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ANDRONICUS OF RHODES ON ARISTOTLE'S *PHYSICS* 202a13–21, b23–30*

Summary: The aim of the paper is to show that the two testimonies on Andronicus' theory of physical change give a coherent picture. Both accounts stress that the factor responsible for change is not necessarily to be sought for outside of the things that change. Their change is due as much to their inner constitution as to external agents. Andronicus' view resembles Galen's critique of the Aristotelian position and there is a possibility that both authors drew on Stoic sources.

Key words: change, inner constitution, external agents, natural motion, previous disposition, substrate.

The evidence for Andronicus' views on physics is extremely sparse. We only have three testimonies, all in Simplicius' commentary on Aristotle's *Physics*. One of them concerns the order and arrangement of the books of the *Physics*. It sheds light upon the development of the division of Aristotle's treatise and therefore received considerable interest in the past. But it may be less interesting to those who are concerned with the doctrinal aspects of Aristotle's work. On the other hand, the Neoplatonist commentator, Simplicius also informs us that Andronicus (*floruit* in the second half of the 1st century BC) had a reading of 202a14 that was less clear than the version preferred by the majority of mss. and commentators. Later on, we find another report on Andronicus that deals with his interpretation of 202b23–30.

The aim of the paper is twofold: to show that the testimonies on Andronicus' view of 202a13–21 and b23–30 cohere, and to set them in the context of what we know about the physical theories of the Peripatetics in the late republican and early imperial period.

First, I shall quote Simplicius' reports.

A

ἰστέον δὲ ὅτι ἐν τούτῳ τῷ χωρίῳ οἱ μὲν πολλοὶ σαφέστερον οὕτως γράφουσι ταύτην τὴν λέξιν· ἐντελέχεια γὰρ ἐστὶ τούτου ὑπὸ τοῦ κινητικοῦ.

* I owe much to Han Baltussen and István Bodnár for their generous and detailed written comments on an earlier draft.

ὁ δὲ Ἀνδρόνικος οὕτως· ἐντελέχεια γὰρ ἐστὶ τοῦ κινητοῦ καὶ ὑπὸ τούτου. καὶ ἐξηγεῖται ὅτι κἂν ἔξωθεν ἢ τὸ κινεῖν, ἐκ τῆς ἐνούσης δυνάμεως εἰς ἐνέργειαν ἀγόμενον, ὑφ' ἑαυτοῦ κινεῖσθαι δοκεῖ τὸ κινούμενον.¹
(CAG IX, 440.12-17 Diels, emphasis is mine)

B

ἀνάγκη γὰρ τὸ κινεῖν εἶδος τι ὃν ἤδη τοῦτο ἐνδιδόναι τῷ κινουμένῳ. κινεῖται δὲ καὶ αὐτά, καθόσον ἢ πρότερον ἡρεμοῦσα ἕξις εἰς τὴν τοῦ κινεῖν ἐνέργειαν διεγείρεται κατὰ τὸ ὡς πρὸς ἐνέργειαν δυνάμει, ὅπερ πάντα ἔχει τὰ μὴ ἅμα ὅλην ἀποδιδόντα τὴν οἰκείαν ἐνέργειαν· ὅπερ τοῖς αἰωνίως ἐνεργοῦσι πρόσσεστι μόνοις. διὸ παρ' ὅλον τὸν τοῦ κινεῖν χρόνον ἅμφω ἔστιν ἐν αὐτοῖς τὸ τε δυνάμει καὶ τὸ ἐνεργείᾳ, καὶ κατὰ μὲν τὴν ἐξ ἀτελοῦς προκοπὴν κινεῖνται, κατὰ δὲ τὸ τέλειον καὶ τῆς ἕξεως καὶ τῆς ἐνεργείας κινεῖσθαι. ἡ δὲ φύσις καὶ προδιατιθεμένη διατίθησι τὸ ὑποκείμενον ἔνδοθεν καθ' ἕκαστον κινήσεως εἶδος, ὡς καὶ ὁ Ἀνδρόνικος ἔλεγε. κἂν γὰρ θερμαίνεται ὑπὸ πυρὸς τὸ ὕδωρ, ἀλλ' ἢ ἐν τῷ ὕδατι φύσις πρώτη θερμὴ γενομένη, οὕτως θερμαίνει ἢ συνθερμαίνει τὸ ὑποκείμενον.
(CAG IX, 450.9-20 Diels)

