ARISTOTE

TRADUCTIONS ET ÉTUDES

ARISTOTLE ON LOGIC AND NATURE

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Perspectives

ARISTOTLE'S THEORY OF NATURE FROM THE POINT OF VIEW OF OUR HERMENEUTICAL SITUATION

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1. Some Assumptions about Aristotle's Philosophy and the Need to Examine Them

If we look at handbooks on Aristotle, old or new, at respective entries in philosophical dictionaries, at histories of philosophy, monographs, articles of current research etc., we find some common convictions. To the most important of them belong the claims, that Aristotle has developed a metaphysics of substance and a rational theology based thereon, and third that he has invented and practised science. These convictions or habits to understand Aristotle arose well after Aristotle's death, some in the Late Antiquity already, some in the Middle Ages, some in modern times and they follow the mentality of different periods in their reception of Aristotle.

During the last hundred and fifty years the conditions under which we can understand Aristotle have changed significantly, so we have a motive to verify these prevailing opinions about Aristotle's philosophy. First, the philological treatment of the texts has contributed much to that change even if it doesn't primarily concern the content. In the 19th century different philologues established criteria to edit the texts, they prepared critical editions of many classical authors, including Aristotle; some editions are still in use even if it was possible to improve the text here and there using new means and methods of text-editing. Due to their work, we can read the *Corpus Aristotelicum* in the accessible form, which we know.

W. Jaeger initiated a further major change; he showed us that the text is not of the kind, which was presumed so far. The difference between the old and the new view is comparable to the difference that was detected

in the poems of Homer. Until Friedrich August Wolf's *Prolegomena ad Homerum* (1705), it was thought that Homer composed his poems in the same way as poets of the Middle Ages, the Renaissance, the Baroque and so on, i. e. wrote some text on his desk, then corrected it considering his other drafts etc. and finally made a last written version. After some detours, it became clear by the research of Milman Parry and A.B. Lord that the origin of the Homeric poems lies in the oral poetry, and that therefore many formal characteristics of his songs must be evaluated quite differently than had previously been assumed. Similarly, Aristotle's texts are not of the supposed kind, a book written with the goal to be published, as are the texts say of Kant or other modern philosophers, but they are scripts of a teacher who prepared his lectures and seminars. He used them over the years, added or omitted words and phrases and sometimes, but not as a rule, he also revised a text for publication as in the case of the *Nicomachean Ethics*. I also want to add that Hegel, being himself a speculative thinker, has recognised the speculative centre in Aristotle's philosophy. Meanwhile this insight has been lost. In what follows, I will try to counteract this where possible.

The third element of change is due to the hermeneutical philosophy, which helped us to better understand customs, people, texts, cultures, which are alien or strange to us. We have learnt that it is indispensable to take into account the conditionality of our own understanding if we want to understand a foreign culture. Doing so we integrate the foreign (*das Fremde*) in our world and can understand it by a "fusion of horizons" (Gadamer). If we wanted to understand the foreign in its own world then we had to replace our Doxa by the foreign Doxa, and the thing or event in the foreign world would be something else than the integrated thing or event. No foreign cultural or natural thing can be understood without getting acquainted with the world, which it is embedded in. In the third paragraph we will come back to this theme. But first, we will examine the claim that Aristotle has practiced science. We will see why his occupation with natural beings is not comparable with modern science and we will complement this negative part with a positive answer to the question of what the goal of his thinking about nature is.[1]

[1] The other two claims are examined in my commentaries on *Metaphysics* Z (2012) and Λ (2008). An English version is underway.

2. Aristotle Practices Science

2.1 *The Thesis*

That Aristotle is doing science is probably the least contested claim in Aristotelian scholarship, besides the view that he has developed a metaphysics of substance.[2] That seems to be plain just for the reason that half of the *Corpus Aristotelicum* deals with natural beings.[3] Especially in biology Aristotle is credited with good and correct insights. But there is no consensus concerning the Aristotelian science as a whole. Some think that it is amazing what Aristotle has discovered with his poor means,[4] while others blame him for having hampered science for more than two thousand years.[5] But both, "friend and foe", assume that Aristotle at least has intended to proceed by science and that of course there is no other way to know something sound about nature than by science. In front of

[2] In the words of R. J. Hankinson in Barnes (1995), p. 136: "... Aristotle's claims to being a scientific empiricist." Wolfgang Kullmann in Rapp (2011), p. 106, adds: "*Der Entwurf einer Biologie ist eine der erstaunlichsten Leistungen des Aristoteles. Offensichtlich ist er Teil eines umfassenden Konzepts, die gesamte Natur in ihrer Vielfalt und allen ihren Details zu erforschen und ihre Strukturen zu erklären.*" Wolfgang Kullmann has dealt with Aristotle's science since 1974, *Wissenschaft und Methode. Interpretationen zur aristotelischen Theorie der Naturwissenschaft*; meanwhile many times, e.g. 2007 and in his latest book from 2014, *Aristoteles als Naturwissenschafter*. This book he describes as "*Fazit seiner Aristotelesforschungen.*" In the first footnote he clarifies his position: *"Der Titel [*Wissenschaft und Methode*] klingt in kritischer Absicht an den des 1960 in Tübingen erschienenen Buches von Hans-Georg Gadamer* Wahrheit und Methode *an und sollte zum Ausdruck bringen, daß die naturwissenschaftliche Methode, die Aristoteles anwendet, universal ist und sich im Prinzip von der modernen naturwissenschaftlichen Methodik nicht unterscheidet und daß insofern auch die philologisch-historische Auslegung des Aristoteles kein besonderes hermeneutisches Problem darstellt."*

[3] In the *Handbuch,* edited by Rapp/Corcilius there is no entry on "Naturwissenschaft", but only on "Biologie", the *Companion* has an entry on "Science" with the typical ambivalent evaluation of the question, whether Aristotle was a scientist or not. Flashar, 1983, dwells on *Naturphilosophie und Naturwissenschaft* in his contribution to Aristotle.

