

Extrait du Rhuthmos

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Platonic Legacy (4th century BC - 3rd century AD) - part 1

- Recherches

- Vers un nouveau paradigme scientifique ?
- Sur le concept de rythme - Nouvel article

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The Platonic theoretical innovations have deeply transformed the concept of *rhuthmós* and determined the main features of the concept of *rhythm* as we still know it today. By subjugating the *rhuthmós* to an arithmetical *métron*, Plato enforced his doctrine of Forms against the previous doctrines based on improvised, temporary forms or variable ways of flowing. The apparently chaotic becoming, the multiple and changeable duration, could be henceforth regularly divided into series of alternate times and related to a common measure: the divine and perfect revolutions of the heavenly bodies. We just saw the aesthetic, ethical and political program that was built by Plato upon this new theoretical basis. No need to repeat it here.

Regarding post-Platonic rhythmology, one could easily say what Alfred North Whitehead once noted on a larger basis: "The safest general characterization of the European philosophical tradition is that it consists of a series of footnotes to Plato." (Whitehead, 1929) This would hold true, broadly speaking, even in modern times. But it is still worth going here again into details because despite the general Platonic frame in which they were elaborated and in some cases a certain rigidification of Plato's teachings, many new insights on rhythm theory, which are still valuable to us today, were already introduced during Antiquity.

Since the ancient Platonic tradition is remarkably large and complex, it would need more than a short chapter to present it, nevertheless I would like to say a few words about Aristotle and a few thinkers of his school who helped pass Platonic concepts on to modern times while proposing some crucial innovations.

Time as Number of Motion - Aristotle's *Physics* (4th c. BC)

Since Werner Jaeger's studies in the first half of the 20th century, Aristotle (384-322 BC) is most often considered as having slowly rejected most of Plato's metaphysical views and paid ever greater attention to empirical observation. As a matter of fact, when reading the few Aristotelian texts dedicated to rhythm, we find both recessing references to Platonic views and new insights drawn from observation. I will go from the more Platonic *Physics* and *Politics* to the intermediate *Rhetoric* and the most innovative *Poetics*, regardless of their possible chronological order, which is in any case much debated and offers very few hints on the evolution of Aristotle's conception of rhythm.

When Plato, in *The Laws*, defined rhythm as "arrangement/order of motion" (*kinêseos táxis*), time was naturally included in his view but it was not direct object of reflection. Time was defined in *The Timaeus* as "an eternal image" of Eternity "moving according to number" and linked with the periodic return of the heavenly bodies. The earthly becoming was flowing in the most perfect way: according to a cyclical and numbered Time.

In his *Physics*, book 4, Aristotle discusses the preconditions of motion: place (*típos*), void (*kenîn*), and time (*krînos*, chapters 10-14). Concerning the latter he retains part of Plato's doctrine. But, simultaneously, he introduces in it some significant novelty. Instead of starting from Heaven and conceiving of Time as an earthly numbered image of

Eternity, he begins with the human observation of movement: "We measure the movement by the time, but also the time by the movement." In this earthly perspective, time is a constant attribute of motion and does not exist on its own but is relative to the movements of things, while these movements are themselves relative to time.

Not only do we measure the movement by the time, but also the time by the movement, because they define each other. The time marks the movement, since it is its number, and the movement of time. We describe the time as much or little, measuring it by the movement, just as we know the number by what is numbered. (*Physics*, book 4, 220b, trans. R.P. Hardie and R.K. Gaye)

So Aristotle endorses the Platonic conception of time as numbered flow but he translates it onto subjective ground: "Time is just this, he says, number of motion (*arithmòs kinêseos*) in respect of 'before' and 'after'" that "we do perceive."

On the other hand, when we do perceive a "before" and an "after," then we say that there is time. For time is just this number of motion in respect of "before" and "after." [$\acute{\alpha}\lambda\lambda\prime \frac{1}{4} \times \hat{\alpha} \sigma\iota\frac{1}{2} \textcircled{\alpha} \mu\acute{\epsilon}\hat{\alpha} \circ\pm\acute{\alpha} \rho \acute{\alpha} \times \acute{\alpha}\acute{\iota}\acute{\alpha}\mu\acute{\alpha}\zeta \frac{1}{2} \circ\pm\nu$ *U\acute{\alpha}\acute{\alpha}\mu\acute{\alpha}\zeta \frac{1}{2}* - *arithmòs kinêseos katà tò pròteron kai hústeron*]. (*Physics*, book 4, 219b, trans. R.P. Hardie and R.K. Gaye)

A little further down, Aristotle specifies his thought and firmly puts aside any metaphysical definition. Time is not number as "that with which we count"; in other words, it is not a kind of Pythagorean reality generated *by numbers*. Rather, time is number in the sense that it can be numbered or counted *by us*.

