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Rhythm as Form of Aesthetic Process (Part 1)

- Recherches

- Le rythme dans les sciences et les arts contemporains

- Esthétique - Nouvel article

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In the 1880s and the 1890s, there was a new turn in the use of the concept of rhythm in art history and aesthetics. Rhythm, which had been successively and sometimes jointly considered as a *judgment criterion* then as an *analytical category*, was increasingly considered as a *form of process*. This new trend was mainly influenced by the new development of psychology which began to be massively imported into aesthetics during this period, but it also resulted from the growing influence of the natural and life sciences.

Rhythm as Physiopsychological Process (Wölfflin - 1886)

The Swiss art historian Heinrich Wölfflin (1864-1945), who was to be considered, after WW1, as one of the founder of the formal analysis in art history with a book entitled *Kunstgeschichtliche Grundbegriffe - Principles of Art History* (1915), began his long career with a study oriented in quite a different direction.

In his PhD dissertation *Prolegomena zu einer Psychologie der Architektur - Prolegomena to a Psychology of Architecture* (1886 - he was only 22 years old), Wölfflin started his study by asking: "How is it possible that architectural forms can express a spirit or an atmosphere?" and by voicing his surprise that the "scientific literature has brought almost no answer to this question." Whereas "analogous problem in music," he noticed, had received comprehensive treatment "from art theory and psychology," nothing of the kind had been done for architecture (*Prolegomena*, p. 1, my trans.). His aim was therefore to address the issue of architectural aesthetics from the new scientific physiopsychological perspective.

The psychology of architecture has the task of describing and explaining the psychological effects [*die seelischen Wirkungen*] which architecture is able to produce by its own means. We call the effect we receive an impression [*Eindruck*]. And we consider this impression as an expression of the object [*Ausdruck des Objekts*]. So we may now formulate the problem as follows: *how can architectural forms become expression?* (Under "architectural forms," we must also include the lesser arts of decoration and craft, since they are subject to the same conditions of expression.) One can try to get an answer to this question from two sides: from the subject and from the object. (*Prolegomena zu einer Psychologie der Architektur*, 1886, p. 2, my trans.)

He swiftly side-stepped the optical explanation, which was proposed by Lotze, relating the impression made by architectural forms to the mere "*muscular sensation of the eye*" (p. 2, Wölfflin's ital.). This, he noticed borrowing from Wundt, did not actually explain the full impression made upon us (for the difference between Lotze and Wundt on space perception, see Schwarzer, 1991, p. 51). One had to take into account the larger physiological conditions

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determined by the whole body which, in the case of architecture, was the real perceiving organ.

You only understand what you can do yourself. So we have to say here: *physical forms can be characterized only because we ourselves own a body*. If we were only visually apprehending beings, then an aesthetic appraisal of the physical world would always have been denied to us. But as human beings with a body that teaches us to know what gravity, contraction, force, etc. is, we collect the experiences that enable us to experience the states of alien forms. (*Prolegomena zu einer Psychologie der Architektur*, 1886, p. 4, my trans.)

Even if our higher culture has softened or even erased most of this reactions, we are still "sympathetically touched" by exterior behaviors or movements. Noticeably, to make his point, Wölfflin took the example of the "rhythm of breathing" which is "important, because breath is the most direct organ of expression."

For the internal organs, above all, are sympathetically touched, and according to my observations, the *respiratory movement* is the most susceptible to change. The rhythm of breathing that we perceive in others is most easily transmitted to us. Watching a person suffocate is terrible because we feel all the pain, while we stay unmoved at the sight of other physical pains. This fact is important, because breath is the most direct organ of expression. (*Prolegomena zu einer Psychologie der Architektur*, 1886, p. 11, my trans.)

The corporal and sensory basis had thus to be taken first into account, however it was not sufficient to explain the aesthetic pleasure taken, for instance, while visiting a beautiful church. In addition to bodily experience, in fact we also perceive, he argued, spiritual feeling related to the "meaning" involved in a building, i.e. the expression of a "sentient soul," even if this often is an imaginary or an "anthropomorphic" projection (p. 6).

The sounds of music would have no meaning if we did not regard them as expressions of a sentient being. This relationship, which was natural in the original music, the song, has been obscured by instrumental music but has not been completely abolished. We always subordinate the sounds we hear to a subject whose expression they are. And so in the physical world [*Körperwelt*]. The forms become significant to us only because we recognize in them the expression of a sentient soul [*einer fühlenden Seele*]. Involuntarily, we enliven every thing. This is an ancient human instinct. (*Prolegomena zu einer Psychologie der Architektur*, 1886, p. 5, my trans.)

At that point, Wölfflin made a few philosophical remarks. Those are important to us because they show a clear distrust towards the Hegelian Idealist tradition which Semper had already begun to call into question. Wölfflin first cautiously declared that he did not want to choose between Physicalism, Spiritualism, or Parallelism.

Who tells us where the priority is? Is the physical affection a condition of the atmosphere impression? or are the sensory feelings only a consequence of vivid representation in the imagination? Or finally, third possibility, are mental and physical parallel? By pushing the question to this point, it is high time to stop: for now we are faced with problems that mark the limit of all science. (*Prolegomena zu einer Psychologie der Architektur*, 1886, p. 12, my trans.)

