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# Rhythm as Temporal Aesthetic Form (Part 2)

- Recherches
- Le rythme dans les sciences et les arts contemporains
- Esthétique
- 

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Table of contents

- [Rhythm as Form of Space Intuition \(Schmarsow - 1894\)](#)
- [Rhythm as Form of Space Configuration \(Schmarsow - 1896\)](#)

[Previous chapter](#)

# Rhythm as Form of Space Intuition (Schmarsow - 1894)

August Schmarsow (1853-1936) was a German art historian. He studied German literature, philosophy and art history in Zürich, Strasbourg and Bonn. He was awarded a professorship at an early age at Göttingen university in 1882 and, in 1893 after a stay in Florence where he founded the *Kunsthistorisches Institut in Florenz* - Institute for the History of Art in Florence, he was promoted to the more prestigious university of Leipzig where he taught art history until 1919.

Schmarsow first addressed the issue of rhythm in two short talks: the first in 1893 (published in 1894, the same year Meumann and Bolton published their own contributions on the psychology of rhythm) which was his inaugural speech at Leipzig university: *Das Wesen der Architektonische Schöpfung - The Essence of Architectural Creation*; the second in 1896 which was entitled *Über den Werth der Dimensionen im menschlichen Raumgebilde - On the Value of Dimensions in Human Spatial Construct*. He came back to the subject in 1905 in his famous *Grundbegriffe der Kunstwissenschaft: am Übergang vom Altertum zum Mittelalter kritisch erörtert und in systematischem Zusammenhange dargestellt - Basic Concepts of the Science of Art: Critically Discussed at the Transition from Antiquity to the Middle Ages and Presented in a Systematic Context* and again in *Kompositionsgesteze in der Kunst des Mittelalters - Laws of Composition in Medieval Art*, in 1915-1922. Throughout his life, he never ceased to present rhythm as a central category of art and published extensively on the subject, mainly in Max Dessoir's review *Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft*: "Rhythmus in menschlichen Raumgebilden," 1920, vol. 14, p. 171-187; "Zur Lehre vom Rhythmus," 1922, vol. 16, p. 109-118; "Geist und Seele im Rhythmus (Eine Palinodie)," 1933, vol. 27, p. 333-339. It seems, moreover, that around 1900 he had intended to create, with other colleagues from Leipzig University such as Wundt and Riemann, a kind of center of rhythm (Vasold, 2010, p. 40-45; Pinotti, 2012, p. 20-31).

In his 1893 inaugural lecture, Schmarsow sketched in a few strokes his philosophical position. He declared that he wanted to "inquire into the origin and innermost essence of architecture" without resorting, he added in coded terms, to Platonic nor materialist aesthetics.

This would simply mean replacing aesthetic "from above" and "from below," which since Fechner have been opposed to one another, with aesthetic "from within." (*The Essence of Architectural Creation*, 1894, trans. Harry F. Mallgrave & Eleftherios Ikononou, p. 3)

The aesthetic "from within" he was seeking was not, however, inspired by a Hegelian search for the various and progressive artistic ways the Spirit had found to express Himself, nor by the vitalist claim, which we found in Kugler

## Rhythm as Temporal Aesthetic Form (Part 2)

---

and still in the young Wölfflin, that there exists in each piece of architecture an inner drive that accounts for its harmony. It was to be induced, according to him, by a strictly psychological and empiricist methodology.

It is important in a basic study to give due weight to the psychological origin or the creative act and to test the belief that in this art [architecture], as in all others, what is truly essential can only start in the mind of the artist and end in the mind of the observer. [...] Far from all the conceptual analyses and dialectical constructions with which speculative aesthetics struggles, this element has to present itself as self-evident to our common senses [*dem gesunden Menschenverstand*]. (*The Essence of Architectural Creation*, 1894, trans. Harry F. Mallgrave & Eleftherios Ikononou, p. 4-5)

Schmarsow's empiricism was, however, quite particular. It demanded to be able to "transpose [oneself] into the whole [of the architectural work] and to understand and appreciate" all its parts. The decisive feature was not its "technical structure" or "all expenditure of massive material" but its "visual appreciation" which, as a "musical performance," could be "repeated at will." Scientific but also common observation was thus grounded in sensory participation.

