this text needs logical and ontological explication which is furnished by the Logic (3). In fact this means reading Hegel's Encyclopaedia backwards and there is very good reason to do so. With Hegel, the only and true object of philosophy (as well as of all true science) is the Absolute, since only what is absolute is unconditional, that is, includes all conditions in itself and can, therefore, furnish the answer to the question of what is the ultimate reason of all things. Only the Absolute encompasses all; it is totality. If the goal of true science and philosophy is to know the ultimate reason or ground of everything, then its object must be the Absolute, that is, the totality. But since the Absolute is unconditional in the sense that it includes all conditions, it includes also all conditions for its own generation; in other words, the Absolute brings forth itself. And since there is nothing at all outside the Absolute, it is, ultimately, all there is. The Absolute is nothing but the process of its selfconstruction. Hegel's system is the exposition of this process (4), from the first stage of indeterminate being to the last of completed selfdetermination; every stage is expressed in a number of interrelated concepts and all stages are interrelated too, because the Absolute is the whole of the process. Hegel's Logic is the logic of this process, that is, it is the way in which the Absolute determines itself in this series of related relations. Every stage in between the first and the last succeeds (by a specific form of negation which is denominated sublation (5)) its predecessor and is in turn followed (also by sublation) by its own successor; no concept, therefore, can be completely understood apart from this series (6). Now in
the case of the concepts concerning force (as in almost any other case) one can be modest in one’s aspirations and more or less discard the complete understanding of force, that is, one can be satisfied with having merely an abstract and general idea of what force is and does in the whole of the Absolute. Then one can ignore most of what, in Hegel’s system, comes after these concepts; one can, as I intend to do hereafter, be content with a general idea of what force is and does in the basis of nature (thus limiting the scope to the field covered in the previous parts of this thesis). But one cannot ignore what comes before them, for that is the process of the determination of these concepts and, therefore, holds the key to their understanding.

Before turning to the exposition itself, I have to make one further remark concerning this series of interrelated concepts Hegel’s system is. The system is the exposition of the process of self-construction of the Absolute, hence it should be understood as being continuous. This aspect has often been referred to as "one concept merging into the next", or in German as "die Begriffe sind flüssig gemacht". This may be true as a rather rough description of a characteristic aspect of Hegel’s system and admissible in drawing attention to a contrast with most of the other systems, but one has to keep in mind that, strictly speaking, concepts which are "liquified" are also liquidated; if one really could not distinguish one concept from another concept, then all concepts would as such vanish (7). In fact one has to observe that not the Hegelian categories are merging into each other, but that it is the Absolute which they are expressing that is flowing through them. The Absolute is motion, viz. the process of self-construction. If the categories would be flowing, they could not be determinations of the Absolute because they would not be limited, they would be the Absolute itself. Then the Absolute would collapse because it would have nothing to exist in in a determinate way; it would be as a line without points, a contents without form, a nothing: the absolute indeterminate. On may use the phrase "concepts merging into each other" only as a qualified figure of speech, to contrast Hegelian relations between concepts with non-dialectical rigid categories through which flows nothing and which only express themselves, which stand beside each other and are only formally related instead of by their contents, and which amount to a system that is, therefore, only formally a whole and ultimately empty; but even then the contrast is only superficially described, and one does not pay a great service to philosophy, which should be clear and enhance understanding.