[4] Wolfgang Kullmann in Rapp/Corcilius (2011), p. 106, writes: "*Der Entwurf einer Biologie ist eine der erstaunlichsten Leistungen des Aristoteles*."

[5] Arthur March (1957), p. 18: "*Es besteht für Naturwissenschaftler kein Grund in die Verehrung einzustimmen, die Aristoteles sonst geniesst. Er hat durch seine Ablehnung des Atomismus, dessen Ausbau sicher bereits im Altertum zu bedeutenden Ergebnissen geführt hätte, den Fortschritt der Wissenschaft auf zwei Jahrtausende aufgehalten. Und, was vielleicht noch schlimmer ist: er hat als Urheber einer Geistesrichtung, die alle Grundsätze des physikalischen Denkens verkannte und die er mit dem ganzen Gewicht seiner ungeheuren Autorität vertrat, auf die spätere Entwicklung nicht bloss der Physik, sondern auch der übrigen Naturwissenschaften den verderblichsten Einfluss genommen...,*" quoted from the introduction by G. A. Seeck, Seeck (1975), p. XII.

the different shortcomings, which modern scholars detected in Aristotle's science, we must ask where the roots of them are. To come to the point: my answer will be that there are no such shortcomings at all because Aristotle's research in the realm of natural beings either is ἱστορία or θεωρία περὶ φύσεως, and neither of them is science in its modern sense. Science does not belong to his world.

2.2 *Why Aristotle's Occupation with Nature is not Science*

Let's have a look at that part of Aristotle's occupation with natural beings, which Aristotle names "Theory about Nature" (ἐπιστήμη, θεωρία περὶ φύσεως). Distinguishing between Aristotle's theory of nature and modern natural sciences we remind of three fundamental conditions to which modern science is subjected. First there must be a philosophy of science as a theoretical and methodological fundament, second modern science is based on a metaphysical decision that only the measurable, the countable and the ponderable really *is*, and third it presupposes that knowledge has a goal outside of itself, namely the control over nature in order to exploit it.

The philosophy of science has to complete many tasks. It must construe a path leading from empirical data to generally valid knowledge. It must provide methods how to get rules and laws of nature from experiments and particular knowledge. Many say that in the *Analytics* Aristotle aims at a philosophy of science of this kind. Let's see. The *First Analytics* give a theory of syllogism. That's a part of logic, but logic is only a necessary constituent of the philosophy of science and does not bear on the content. In the second book of the *Second Analytics* Aristotle enumerates four questions, which are relevant for knowledge. Τὸ ὅτι stands for the question 'Is it true that S is P?', τὸ διότι stands for the question 'Why S is P?', εἰ ἔστιν stands for the question 'Is there any S?', and τί ἐστιν stands for the question 'What is S?' Aristotle then develops and checks methods to answer these questions. Doing this, he encounters the question what knowledge in the form of a proof is and what the difference between definition and proof is (ὁρισμός and ἀπόδειξις). Definition and proof are different kinds of sentence (conclusion: a→b; definition: a=b), and we must not confound these two. In this line of thought, Aristotle never speaks about the transition from experience and experiments to rules, laws and theories, which is indispensable in modern natural sciences. Both *Analytics* treat knowledge in general but not *science*.

We find the first efforts to establish a philosophy of science about 1200 AD. At this time, when philosophers began to think about natural science, we see the opening of a dispute about Aristotle's "science". Those interested in science tried to dissociate their undertakings from elements attributed to Aristotle. According to Crombie Robert Grosseteste had a particular position in this quarrel and was the first to introduce methodological rules.[6] Francis Bacon, John Stuart Mill, Auguste Comte advanced in the same direction, which has found several other expressions in later philosophy of science.

The general attitude has changed in our time in so far as science is widely attributed to Aristotle. Hugo Dingler however says that the Greeks aimed at consistency and clarity and that they had results especially in logic and mathematics, but in the realm of changing things they couldn't arrive at "bringing them in a precise shape" (p. 62), because they lacked the quantitative experiment,[7] an observation which is confirmed by Flashar, 1983, 391: "*Aber auch von einer 'theoretischen Physik' nach unserem Sprachgebrauch unterscheidet sich die aristotelische Physik, denn ihr korrespondiert keine Experimentalphysik*." But other scholars claim that Aristotle could handle experiments very well. Wolfgang Kullmann and Alfred Stückelberger made many attempts to prove this, pointing out sentences which refer to concrete observations and pieces of information by Aristotle which often resemble sentences in modern science. But neither of these two authors take into account that the respective fundamentals differ considerably.