Do the massive piles of hewn stone, the well-jointed beams, and the securely arched vaults constitute the architectural work of art, or does the work of art come into being only in that instant when human aesthetic reflection begins to transpose itself into the whole and to understand and appreciate all the parts with a pure and free vision? The moment we see this visual appreciation as the truly essential element a performance that, like the musical performance, can be repeated at will then the technical structure and all the expenditure of massive material are reduced to secondary importance; they become means to an aesthetic end. (*The Essence of Architectural Creation*, 1894, trans. Harry F. Mallgrave & Eleftherios Ikononou, p. 8-9)

Just as for Wölfflin, architecture was a matter of bodily experience but, whereas Wölfflin had only postulated it, this experience had to be rigorously reconstructed. It was guided, Schmarsow argued, by our "intuition of space" which was not, as Kant had claimed, an abstract *a priori* form of human perception but resulted from both he borrowed here from Wundt "our sense of sight" and "the residues of sensory experience" including muscular, skin and bodily sensations.

Psychologically, the intuited form of three-dimensional space arises through the experiences of our sense of sight, whether or not assisted by other physiological factors. All our visual perceptions and ideas are arranged, are ordered, and unfold in accordance with this intuited form; and this fact is the mother lode of the art whose origin and essence we seek. The intuited form of space, which surrounds us wherever we may be and which we then always erect around ourselves and consider more necessary than the form of our own body, consists of the residues of sensory experience to which the muscular sensations of our body, the sensitivity of our skin, and the structure of our body all contribute. (*The Essence of Architectural Creation*, 1894, trans. Harry F. Mallgrave & Eleftherios Ikononou, p. 10-11)

This psychological reconstruction of our intuition of space allowed Schmarsow to famously define architecture as "*Raumgestalterin*," a neologism that could be translated as creatress, 'configuratress,' or even sculptress of space, i.e. in an opposite way to the usual definition based on building of walls and roofs. Architecture was not the art of

## Rhythm as Temporal Aesthetic Form (Part 2)

---

erecting physical masses but that of "creating or configuring spaces" inside and outside these masses.

Once the ever-active imagination takes hold of this germ [the subjective intuition of space] and develops it according to the laws of the directional axes inherent in even the smallest nucleus of every spatial idea, the grain of mustard seed grows into a tree and an entire world surrounds us. Our sense of space [*Raumgefühl*] and spatial imagination [*Raumphantasie*] press toward spatial [configuration] [*Raumgestaltung*]; they seek their satisfaction in art. We call this art architecture; in plain words, it is the *creatress of space* [*Raumgestalterin*]. (*The Essence of Architectural Creation*, 1894, trans. Harry F. Mallgrave & Eleftherios Ikononou, my mod., p. 11)

Thus, our intuition of space set the frame for architectural creation according to its three main dimensions.

Architectural creation begins with the tangible setting up if I may call it so of the backbone of our intuition of space. The axial system of coordinates compellingly predefines the natural law that regulates creation. (*The Essence of Architectural Creation*, 1894, trans. Harry F. Mallgrave & Eleftherios Ikononou, p. 14)

Precisely at this crucial point in his reasoning, Schmarsow introduced the topic of rhythm, although he did not use yet the term itself. Significantly, he argued that the creation of space followed our "natural tendency toward organization," which he exemplified with the decoration of "our tools" or the adornment of "our body" with "similar or alternating series, in symmetrical repetition, and regular forms."

Our natural tendency toward organization [*die natürliche Organisation des Menschen*] unconsciously and necessarily operates here, as it does in all the works of our hand: in the way we decorate our tools or adorn our body with similar or alternating series [*gleichartige oder abwechselnde Reihung*], in symmetrical repetition [*symmetrische Wiederkehr*], and in the regular forms [*regelmässigen Formen*] of rectangles, circles, and so on. (*The Essence of Architectural Creation*, 1894, trans. Harry F. Mallgrave & Eleftherios Ikononou, p. 13)

Exactly as for Wölfflin, "order," "distinct recurrence," and "abstract regularity" were, for Schmarsow, the essential rules of architecture to which he added however "purity" in order to include from the outset mathematical forms into his account. All those principles were, he claimed, "ideal forms of the human intuition of space."