The first thing to do is to explain the situation of the philosophy of nature in Hegel’s system. As I have said above, Hegel’s system is the exposition of the self-determination of the Absolute. Throughout this system the Absolute transforms itself and each stage of transformation is expressed by a number of related concepts. The series of transformations which are referred to as "philosophy of nature" is the second large part of this process and is situated between the "science of logic" and the "philosophy of the Spirit". At the end of the Logic, the Absolute has reached its highest logical form and determination, that is, it has become "die absolute Idee" (Idea). Since the Idea is the sublation of all logical determinations, which precede it, it contains the determinations of being as it is ("die Lehre vom Sein" or "Seinslogik", that is, the logic of being as such, the first part of the science of logic), being as it determines itself ("die Lehre vom Wesen" or "Wesenslogik", that is, the logic of the essence of being; the second part), and being as it understands itself ("die Lehre vom Begriff" or "Begriffslogik", that is, the logic of the notion of being; the third and last part), but it contains these determinations at a higher level than the previous forms express them, because it has unified these determinations in this one concept. All the logical determinations are present, but in a unified way; the absolute Idea, therefore, is the expounded unity of self-determination and self-understanding (8). The expounded unity is only expounded in a logical way, of course, for the logic is self-understanding of the Idea and has, therefore, nothing but itself to mediate this understanding which it is itself. This means that the Idea is not yet extended, because its determining relations are all relations within one thing (viz. itself). All determinations (that is, only those of the logical Idea, for there are not yet more than those) are present and the Idea is in this sense concrete, but these are determinations of the Idea (as the determining subject) and determine the Idea (as its own object of determination); which means that the self-determination of the Idea is completely identical with the Idea itself (as subject-object) and that the totality which the Idea is can only be purely intensional (9).

It is, therefore, in Hegel’s system a logical thing that this logical form of the Idea is the being-implicit (10) of the Idea. Although all determinations are present, they are not yet present for themselves (11) because they are still sublated in the intensional totality. For the same reason, the self-determining activity which the Idea is, is not yet present for itself.

This means that the Idea, which is a form of the Absolute, is not yet active but only activity. It is, therefore, not yet actual. Put in other words, this means that the Idea is what is flowing (as I have described the activity of the Absolute above) but that it has not yet to his disposition those forms through which it must flow, except itself; therefore, it is only flowing implicitly. In the philosophy of nature these forms are presented; as a consequence of this the Idea is transformed to Spirit ("Geist") which is (in various forms) the subject-object of the third and final part of Hegel’s
system, viz. the philosophy of the Spirit (12). Nature, then, opposed to and sublated by the Spirit, is that which the Idea would act upon if it were already Spirit; it is the objective form of the Idea as the Spirit is the final subjective form (which contains and has negated the objective form) of the Idea. Objective form means: the determinations of the Idea considered for themselves - and because they are for themselves (isolated, apart), the Idea loses its intensional totality and is transformed into extensional totality. This is systematically necessary, for only in extenso, that is, when various determinate forms are as such (instead of implicitly) actually present, actual (13) transformations are possible. But nature is merely extensional; in offering the object of spiritual activity it offers only the possibility of actual transformation, not actual transformation itself. It is, therefore, a necessary but transitory stage which mediates the Idea on its route to final form and actual activity as Spirit (14). The Idea is, then, not actually active in nature, but it still is activity in nature, viz. activity in its expounded form, that is, extensional activity.

**section 1. Space, time and motion.**

"Die Mechanik" (mechanics) is the title of the first book of Hegel's philosophy of nature; as will appear, it is also the only book in which force has as such significance. Hegel begins his mechanics with the conceptualization of extensivity:

"Die erste oder unmittelbare Bestimmung der Natur ist die abstrakte Allgemeinheit ihres Aussersichseins - dessen vermittlungslose Gleichgültigkeit, der Raum. Er ist das ganz ideelle Nebeneinander, weil er das Aussersichsein ist, und schlechthin kontinuierlich, weil dies Aussereinander noch ganz abstrakt ist und keinen bestimmten Unterschied in sich hat."

(Hegel, *Encyclopaedia*, s. 254)

(The primary or immediate determination of nature is the abstract universality of its self-externality - its unmediated indifference, i.e. space. It is on account of its being self-externality, that space constitutes collaterality of a completely ideal nature; as this extrinsicality is still completely abstract, space is simply continuous, and is devoid of any determinate difference.) (15)

It is clear that Hegel considers space to be the first determination of Nature because space is the most general and abstract determination. The reasoning behind that is the following. Nature as extended totality is the self-externality of the Idea, that is, it is the object-form of the Idea, and nature is therefore (since the determinations of this form of the Idea are for themselves, as I have pointed out above) both extended and differentiated, viz. "collateral". "Space" means simply extensivity, here. This first determination is indeed
immediate", for space, being considered as only collaterality, is still a unity of which the differentiation is not yet determined, therefore "simply continuous".

