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Rhythm as Meters, Cycles and Periods - Life Science, Metrics and Idealist Philosophy

(1759-1829)

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Rhuthmos

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In her book *Die Form des Werdens: Eine Kulturgeschichte der Embryologie, 1760-1830*, Janina Wellmann claims that around 1800 the concept of rhythm has emerged and penetrated the entire Western culture. In literature, in theoretical reflection on art, in philosophy, but especially in the newest life sciences, rhythm would have become a common scientific "Paradigm" or better yet, a new "Episteme" (Wellmann, 2010, p. 12, 33, 116).

It would be great if it is true. But I think this idea is largely exaggerated and moreover that it blurs the real evolution of rhythm theories in the 19th century. Inspired by a part of Foucault's work that, at least in my opinion, has proved obsolete - its structuralist part -, it erases the significant conflict that started specifically in the early years of the century, between rhythmologies directly inspired by poetic and artistic experience, and those of biological, metric, or philosophical origin, which quickly spread and happened to dominate the epoch thanks to the growing symbolic power of technique, idealism and science. Indeed, due to the new metrics initiated by Hermann, the philosophies of Schelling and Hegel and the progress of embryology and physiology, the contributions brought by the philologists and poets of the last decades were rapidly forgotten - at least in Germany.

Rhythm as Meter (Hermann - 1796-1818)

The first force responsible for the vanishing of the 18th century contributions to rhythmology after 1800 is the new theory of meter developed by Hermann and his successors.

Gottfried Hermann (1772-1848) was a very successful professor and a researcher in Leipzig (Couturier-Heinrich, 2004 and 2011). Among many others, he published four books dedicated to metrics: a treatise *De metris poetarum graecorum et romanorum* published in 1796, a *Manual of Metrics* published in German in 1799, some *Elementa doctrinae metricae* (1816) and a shorter version of the latter, *Epitome doctrinae metricae* (1818). He had a very large influence during the first half of the 19th century (Couturier-Heinrich, 2004, p. 152-159).

The method he followed was identical in all four books. Hermann first outlined a speculative theory of rhythm that consisted of an *a priori* definition, i.e. apart from any experience, and the general laws derived from the latter. Then the next sections dealt with the various meters. His purpose was to replace the existing metric, which was only empirical, by a purely rational one. The metric must stop listing and describing the various types of meter and verse through a quite anarchic observation of texts, as it has been done since Ancient Times, and become "the science of the general laws of rhythm" based on rational analysis of the "concept of rhythm" (*Handbuch der Metrik*, p. vi-x, quoted by Couturier-Heinrich, 2004, p. 142).

According to Hermann, the laws deriving from the *a priori* determined essence of rhythm explained the metric patterns followed by the ancient poets, since the latter, at least the Greek poets,

remained, under the exclusive influence of their intuition, so faithful to the necessary laws of rhythm [...] that one never finds rhythmic mistakes in their versification. (*Handbuch der Metrik*, p. vi, quoted by Couturier-Heinrich, 2004, p. 142)

Rhythm as Meters, Cycles and Periods - Life Science, Metrics and Idealist Philosophy (1759-1829)

Hermann himself kept contacts with non academic intellectuals or artists of his time such as Wilhelm von Humboldt and Goethe. But he always remained a fervent Kantian fond of analytical reason and technicism which made his theory a clear case of theoretical regression. In order to build his *a priori* theory of rhythm, Hermann borrowed from the Second and Third Analogies of Experience analyzed in the *Critique of Pure Reason* the concepts of causality and interaction (Second edition, 1787 - Point 3, section 3, chap. II , book II), while establishing between them a necessary link that did not exist in Kant.