Both realms [mathematics and architecture], however, are ruled by the basic law of the human mind whereby we see and seek to promote order in the external world. In everything we do, it is evident that we are truly pleased by the clarity of obedience to the law [*die Klarheit des Gesetzmässigen*], by the distinctness of recurrence [*die Uebersichtlichkeit der wiederkehrenden Teile*], by regularity [*die Regelmässigkeit*], and by purity. [...] Thus in the walls that we built, in the post and pillars that supported them, as in all the individual forms of our later harmonic [*tektonischen*] creation, we preferred the abstract regularity [*für abstrakte Regelrichtigkeit*] of lines, surfaces, and bodies as a characteristic architectural effect. [...] Architecture, therefore, is the creatress of space, in accordance with the ideal forms of the human intuition of space. (*The Essence of Architectural Creation*, 1894, trans. Harry F. Mallgrave & Eleftherios Ikononou, p. 13-14, my mod.)

## Rhythm as Temporal Aesthetic Form (Part 2)

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However, while Wölfflin considered rhythm to be mainly related with the horizontal axis, Schmarsow associated it with the depth axis. Rhythm was perceivable only through the "free movement" of the body and therefore was primarily related to the third dimension which was the "most important direction for the actual spatial construct."

Next to the vertical line, whose living bearers resolve space by our bodily orientation into above and below, front and back, left and right, the most important direction for the actual spatial construct is the direction of free movement that is, forward and that of our vision, which, with the placement and positioning of the eyes, defines the dimension of depth. (*The Essence of Architectural Creation*, 1894, trans. Harry F. Mallgrave & Eleftherios Ikonou, p. 16)

As a matter of fact and he fully agreed on that with his predecessor there was no other way to appreciate the space of a piece of architecture, than to move or imagine to move within it, or by "attributing to the static lines, surfaces, and volumes" the movement of our eyes and our kinesthetic sensations (same idea, p. 23). Schmarsow underlined the fact that all rhythmic metaphors that were now commonly used in architecture demanded to be grounded in the movement be it real or imaginary of the observer or at least of his eyes.

The linguistic terms that we use for space, such as "extension," "expanse," and "direction," suggest continuous activity on our part [*die fortwirkende Tätigkeit des Subjektes*] as we transfer our own feeling of movement directly to the static spatial form. We cannot express its relation to ourselves in any way other than by imagining that we are in motion, measuring the length, width, and depth, or by attributing to the static lines, surfaces, and volumes the movement that our eyes and our kinesthetic sensations [*Muskelgefühle*] suggest to us, even though we survey the dimensions while standing still. The spatial construct is a human creation and cannot confront the creative or appreciative subject as if it were a cold, crystallized form. (*The Essence of Architectural Creation*, 1894, trans. Harry F. Mallgrave & Eleftherios Ikonou, p. 19)

Similarly, from the object viewpoint, the space of a building could produce a pleasant impression only if it was not too "pure and rigid" and filled of "a life of its own." While he grounded this rule both on the inner movement of space designed by the architect and the free spatial movement of the visitor, instead of the inner movement of the masses, Schmarsow was thus finally joining Wölfflin in his opposition between *Gesetzmässigkeit* and *Regelmässigkeit*.

A pure and rigid form would in the long run prove unbearably oppressive as the everyday setting for human life, even allowing for the marked human preference for regularity and rule. Space must be filled with a life of its own if it is to satisfy us and make us happy. (*The Essence of Architectural Creation*, 1894, trans. Harry F. Mallgrave & Eleftherios Ikonou, p. 20)

"Animation" and "human sensation of force" were to be favored to "abstract regularity," in other words, rhythm to meter.

## Rhythm as Temporal Aesthetic Form (Part 2)

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The more all articulated forms and tectonic parts deviate from abstract regularity in their basic form (as dictated by their function within the whole), and the more they approach sculptural form, the more they are animated and saturated with the human sensation of force. (*The Essence of Architectural Creation*, 1894, trans. Harry F. Mallgrave & Eleftherios Ikononou, p. 24)

Unsurprisingly, Schmarsow finally compared, once more like Wölfflin, the feelings induced by architecture with those produced by music. By "creatively elaborating" our three-dimensional sense of space, architecture yielded an effect akin to that of music on our "command of the world of sound."