Space, that is, mere extensivity, is not conceived statically by Hegel, but as a relation and, therefore, dynamically. The opposed parts of this relation are space and time. From space, therefore, Hegel proceeds to time reasoning as follows.

Space as mere collaterality is as such an incomplete unity of extensivity. As a unity (viz. being nothing except being extended) space does not establish any determinate difference (16) and tends to be only continuous, therefore to be only one, which would make extensivity disappear in itself. But as collaterality, space does not establish a unity, which would cause extensivity to fall apart. Extensivity (and space) must unite both unity and collaterality to establish itself, which means that it must negate unity as such and collaterality as such, because as such they are absolutely opposed to each other and can not be unified; extensivity, then, must sublate unity and collaterality. This means that the being apart of collaterality must be bridged without, however, making this bridge a rigid one (which would reduce extensivity to mere unity). This flexible bridge Hegel finds in the concept of motion. Now, motion implies the differentiation of extensivity in space and time, precisely because motion must maintain the difference between collaterality and unity. For there is only one case in which motion neither maintains this difference, nor, therefore, implies time, and that is the case in which motion has or can have an infinite velocity. In this case 'there' and 'here' are no longer apart, because one can be at the same time 'there' and 'here'. If one considers nature to be extended, motion with infinite velocity is neither here nor there; velocity must, as a matter of principle, be finite, and that makes extensivity to be a relation of space and time. Space must be negated by time, because space is sublated in motion. Time and space establish (as each other's opposites) their relation which is motion.

Hegel presents the transition of space to time in the first chapter of his mechanics (sections 255 to 261), as follows.

Space is the abstract being apart, i.e. collaterality in all spatial dimensions. Its external extensivity is, therefore, differentiated internally, that is, there is an infinite number (for there is no reason why this number should be limited) of different places. These places are, insofar as they are spatial, the result of the self-differentiation of space and leave, therefore, the continuity of space intact; as long as being spatial is an abstract general determination, the different dimensions cannot as such be distinguished - they cannot be determined (e.g. as height, depth, breadth) because determination presupposes concreteness (as regards height, for instance, the height with respect to a determinate point), and the abstract concept lacks this concreteness (Encyclopaedia, s.255). In this abstract continuity of space, which brings with it an indeterminate ("indifferent") differentiation into an infinite number of places, these places call for a negation of abstract spatiality, which negation will establish them as places. This establishing is brought about by determination, that is, the limiting of the indiffe-
rent infinity of the continuity of space. This self-negation of space — which takes its course via the dimensions to point, line, and plane, and eventually arrives via enclosing surface at space itself again — is, according to Hegel, so to speak an imperfect reflection of the negation which is actually carried out by time (Encyclopaedia, s.257). It is imperfect because ultimately it cannot establish the determination; space remains, since it is merely space, differentiated in an indifferent way, and that means ultimately in an indeterminate way — space cannot really limit itself. But time can limit space and thereby determine it; or more precisely, it can together with space give determinateness to extensivity as a totality. What makes this place here distinguishable from that place overthere is the fact that it takes time to go from here to there, and nothing else. Simultaneity (meaning the absence of a time-difference between two different places) signifies spatial indifference, therefore spatial indeterminateness — it is in fact the absence of time itself. Only time-difference brings about spatial, more precisely: extensional, determinateness. Time, therefore, can be defined as: the most general difference between two or more places-in-space. Space can be defined as: the most general difference between two or more places-in-time. Together they are the most general determination of extensivity and together they form a unity, that is, the translation from a determinate place in space to a determinate place in space in a determinate amount of time — or, as Hegel puts it, the transition of time in space and vice versa —, that is, together they are motion, which is the extended totality nature is (Encyclopaedia, sections 260,261) (17).

Time-difference implies a certain dimensionality of time, but, says Hegel, this temporal dimensionality has no place in nature:

"Die endliche Gegenwart ist das Jetzt als seidend fixiert, von dem Negativen, den abstrakten Momenten der Vergangenheit und Zukunft, als die konkrete Einheit, somit als das Affirmative unterschieden; allein jenes Sein ist selbst nur das abstrakte, in nichts verschwindende. — Übrigens kommt es in der Natur, wo die Zeit Jetzt ist, nicht zum bestehenden Unterschiede von jenen Dimensionen; sie sind notwendig nur in der subjektiven Vorstellung, in der Erinnerung und in der Furcht oder Hoffnung. Die Vergangenheit aber und Zukunft der Zeit als in der Natur seidend ist der Raum, denn er ist die negierte Zeit; so ist der aufgehobene Raum zunächst der Punkt und, für sich entwickelt, die Zeit."