Of course, Aristotle based many statements about natural beings on experience, also in the case of astronomical observations, even if he is very cautious in this area;[8] of course, there is control and repetition in

[6] See Crombie (1953), p. 135; further information in Crombie (1995), Vol. II, pp. 27–28. Bacon, *Novum Organum*, I 95 (cf. 70, 82, 100); concerning the dispute: Birch (1756), p. 57. Already Francis Bacon, 1622, had described the principle of test series. – J. St. Mill formulated four methods of experimental compliance: 1. *Method of Agreement*, 2. *Method of Difference*, 3. *Joint Method of Agreement and Difference*, 4. *Method of Residues,* Mill (1843).

[7] Dingler (1928).

[8] See the provisos in *Metaphysics* Λ 8 und in *De Caelo* I. Aristotle acts in a quite different way than Simplicio, who refused to look through the telescope. The real coevals of Galilei are even worse than the fictive Simplicio. See Blumenberg (ed.) (1965), the introduction and "Das Fernrohr und die Ohnmacht der Wahrheit", Blumenberg (1965), with all desiderable details.

experience, but this is also true for a child, which has found out something, and can not be named "scientific experiment".

We must distinguish between experience and experiment. As Ernesto Grassi said in a concise formulation: an experiment "questions nature in respect of a theory which is drafted already, to verify whether the experiment confirms or refutes the theory."[9] In the last chapter of the *Second Analytics*, B 19, Aristotle explains his concept of experience, a text which shows how this concept of experience differs from the modern concept of experiment. Aristotle asks what the first and the fundamental is in proof and knowledge, including knowledge acquired by experience. For animals, knowledge begins with perception, but perception is not conceived as a mere receptive and mechanical process because it has the ability to distinguish. Many impressions received by the animal confirm each other and remain, thus letting memory emerge. And if a memory is repeated, that gives rise to experience, ἐμπειρία. Using Plato's characterisation of the ideas, Aristotle tells us that experience is the "One above the Many". This experience is the origin of τέχνη if it is about becoming and producing, and of ἐπιστήμη, if it is about being.

Many take for given that Aristotle practices science, but hardly anyone contests that the content of his *Physics* methodically and thematically falls outside of what modern physics does. To make clear the difference, it might be sufficient to mention how differently Aristotle and Newton conceive space, time, movement and their respective functions. For modern physics it is essential that measurements are repeatable, exact, unambiguous; physics builds up a mathematical model, which can be interpreted physically. Corporeal objects and their characteristics, further, how they react and relate to each other, must be captured insofar as all this is measurable. Against this, many fundamental conceptions in Aristotle's *Physics* are notions of being, articulating the being of natural entities.

Modern physics defines movement or motion as the change of the respective position of two bodies over time; it is thus of fundamental importance to measure and calculate velocity and the acceleration of corporeal objects. Aristotle on the other side defines movement as "the actuality of a possible being as such." Such and similar statements (e.g. selected from *Physics* B) are at least misleading in the context of modern physics and, strictly speaking, they rather become senseless. One can

[9] Grassi (1955), p. 135.

accuse Aristotle's *Physics* of lack of scientific character only from a standpoint, which is not Aristotle's.

2.3 *What is the Aim of Aristotle's Research on Nature and Natural Beings?*

2.3.1 Aristotle's *Physics* as "Theory of Nature"

We have seen some reasons why the statements about nature and natural beings in the *Corpus Aristotelicum* have neither a scientific aim nor use nor value; now we are going to consider how Aristotle speaks about nature and natural beings and what he aims at in doing so. For this purpose, we use the text of *Physics* Γ, where Aristotle introduces the concept of movement, and additionally *Physics* Θ (especially its first sentence); in this book Aristotle treats the same topic as in *Metaphysics* Λ, namely the question of how and where movement begins, what the origin of movement is. Book Θ very often was considered to confirm the theological interpretation of *Metaphysics* Λ. We want to examine whether rightly or not.[10]

When asking what nature is and what natural beings are, Aristotle carries on an earlier question in two respects. On the one hand the Presocratics, but Plato too, had dealt with nature and, as Aristotle, partly in a speculative manner. So Aristotle finds points of reference in the opinions and statements of predecessors and contemporaries. On the other hand, his topic is a continuation of his systematic project, i.e. of the question about the meaning of being, because natural beings are one of the different types of being (γένος τι τῶν ὄντων); since he had sketched the programme in *Metaphysics* Λ, he pursues his inquiry in adapting this same question to the different types of being.

In *Metaphysics* E 1 Aristotle subdivides the being in general through the criteria "movable" and "separable" and their negations into four areas of being. Natural beings are the group of beings, which are separable and movable; [11] the knowledge interested in these beings is a theoretical one

[10] See Corcilius, in Rapp & Corcilius (2011), p. 83; he too translates τὸ πρῶτον κινοῦν with "unmoved mover". which is false because the greek term is neutre, never masculine; the masculine translation is designed to evoke the Christian God.