Just as the art of music enriches us in a thousand ways, as a creative elaboration of auditory sensations and as the command of the world of sound in accordance with law and analogous to human kinesthetic sensations, so architecture as the creatress of space is based on a systematic command of the material of spatial imagination and constitutes a creative elaboration of the three-dimensional visual image for human satisfaction and pleasure. (*The Essence of Architectural Creation* 1894, trans. Harry F. Mallgrave & Eleftherios Ikonou, p. 22)

## Rhythm as Form of Space Configuration (Schmarsow - 1896)

In his 1896 talk *On the Value of Dimensions in the Human Spatial Construct*, Schmarsow elaborated further his ideas on architecture as "creatress of space." There were however some discreet but significant changes in his position. Whereas he had, in his previous talk, advocated a purely psychological perspective, looking for the forms of space intuition, he tried this time, looking for a deeper empiricism, to ground his view directly on the psychophysiological constitution of the human being.

This move should not be misunderstood, though. If architecture was not the "art of physical masses" (p. 44), it was not either, as Ancient, Renaissance, Modern, and even some recent architects and theorists had claimed, "an imitation of the human body, or an image of its organism."

From the outset, architectural creation is not an imitation of the human body, not even an image of its organism on a different scale, as some popular comparisons make us believe, but it is a correlate of man, in fact of his whole being. (*On the Value of Dimensions...*, 1896, p. 47, my trans.)

Schmarsow actually substituted a novel proto-phenomenological perspective to the traditional anthropomorphic conception. Architecture was "a *creatress of space*" (p. 44) but her creations were established on the basis of the "creative dispute of the human subject with his spatial environment," which involved both "our spiritual as well as bodily organization," and was determined by the rules of the "existence in space."

According to this, architecture would be a creative dispute [*eine schöpferische Auseinandersetzung*] of the human subject with his spatial environment, with the outside world as a spatial whole, according to his most individual nature. It cannot only refer to man "as a corporal being," as it has been claimed, but necessarily proceeds according to the constitutive peculiarity of the human intellect, to our spiritual as well as bodily organization. And as a result, it will bring to light the common basis, the rules of the existence in space [*die Gesetzmässigkeit des räumlichen Daseins*] by which man and the world are dependent on each other, and in this lies the objective as well as the subjective value of its creations. (*On the Value of Dimensions...*, 1896, p. 45, my trans.)

## Rhythm as Temporal Aesthetic Form (Part 2)

The analysis of this "creative dispute between the human being and his spatial environment" unfolded, in the rest of the article, along the three dimensions of the intuition of space, "the threefold extension into height, breadth, and depth" (p. 45).

"For man, the first dimension [was] the height" (p. 46), for the axis which related "the center of gravity to the site of intelligence" constituted his "meridian" (p. 47). It resulted from the upright posture which differentiated man from animal. If the vertical dimension was limited downwards by the ground (p. 48), our capacity to extend our arms above our head (p. 49) and our gaze above our arms (p. 49) allowed the height to develop indefinitely, even if "at a certain distance from our eyes, the whole region over our heads passes into the indeterminate" (p. 50). The "compulsion of looking upwards" and even "going up the walls" in order to find "the only way out" we experience for instance when inside a tower, was a good illustration of the necessary introduction of movement into the vertical axis, that finally resulted in the transformation of "the first dimension into the third" (p. 51).

The original inner core of the second dimension, the breadth, resulted from the "juxtaposition of several heights," or in more simple words from the "presence of a second body near me" (p. 51). But it also resulted from the "width of the shoulders and hips, our way to elbow through, and finally the whole extension of the arms" (p. 52). In addition to that, we must naturally take into account the "width of the field of view" (p. 52) and the possibility to enlarge it by turning the eyes and the head on both sides (p. 53). This made the measure of the breadth easier than that of the height which, as we saw, ended up in the "indeterminate" since we could gauge it "in its entirety" simply by imagining that we move "from one end to the other" as "a successive process" (p. 53). This, again, introduced movement into the second axis and made it tilt into the third.