Hence time is not movement, but only movement in so far as it admits of enumeration. A proof of this: we discriminate the more or the less by time. Time then is a kind of number. (Number, we must note, is used in two senses both of what is counted or the countable and also of that with which we count. Time obviously is what is counted, not that with which we count: these are different kinds of things.) (*Physics*, book 4, 219b, trans. R.P. Hardie and R.K. Gaye)

This subjective yet arithmetic nature of time explains why it is both continuous and infinitely divisible.

It is clear, then, that time is "number of movement in respect of the before and after," and is continuous since it is an attribute of what is continuous. [...] Every line is divided *ad infinitum*. Hence it is so with time. (*Physics*, book 4, 220a, trans. R.P. Hardie and R.K. Gaye)

Later on he defines time as "a measure of motion and of being moved." The becoming now flows according to the most perfect measure: the numbered Time.

Time is a measure of motion and of being moved [ἡμετέριον τῆς κινήσεως καὶ τοῦ κινεῖσθαι] - *métron kinéseôs kai toû kineîsthai*] (*Physics*, book 4, 221a, trans. R.P. Hardie and R.K. Gaye)

When Aristotle finally gets to the "regular circular motion" or the "movement of the sphere," it is because they provide us with the best "measure" there is to calculate our earthly human time. In other words, compared to Plato, he proceeds the other way around while maintaining the equivalence between the flow of time and that of numbers.

If then, what is first is the measure of everything homogeneous with it, regular circular motion is above all else the measure, because the number of this is the best known. Now neither alteration nor increase nor coming into being can be regular, but locomotion can be. This also is why time is thought to be the movement of the sphere, viz. because the other movements are measured by this, and time by this movement. (*Physics*, book 4, 223b, trans. R.P. Hardie and R.K. Gaye)

This partly new conception of time lays the foundation of physics for numerous centuries to come. It will still be used until the 17th century scientific revolution, which will criticize it while conserving some parts of it. But, as far as we are concerned, it also lays the foundation for a "scientific" approach to musical rhythm, which will soon be described by Aristoxenus, a pupil of Aristotle, as a series of observable time segments organized according to numbers and proportions. The "order of motion" (*kinêseos táxis*) will then be subject to the "measure of motion" (*métron kinêseôs*). But before going on with music, we need to look at politics, rhetoric and poetics.

Rhythm in Education - Aristotle's *Politics* (4th c. BC)

In the *Politics* Aristotle exposes his conception of the ideal city. This essay is the counterpart of Plato's *Republic* and *Laws*. The whole, i.e. the state, is largely superior to its parts, i.e. villages, households and individuals.

The city-state is prior in nature to the household and to each of us individually. For the whole must necessarily be prior to the parts; since when the whole body is destroyed, foot or hand will not exist except in an equivocal sense. [...] It is clear therefore that the state is also prior by nature to the individual; for if each individual when separate is not self-sufficient, he must be related to the whole state as other parts are to their whole, while a man who is incapable of entering into partnership, or who is so self-sufficing that he has no need to do so, is no part of a state, so that he must be either a lower animal or a god. (*Politics*, 1253a, trans. H. Rackham)

Nevertheless, within the limits set by this holistic conception of politics and the fundamentally unequal social relations of his time (1254b), Aristotle is much more favorable to the individual than Plato. The state must provide its citizens with the conditions of a good life. The aim of the political community or partnership ($\rho\acute{\omicron}\zeta\ \frac{1}{2}\acute{\epsilon}\frac{1}{2}\tau\text{-}$ - *koinônia*) is not to reflect on earth the heavenly perfection, not even to avoid injustice or establish economic stability, but rather to allow the citizens the possibility to perform noble actions and beautiful acts.