[11] A short note on "separable": in this context no absolute autonomy is required, nor an independent existence (the line of thought which leads to substance), but the fact only, that something — the separable — can be considered to some degree in itself, without producing heavy errors: we look at something "as if it were alone'.

because it does not consider natural beings with the intention to do something with them, and second because this knowledge has nothing to do with the manner in which we act and behave in relation to one another.[12] The theoretical method to get knowledge allows us to ask for the world as the frame of our being, without using this frame as an implicit presupposition for further claims. This question can't be asked and answered with methods which are applicable in research about things in our world; it would then be an "external question" of the kind Rudolf Carnap rightly dismissed. Theory is neither inductive nor deductive, it doesn't proceed empirically nor does it presuppose axioms: theory asks for the first opinions in an opinion-based world.[13] The basis of theoretical arguments is given through opinions (ἔνδοξα) about natural beings which are capable of movement and variable and which always include ὕλη. The knowledge about natural beings which Aristotle searches should be ἐπιστήμη, that refers only to beings or characteristics, which are necessary and a priori, non-empirical and non-contingent. In short, theory bears on the being of beings. Theory about nature has to do with the necessary and unchangeable in natural beings, which have the origin of movement in themselves and which are relatively independent. In this sense, the Aristotelian *Physics* is not science but "Theory of Nature", as he names it in *Physics* Θ 1[14] and its main topics are possible to resume in the following way: because natural beings are beings capable of movement we have to ask what movement is as the being of this type of beings, and second, we have to ask what φύσις is as the principle of movement.

2.3.2 What is φύσις?

Physics B treats the question what φύσις is. I quote some thoughts from this book. Aristotle says that natural beings are those, which have the principle of movement and rest in themselves (ἀρχὴ κινήσεως καὶ στάσεως),[15] and that φύσις is the origin of movement and rest (192b14

[12] For further considerations on the distinction ποίησις – πρᾶξις see *EN* VI 3.

[13] Cf. Erwin Sonderegger (2008), p. XXVI.

[14] *Physics* Θ1, 250b17. In the doxography which introduces the topic Aristotle speaks about the presocratic approach as περὶ γενέσεως καὶ φθορᾶς εἶναι τὴν θεωρίαν; in the concluding sentence, 251a6, he says that movement is of great interest for the περὶ φύσεως θεωρίαν and the question about the first origin.

[15] Note that these are two of Plato's highest genera in *The Sophist*.

and 21). Anything that has φύσις as the source of its movement, is οὐσία, a natural being (192b33). In this text, the term οὐσία has two entirely different meanings, which by no means are indicated. Aristotle explains the difference in *Metaphysics* Δ 8. First, οὐσία means beings (*Seiendes*). Examples for this use are earth, fire etc., any type of body and any parts of them; on the other hand, οὐσία means the being which gives the beings a ground for their being (ὁ ἂν ᾖ αἴτιον τοῦ εἶναι). It becomes clear that this difference is at work when we read that φύσις as οὐσία is a natural being, but on the other hand, that φύσις is the ground of the being of beings, because it causes their movement.

If movement is the being of natural beings and if φύσις is the source of this movement, then φύσις is the origin of the being of natural beings. It is the being, on which becoming must be founded according to *Metaphysics* Λ 6–9. *Metaphysics* Δ 4, 1015a13–16, has the same theme; after some considerations about different uses of φύσις we read that "if φύσις is taken in its first and most proper sense it is the οὐσία of that which has the origin of movement in itself", which means that nature in the first and most proper sense is the being of natural beings. Similarly Aristotle defines φύσις in *Metaphysics* H 3, 1043b22–23: "In the range of the perishable only φύσις can be οὐσία." Here *ousia* doesn't mean a particular being but the ground of natural beings. And *physis* is cause in each of the four forms of causes; of course, physis is an efficient cause, but neither exclusively nor primarily.[16]

2.3.3 What is Movement?

For the definition of movement the other premises, exposed in *Physics* A, still apply, namely that natural beings are moved and that φύσις is the principle of movement. I report some thoughts from the two chapters at the beginning of book Γ. First Aristotle denotes the central question, which is about movement and distinguishes it from further questions (τὰ ἐφεξῆς, follow up questions). Then he exposes the conditions under which the question about movement must be asked. One of them is the

[16] And never in the form of the "First Mover" as is repeated *ad nauseam*. The latest examples are some contributions in the anthology edited by Christoph Horn (2016); for one reason why the term "First Mover" is a false translation in Aristotle's text, see footnote 10; further reasons why *Met*. Λ does not contain any theology are given by E. Sonderegger (2008), 93–98.

modal distinction between actuality and potentiality; another is the categorical distinction. Given the categorical distinctions, movement belongs to the πρός τι, the relation, because in movement the moving and the moved are related to each other.[17] Finally he determines where the movement is: there is no movement besides the things (παρὰ τὰ πράγματα; Γ 1, 200b26–201a9). After these terminological preparations he can determine movement:

> "Movement is the actuality of a potential being as such."

The thoughts of his predecessors confirm his definition even if they seem to contradict it. Some said that movement is a difference, others that it is inequality, others that it is non-being. Aristotle responds that it is comprehensible to share such convictions because the status of movement is somehow vague, it is something between being and non-being, it is neither the mere possibility nor definitive actuality (Γ 2, 201b16–27).[18] After some transformations of his definition partly to avoid misunderstandings partly to make it more explicit, he integrates this aspect in the definition, saying:

> "Movement seems to be actuality, but one that is not finished."

The actuality of movement being incomplete, movement implies both modalities, while otherwise actuality and possibility must be separated (Γ 2, 201b27–202a3).

Now we combine the statement about movement in *Physics* Γ with the question in *Metaphysics* Λ. Any natural being is moved. Movement is the being of natural beings, and as such, it is the actuality of a possible being as such. — That means that movement, κίνησις, is a concept of being (*Seinsbegriff*). The being of natural beings is determined by movement. In Aristotle's *Physics* movement does not have the function to measure something or to make something measurable; it is not about to find out how quickly something moves or speeds up etc. Φύσις as ἀρχὴ κινήσεως is a principle, an origin of the being of natural beings.