(Encyclopaedia, s. 259)

(The finite present is the now fixed as being, and as the concrete unity, distinguished from the negative, the abstract moments of the past and the future, it is therefore the affirmative factor; yet in itself this being is merely abstract, and disappears into nothing. — Incidentally, these dimensions do not
occur in nature, where time is now as separately subsistent differences, for they are only necessary in subjective representation, in memory, and in fear or hope. The past and the future of time are space in so far as they have being in nature, for space is negated time; just as sublated space is initially the point, which developed for itself is time.)

This is where Hegel banishes history from nature and exiles it to the realm of the Spirit (18).

At this abstract level, this can be well defended; extensivity in general does not yet present the distinction between time in which something travels from one place to another and time in which something changes in a different way – in fact, 'something' (i.e. concrete matter) is not yet present itself. (Hegel's banishing-order encompasses even more than this, as will be shown further below). On the present level, there is nothing else except place and change of place, that is, mechanical motion in spacetime (19). And this motion, that is, this most general form of nature, Hegel denominates matter (Encyclopaedia, s.261). He remarks, furthermore, that the image of matter as something which fills up space and time is apparently false. Matter is the unification and sublation of space and time and is, therefore, motion. And as this unification, space and time determine extensivity; which makes matter in this sense determinate from the very beginning, that is, matter is in itself differentiated and limited (speaking roughly, this means that matter is divided and compounded) and, therefore, negating itself. But at the same time, determinate extensivity is totality, that is, unity and wholeness, which brings about that matter sublates its self-negation.

section 2. Matter and force.

In order to arrive at the right notion of this self-negation and sublation of matter, that is, at the motion which matter is as a totality (i.e. as form of the Idea), motion needs to be determined further; this is the object of the second chapter of Hegel's mechanics. In the first chapter (which I have treated above) the Idea in its form of nature has been determined as matter, that is, as a relation of space and time, viz. motion. This means that the general quality of nature has been determined. The first chapter of mechanics runs, therefore, logically parallel with the first part of the Logic and one would, also logically, expect that the second chapter would determine the general quantity of nature (20). And in fact, so it happens.

In the second chapter (Encyclopaedia, s.262), the connection with the first chapter is made by determining the two moments of matter (i.e. self-negation and its sublation) as repellent and attractive motion respectively. For the unity of space and time which matter is, is differentiated in itself; matter is many, therefore it is falling apart (self-repulsion), and it is one, therefore it is unifying itself (self-attraction) (21).

The unity of attraction and repulsion is their relation, that is, together they determine the general quantity of
matter. More or less anticipating what has yet to be constructed, Hegel posits that the general quantity of matter is heaviness. In as far as heaviness already has a determinate (therefore limited), viz. physical, meaning, Hegel is indeed anticipating. But heaviness has logically and philosophically a more general meaning; this meaning is, according to the system of construction Hegel uses, the essential meaning. This general meaning is the following: matter is both falling apart and unifying itself and this double motion implies in an abstract sense a centre, that is, a point to which matter-in-general is moving. This centre is abstract in as far as it cannot yet be conceived as inherent to matter; because, if it were, this centre would be the general starting-point of both attraction and repulsion and they would, of course, neutralize each other almost before they even could come into action, which would mean that they would dissolve into nothing, hence that matter would cease being motion in general, that is, matter would lose its essence and existence. Heaviness means, therefore, in general: the relatedness of matter to a non-material (i.e. abstract) centre. In other words: the ultimate quantitative unity of matter is, although it is real in the sense that it is acting, no more than an abstraction; it has as such (for itself) no concrete existence, but it is an ideal unity (viz. a determination of the Idea, therefore it is to be constructed by philosophical thought).