After thorough analyses of the various constitutions, Aristotle discusses in books 7 and 8 the best education for the citizens. Like for Plato the latter consists in four chapters: grammar, which includes reading, writing and some elements of arithmetic, gymnastics, music and maybe drawing (8, 1337b).

Concerning music, i.e. melody and rhythm, he endorses most of the Platonic claims while nevertheless taking some distance from them. Music, he says, is not something useful like grammar or drawing, or favorable to good health and strength like gymnastics, but it provides "leisure for free men" (8.1338a). But to specify this quite general

characterization he proposes to contrast the concept of leisure with two other categories. He asks whether music should be considered as more than common pleasure like "sleep," "deep drinking," or "dancing," or whether "it contributes something to a noble life of leisure [$\text{ἡ ἀνάξια τῆς ἀφροσύνης} - \text{pròs diagôgên}$] and education of the spirit [$\text{ἡ ἀνάξια τῆς φρονήσεως} - \text{pròs phrînêsin}$]" or, as a second alternative, "whether we ought rather to think that music tends in some degree to virtue [$\text{ἡ ἀνάξια τῆς ἀρετῆς} - \text{pròs aretên}$]." (8.1339a, my trans.) " $\text{ἡ ἀφροσύνη} - \text{diagôgê}$ - *pastime* is idiomatically used of the *pursuits of cultured leisure* like serious conversation, music or drama, but it also means *a way or course of life*. $\text{ἡ φρονήσις} - \text{phrînêsis}$ is meant here *latiore sensu* as synonym with *gnôsis* or *epistêmê* - *investigation* or *knowledge*. $\text{ἡ ἀρετή} - \text{aretê}$ means, as usual, *goodness* or *excellence*.

Obviously, he says, music belongs to the first two categories since it provides both low-grade amusement, education for the children, and respectable leisure and knowledge for adults (8.1339b). But in order to answer the question whether music could bring more, i.e. virtue, we must "see if its influence reaches also in a manner to the character and to the soul [$\text{ἢ οὐκ ἄρα καὶ τὸ ἦθος καὶ τὸ πνεῦμα} - \text{kai pròs tò êthos sunte nei kai pròs tên psukhên}$] (8.1340a). And the conclusion, as for Plato, is positive but on very different ground.

Contrary to "the objects of touch and taste" or "the objects of sight," which "contain no representation of character," music affects us deeply because "pieces of music," i.e. "rhythms and melodies" do perform representations of moral qualities "that most closely correspond to their true natures."

And since it is the case that music is one of the things that give pleasure, and that virtue has to do with feeling delight and love and hatred rightly, there is obviously nothing that it is more needful to learn and become habituated to than to judge correctly and to delight in virtuous characters and noble actions; but rhythms and melodies contain representations of anger and mildness, and also of courage and temperance and all their opposites and the other moral qualities, that most closely correspond to their true natures (and this is clear from the facts of what occurs when we listen to such representations we change in our soul). (*Politics*, 8.1339b, trans. H. Rackham)

Aristotle cites Plato and "those who have studied this form of education" to support his claim that each kind of melody or rhythm has a specific psychological effect. As his mentor, he prefers the Dorian mode, and probably the rhythms related to it, which provides balance and stability to the soul, whereas the others throw it into melancholic or enthusiastic states.

This is manifest, for even in the nature of the mere melodies there are differences, so that people when hearing them are affected differently and have not the same feelings in regard to each of them, but listen to some in a more mournful and restrained state, for instance the mode called Mixolydian, and to others in a softer state of mind, but in a midway state and with the greatest composure to another, as the Dorian mode alone of tunes seems to act, while the Phrygian makes men enthusiastic; for these things are well stated by those who have studied this form of education, as they derive the evidence for their theories from the actual facts of experience. And the same holds good about the rhythms also, for some have a more stable and others a more emotional character, and of the latter some are more vulgar in their emotional effects and others more liberal. (*Politics*, 8.1340a-b, trans. H. Rackham - same idea, 8.1342b)

Since it has the power to shape the mind, music is thus well suited for education. It finds a natural outlet in ethics.