According to him, the rhythm, leaving aside all perception, is "the causal link between the time intervals." Being independent of the material nature of the "things" whose succession he governs, rhythm "is" specifically "the form of a causal series, as presented by intervals of time." But Hermann believes that "all causality must be thought of through the concept of interaction." The rhythm is therefore for him "the temporal form of causation, as determined by interaction". (*Handbuch der Metrik*, p. 2-22, quoted by Couturier-Heinrich, 2004, p. 142)

For Kant, indeed, any knowledge of successive phenomena requires that they be reported to the concept of cause through the synthetic power of imagination and understanding:

I am only conscious, then, that my imagination places one state before and the other after; not that the one state antecedes the other in the object. In other words, the objective relation of the successive phenomena remains quite undetermined by means of mere perception. Now in order that this relation may be cognized as determined, the relation between the two states must be so cogitated that it is thereby determined as necessary, which of them must be placed before and which after, and not conversely. But the conception which carries with it a necessity of synthetical unity, can be none other than a pure conception of the understanding which does not lie in mere perception; and in this case it is the conception of "the relation of cause and effect," the former of which determines the latter in time, as its necessary consequence, and not as something which might possibly antecede (or which might in some cases not be perceived to follow). (*Critique of Pure Reason*, 1787)

Clémence Couturier-Heinrich notes that, by combining in his theory of rhythm causality and reciprocity, Hermann brings together two aspects of the doctrine of the experience that are normally separate in Kant. In the third Analogy of Experience, Kant associates indeed interaction with simultaneity and not with succession:

All substances, in so far as they can be perceived in space at the same time, exist in a state of complete reciprocity of action. (*Critique of Pure Reason*, 1787)

I think we can see in this oddity a trace of the contemporary debate on rhythm and the importance given to the concepts of system and interaction (*Wechselwirkung*) that we have many times seen appear and will soon be generalized by Humboldt in his reflection on language based on his Leibnizian training, his interest in the third Kantian *Critique* and the poetics progresses of the late 18th century.

According to Hermann, for there to be change and thus succession and rhythm, it is first necessary that the action of the first thing on the second be stronger, or, conversely, less strong than that of the second on the first. Hermann

represents the interplay of actions and reactions at work in a rhythmic series by an arithmetic scheme in which time intervals or members are designated by letters, the action of each of them on the following by + and its action in return on the preceding one by -.

a b c ... x

(+2) (-1+1) (-1+1) ... (-1)

Hermann adds that the *series* is the relevant unit for rhythm in poetry. It corresponds neither to foot nor verse and ends with either a hyphen or verse end. It comprises first the *arsis*, that Hermann defines as an "autonomous cause" which carries a pitch accent, the *ictus*, showing precisely its autonomous character, then the *thesis*, consisting of one or more syllables that "follow the cause as its effects." The *arsis* may be preceded by an *anacrousis* formed with one or more syllables themselves preceded by no *arsis* and being part of an earlier infinite series. The laws derivative of rhythm thus determine the duration, called by Hermann "measure", of the *arsis*, the *thesis* and the *anacrousis*.

Hermann infers from this definition what he calls the "fundamental law of rhythm", namely the constant equality of time intervals except for the first (*Handbuch der Metrik*, p. 22, quoted p. 146). According to the testimony of Wilhelm von Humboldt, who met with Hermann during the summer of 1795, these "intervals" are apparently the syllables (Couturier-Heinrich, 2004, p. 144). But, by claiming that all time intervals of a rhythmic series are equal, except the first that launches the series, Hermann openly disregards what is actually observed in Greek and Latin verses, namely alternating long and short syllables. He also has no clue at all on what is going on in Modern poetry and poetics especially in Germany in his epoch.

In short, although Hermann's work has initiated in Germany modern metric studies, enjoyed tremendous success in both classical and modern philology, as well as in linguistics, and was still appreciated in the 20th century - e.g. by Wilamowitz in the 1920s and lately by Schmidt and Parker - as the "founder of the systematic metric" (Couturier-Heinrich, 2004, p. 152), we must recognize that his theory of rhythm accomplished an extraordinary regression compared to the progress carried out during the second half of the 18th century. It developed, from the outset, as a purely academic technical "knowledge" directly indexed on one philosophical theory - or at least on a part of it, because Hermann seemed strangely to show more interest in the first than in the third *Critique* - and completely disconnected from the living theory proposed by the artists of his time and of the past. It is no coincidence that he always refused to engage in the German metric treatise that Goethe begged him to write (Couturier-Heinrich, 2004, p. 140). He reduced again to linearity and alternation what had been bit by bit separate from them.