In the Logic, succeeding the general quantitative unity, and attraction and repulsion, its further determination follows in quantum, extensional magnitude, and intensional magnitude (see Logic, vol.I, pp. 177 ff.). Here, in the philosophy of nature, these concepts are mass (as the general quantum of matter) with its two opposed parts weight (extensional magnitude of matter) and centre of gravity (intensional magnitude of matter). Inertia is connected to motion as such (therefore it includes rest), viz. as unity of motion and rest, that is, the resistance of motion (Encyclopaedia, s.264, add.). Obviously, Hegel reasons that because matter (i.e. motion) is many, it is implied that for its finite parts the cause of motion always is external and, in that sense, alien instead of proper to them, and that therefore they will offer resistance. This implies a relation of which one part is the point of application of motion and resistance within a material being; this is the point of gravitation (i.e. intensional magnitude of matter). And the other (which is opposed to the former part) is weight (i.e. extensional magnitude of matter), that is, the relative heaviness of material beings with respect to each other; this is their quantity of motion with respect to each other, therefore it is their resistance with respect to each other (Encyclopaedia, ss.264-266). The form of motion, that is, the relation in which Hegel connects these two opposed parts, is impact. But he remarks:

"[...] schon der Stoss als solcher ist durch die Schwere, d.i. die Bestimmung des Fallens bedingt."
(Encyclopaedia, s.266)

([...] for even simple impact is conditioned by gravity, i.e. the determination of fall.)
For impact is, according to Hegel, not at all one of the most fundamental forms of motion, but (as can be inferred also from the order in his system, from which it is obvious that one can find at this point, here, only abstract quantitative relations) one of the most abstract, viz. a purely quantitative relation of parts of matter. This relation is determined further in the fall (which is the mechanical alter-ego of the quantitative relation in the Logic; see Logic, pp. 322 ff.). The philosophical meaning of this is that the being quantitatively related of parts of matter (i.e. the quantitative determination of matter by itself) entails the general quality of matter, that is, being related to itself and thereby being determined by itself. In other words: matter can actualize its essential unity (i.e. motion, activity) which is its general quality, by differentiating itself quantitatively. That general quality is, as became apparent in the first chapter of mechanics, motion; or more precisely put: moving itself. In impact and in fall, parts of matter are moving with respect to each other; this means that the interaction and wholeness is still external, since each part does not contain its own cause of motion and, therefore, motion is not actually self-movement. In the final form of motion (which is the object of the third and last chapter of mechanics, called 'absolute mechanics'), viz. gravitation, this externality is sublated and matter is both generally and concretely related to itself. In this way, matter possesses repulsive and attractive motion at the same time, as - and this is, according to Hegel, the most fundamental form of motion - in an ellipse the orbiting body moves at the same time towards and away from the centre of its orbit (Encyclopaedia, ss.269-271). This means also that matter must per se be differentiated as well as be extended totality. Repulsion and attraction can only occur (and, being opposed parts of the relation quantitative matter is, they simply have to occur) if matter has been differentiated quantitatively. But they must not neutralize each other, they must remain together and be sublated together, viz. in gravitation - thus both the unity and the extensivity of the totality which matter is as form of the Idea is conceptualized and becomes a true Notion:

"Die Gravitation ist der wahrhafte und bestimmte Be- griff der materiellen Körperlichkeit, der zur Idee reali- siert ist. Die allgemeine Körperlichkeit urteilt sich wesentlich in besondere Körper und schliesst sich zum Momente der Einzelheit oder Subjektivität als erscheinendes Dasein in der Bewegung zusammen, welche hierdurch unmittelbar ein System mehrerer Körper ist."

(Encyclopaedia, s.269)

(Gravitation is the true and determinate Notion of material corporeality realized as the Idea. Universal corporeality judges (22) itself essentially to be particular bodies and concludes itself to be a moment
of singularity or subjectivity as determinate being appearing in motion which is, thereby, immediately a system of many bodies.)