From these considerations therefore it is plain that music has the power of producing a certain effect on the moral character of the soul, and if it has the power to do this, it is clear that the young must be directed to music and must be educated in it. (*Politics*, 8.1340b, trans. H. Rackham)

He concludes this section by citing quite briefly one may notice the Pythagoreans' and Plato's opinions about the affinities between tunes, rhythms and soul.

And we seem to have a certain affinity with tunes and rhythms; owing to which many wise men say either that the soul is a harmony or that it has harmony. (*Politics*, 8.1340b, trans. H. Rackham)

After having shown the appropriateness of music to education, in the two following sections Aristotle examines, again like Plato, what makes good tunes and good rhythms, as well as good instruments. He even asks "whether we are to prefer music with a good melody or music with a good rhythm" an interesting question he, as a matter of fact, won't answer.

We must therefore give some consideration to tunes and rhythms, and to the question whether for educational purposes we must employ all the tunes and all the rhythms or make distinctions; and next, whether for those who are working at music for education we shall lay down the same regulation, or ought we to establish some other third one (inasmuch as we see that the factors in music are melody and rhythm, and it is important to notice what influence each of these has upon education), and whether we are to prefer music with a good melody or music with a good rhythm. (*Politics*, 8.1341b, trans. H. Rackham)

As Plato, Aristotle rejects a series of instruments, particularly the cithar which demands professional skills and may distract the children from more important achievements, but also the flute, which is associated with the Dionysian cult (*orgiastikḗn*) and "prevents the employment of speech."

Flutes must not be introduced into education, nor any other professional instrument, such as the harp or any other of that sort, but such instruments as will make them attentive pupils either at their musical training or in their other lessons. Moreover the flute is not a moralizing but rather an exciting influence [*ἡ ψῆλός τις ἢ ἡ αὐλὸς ἢ ἡ κίθαρίς* - *ouk éstin ho aulòs êthikòn allà mâllon orgiastikḗn*], so that it ought to be used for occasions of the kind at which attendance has the effect of purification rather than instruction. And let us add that the flute happens to possess the additional property telling against its use in education that playing it prevents the employment of speech. (*Politics*, 8.1340b-1341a, trans. H. Rackham)

The ultimate moral criterion is naturally the wellbeing of the City. Melodies and rhythms must not make the body frame "useless for the exercises of the soldier and the citizen."

The study of music must not place a hindrance in the way of subsequent activities, nor vulgarize the bodily frame and make it useless for the exercises of the soldier and the citizen, either for learning them now or for practicing them later on. (*Politics*, 8.1340b-1341a, trans. H. Rackham, with correction proposed in note 1)

We see how close Aristotle's opinions are to Plato's. However we must also observe that he does not endorse all of them. He agrees with his predecessor that music can be used for the education of the citizens and he recalls very briefly as a matter of fact Plato's arguments about the primacy of the *lîgos* or the circle linking the musical harmonies and rhythms to the interior movements of the soul, and the latter to the perfect order of numbers and the periodic movements of the stars. Nevertheless, as in the *Physics*, his reasoning is actually quite different.

1. Contrary to Plato who was very suspicious about all Dionysian and pleasurable aspects of tunes and rhythms, he recognizes even if he considers that it must be left to "the vulgar class composed of mechanics and laborers and other such persons" (8.1342a) that any music gives a kind pleasure close to "sleep, deep drinking or dancing" (8.1339a).

2. He emphasizes that tunes and rhythms, if properly controlled, provide noble leisure and education of the spirit to "freemen and educated people" (8.1342a).

3. He explains that they may lead to "excellence" because they allow *mîmêsis* - *re-presentation* and finally *kátharsis* - *purgation*.

Since we accept the classification of melodies made by some philosophers, as ethical melodies, melodies of action, and passionate melodies, distributing the various harmonies among these classes as being in nature akin to one or the other, and as we say that music ought to be employed not for the purpose of one benefit that it confers but on account of several (for it serves the purpose both of education and of purgation [$\rho\alpha\acute{\iota}\mu\alpha\iota$ $\mu\epsilon\lambda\omicron\iota$ $\mu\epsilon\lambda\omicron\iota$ $\rho\alpha\acute{\iota}\mu\alpha\iota$ $\rho\alpha\acute{\iota}\mu\alpha\iota$ $\rho\alpha\acute{\iota}\mu\alpha\iota$ - *kai gàr paideías héneken kai kathárseôs*] the term purgation [$\acute{\alpha}\rho\kappa\eta\tau\iota\sigma\mu\acute{o}\nu$ $\mu\epsilon\lambda\omicron\iota$ $\mu\epsilon\lambda\omicron\iota$ $\mu\epsilon\lambda\omicron\iota$ - *ti dè légomen tên kátharsin*] we use for the present without explanation, but we will return to discuss the meaning that we give to it more explicitly in our treatise on poetry and thirdly it serves for amusement, serving to relax our tension and to give rest from it) (*Politics*, 8.1341b, trans. H. Rackham)