The third dimension, that of depth, was consequently the most important for architecture. First, because the two others needed, in order to fully unfold, "the idea of movement" which they necessarily borrowed from the third dimension into which they then "transform[ed] themselves."

The first and the second dimension, we have said, can transform themselves into the third with the help of the idea of movement; indeed, they must involuntarily do so, as soon as this psychological power [the idea of movement] operates. Only the actual movement within space and its memory images can enliven the surface image [viewed from the vertical axis] and transform the mere juxtaposition in space [perceived on the horizontal axis] into a succession. (*On the Value of Dimensions...*, 1896, p. 55, my trans.)

Second, because depth implied by its very nature the idea of movement and, therefore, was the fundamental dimension, "the psychological root of architecture" (p. 57).

The third dimension is the almost exclusive bearer of this important factor, the spatial movement, the directional axis  $\frac{1}{2}$   $\frac{1}{4}$   $\frac{1}{2}$  [prominent] for all our movements. [...] I can scan and pace the distance; the space in front of me can be covered bit by bit, after my eyes have already measured it and prepared to arrange its various parts within a common space. Since the man is accustomed to move and to see forwards, the length of the depth axis [*die Länge der Tiefenaxe*] provides the intuiting subject with the measure of his free movement into the existing space. (*On the Value of Dimensions...*, 1896, p. 55-56, my trans.)

Third, because depth was the dimension from which the others derived, and that intertwined them into a "systemic relationship."

We have tried to consider one by one the three dimensions [*Dimensionen*] of the human spatial structure in their value for the creating and enjoying subject, but their systemic relationship [*ihr Zusammenhang unter einander*] and their inseparability in whole spaces must be everywhere taken into account. The aesthetic value of each dimension [*der einzelnen Ausdehnung*] will always receive its particular meaning through the connection with the other two on a case-by-case basis. (*On the Value of the Dimensions in Human Spatial Structure*, 1896, p. 59, my trans.)

## Rhythm as Temporal Aesthetic Form (Part 2)

Strangely, Schmarsow claimed that each one of the three spatial dimensions was governed by a particular aesthetic "*Gestaltungsprinzip* - configuration principle": height by "proportion"; breadth by "symmetry"; depth by "rhythm," which he remarkably substituted to the traditional principle of "harmony."

Each of these axes has its own configuration principle [*Gestaltungsprinzip*]: in the first dimension, proportionality prevails; in the second, symmetry; and in the third the element of direction [*das Moment der Richtung*] (as Gottfried Semper called it) or rhythm [*oder des Rhythmus*] (as I would like to call it, because the successive perception [*die successive Auffassung*], the idea of movement [*die Bewegungsvorstellung*] is the deciding factor). (*On the Value of the Dimensions in Human Spatial Structure*, 1896, p. 59, my trans.)

But the rigidity of this tri-partition is often exaggerated by commentators who make it weird and difficult to understand. In fact, all dimensions communicated with each other and especially with the third. By way of consequence, rhythm was not only the configuration principle for the third dimension but came into play each time movement was introduced into one of the two others that is most of the time, and except when we artificially freeze the space, i.e. our movement and our gaze, to look at it as an immobile surface or to study it geometrically. This point is important because it will help to explain Schmarsow's fierce critique against Riegl to which I will return below.

Each one of these configuration principles confers a special character to the extension it governs. But here, too, [the concept of] unity of the whole space proves its worth, in that the first two dimensions are able to change into the third, as soon as the perception of immobile persistence which at first challenges the space with its forms clearly defined, is replaced by the perception of a living creation or temporarily superseded by the human subject asserting the right of the living against the material. Then the height appears as a growth from bottom to top, the breadth as an unfolding to the left and right, the depth as an advancing movement forwards with the possibility to repeat it backwards to the starting point which is behind us; i.e. in pure human relationships about which mathematics does not want to know anything. (*On the Value of the Dimensions in Human Spatial Structure*, 1896, p. 59-60, my trans.)