Wilhelm von Humboldt didn't like much Hermann's theory because he found it too mechanical to truly account for the variety of Ancient but also Modern meters (Couturier-Heinrich, 2004, p. 150). And Jean Paul in the *Aesthetic Preparatory Lecture*, whose final edition appeared in 1813, humorously mocked Hermann and his ilk, he accused to lose themselves in erudition and technique:

*Malo quam unam glossam centum textus [I prefer one gloss to hundred texts], you say, and for the Metric of Hermann you would happily give in the hundred twenty-three lost tragedies of Sophocles, if seven still remain to explain the metric. (Jean Paul, *Werke*, ed. Norbert Müller, vol. 5, Munich, Hanser, 1987, p. 391, quoted by Couturier-Heinrich, 2004, p. 152)*

Rhythm Between Artistic Dynamics and Cosmic Cycles (Schelling - 1802-1805)

The second force opposed to the theory of *rhuthmos* come from the Idealist philosophy. Janina Wellmann claims that "the rhythm was a central epistemological category for Friedrich Wilhelm Schelling's philosophy of nature and art." (Wellmann, 2010, p. 94). According to her, rhythm was not to Schelling an issue limited to particular arts like Music and Poetry (Wellmann, 2010, p. 95, n. 10) but a general category which gave him a means to think the permanently progressive and organized activity and productivity he saw in nature (Wellmann, 2010, p. 94) and in art (Wellmann, 2010, p. 102). If this would be true, it would certainly be a very interesting link on the one hand with Spinoza and Leibniz, and on the other with Diderot and the German Romantics. But evidence provided by Janina Wellmann are very few. As a matter of fact, when Schelling addresses as his predecessors questions of dynamic and organization of transformation in nature and art, he never uses the term rhythm. For that purpose he uses "succession" (p. 98), "legality" (*Gesetzmässigkeit*) (p. 99), "organization" (p. 99). He employs rhythm mainly to talk about music, a bit about poetry and architecture. And it would be very mistaken to think that the concept of rhythm he is using in these occasions is compatible with the one elaborated by Diderot and his German successors in the second half of 18th century.

Indeed, in his *Philosophy of Art* (1802-1805), Schelling actually takes a very ambiguous stand. On the one hand, he makes his some of the major breakthroughs by the writers and art thinkers of his time, but on the other hand he incorporates their ideas into a cosmological idealism that ultimately strips them of any historical strength and that eventually will periodically reemerge and oppose them for the next two centuries.

Schelling borrows elements from Schlegel's *Lectures on Philosophical Art-Theory* (1798) and, through him, endorses Moritz's concepts of the autonomy of art and its internal finality.

The poetic work must be a "whole closed onto itself"; it must develop a "discourse" that must "cut itself off from everything else to be closed onto itself, following an internal legality", that is to say, "to move, when seen from the outside, freely and autonomously, but being, only from within, directed and subordinated to legality." (*Philosophy of Art*, quoted by Couturier-Heinrich, 2004, p. 222)

This closure and this internal legality of the discourse imply a capture and appropriation of time itself:

As soon as the chapter on music, which is the first art he studies in the special part of his aesthetics lecture, Schelling says that owing to rhythm, "the whole [of the musical work] is no longer subjected to time but has time *within itself*." (*Philosophy of Art*, quoted by Couturier-Heinrich, 2004, p. 223)

In other words, like music, poetry does not escape from time by an ecstasy that would make it communicate directly with eternity, but rather it "submits time," it "has it within itself", owing to the "rhythm" that ensures its "rule and submission" (*Philosophy of Art*, quoted p. 223). Each poem becomes a kind of fragment of absolute, a display of power and organization of time itself.

Janina Wellmann claims that Schelling is inspired by the model of the living organism elaborated by the rising biology (Wellmann, 2010, p. 100). It is true when he speaks about natural dynamics but I think that, as far as poetics

is concerned, he is instructed by Moritz's and Schlegel's poetics, and considers rhythm as a unique form, a system bringing together all discourse marks and making its "significance" inexhaustible and trans-temporal. Schelling also retrieves Diderot's, Goethe's and Hölderlin's intuition that its broad rhythmic organization gives to poetry a semantic power both independent of its time and able to spread into the future without ever exhausting itself. Poetic language "must have its own independent movement" and "have its time within itself" (*Philosophy of Art*, quoted p. 222). Thus a number of historicizing elements from poetic origin are acting within his philosophical discourse.