Text A gives not only Andronicus' reading of 202a14 but also his explanation. That might show that Andronicus not only edited the text but also commented on particular textual problems.² Perhaps, he had to choose between various readings and appended some remarks to justify his preference. Had he had only one version at his disposal there would have been no reason to argue for that. It cannot be ruled out either that the rival versions (or one version only) were accessible after his publication of Aristotle's works as well. They may also have reached Alexander of Aphrodisias who, along with Porphyry, was admittedly the main source for Simplicius in this commentary. They might form the basis of the reading accepted by Simplicius and the medieval copyists. In this respect, then, Andronicus could not provide a definitive edition.³ But we do not have to assume that he just gathered the rolls and published

¹ It is not quite clear why Diels put a comma after ἀγόμενον for it goes with τὸ κινούμενον. I owe this point to István Bodnár.

² On his notes on Aristotle's *Physics*, see M. PLEZIA: *De Andronici Rhodii studiis Aristotelicis*. Cracow 1946 (although he has not much to say about it, see p. 43); P. MORAUX: *Der Aristotelismus bei den Griechen*. Bd.1, Berlin 1973, 113–116; H. B. GOTTSCHALK: *Aristotelian Philosophy in the Roman World*. *ANRW* II 36.2, 1079–1174, esp. 1092–1093; J. BARNES: *Roman Aristotle*, J. BARNES & M. GRIFFIN (eds.): *Philosophia Togata* II. Oxford 1997, 25–30. The version was also noted by H. DIELS: *Zur Textgeschichte der Aristotelischen Physik, Abhandlungen der Kgl. Pr. Akademie der Wissenschaften zu Berlin*, 1882, *Phil.-hist. Kl. I.*, 22–23. But he seems to say that in that case we have to think of the transmission through the commentators, not of Andronicus' transcript. Moraux thinks (p. 113) that Andronicus' version is a *Flüchtigkeitsfehler*. If so, why did Andronicus try to justify it? Simplicius clearly says that he made some explanation (ἐξηγεῖται) to support it. Moraux also points out (p. 114, n. 3) that the reading turns up in Cod. Vindob. phil. gr. 100 (9th century), though he takes it for another lapse.

³ As J. BARNES stresses, in his 'edition' of the *Physics*, Andronicus merely published copies of corrupt manuscripts, see *op. cit.* 31. Without rejecting that highly plausible hypothesis about the value of

them without trying to give a coherent interpretation. We cannot prove the existence of such a coherent view for the whole work. But we may be able to prove a more modest claim, that he had such an interpretation for a longer passage. For the explanation with which he supports his reading of 202a14 seems to be in line with the interpretation of 202b23–30. At any rate, Simplicius' report indicates that Andronicus had at least some overall interpretation of Aristotle's theory of change.

Whoever interprets 202b23–30, s/he must be aware of the fact that the passage sums up the content of the first three chapters of Book 3. The general nature of change is defined as the actualization of that which is potentially active or passive. This is the passage, then, where the commentator is given the opportunity to summarize his/her own interpretation of Aristotle's notion of change. Before examining Andronicus' interpretation of the passage, we have to mark off his testimony from the context of Simplicius' remarks. It is difficult to separate them for it seems that Simplicius uses Andronicus' view to illustrate a Neoplatonic doctrine which says that to take in a form the recipient has to be suitable for the reception of that form. Suitability (ἐπιτηδειότης) may in turn be the result of a previous impact by that same form.⁴ Simplicius makes clear that motion is or involves a certain transmission of form (450.9–10). To support the inclusion of this notion into an Aristotelian framework he refers to Andronicus who emphasizes the importance of the internal source of change.