The philosophical meaning of gravitation is, according to Hegel, that matter in general is "sich ein Zentrum setzen" (Encyclopaedia, s.270), that is, matter is related to itself in its extensivity and is a whole of many parts in motion because of it (for the explanation of the logical structure of this, he refers to section 198 of the Encyclopaedia (see Encyclopaedia, s.269); as this will be dealt with in the next chapter, I will not go into it here). Time and space form general matter which is as such abstract but as a unity concrete; mass is just an aspect of being at a determinate place with respect to other matter, that is, a specific place in spacetime. This place means a specific relation to the rest of matter, therefore a specific form and quantity of motion, and because of that a specific quantum of matter (which is moving spacetime), in short: it means mass. Hegel thus reduces physical categories to their philosophical essence, that is, to the general relatedness of the totality expressed in only time and space and their relation, viz. motion.

section 3. Conclusions.

It is important to observe that Hegel treats time and space as opposed to each other (and, therefore, time after space), but that he treats them at the same time indeed as each other’s opposites, that is, as opposed parts of one and the same relation. Time and space both are pure extensivity, that is, what makes the Idea in its form of nature into extended totality. Totality is, therefore, also the property of nature and is determined in a first and general form as motion (23). In motion, space and time are united and it is their unity that must ultimately establish extensivity. They cannot be understood in another way, separated from each other. Clearly, under the necessary condition of finite velocity, nothing can be at the same time at different places; it is also clear, therefore, that simultaneity (used with respect to determinate matter) implies the abstraction of extension in space - and because time and space cannot be without each other (under the same condition of finite velocity), such an abstraction is empty.

In Hegel’s system, time and space can only actually exist if they are united, that is, as motion; neither time nor space actually exists for itself, therefore the negation (of their opposition) must be negated, that is, time and space are sublated in motion which is, as a consequence, the most general mode of existence of nature.

The unity of time and space has another consequence, viz. the absence of a history of nature. This may, at first glance, seem strange with a man so obviously interested in the course of history, and in development and processes in general. Moreover, Hegel knew and probably generally agreed with the theory of Kant/Laplace, he knew Kant’s
Allgemeine Naturgeschichte des Himmels of 1755, and Laplace’s Exposition du Systeme du Monde of 1796 (24). Also, he maintains that, in general, understanding a thing is constructing the Notion of that thing itself, therefore one would expect that the Notion of nature would be the construction of the Notion of the evolution of nature in time, that is, its history.

But here is a catch; if nature has an evolution in time, then there must be two kinds of time, for nature is itself (in part) time (as it is, in part, space). In other words: the time which is proper to nature cannot be the same time which is proper to history; which means that the history of nature is not its own. And indeed it is not, in Hegel’s system; the time of ‘real’ history applies only to the development of the Idea as Spirit.

This can be explained as follows. Motion is not enough to establish history. The evolution of the solar system must be conceived as a process of motion which is as general as, say, the process by which an electrical current evolves from a difference in electrical charge. Hegel says (25) that electricity as a law of nature is indifferent towards its positive or negative exertions or being. The Notion is indifferent towards its being (i.e. its determinate appearance). Of course the appearance of the Notion is necessary, but this general determination is entirely contained within the Notion and has as such nothing to do with its being, that is, the necessity of being is something which cannot be conceptionalized, it is an empty concept; being is as it is, and it is because it is, and it cannot be different – it is as contingent as it is necessary. This is a state of affairs which is alien to ‘real’ history where necessity and contingency together establish the laws of historical development. In the same way positive and negative electricity are, with respect to each other, necessary and only a property of being, which makes their necessity empty. The Notion does not construct its being, because it seeks, ultimately, not relatedness with this being (but with the understanding of being) and, therefore, does not contain this being as a moment of itself. The same can be said of all other natural laws and natural phenomena; the phenomena are not produced by the laws, and as a consequence of that they do not have a history, that is, a historical being, they only have mere being. In other words: because with Hegel the Notion constructs only itself, it is completely indifferent towards the real natural (Notionless) phenomena; the Notion ‘fills’ itself ‘with’ nature, because nature is one of its objects, but it is Notion itself that is essentially determining in this, and not its object, that is, nature.