However, simultaneously, we also see in Schelling a desire to escape from time and history in order to mystically join the immutable and perfect operation of the Cosmos. It is very important to underline this aspiration because it will later drive again many rhythm theorists. Whereas Diderot, Goethe, Schiller, Schlegel and Hölderlin developed an aesthetic that gave a place of choice to poetics and drew from their artistic practices a radically new conception of rhythm based on its historicization and potentially politicization, Schelling returns to its traditional metric Platonic conception and, even worse, to the cosmological, mystical and anti-political generalization of this conception initiated by Plotinus, Aristides Quintilian and Boethius in late Antiquity (3rd-6th centuries).

Rhythm is then explicitly presented as a "mystery of nature":

Rhythm is one of the most wonderful mysteries of nature and art, and no human invention appears to be more immediately or directly inspired by nature. (*Philosophy of Art*, p. 110, trans. D. W. Scott)

Developing a suggestion of Novalis, Schelling reinstates the rhythm in a speculative and religious tradition according to which it is a formal element common to biological life, arts - firstly music - and operation of the cosmos. It is reduced to numbers, periods and cycles.

Music manifests, in rhythm and harmony, the pure form of the movements of the heavenly bodies, freed from any object or material. In this respect, music is that art which casts off the corporeal, in that it presents movement in itself, divorced from any object, borne on invisible, almost spiritual wings. [...] The first author claiming this vision of celestial movements as rhythm and music was, as we know, Pythagoras. But we also know that his ideas were misunderstood. [...] In the world of planets, rhythm is the dominant principle, their movements are pure melody; in the world of comets, it is harmony that dominates. (*Philosophy of Art*, Fr. trans. by C. Sulzer & A. Pernet, p. 191-193)

Schelling then draws an analogy between the "poetic work", the "universe" and all "heavenly bodies", planets, comets, that compose it:

What makes the heavenly body [...] have time in itself, is in art, insofar as music as well as speech are concerned, rhythm. Since music and speech have a movement in time, their works would not be wholes closed onto themselves if they were subject to time and if, on the contrary, they would not submit it and had not it within themselves. This domination and subjugation of time = *rhythm*. (*Philosophy of Art*, quoted by Couturier-Heinrich, 2004, p. 224)

In a new way - new for the time but actually quite archaic - Schelling speaks of "the rhythm of the universe and nature" (*Philosophy of Art*, quoted by Couturier-Heinrich, 2004, p. 223). Thus the *trans-subjective* character of art works is no longer seen as a radically historical power whereby Man makes himself, i.e. as an infinite ethical and political power, but as a tiny share of a natural creativity that actually pertains to the entire cosmos. An extremely ancient metaphysical tradition is thus revived, a tradition that will find an outcome at the end of the 19th century - now well known thanks to Olivier Hanse's work - in the pan-rhythmism that will irrigate the *Lebensreform* movement, the philosophies of Steiner and Klages, and their further extensions in the Nazi worldview. From this point of view, Schelling is certainly one of the thinkers responsible for the reduction of the revolutionary forces triggered by Spinoza's and Leibniz's ontologies and epistemologies, Diderot's and German Romantics' theories of art and language, and one of the main contributor, if unwillingly, of what Meschonnic called in his 1975 book *The Sign and the Poem* the Modern "cosmic paradigm of rhythm."

Rhythm as Dialectic (Hegel - 1807-1829)

Unlike Schelling, Hegel avoids the pitfalls of the cosmic model, since he situates his own reflection in a history of the Spirit, which has not completely cut ties with Christianity. In his work the rhythm is not dissolved in a sacred naturalistic model. But Hegel is also much less sensitive than Schelling to the contributions to poetics developed by the poets themselves. Therefore, if his repression of the rhythmological findings by Diderot and the Romantics is motivated by somewhat different reasons, it is no less powerful. The rhythm is no longer absorbed in Nature but is now assimilated by the History of the Spirit.