[17] Also in modern physics movement is a relation, but the relation between a moved body and an absolute or a rigid reference system.

[18] Cf. the problem in the *The Sophist* that being is not pure being and becoming is not simply nothing. – Concerning the same problem, see G. W. F. Hegel (1967/1812), Erstes Buch.

Remember the speculative question in *Metaphysics* Λ: What is the origin of becoming? The first answer in *Metaphysics* Λ is: Becoming is founded on being. The second question asks: On which being is becoming founded? The answer to the second question is: The natural coming-to-be is founded on φύσις, which is the cause of being in all four senses of "cause". Becoming aims at attaining its nature in the sense of the form, φύσις as εἶδος, as Aristotle says: ἔτι δ' ἡ φύσις λεγομένη ὡς γένεσις ὁδός ἐστιν εἰς φύσιν, "φύσις in the sense of becoming is underway to φύσις." (*Physics*, B 1, 193b12-13) This aim, to attain its εἶδος and by this *to be* is the origin and the cause of movement (Γ 2, 202a9–12). Achieving its εἶδος a being finds its place in the νόησις and in this way *it is* and is *actually*. So the *Physics* answers the speculative question asked in *Metaphysics* Λ.

2.3.4 The First Moving in *Physics* Θ and *Metaphysics* Λ

Aristotle's *Physics* is no more a "book" than his *Metaphysics*. It is a compilation of different texts, probably put together by a redactor.

Normally the books A–Δ (I–IV), and the books E, Z, Θ (V, VI and VIII) are considered as groups, H (VII) is a separate book. The last book, Θ, begins as follows:

Πότερον γέγονέ ποτε κίνησις οὐκ οὖσα πρότερον, καὶ φθείρεται πάλιν οὕτως ὥστε κινεῖσθαι μηδέν,	Did movement once come to be, not being before that, and will it pass away some day, so that nothing moves anymore,
ἢ οὔτ' ἐγένετο οὔτε φθείρεται, ἀλλ' ἀεὶ ἦν καὶ ἀεὶ ἔσται,	or didn't it neither arise nor will it pass away anytime, but it ever was and will ever be,
καὶ τοῦτ' ἀθάνατον καὶ ἄπαυστον ὑπάρχει τοῖς οὖσιν,	and that is an immortal and perpetual feature of the beings,
οἷον ζωή τις οὖσα τοῖς φύσει συνεστῶσι πᾶσιν;	like life for all natural beings?

The book opens with a question, an unusual beginning. The question is quite general, and indeed Aristotle often begins with general statements; to choose a beginning, which many can agree on, is a rhetoric and didactic device. Aristotle formulates his question concerning movement positively and negatively and considers the respective consequences (in other cases

he is somewhat elliptic) and the phrase then ends with a comparison. So the text gets somehow cumbersome and redundant. It creates a solemn mood and differs clearly from Aristotle's famous sober style.

The question contains an anti-Parmenidean programme. Aristotle proposes the same alternative concerning movement as Parmenides did concerning being. According to Parmenides, we can't say that being has arisen nor that it will pass away. In the dichotomy ἔστιν ἢ οὐκ ἔστιν there is only one possible choice: ἔστιν, that it is. Now Aristotle asks just the same concerning movement: Has movement arisen or not? If the question is a rhetoric one, then he already hints at his result, i.e. that movement has no origin — exactly the same as Parmenides claims for being.

To make plain what he means, Aristotle cites Parmenides with the word ἄπαυστον, whose first occurrence is in frg. 8.27: ἐὸν...ἔστιν ἄναρχον ἄπαυστον. Subsequently, we find the word in choral songs of all three tragedians, then in the *Timaeus* where Plato describes how the demiurge formed the soul of the world (36e), "the way its [the soul's] perpetual and rational life began." Aristotle's formulation is even closer to the *locus* in *Kratylus* 417c, where both words, ἄπαυστος καὶ ἀθάνατος are used to describe φορά, movement in place. The choice of words is emphatic, poetic and allusive.[19] There are further parallels between Parmenides' statements about being and Aristotle's questions about movement.[20] Theophrastus too uses the same terms describing the circular movement of the heavens, *Met*. 5a4, where he denotes it as συνεχὴς καὶ ἄπαυστος. And we find the same comparison later in *Met*. 10a15, οἷον γὰρ ζωή τις ἡ περιφορὰ τοῦ παντός, "the circular movement of the universe is like life." So the first sentence of *Physics* Θ is in the tradition of Parmenides and Plato, and especially connected with questions which were discussed in the Academy and in Theophrastus' *Metaphysics*.[21]

[19] Further occurrences in the *Corpus Aristotelicum*, besides *Physics* Θ1, 250b14: *De Caelo*, A 9, 279b1, B1, 284a9, B 5, 288a11, *De Generatione et Corruptione*, A 3, 318a25, *Metaphysics* Λ 7, 1072a21, *Physics*, Θ 6, 259b25; mostly used as an attribute to κίνησις, μεταβολή, κυκλοφορία.

[20]

Parmenides on being	Aristotle on movement
8.3 ἀγένητον – ἀνώλεθρον	γέγονεν – φθείρεται
8.10 ὕστερον ἢ πρόσθεν	πρότερον
8.5 οὐδέ ποτ' ἦν οὐδ' ἔσται, ἐπεὶ νῦν ἔστιν ὁμοῦ πᾶν	ἀεὶ ἦν καὶ ἀεὶ ἔσται

[21] Ross and Wagner don't mention these references; nor is there a word about them in the commentaries of Tricot, van Raalte or Laks-Most.