Aristotle says he wants to postpone the explanation of *kátharsis* until his writing about poetics. But specialists suggest that the very brief passage of *The Poetics* (6, 1449b, 27-28) where he explains that tragedy "purges emotions" like pity and fear by giving them an outlet, is probably not the one that is referred to in this passage of *The Politics*. Indeed Diogenes Laërtius (3rd c. AD) claims that *The Poetics* was composed of two books, therefore we may think that only the first survived while the second, in which *kátharsis* was more fully explained, was lost.

Anyhow the last pages of *The Politics* give enough clues to gather that here is maybe the biggest difference with Plato, at least in regard to harmony and rhythm. As we saw in the last chapter, the latter strongly rejects all mimetic aspects in music as well as in poetry and theater. For Plato any *mîmêsis* opens up the possibility of a dangerous invasion of the human/manly logocentric sphere by insanity, women dirges and chaotic forces. Aristotle on the contrary sees *mîmêsis* as a favorable process which procures a "habituation in feeling pain and delight at representations of reality" which "is close to feeling them towards actual reality" (8.1340a). While *mîmêsis* in painting does not provide "representations of character but rather the forms and colors produced are mere indications of the latter" (8.1340a), musical representation does better than only reproduce signs of emotion. It *re-presents* the emotions themselves: "Pieces of music on the contrary do actually contain in themselves representations of character." (8.1340a) Therefore rhythmic and melodic *re-presenting* which is also *re-enacting* has very positive effects on the soul, "even apart from the words."

Everybody when listening to representations [ἄλλοι μὲν ἴσως ἄλλοι μὲν - *tôn mimêsôn*] is thrown into a corresponding state of feeling, by the rhythms and tunes themselves, even apart from the words. (*Politics*, 8.1340a, trans. H. Rackham, with correction proposed in note 3)

In the last pages of Book 8, Aristotle considers only harmonies but we may induce that rhythms follow the same logic. Some persons who are "liable to pity, fear and religious excitement" are properly cured, "as if they had received medicinal treatment or taken a purge," by listening to "sacred music." Aristotle probably refers in this passage to kinds of Dionysian or shamanistic rituals where tunes and rhythms were used.

It is clear that we should employ all the harmonies, yet not employ them all in the same way, but use the most ethical ones for education, and the active and passionate kinds for listening to when others are performing (for any experience that occurs violently in some souls is found in all, though with different degrees of intensity for example pity and fear, and also religious excitement; for some persons are very liable to this form of emotion, and under the influence of sacred music we see these people, when they use tunes that violently arouse the soul, being thrown into a state as if they had received medicinal treatment and taken a purge. (*Politics*, 8.1342a, trans. H. Rackham)

Similarly, all passions can be overcome by an adequate melodic and rhythmic purgation and the pleasant feeling of relief that accompanies it.

The same experience then must come also to the compassionate and the timid and the other emotional people generally in such degree as befalls each individual of these classes, and all must undergo a purgation and a pleasant feeling of relief; and similarly also the purgative melodies afford harmless delight to people. (*Politics*, 8.1342a, trans. H. Rackham)

While following Plato on most points, particularly on the primacy of the state upon the individual and the definition of rhythm which still seems to amount, as in the *Symposium*, to a combination of long and short, or fast and slow segments, i.e. to an order of a temporal sequence organized according to alternate times, the *Politics* introduces for the first time in rhythm theory considerations concerning the *positive power of rhythmic re-presentations for the individual*. According to Aristotle, rhythm is to be used by the state not only to foster social order but to help the individuals which yet are, according to him, in short number reach a proper life. Rhythm and tune provide the citizens not only with sheer pleasure and noble leisure but also goodness or excellence.

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