It is, then, impossible for nature to be a historical concept in Hegel’s system. Nature may well have its own history or evolution, but this is not interesting from his philosophical point of view because this history or evolution can only be Notionless and, therefore, impossible to form a Notion about. Nature is only interesting to Hegel, because it is an object with which the Idea ultimately arrives at the Notion of Notion itself, when philosophy
enters the realm of the Spirit. This means that Hegel's concept of dialectic is, on principle, not applicable to nature as it is, but only to nature as it is conceptualized.

This does not mean that all kinds of processes, including development, cannot be conceptualized in Hegel's system; it means that they can only be conceptualized as self-construction of the Idea. Natural processes are, then, considered in the way in which they can be expressed in concepts, and they are ordered according to the degree in which they express the Idea's ultimate self-productivity. They are considered and ordered according to the position in which their conceptual expression is with respect to the ultimate and absolute form of the Idea, viz. the absolute Spirit.

The systematical consequence of this Hegelian view is that, roughly speaking, nature is doubled. Take for instance as an object the genesis and motion of heavenly bodies. With Hegel the proper object of philosophical consideration is the conceptual expression of this: the scientific Notion of genesis and motion of heavenly bodies. In this scientific Notion, or theory, part of nature is expressed, but also part of scientific thought. Therefore, there are in fact two objects: physical categories plus the category 'physics'. That is why one has to consider on the one hand the Notion of nature, on the other hand the Notion of natural sciences. The former results in natural philosophy: an exposition on the way in which the categories in which nature must be understood realize their transition into each other. The latter results in philosophy of the Spirit: an exposition on the way in which the philosophical consciousness must, in natural philosophy, gain consciousness of itself, that is, understand how the categories in which the Spirit must be understood realize their transition into each other.

The remarkable thing is that, seemingly, in this way the original object, viz. nature itself, is kept completely out of the entire philosophical consideration. This is not, however, how Hegel sees it. In his thought, nature itself simply is nothing more than the object-form of the Idea, it is only the forms through which the Idea can flow. And because nature is only these forms without the flowing of the Idea itself, there is no evolution in it; it is simply an ordered series of alternating concepts.

And this leads to the other way in which the absence of history in nature must be explained. The order of the concepts of nature (viz. space, time, etc.) does not refer to the evolution of nature, it refers (but indirectly so) to the evolution of the Idea, to its flowing which can be deduced from this series but does not as such appear in this series. Time, then, is a transient part of this series instead of an aspect of its immediate continuity. It is, therefore, a part of nature. In nature, says Hegel, time is always "now" (Encyclopaedia, s.259). This is obvious, because nature is one whole and must, in its general Notion, be understood as such, which means that it
must be understood as one event including all of nature’s time, just as it includes all of nature’s space.

Now, one could object that all this does not explain why Hegel’s natural philosophy does not contain the Notion of the genesis of the universe and the solar system, for there is no reason why he should not conceive this genesis as, not a history, but a process in which the totality of nature engages – as is in fact the case with Kant.

The answer to this objection is simple: Hegel does do so in his concept of matter and gravity.

Matter, according to Hegel, exists in its general form as motion. This motion is twofold; repulsion differentiates matter, attraction keeps matter together. In this way, matter is a differentiated whole in motion. And the fundamental form of motion sublates the opposition of attraction and repulsion in the ellipse. Matter, therefore, is rotating.

It is obvious that in Hegel’s universe history is not simply the spreading of concentric ripples which starts at the ultimate centre (which is the beginning of history), as is the case with Kant. The linear flow of time cannot be derived from this spreading as its rate of extending. With Hegel, each part of self-organizing matter must have its own time, because it has its own centre around which it rotates. Time, then, is relative, since it depends on which point in space one chooses to consider the organization of matter (26). There is no absolute time, nor absolute space. There is only motion which, by its nature of being attraction and repulsion in their sublated form of rotation, is organizing, that is, establishing the universe.

This rotation is the form in which gravity exists. Gravity, therefore, is not just attraction; it is the sublation of attraction and repulsion. Since this sublation is the general form of matter in motion, one can also say that gravity is the essence of the existence of the universe (27).

It is clear that force in general (which is gravity), in Hegel’s natural philosophy, is conceptualized as the self-relatedness of matter. It is necessary, therefore, to gain further understanding of Hegel’s concept of self-relatedness. For this, one must turn to the Logic.