Schmarsow was not, however, very consistent in characterizing the form of this movement, i.e. its rhythm. He first claimed, in a physiopsychological spirit close to Wölfflin's emphasis on "periodic functions" "we breathe regularly, we go regularly" that it was regulated and measured by the oscillations of the walk, the succession of the movements of our legs, the throbbing of our heart, or the alternation of our respiration, that is binary movements.

Our swinging gait, the more or less rapid separation of the two legs, help us to control the succession in space and time, like the fast-paced throbbing of our heart, [or] our adjustable alternate breathing. (*On the Value of Dimensions...*, 1896, p. 55, my trans.)

But a few lines below, once more like Wölfflin, he used again an artistic comparison which entailed instead an implicit opposition between the mere binary repetition and the more supple play of the rhythm around the beat. The "composition" resulting from the pacing and scanning of the space by the observer during his movement into the depth was similar, he said, to a "musical composition" or a piece of poetry," or "even a drama."

The preponderance of the third dimension, the lifeline of every spatial formation, which does not leave the ground and the horizontal position, or only reluctantly and not without loss, should make one think. From the viewpoint of the temporal course of our intuition, the developed spatial composition [*die entwickelte Raumkomposition*], which we are only able to experience successively by going through the parts and grasping them in connection with each other, compares only with a musical composition [*mit einer musikalischen Komposition*], or a piece of poetry, possibly the performance of a symphony or even a drama. ( *On the Value of the Dimensions in Human Spatial Structure*, 1896, p. 58-59, my trans.)

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Although, there were some noticeable differences between Wölfflin and Schmarsow, during the 1880s and the 1890s both used and transformed the notion of rhythm in the same way.

1. Whereas Kugler or Semper had tried, in the 1850s and 1860s, to renovate and thus in a way preserve the old Vitruvian-Albertian concept by introducing either a living process or a musical succession into it, Wölfflin and Schmarsow, influenced in this by the rise of the physiopsychology and probably also by the success of the science of the living in the 1860s and 1870s, replaced it altogether with an entirely new temporal notion.

On the side of the object, architectural rhythms resulted either from organic developmental processes determined by the "play of formative forces," or from the organized movements that were already implied in the "configuration of a building." On the side of the subject, for Wölfflin as well as for Schmarsow, these spatial rhythms could not appear as they were, unless an observer, strolling or gazing around the edifice, corporally involved, made them do so. In both cases, since physiology was now the most basic reference, rhythm was essentially a form of process based on regular recurrence and its previous roles as aesthetic criterion and analytical category merely derived from its temporal essence.

2. Yet, both of them rejected any abstract or mathematical conception of rhythm which could impair the aesthetic effect sought by the architect and impede the art historian to provide an account of it. Wölfflin differentiated between "*Regelmässigkeit* - regularity" and "*Gesetzmassigkeit* - lawfulness." He insisted that harmony, i.e. for him regularity, tolerated minor irregularities. Similarly, Schmarsow rejected "pure and rigid forms." In his opinion, "animation" and "human sensation of force" were to be favored to "abstract regularity." One remember that this was also the opinion of the English architect George Edmund Street in 1888 (see above, chap. 5).

3. But as most of their contemporaries except maybe Meumann, Wölfflin as well as Schmarsow entirely ignored the push that had occurred in some of the fine arts, particularly in poetry, from the 1750s, to get rid of the Platonic metric paradigm altogether and to challenge it with new versions of the Aristotelian poetic and even sometimes of the Democritean physical paradigms.

4. Consequently, they relied exclusively on music in order to counterbalance the weight of the simplistic concept of rhythm they borrowed from physiology. In addition to its definition as regular recurrence, rhythm was thus to be considered according to the latest musical conception developed a few decades earlier by Hauptmann and more recently by Riemann, opposing rhythm and beat, movement and measure.

5. But this resulted first in a disturbing inconsistency. Whereas, a few years before, Wundt had still taken great care to bridge those two diverging perspectives through an evolutionary process (see above chap. 2), there was no mention in Wölfflin's and Schmarsow's aesthetics of any mediation of the kind. They simultaneously and contradictorily resorted to the new hyper-metric concept derived from life science which conceived of rhythm as sheer regular repetition, and to the para-metric concept of rhythm borrowed from music theorists which, by contrast, emphasized life, movement, *rubato* around the beat.