However, as I think we can find an allusion to Andronicus' terminology, we might have a chance to attribute at least one short additional passage to Andronicus. On discussing the conditions whereby a thing can change Simplicius says that nature, which is also so predisposed, gives a kind of disposition from within to the substrate in relation to each form of change. One of the two terms I should like to pay special attention to the word "predisposed" (προδιατιθεμένη). Simplicius does not use it elsewhere in the commentary. We cannot find it in his commentary on *De Caelo* either. Neither does Aristotle apply the term – with good reason, one might add. As the clause ends with the words ὥς καὶ Ἀνδρόνικος ἔλεγε, there is some reason to assume that Simplicius took the clause "ἡ δὲ φύσις ... ἔλεγε" (450.16–18) either directly from Andronicus or, more plausibly, from Alexander of Aphrodisias who also wrote a commentary on the *Physics*. One might think that it would be too bold to say that here we have a direct quotation from Andronicus' work. But I think it is safe to conclude that, in the wake of Alexander, Simplicius paraphrased Andronicus in a

Andronicus' edition, one might admit that Andronicus at least made an attempt to support his choice between different readings.

⁴ The term may be of Megarian provenience but was also used by the Stoics and Epicurus (*Ep. Herod.* 46), see R. B. TODD: *EPITEDEIOTES* in *Philosophical Literature: Towards an Analysis, Acta Classica* XV (1972), 25–35. See also the detailed analysis of the term in the Neoplatonists by I. HADOT: *Aspects de la théorie de la perception chez les néoplatoniciens: sensation (αἴσθησις), sensation commune (κοινή αἴσθησις), sensibles communs (κοινὰ αἰσθητὰ) et conscience de soi (συναίσθησις), Documenti e studi sulla tradizione filosofica medievale*, VIII (1997), 33–87, esp. 37–42. ἐπιτηδειότης as the result of a previous ἔμφοσις of the form is discussed, e.g., in Ps.-Simplicius, in *DA* 56.21 ff. For further references, see my note 241 in Simplicius, *On Aristotle On the Soul* 1.1–2.4, translated by J. O. URMSO. London-Ithaca NY, 1995.

way that he kept some of the key terms. The next clause (κἄν γὰρ ... τὸ ὑποκείμενον) illustrates that general thesis. The use of συνθερμαίνει is also unique in Simplicius' *in Phys.* The commentary on *De Caelo* does not contain the verb and its cognates either.⁵ Therefore, perhaps, we are allowed to ascribe the passage 450.16–20 to Andronicus. Such a conclusion may be corroborated by the fact that the terms do not occur in any other treatise on physics by late antique authors. The rest of the section quoted above may also reflect his views, although it has no peculiar mark indicating that Simplicius took it from another author. It may well be that it contains nothing but the remarks that Simplicius made to clarify his own point. But, on occasion, it may also serve well to elucidate some problems in Andronicus' notion.⁶

Text **B** states that for Andronicus nature is predisposed towards every kind of change, and thus it is the inner source for the substrate to produce change in any way. There are two questions to be answered. What kind of nature is he talking about? What does he mean by substrate (τὸ ὑποκείμενον)? I suspect, what he has in mind is either the universal nature or the individual. If he thinks of the universal nature then he could say that nature as such has the kind of previous disposition that enables natural things to change. If he thinks of the individual nature then he may say that it is not nature as such but nature structured in a certain way that is predisposed and thus enables natural things to change. In my view, the first option may be more promising. Simplicius does not indicate that he takes the term in the second, restrictive sense. Moreover, the discussion is about change in general. Nature is said to be predisposed towards all kinds of change. In virtue of the previous disposition nature can provide the appropriate disposition for each individual thing. As for the meaning of ὑποκείμενον, the term may refer to the thing that is about to change. For to change is to receive a certain form (450.9–10), the changing thing is a ὑποκείμενον in relation to the form which it receives. Thus, of course, we can say that the thing that is about to change is matter in respect of the form it takes on during the change. In itself, the thing in question is a compound, but in respect of the change to come it receives the appropriate form. It will underlie the change. That seems to be the meaning of the term both in 450.17 and in 450.20.⁷