These references and the solemnity Aristotle has chosen underline the importance of the question about the origin of the movement and at the same time the position Aristotle takes in regard to his tradition. Instead of the visionary revelation about being, which Parmenides received, instead of the life of the soul of the world, which Plato put into the form of an εἰκὼς λόγος, and where Theophrastus pointed on the cosmological aspect of the circular movement of the heavens, Aristotle asks for the origin and beginning of movement in a speculative approach.

Aristotle treats the circular movement as the first spatial movement in *Physics* Θ 9; in Θ 10 he asks for the primary moving cause. The determinations of the first moving and the first movement are coordinated. Both have neither a temporal beginning nor an end, they are uniform, unique, they have no parts and take no space, both are unmoved but move. From the fact, that the first moving cause as the origin of movement must be unmoved itself, it results that it is not a natural being. From the fact, that the origin of movement can't have parts or extension, one could conclude, that it is a mathematical or a geometrical entity. But Aristotle many times rejects the idea, that the origin of being could be of this kind. The eternal and unmoved being we are looking for, is *not* that of geometrical forms (Θ 2, 252b2).

I try to summarise the results concerning the first moving cause. That φύσις is the origin of movement because it is the being of natural beings remains part of the accepted presuppositions.[22] But φύσις is the ground of natural beings also in the sense of ὕλη, εἶδος and τέλος. The starting point of natural becoming is φύσις as ὕλη, the process of becoming reaches its end in the φύσις in the sense of εἶδος. When this state is reached, what is becoming has arrived at actuality (ἐνέργεια). Aristotle metaphorically says elsewhere that this goal is "aimed at"[23] by the becoming beings (if I may use this oxymoron), in fact, this goal is the first moving cause (τὸ πρῶτον κινοῦν ἀκίνητον). In this context actuality (ἐνέργεια) does not mean "to exist" in our concrete and actual world, but it means that the coming-to-be has reached its τέλος in its actual and real φύσις in the sense of εἶδος.

The εἶδος is noetic (that means it is not something like a natural or a geometrical shape). In reaching its εἶδος the being fits in a noetic world wherein it can *be*. Once that has happened, a factual mundane being has

[22] B 1, 192b21; see the first sentence of Γ 1; in Θ 3, 253b5 he names that a ὑπόθεσις.
[23] *Met.* Λ 7, 1072a26.

realised a particular noetic node of the world. Because the world wherein the new being *is*, is a noetic structure, the thing which has come to be can not be just for itself. In Aristotle's terms that structure is νόησις. (More about this speculative moment in Aristotle's thought below; for the moment I just want to stress that this *noēsis* is not the awareness of a particular mundane subject). This *noēsis* is the apriori unity of which being and actuality, the being aware and the being, which it is aware of, are results. Without this unifying common ground, which precedes noetically, no mundane being or event could be what it is; everything would lack the world wherein it can be. A particular being comes to be in the speculative sense, when it takes its place in this form of *noēsis*.

Within this process, anything systematically (but not as a particular thing) provided in the νόησις can become real or rather actual in the sense of *Metaphysics* Λ 6–9, it can reach its ἐνέργεια, now no more only as an actuality of a possible being (which is in movement), but as a stable actuality.

3. Opinion-based Worlds

I take up the result from *Physics* Θ and combine it with the speculation of *Metaphysics* Λ. The goal of the becoming of a natural being is to attain its φύσις as εἶδος; if that happens, then what was a becoming finds its actual being, enters into the structure of a world by realising its εἶδος; so far the result of *Physics* Θ.

The starting point in *Metaphysics* Λ is the question about being, περὶ οὐσίας ἡ θεωρία. Aristotle explains this issue more precisely; we have to ask which is the being which grounds becoming. The first five chapters make clear that no natural being, nothing in the world is able to fulfil this function, not even the sun and the sphere of fixed stars. In no way it is possible to give this question a cosmological or an empirical answer, it must be answered speculatively. In the lines 1071b19–20 Aristotle provides the first part of that speculative answer: "The origin must be such that its being is an actuality." By "origin" (ἀρχή) he makes clear that he speaks about the first moving cause. This statement can be translated in the formula

$$\text{first moving cause}_{\text{def}} \{\text{being} - \text{actuality}\}.$$

Actuality doesn't mean that the first moving "exists already", an answer which would remain in mundane limits. It's not about the existence of

something in an already existing world, but it's about the actuality in the νόησις, as set out in chapter 7, 1072b14–21. The dash between "being" and "actuality" does not indicate identity or sameness because being and actuality do not relate to one another as two separate things, which have the chance to relate to one another afterwards. Their relation is rather something like that of a theme and the modus of that theme. Being and actuality are results of a process, whose origin lies in the νόησις, awareness, which now moves into focus.[24] Without awareness (νόησις) there is neither being nor actuality. Awareness is before both; therefore I mark that with arrows, which start from awareness: the first moving cause is {being ← awareness → actuality}.

In our everyday life, we have to distinguish that which is aware of something and that of which it is aware. But if we reflect on awareness we see that awareness can take notice of something else only if that which it notices at a given moment has already been in it — not temporally but systematically — as a node in a noetic network or as an interception point of some fundamental distinctions. Without that network of distinctions things would remain unnoticed, there would be no place for them *to be*. The result of this is, that the everyday distinction between that which is aware of something and that which it is aware of, is suspended in the process of entering in the network named 'world'.