Pierre Sauvanet has recently presented a list of occurrences of the term "rhythm" in the Preface to the *Phenomenology of Spirit* (1807) (Sauvanet, 2014, see also During, 1996, p. 179). This record suggests that Hegel's use of the term is only metaphorical. Rhythm is never conceptualized for itself and it only designates the dialectic movement :

The *logical necessity* alone is the rational and the rhythm of the organic whole. (*Phenomenology of Spirit*, § 56)

This nature of scientific method, which consists partly in not being separate from the content, and partly in spontaneously determining the rhythm of its movement, has [...] its proper exposition in speculative theory. (*Phenomenology of Spirit*, § 57)

Philosophy should relinquish "any personal intrusions into the immanent rhythm of the concept, and not intervene in it either arbitrarily or with wisdom obtained elsewhere." (*Phenomenology of Spirit*, § 58)

This conflict between the general form of a proposition and the unity of the Concept which destroys that form is similar to the conflict that occurs in rhythm between meter and accent. Rhythm results from the juggle and unification of both. So, too, in the philosophical proposition, the identification of Subject and Predicate is not meant to annihilate the difference between them expressed in the form of the proposition; their unity, rather, is meant to emerge as a harmony. (*Phenomenology of Spirit*, § 61)

Clémence Couturier-Heinrich notes also that in his *Lectures on the Philosophy of Religion* Hegel uses the term to describe the dialectical organization in three successive phases:

The Spirit is firstly this: to be active in general. Specifically, it is the activity consisting in manifesting itself. Secondly it is this: the Spirit that manifests itself, determines itself, enters into the existence, gives itself some finitude. Thirdly, [...] it comes back into itself, becomes and is for itself as it is in itself. This is the rhythm or the pure and eternal life of the Spirit itself. If there were not this movement, then it would be something dead. (*Lectures on the Philosophy of Religion*, delivered in 1821, 1824, 1827 and 1831, quoted by Couturier-Heinrich, 2004, p. 19 in the 1827 version).

Despite the fact that the establishment of the text of these lectures has been complicated by the disappearance of Hegel's manuscripts, "it is certain, says Clémence Couturier-Heinrich, that Hegel used the word *rhythm* to speak of the dialectics of the concept or the Spirit." (Couturier-Heinrich, 2004, p. 19, n. 45)

Through its identification with the dialectical pattern, the rhythm disposes of both binary and arithmetic logic of the metric succession, but by so doing Hegel does not break actually completely with the Platonic model of a measured organization of time and becoming.

On the one hand, despite its flexibility and its differences with the methodical and critical dualisms (Descartes, Kant), the dialectic ternary schema remains tainted by a certain formalism which ensures its permanent identity, even through the plurality and complexity of History. The "rhythm of the Spirit" is for Hegel "its pure and eternal life."

On the other hand, if the affirmation of the content no longer appears as a simple emanation of an absolute which is completely identical to itself and always already contains in itself a negative part, the movement caused by the negation and the negation of this negation remains guided by a desire for removing this difference and reconciling the opposites. The sequence of phases in which the spirit manifests itself, the absolute is particularized and the essence passes into existence, is punctuated by moments when it returns "into itself, for itself as it is in itself."

Dialectics therefore requires both the continuation of a certain formalism and a firm teleology that put Hegel's conception of rhythm clearly on Plato's side and drives it away from most pre-Socratic thinkers, but also from Spinoza, Leibniz and Diderot, and even from his Romantic contemporaries. In his texts on dialectic, the rhythm becomes succession of periods, cycles, just like, in his *Lectures on the Philosophy of History*, and *Reason in History*, the life of Nations and the general theory of History which always implies return and repetition of the same cycles even on a different level.

When, in his *Lectures on Aesthetics or Philosophy of Art* (Lecture delivered in 1818, 1820-1821, 1823, 1826, 1828, 1829 and published posthumously in 1835), Hegel finally readdresses the issue of art, he starts by explicitly rejecting all progresses made in the second half of the 18th century.