Because we have Andronicus' summary of his view of the general nature of change and assume that it is correctly represented in Simplicius' commentary, it is reasonable to expect that his reading and explanation of 202a14 must fit that summary. Right at the beginning of his commentary on *Physics* 3, in 395.20–22, Sim-

⁵ The term is attested in Aristotle (*HA* 562b21), as well as in early Peripatetic texts (Ps.-Aristotle, *Pr.* 888b28; Theophrastus *CP* I 3.4). These claims are based on a TLG search for the various forms of διατιθέναι and συνθερμαίνειν in the relevant authors.

⁶ I must add that, to my mind, the subject of the next sentence (δυνάμει οὖν κινητικὸν εἶπεν, ...) is, again, Aristotle, as the words ἔλεγε πρότερον (450.21) make clear.

⁷ Another possibility to explain ὑποκείμενον might be to side with Boethus and distinguish between ὕλη, unqualified matter, and ὑποκείμενον, matter as it exists in actual things and is endowed with form and limit, see ap. Themistius, *in Phys.* 26.20–23 and Simplicius, *in Phys.* 211.15–20. But it seems that in 450.20 ὑποκείμενον is distinguished from φύσις. As the latter term seems to refer to the inner constitution (including the matter that is qualified), the former can only signify the particular thing that is about to underlie change.

plicius announces that this book has a quite high number of text variants. This seems to be the reason why he devotes so much energy to discuss the different readings of certain passages. His notes on Andronicus' version are to be understood against this background. What is the difference between the two readings? The one accepted by the commentators, including Simplicius, says that change is the actualization of the changed by the source of change. The statement implies that things that change owe their activity exclusively to the external source of change. That goes well with the Aristotelian dictum that everything that changes is changed by something else.⁸ Andronicus seems to have dissented from Aristotle's view for he prefers a text which, although it defines change as the actualization of the thing that is capable of changing, adds at the same time that the change may also be initiated by the external source of change. He defends it by saying that, even if the changer is external, the thing in change seems to be changed by itself, since it is brought to actuality on account of its inherent potentiality. Instead of ascribing full responsibility for the change to the external mover, then, Andronicus endorses the view that the physical thing that is about to change can change also by itself, and that is due to its inner conditions. In text **A**, therefore, he announces a view which is the opposite to what Aristotle said. For Aristotle, every change implies a changer which is, in some sense, distinct from what is changed. By contrast, Andronicus seems to claim that it is the nature of the changing thing that is primarily responsible for the change. For this reason, he may tacitly admit such cases where we cannot find an external mover.

It may be easy to see that the two accounts on Andronicus' position are coherent. Both stress that the factor responsible for change is not necessarily to be sought for outside of the things that change. Things are capable of changing on their own account, or rather, their change is due as much to their inner constitution as to external agents. As the example in text **B** says, even if a particular amount of water be heated by fire, the nature inherent in the water first becomes warm and thus warms, or warms with itself, the substrate.⁹ The passage also raises an interesting problem about Aristotle's doctrine of the elements. When the nature of water becomes warm, how can this warm nature remain the nature of water? In such cases, Aristotle's doctrine requires that the warm water that has left its cold nature behind would no longer be water. It should be a kind of air. Theoretically speaking, Andronicus could give two answers to the query. (1) The warm nature of the water is in fact a nature of air. It implies that during the heating process there will be a substantial change which then takes hold of the whole matter. The heating process only communicates the warm to the water. The fact that the water comes to the boil and perishes can be explained with reference to the inner structure of the water. (2) The nature of warm water can itself be a water-nature. This is a paradoxical nature that becomes more paradoxical as the heating process goes on. But this nature has to come about first. It will receive the heat communicated to the water and will eventually perish as a result of further

⁸ See, e.g., *Physics* VIII 4, 255b29 ff.