A natural being "seeks for" its place in that structure, the place being its εἶδος. To find this place, to become actual in the νόησις, is the goal of the natural process, but this is only a formal structure. The content of a respective world depends on the Doxa, i.e. on the set of fundamental opinions (such as conceptions, distinctions, values). These make up the real content of a certain world. Therefore the formula for *to be* as that on which becoming rests and therefore being the first moving cause can be completed as follows:

$$\left\{ \frac{\text{Being} \leftarrow \text{awareness} \rightarrow \text{actuality}}{\text{Doxa}} \right\}$$

[24] Usually, νόησις is translated by thinking, but as Kant said in the Preface to the second edition of the *Critique of Pure Reason*: "...I can think whatever I will if only I don't contradict myself...", Kant (1998 [1781/1787]), B XXVI, Footnote. In contrast to this I can be aware only of something that is. The translation is thus misleading. Even if awareness is connotated with modern mentalism, thinking is not less subjective; awareness has the advantage to have the same root as the German "*gewahren*", which is much closer to νόησις than "thinking".

This formula, which is developed from the chapters Λ 6, 7 and 9, can be explained by a sentence, which Aristotle uses in Λ 9, and in which he concentrates his speculation as a whole. It is the famous phrase καὶ ἔστιν νόησις$_3$ νοήσεως$_1$ νόησις$_2$. My explanation of this phrase will here be short.[25] All previous explanations of this phrase that I know of identify the first mention of *noēsis* with the third, so that it seems that Aristotle speaks about the "thinking of thinking". But in fact, *noēsis* has three mentions with different meanings, and the translation by "thinking" must be replaced by "awareness" or "being aware" (*bemerken, gewahren*; see footnote 25):

– νόησις$_3$ means the factual everyday noticing; to be aware of this or that particular thing, event etc., awareness in our normal use;
– νοήσις$_1$ means the noetic world before the actual world; it means the structure of a certain world; its content is defined by the fundamental opinions, in short, the Doxa;
– νόησις$_2$ is our faculty or ability to render this structure actual in a given case.

Νοήσις$_1$ is totally different from νόησις$_3$. While νόησις$_3$ is personal, individual, the usual being aware of this or that, νοήσις$_1$ in contrast is impersonal; it is not an act of a subject, even not of a god, it is the mere noetic structure which makes possible to happen νόησις$_3$. Only using the fundamental distinctions (= Doxa) of this νοήσις$_1$ our ability to be aware of something can change into being aware actually of something as something. From the worldly point of view νοήσις$_1$ is a mere possibility, a noetic structure, no more than a grid, but from the speculative point of view, it is the ground of every being. Without its world-constituting distinctions, there is no experience, no existence of anything.

The sentence may be paraphrased like this: 'Any of my perceptions, sensations, experiences, thoughts (= νόησις$_3$) realises (= νόησις$_2$) a noetic structure (= νοήσις$_1$) in my mundane world; so the being aware and that which the being aware is aware of *are* and are real and true.' Or expressed in another way: 'To be aware of a particular being, event etc. (= νόησις$_3$) is the realisation of a faculty to do so (= νόησις$_2$), namely

[25] For an extended analysis I refer to my commentary on book Λ, Sonderegger (2008); a revised English translation is in progress.

to become aware of something as something (*etwas als etwas bemerken*) in a world (= νοήσις$_1$).'

There are several possible sets of fundamental opinions. Each set forms a world. Often these different worlds are considered as different cultures. But we must distinguish between worlds and cultures. The world includes cultures and is more comprehensive than culture; culture means primarily that which is formed by man; in the world, there are many things, which are not made by man. Aristotle does not speak of a plurality of worlds, but he gives reasons for such a view in stressing the function of the ἔνδοξα, the opinions. He shows that it is never possible to leave the limits of opinions. But we can distinguish common opinions and beliefs from the fundamental opinions and beliefs, which they rely on. And the task of the philosopher is to find the opinions, which offer the ground of everyday convictions (fundamental opinions, sometimes named the self-evident, *das Selbstverständliche*). If all we know is within the limits of fundamental opinions and if the respective sets of opinions are different throughout time and place, as we in fact can see, and if these sets of fundamental opinions are the basis of respective worlds, then we can speak of a plurality of worlds drawing on the speculative sketch Aristotle has presented in *Metaphysics* Λ.

Different worlds can have many distinctions in common. But they are not just different views on the same reality (as is common belief). There is no such objective world "above" the opinion-based worlds. How could we find it? We ought to have a position outside of any world to do that, which is impossibe. The world determines what can be and what can not be. There can be only things, which fit in the network of its world. In any world, it is possible to reach truth, but there is no truth above the different worlds, there is no "super-world". Comparision, relation and translation between different worlds are possible inasmuch as they may have some fundamental opinions in common, which is very probable if there is only a finite number of fundamental opinions.

4. Compensation for Damages

What I have said to this point seems to be negative only. No theology (some would agree),[26] no metaphysics of substance in Aristotle's philosophy

[26] E. Sonderegger (2008).

(I don't know anybody so far who would like to agree, but I hope that will change)[27] and moreover no science (for most people a scandal). All this seems, if not totally wrong, quite severe, considering the whole tradition and the history of reception, which dealt primarily with just these themes. So I would like to apologise and give some compensation.