In music, Elie During notices that he constantly refers rhythm to measure (*Takt*) which are often used one for the other (During, 1996, p. 163). When he does not confound them, one should add, he adopts the banal view - which does not change anything since the beat remains as fundamental basis - that rhythm is merely a differentiated accentuation that gives "life" and "animation" to it:

If we take in the first place the purely temporal aspect of musical sound, we have to discuss (a) the necessity of time's being in general the dominant thing in music; (b) the bar as the purely mathematically regulated measure of time; (c) rhythm which begins to animate this abstract rule by emphasizing some specific beats and subordinating others. (*Aesthetics: Lectures on Fine Art*, Vol. 2, Part 3, Sect. 3, Chap. 2)

Yet the further this abundant variation goes, the more necessary it is for the essential sections of the bar to be asserted in it and actually marked out as the principal rule to be emphasized. This is brought about by means of rhythm which alone brings proper animation to the time and the bar. (*Aesthetics: Lectures on Fine Art*, Vol. 2, Part 3, Sect. 3, Chap. 2)

"Rhythm" brings then "freedom", "soul" and "sentiment" to an expression that would be otherwise mechanical, "gloomy" and "melancholic":

To make a preliminary remark at once about melody, its animated rhythm is to be distinguished from the abstractness and regular and strict return of the rhythm of the beat. In this connection music has a freedom similar to poetry's and an even greater one. (*Aesthetics: Lectures on Fine Art*, Vol. 2, Part 3, Sect. 3, Chap. 2)

If on the other hand the melody keeps strictly in its rhythm and parts to the rhythm of the beat, then it readily sounds humdrum, bare, and lacking in invention. What may be demanded in this connection is, in brief, freedom from the pedantry of meter and the barbarism of a uniform rhythm. For deficiency in greater freedom of movement, along with dullness and carelessness, readily leads to what is gloomy and melancholy. (*Aesthetics: Lectures on Fine Art*, Vol. 2, Part 3, Sect. 3, Chap. 2)

In poetry, opposing Diderot and his Romantic predecessors, he claims, based on a very crude semiotic position, that poetry has nothing to do with the "collocation [of words] into sentences and elaborate paragraphs, nor in euphony, rhythm, rhyme, etc." It is only a matter of "imaginings and ideas":

Poetic expression does seem to lie throughout in words alone and therefore to be related purely to language, but the words are only *signs* of ideas and therefore the real origin of poetic speech lies neither in the choice of single words and the manner of their collocation into sentences and elaborate paragraphs, nor in euphony, rhythm, rhyme, etc., but in the sort and kind of ideas [or of the way of imagining things]. (*Aesthetics: Lectures on Fine Art*, Vol. 2, Part 3, Sect. 3, Chap. 3)

Contrary to what has been shown by numerous writers, poets and thinkers in the second half of the 18th century - but one certainly could go further back to Condillac and Leibniz - Hegel argues there are no bonds between ideas and sounds and rhythm produces anything but a "sensuous charm" or "magic" that blurs the pureness of our "feelings and ideas" :

Of course the trick of meter and the interlacings of rhyme seem an irksome bond between the sensuous element and the inner ideas, more irksome than that forged in painting by colors. This is because things in nature, and the human form, are colored naturally, and to portray them without color is a forced abstraction; whereas an idea has only a very remote connection, or no inner connection at all, with the syllables used as purely arbitrary signs of a communication, with the result that the obstinate demands of the laws of prosody may easily seem to fetter the imagination and make it no longer possible for the poet to communicate his ideas precisely as they float before his inner consciousness. Consequently, while the flow of rhythm and the melodic sound of rhyme exercises on us an indisputable magic, it would be regrettable to find the best poetic feelings and ideas often sacrificed for the sake of this sensuous charm. (*Aesthetics: Lectures on Fine Art*, Vol. 2, Part 3, Sect. 3, Chap. 3)

Yet Hegel recognizes that any great artist actually works within the "sensuous element" of language:

A genuine artistic talent moves always in its sensuous element as in its very own, where it is at home; it neither hinders nor oppresses, but on the contrary it uplifts and carries. So as a matter of fact we see all the great poets moving freely and assuredly in the field of their own self-created meter, rhythm, and rhyme, and only in translations is following the same meters, assonances, etc., a frequent constraint for the translator and a torture for his skill. (*Aesthetics: Lectures on Fine Art*, Vol. 2, Part 3, Sect. 3, Chap. 3)

However for him rhythm is limited to meter and strictly separate from prosody. Nothing from the discoveries made by his predecessors remains. Poetry and more generally language are torn into two rigorously separate parts:

For the more detailed division of the subject, there are principally two systems and we have to cast light on their distinction from one another. The first is rhythmic versification, which depends on the specific length and shortness of syllables, their manifold ways of figured conjunction and temporal progress. The second consists in emphasizing sound as such, in respect both of single letters, consonants or vowels, and of whole syllables and words, ordered and figured either according to the law of the uniform repetition of the same or a similar sound, or to the rule of symmetrical interchange. This is the sphere of alliteration, assonance, and rhyme. (*Aesthetics: Lectures on Fine Art*, Vol. 2, Part 3, Sect. 3, Chap. 3)

Following Hermann, Hegel defines rhythm in a strictly metrical way:

He identifies the "rhythmic movement" of the sounds to their "length and shortness" and defines it as "the movement of syllables regarding the duration." (*Aesthetics: Lectures on Fine Art*, 1823, quoted by Couturier-Heinrich, 2004, p. 130)

Poetry and music are put under the same metric cloak:

Just as in musical declamation the rhythm and melody must take on the character of the subject-matter and be made appropriate to it, so versification too is a music which, though in a remoter way, makes re-echo in itself that dim, yet specific, direction of the course and character of the ideas in question. To this end the meter must announce the general tone and spiritual touch of a whole poem. (*Aesthetics: Lectures on Fine Art*, Vol. 2, Part 3, Sect. 3, Chap. 3)

Poetic rhythm is assimilated to musical beat:

The element strictly speaking animating in rhythmic meter is introduced only by accent and caesura which run parallel with what we came to recognize in music as a the rhythmical beat. (*Aesthetics: Lectures on Fine Art*, Vol. 2, Part 3, Section 3, Chap. 3)

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Furthermore, Hegel situates poetics in the historicist paradigm that divides the history of mankind into two parts. Rhythm appears, according to the model of the Biblical story of the Paradise and the Fall, as a kind of origin that Modern Times would have lost to the benefit of rhyme and harmony:

As Schelling, he distinguishes "two verse systems" explicitly situating one in Antiquity, the other in the Modern era. [...] According to him the ancient verse system is exclusively rhythmic, while the modern system is based on the rhyme but can arrange a secondary place to the rhythm. (Couturier-Heinrich, 2004, p. 130)

Eventually, yet, he wonders if this opposition is legitimate:

While in the way indicated we have distinguished and contrasted rhythmic versification and rhyme, the question arises whether a unification of the two is not conceivable and has not actually occurred. In this matter it is especially some modern languages that are important. We cannot absolutely deny that they have reintroduced the rhythmic system or combined it to some extent with rhyme. (*Aesthetics: Lectures on Fine Art*, Vol. 2, Part 3, Sect. 3, Chap. 3)

But, according to him, those experiments have failed because modern languages have no natural rhythmic qualities:

On this matter I will only reiterate what I have said already about the difference between classical and modern languages. Rhythmical versification rests on the *natural* length and shortness of syllables, and in this it has from the start a fixed measure which cannot be determined or altered or weakened by any *spiritual* emphasis. Modern languages, on the other hand, lack a natural measure like this because in them the verbal accent, given by the meaning, may itself make a syllable long in contrast to others which are without this significance. (*Aesthetics: Lectures on Fine Art*, Vol. 2, Part 3, Sect. 3, Chap. 3)

That is why, apparently, Modern poetry uses metrical accent and caesura:

Therefore, another element had to appear and be developed in compensation, one in itself of a more spiritual sort than the fixed natural quantity of the syllables. This element is the metrical accent and the caesura, which now instead of proceeding independently of the word-accent coincide with it. (*Aesthetics: Lectures on Fine Art*, Vol. 2, Part 3, Sect. 3, Chap. 3)

And why Modern poets are wrong when they blend rhythm and rhyme and should stick instead to classical meters:

As for the actual combination of rhythm and rhyme, it too is to be permitted, though to a still more restricted extent than the introduction of classical meters into modern versification. (*Aesthetics: Lectures on Fine Art*, Vol. 2, Part 3, Sect. 3, Chap. 3)

Finally, Hegel explicitly rejects the new experiments made during his youth to get rid of metric rules and nostalgically asserts his preference for traditional metric forms:

It is true that, in his opposition to the false bombast of the French alexandrine meter, Lessing tried to introduce prosaic speech into tragedy especially, as something more suitable, and Schiller and Goethe followed him in their early stormy works by a "natural" pressure for imaginative writing with a richer subject-matter. But Lessing himself finally used iambs again in his *Nathan*; Schiller similarly forsook, with his *Don Carlos*, the path he had trodden before; and Goethe too was so little satisfied with his earlier prosaic treatment of his *Iphigenia* and his *Tasso* that he transferred them to the field of art itself, alike in expression and prosody, and recast them entirely into the purer form, which is the reason why our admiration of these works is ever excited anew. (*Aesthetics: Lectures on Fine Art*, Vol. 2, Part 3, Sect. 3, Chap. 3)

Nothing of the intuitions, discoveries and inventions made in the 18th century remains. Hegel's theory of rhythm is one of the clearest case of rejection of modernity and reactionary thinking ever proposed.

Rhythm in the Living (Wolff and his followers - 1759-1800)

Let us turn now to the new life sciences. In her recent book, Janina Wellmann admirably shows the rise from 1760 to 1800, of a new interest in the development and reproduction of living beings. Faced with phenomena impossible to understand with the mechanistic paradigms of the previous era, the new life sciences overwhelmingly use rhythm as operational concept able to hold together both movement and form (Wellmann, 2010, p. 16).

The initial moment of the emergence of the concept of rhythm in life science is the controversy between Albrecht von Haller (1708-1777), a supporter of "preformationism", and Caspar Friedrich Wolff (1734-1794), defender of "epigenesis" (Wellmann, 2010, chap. IV). For the first, all organisms are generated by preformed germs, which are kinds of organisms in miniature, and which have only to grow by getting out of their shell. For the second, the development consists of a serial genesis process of a final form, involving interactions between repetition, stability and variation factors. In his thesis *Theoria Generationis* published in 1759 and in his later book *De formatione Intestinorum* (1768-1769), Wolff brings up to date the theory of epigenesis, already advanced by Aristotle and Harvey, and supported at the time by Maupertuis and Buffon. But, without explicitly using the term rhythm, he introduces, besides the germ layers theory, the concepts of pulsed movement, successive stages and interactions.

From his work, Janina Wellmann argues, if not the term at least the concept of rhythm spreads to physiology, where experiments by Johann Christian Reil (1759-1813) on vital forces (*De structura nervorum*, 1796), and Ignaz Döllinger (1770-1841) on secretion (*Was ist Absonderung und wie geschieht sie ?* 1819), make rhythm a crucial aspect of the organism operation (Wellmann, 2010, chap. VI).

Janina Wellmann points out that this emergence is not unrelated to that recorded in the same period in poets, theorists of poetics, and even, she claims, in music theorists. In the first part of her book, she goes through the works of Klopstock, Hölderlin, Moritz, Novalis, A. W. Schlegel, Schelling (Wellmann, 2010, chap. I, II, III). The link between arts, poetics and life science is embodied in Goethe who, like his French predecessor whom he admires, is a kind of hub where all sciences meet and fertilize each other. Only a few years after his discussion with Moritz (1786) and a few years before that with Schiller on poetic rhythm (1795-1798), Goethe publishes an essay entitled *Versuch die*

Rhythm as Meters, Cycles and Periods - Life Science, Metrics and Idealist Philosophy (1759-1829)

Metamorphose der Pflanze zu erklären (1790), where rhythm features as an essential part of the metamorphosis of plants (Wellmann, 2010, chap. V).

Janina Wellmann then studies the increasing use of engravings, since the middle of the 18th centuries, to capture the successive phases of the embryo development (Wellmann, 2010, chap. VIII), and compares it with other uses of engraved pictures, starting from the middle of the 16th century, representing the successive moments of wrestling, weapon handling, army maneuvering, riding, court dancing, choreography and, in the 18th century, of artifacts crafting (Wellmann, 2010, chap. VII).

In the 19th century, the rhythmic model unfolds, while becoming more complex, in the embryology of Christian Heinrich von Pander (1794-1865) (Wellmann, 2010, chap. IX) and Karl Ernst von Baer (1792-1876) (Wellmann, 2010, chap. X). Both claim that embryonic development can be read as a rhythmic transformation of membranes by successive twists and folds in different directions.

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