⁹ Note that both passages make the same point in this respect: $\kappa\alpha\upsilon\epsilon\chi\omega\theta\epsilon\nu\ \tau\eta$ (440.16) – $\kappa\alpha\upsilon\gamma\alpha\rho\ \theta\epsilon\rho\mu\alpha\acute{\iota}\nu\epsilon\tau\alpha\iota$ (450.18).

heating. By the term συνθερμαίνει Andronicus might refer to the first horn of the dilemma. For there nature acts as a co-ordinate cause along with the external source of the heat. On this view, nature contributes to the process of heating the water. But these possibilities are highly conjectural. We simply do not have clear evidence for Andronicus' position in this matter.¹⁰

But that is a minor point. Whichever of the two possibilities may come to be true, it seems that Andronicus chose the reading of 202a14 in accordance with his general view of change. This kind of approach serves the purpose of Simplicius as well for he stresses the introduction of the internal initiation of change as something necessary (418.4–6) and new (423.12, 20–1).¹¹ We do not know whether Andronicus endorsed Aristotle's doctrine of elementary motions. But even if he accepted it, he could say that the mover is responsible for the motion of the element indirectly; it moves the element via the nature of the element.

The next task is to examine how Andronicus' notion of change fits in with the overall view of change in the late republican and early imperial period. As a result, we may be able to see clearly Andronicus' place in the development of the interpretation of Aristotle's notion of change. The sources are, again, scarce. In particular, we know hardly anything about the Peripatetics who lived in the 1st and 2nd century BC. Our evidence for their views on physics therefore does not enable us to compare them to Andronicus' notion of change. There are, however, other sources that reveal other kind of connections. At first sight, his position may appear similar to that of Epicurus who denied that what is in motion has to be moved by something.¹² On the other hand, Andronicus did not say that such change can be spontaneous. Natural things are a kind of self-movers but they change on account of their inner constitution, which makes their change predictable. The notion of self-motion was more prevalent in Stoicism.¹³ Chrysippus characterized fire as the one that moves through itself with most speed and vigour.¹⁴ Moreover, the Stoics seem to have distinguished four kinds of self-motion, the lowest one being attributed to inanimate natural objects.¹⁵ Inanimate objects thus can change by themselves. To use Stoic terminology, they are capable of activating change through themselves (δι' ἑαυτοῦ ἐνεργεῖν τὴν κίνησιν, apud Simplicius, in *Cat.* 306.21–22). Given that Andronicus was influenced by the Stoics in other matters, there is a possibility that he was influenced by them in this point as well.¹⁶

¹⁰ Thanks to István Bodnár for helping me elaborate this point.

¹¹ I owe this point to Han Baltussen.

¹² See Lucretius II 216–293.

¹³ See the analysis in D. HAHM: Self-Motion in Stoic Philosophy, M. L. GILL & J. G. LENNOX (eds.), *Self-Motion. From Aristotle to Newton*. Princeton, 1994, 175–227.

¹⁴ *SVF* II 413.

¹⁵ Cf., Simplicius, in *Cat.* 306.19–27, Origen, *De principiis* III 1.2–3; *De oratione* 6.1. Alexander of Aphrodisias was well aware of the Stoic arguments, see *De fato* XIII 181.15–182.4. For a discussion, see R. W. SHARPLES, *Alexander of Aphrodisias on Fate*. London. 1978, 253–58.