6. In fact, music itself was far from being able to really challenge the Platonic metric paradigm. After having been for centuries directly inspired by the neo-Platonic theories of Boethius associating music with mathematics, music theory had begun at the end of the Middle Ages, mainly for practical reasons, to pay more heed to regular timing, although in a very limited way. In the 16th century, there was still no written measure and the musicians followed the "tactus," i.e. an external beat usually materialized by a movement of the finger or the hand, roughly equivalent to the heartbeat. From the beginning of the 17th century, a new notation system based on bars and regular timing developed. Between the 17th and the 18th century, rhythm was thus merely conceived of as meter and structured

## Rhythm as Temporal Aesthetic Form (Part 2)

association of meters, most of the discussion concentrating on harmony.

In the 19th century, this position was still defended by Eduard Hanslick (1825-1904). Applying to music the traditional Aristotelian duality of matter and form, Hanslick claimed that rhythm was the "essence," viz. the form, applied upon "the primordial stuff" of music, the "pleasing sound." This form was to be understood both as "alternating motion of individual units," i.e. meter, and as the overall "symmetrical structure" of the piece.

The primordial stuff [*das Urelement*] of music is the pleasing sound [*Wohllaut*]; its essence [*ihr Wesen*] is the rhythm: in the larger scale, the rhythm as the co-proportionality [*die Uebereinstimmung*] of a symmetrical structure [*eines symmetrischen Baues*]; in the smaller scale, the rhythm as regular alternating motion [*wechselndgesetzmassige Bewegung*] of individual units [*einzelner Glieder*] within the metric period [*im Zeitmass*]. (Eduard Hanslick, *Vom Musikalisch-Schönen*, 1854, my trans., chap. 3)

From the 1850s, some German theorists tried, however, to challenge this reduction of rhythm to meter. Moritz Hauptmann (1792-1868), who advocated just intonation and considered enharmonic progressions unnatural, was clearly a conservative in relation to the compositional trends of his time. He displayed a taste for classical proportion, formal order, metrical clarity, and tonal logic. However, concerning rhythm, he introduced a novel idea that was to rapidly spread in the second half of the 19th century. While the meter was "the constant measure by which the measurement of time is made," and could consist of "a two-, three-, or four-part unity," the rhythm was defined as "motion in that measure."

WE shall call the constant measure by which the measurement of time is made Meter; the kind of motion in that measure Rhythm. 2. The measure, as to outward structure, is found to be a two-, three-, or four-part unity. For the motion in that measure, it may in itself be infinitely manifold of shape; nevertheless as measured it can be understood only by the determinations that issue from the metrical notion. (M. Hauptmann, *Die Natur der Harmonik und der Metrik: zur Theorie der Musik*, 1853, Eng. ed. 1888, trans. W.E. Heathcote)

This equating of rhythm with movement or motion, within the frame of the regular measure, was elaborated further in the 1880s by Hugo Riemann (1849-1919). Rhythm was now defined as "the living musical arrangement within the metric patterns." The rhythmic movement was that of life itself, as opposed to the stiffness and the monotony of the regular succession of "the metrics units."

Rhythm is the living musical arrangement within the metric patterns [*innerhalb der metrischen Schemas*], breaking the monotony of the regular course of the pattern [*die Monotonie des gleichmassigen Verlaufs des Schemas*] by contraction or subdivision, etc. of the metric units. (H. Riemann, *Musiklexicon*, 1882, p. 760, my trans.)

Since it opposed any mechanical performance and gave composers the freedom to introduce polyrhythm and unusual time signatures, this theoretical novelty was, naturally, decisive for music itself. But, if we ponder this question, we will recognize that this did not change the core of the musical concept of rhythm which, although it could

## Rhythm as Temporal Aesthetic Form (Part 2)

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legitimize irregularities and deviations, remained based on meter. The notion of movement that was introduced into the concept remained subordinated to the metric frame within which it occurred. For the new generation of music theorists, rhythm was only the play introduced into the succession of meters by their "contraction or subdivision, etc."

[Next chapter](#)