But first, we must remember the fact that the claims of the standard interpretation in the three above mentioned fields are in themselves somewhat inconsistent. One of the main claims is that substance translates οὐσία correctly, further that we find an elaborated metaphysics of substance in Aristotle's texts, leading to theology. And finally, that it is nearly self-evident that his occupation with natural beings has a scientific goal, which is in principle comparable with the goal of contemporary science. Unfortunately, all these assumptions have in common that they at the same time must contend that Aristotle's theoretical and scientific attempts have significant defects, which must be rectified. Strictly speaking, the substance is unique (no absolutely autonomous subsistent being can have another independent being beside it). If we want to avoid this, we have to give a vague meaning to the notion, what, like in the first case, renders the concept useless. Concerning the metaphysics of substance, there is no consensus among its defenders whether the particular being or rather the εἶδος is the core of substance. Neither proposal is satisfying. Even in the eyes of his friends, Aristotle's reasoning about theology is not very convincing because the alleged proof of the existence of God is not conclusive. Finally, concerning his science some say that it is excusable that a project like this in its very infancy has some imperfections or even flaws, but that nevertheless his research on nature can be lined up with modern science in principle. Others condemn it because Aristotle worked rather with speculative prejudices than with empirical research, and thus impeded scientific progress for two thousand years.

What is the positive result if we were right to contend, that Aristotle had neither a metaphysics of substance nor a theology resulting thereof, nor a science? Aristotle's work on nature has several main lines; one is collective and empirical like the *Historia animalium*. The aim of these books is ἱστορία, to know as much as possible about beings in nature, how they are, to get facts and material. The objective of this research is not to apply it for technical or economical purposes. The only aim is to

[27] E. Sonderegger (2012).

know and to find subject matter to reflect on. Ἱστορία is not science in the modern sense. Other works have methodical intentions, like *De partibus animalium*. A superficial view could here suggest a proximity to modern science, but if we take into account the three conditions of contemporary science mentioned above, we see the difference. Other works are examples of θεωρία περὶ φύσεως, theory of nature, the most important of them being the *Physics*.

Aristotle's theory of nature fits very well in the speculative sketch outlined in *Metaphysics* Λ, which is a *Programmschrift* for his whole life. Having shown that it is possible to ask the question about being and having taught how to do it, he can question different classes of beings: 'What is the being of x?' In the *Nicomachean Ethics* x is man, in the *Physics* x is nature. In the theoretical works on nature he thus asks the question about being in the specific frames of nature: What is the being of natural beings? In such works, Aristotle runs the programme which he has outlined in *Metaphysics* Λ. These are the least scientific texts; they are speculative in the true sense of the word.

Concerning Aristotelian theology, there is a new consensus coming up. Ritschl and Natorp raised first doubts in the 19th century; Natorp rightly noticed that it was impossible for him to see any theology in the text at all, whereas Ritschl wanted to separate metaphysical and theological insight in God. Their approach had little impact on the Aristotelian research (even Gadamer as disciple of Natorp interpreted *Metaphysics* Λ as a theology), but in the last decennia some scholars like R. Bodéüs (1992), H. Lang (1993), B. Botter (2005) and S. Fazzo (2012, 2014) have provided us with arguments against a theological interpretation of *Metaphysics* Λ. However, many of those who deny that the book has a theological content replace theology by a metaphysics of substance. However, if agreeing that οὐσία is the topic, one should give reasons for the translation "substance" (which in fact translates ὑπόστασις) and explain why this concept is adequate. In my commentary on *Metaphysics* Λ I tried to show that Aristotle has developed a speculative answer to the question about the meaning of being. Some results of that commentary were presented in the last chapter. We can leave behind us the obsolete concept of substance, whose origin is in the Stoa and whose primary use is in the theology of the early fathers and the subsequent Christian theology.

Instead, Aristotle can learn us a lot about method and the kind of philosophy to choose. In a situation, where the so-called metaphysics of

substance has lost its interest,[28] he gives us a lesson on speculative thinking,[29] on how to ask the question about being. It is possible to ask this question in the form of a reflection on our Doxa. The method to ask the question is speculation in the topical attitude, with its means προτάσεις λαβεῖν, to distinguish the πολλαχῶς λεγόμενον, to use quotations as termini, to distinguish the various distinctions in our speech, in short theoretical philosophy in the manner of *thought without claims, unbehauptendes Denken*.[30]

If we take *such a thought without claims* seriously, it seems to have a far reaching impact: we have to reflect on the world we live in, and if that world is shaped by fundamental opinions, if the sets of fundamental opinions can be different, if there is no criterion to decide about truth between different worlds, but only about truth in a definite world, then we have to respect other worlds (what is more than other cultures).[31]

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[28] Cf. the anthology *Ontologie*, Beier & Heuer (2010), where the contributors try to prove the contrary. The book is the result of a colloquium under the auspices of the Communauté Saint Jean (2008).

[29] See Sonderegger (2010) and Sonderegger (2017).

[30] For more information about this unusual term, see Sonderegger (2010), pp. 56 and 72–76. – The first to expose and use this form of thinking is Plato in *The Sophist*, see Sonderegger (2012), I, 2.

[31] For the far-reaching consequences if we take our world as the unique possible one or if we accept a possible multitude of worlds, see Sonderegger (2013).

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