¹⁶ The Stoic influence in other matters has been emphasized by H. B. GOTTSCHALK, *op. cit.* 1105, n. 6, and in L. TARÁN's review of P. MORAUX, *Aristotelismus bei den Griechen*, Bd. 1, *Gnomon* 53 (1981), 741.

As Paul Moraux has already noted, text A may allude to a debate on the nature of change among natural philosophers in the 2nd century AD.¹⁷ The key evidence for the debate is the treatise by Alexander of Aphrodisias in which he sets out to refute Galen's notion of change.¹⁸ He evolved his theory as a response to Galen's objections to Aristotle's views. But Andronicus' position may also make understandable the fierce criticism that Alexander aimed at Galen's notion of change. Alexander's purpose in criticizing Galen was also to rebut erroneous conceptions within the Peripatetic tradition. Galen seems to have said that things that change essentially are those whose source of change is inherent. Such change is the linear motion of the sublunary elements to the places appropriate to them and the circular motion of the outermost sphere.¹⁹ These bodies consist of similar parts that "are no other than the whole".²⁰ Galen also launched an attack against the logic of Aristotle's argument.²¹ He criticized it on the ground that it makes an impossible *ὑπόθεσις* which says that when the whole AB moves *πρῶτως καὶ καθ' αὐτό*, the part CB does not move. For present purposes, there is no need to follow up the whole debate. Let it suffice to stress that Galen referred to the local motions of the element which are due to its weight.

The difference between Galen and Andronicus is clear. As the example in Simplicius 450.19–20 shows, Andronicus did not necessarily bear in mind natural motions, the linear motion of the four elements to their natural places. Although he referred to the elements, or particular portions of the elements (this particular fire and this particular amount of water), the changes he considered useful for illustrating his point were not the natural locomotion of the elements. Instead, he mentioned warming and cooling, changes that were related to the basic qualities of the elements. But the body to change is a particular amount of water. To apply Galen's principle, the parts of this water are similar to the whole. Furthermore, Andronicus' criticism may not have been so radical as Galen's. He could reconcile his position with Aristotle's view by saying that the external mover of the elements can move them on account of their inner nature. On the other hand, the common feature in the views of Andronicus and Galen is that for both authors change can be initiated by the inanimate thing itself, which is due to the intrinsic characteristics of the natural thing in question. One might ask if there was a common source for the criticism. The answer is short and not free of conjecture. For Alexander says that Galen took the criticism from

¹⁷ P. MORAUX, *op. cit.*, 114.

¹⁸ See S. PINES: *Omne quod movetur necesse est ab aliquo moveri: A Refutation of Galen by Alexander of Aphrodisias and the Theory of Motion*, *Isis* 52 (1961), 21–55; N. RESCHER & M. E. MARMURA, *The Refutation by Alexander of Aphrodisias of Galen's Treatise on the Theory of Motion*. Islamabad, 1969.

¹⁹ 63a10 ff. Page and line are those of the Escorial ms., as I found it in N. RESCHER & M. E. MARMURA, *op. cit.*, 33–34.

²⁰ Translation is by N. RESCHER and M. E. MARMURA. It indicates that the elements are made up of homogeneous parts.

²¹ 63b20 ff. It was mentioned also by Simplicius, in *Phys.* 1039.13–15. Galen responded to *Physics* 241b24–242a16.

Chrysippus.²² In addition to that, we can repeat that Andronicus was clearly influenced by the Stoics in many issues. We cannot rule out either that he relied on them for making this point as well. As a speculation, then, we might be allowed to say that both Galen and Andronicus drew on Stoic sources. But if so, then those Stoics, presumably Chrysippus as well, knew the Aristotelian theory of change and heavily criticized it.

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²² 64a5 ff, p.36 RESCHER-MARMURA. Alexander must have been familiar with the Stoic concept. It is not clear, however, whether he hinted at the whole criticism when saying that Galen took it over from Chrysippus.