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However, the third perspective which strongly resembled the subdued Spinozism heralded by Goethe at the beginning of the century seemed to suit him best. He immediately claimed that architecture was perceived and appreciated according our "corporal organization."

Our corporal [leibliche] organization is the form under which we understand everything that is physical [alles Körperliches]. I will now show that the basic elements of architecture: matter and form, weight and strength are determined by the experiences we have made; that the laws of formal aesthetics are nothing other than the conditions under which organic well-being alone seems possible to us, that finally the expression, which lies in the horizontal and vertical articulation, is produced according to human (organic) principles. (Prolegomena zu einer Psychologie der Architektur, 1886, p. 13, my trans.)

And he added that the inescapable corporal condition of our knowledge only helped us to understand or to imagine which was consequently the same thing Nature as a relentless process composed of forces informing the matter. In its essence, architecture was thus dealing with the making of Nature itself.

The opposition between matter and formative force [von Stoff und Formkraft] that moves the entire organic world is the basic theme of architecture. Aesthetic intuition transfers this most intimate experience of our body to inanimate nature. In every thing we assume a will that tries to achieve a form and has to overcome the resistance of an informal matter. (Prolegomena zu einer Psychologie der Architektur, 1886, p. 14-15, my trans.)

As a result, formal or Idealist aesthetics was only the translation of organic life into an abstract set of concepts. Form and matter were not separate principles but, on the contrary, two inseparable sides of the same dynamic reality.

And so I affirm that all determinations which formal aesthetics provides concerning the beautiful form are nothing else than conditions of organic life. The forming force is thus not only an opposite to gravity, a vertical-acting force, but it is that which life creates, a vis plastica, if I may use this expression which is forbidden in science. [...] After all that has been said, there can be no doubt that the form is not thrown over the matter as something exterior to it, but that it works out of the material, as an immanent will. Matter and form are inseparable. In every matter lives a will that presses towards a form but that cannot always express itself. One should not imagine that the matter is necessarily hostile; rather, a matterless form would be unthinkable. Everywhere the image of our bodily existence presents itself as the model by which we judge every other appearance. (Prolegomena zu einer Psychologie der Architektur, 1886, p. 15-16, my trans.)

The aesthetic effect of architecture was not limited to the recognition of beautiful forms, it was the result of a regular ebb and flow of the forms on the shores of our selves. Although it was essentially immobile, architecture had the power, just as "rhythmic waves," to "penetrate us," "seize us," and finally, by an opposite shove, "draw us into the beautiful movement" itself. What the visitor most enjoyed was this performative power which transformed him, at least "for a moment," and ensured him that man could give form to "the formless," i.e. in the final analysis, liberate himself from the weight of matter. Through the rhythmic pounding of its waves, architecture made itself felt simultaneously in body and soul.

Underlying all these comparisons is the profoundly human experience of forming the Unformed. When one characterizes architecture as a frozen music, it only expresses the fact that we receive the same effect from both arts. Here, because the rhythmic waves [*die rhythmischen Wellen*] penetrate us, seize us, draw us into the beautiful movement, everything that is formless dissolves, and we measure the happiness of being liberated for a moment from the dragging down weight of the matter. (*Prolegomena zu einer Psychologie der Architektur*, 1886, p . 17, my trans.)

Whereas Schnaase had considered the *Kunsttrieb*, in a Hegelian way, as a common spiritual force pervading all art productions of a people, Wölfflin now saw it acting like Kugler as a matter of fact but this time on a Spinozist and evolutionist basis in each building as an inner developmental force.

We feel the same formative force [*formende Kraft*] in every architectural structure, except that it does not come from outside, but forms its body from within, as a shaping will [*als gestaltender Wille*]. The goal is not the annihilation of the substance, but only the organic construction [*die organische Fügung*], a state of which we feel that it was self-generated, not created by external constraint. Self-determination is the condition of all beauty. [...] Within the formally correct, i.e. viable architecture a development is possible, which one probably may rightly compare with the development of organic structures [*organischen Gebilde*]: the same progress takes place from dull, poorly articulated figures to the finely formed system of differentiated parts. (*Prolegomena zu einer Psychologie der Architektur*, 1886, p. 17-18, my trans.)

Rhythm as Regular Recurrence (Wölfflin - 1886)

Once the physiopsychological and philosophical bases of his study solidly grounded, Wölfflin addressed the issue of form. The concept of form was to be considered, according to Friedrich Vischer (1807-1887) from whom Wölfflin explicitly borrowed this list, as "limitation in space, regularity, symmetry, proportion, [and] harmony" (p. 19).

Strikingly, after having dedicated two lines to "limitation in space," Semper's most important category, Wölfflin started by discussing "*Regelmässigkeit* - regularity" which he defined as Vischer as "*Gleichmässige Wiederkehr unterschiedener, doch gleicher Teile* - Uniform recurrence of different but like parts" (p. 20). Yet, contrarily to his predecessor, he differentiated *Regelmässigkeit* from "*Gesetzmässigkeit* - lawfulness" (p. 20). The former, which was "of value to us because our organism, according to its constitution, demands regularity in its functions," characterized the "columns order" or "the sequence of a decorative pattern." The latter was, by contrast, a "purely intellectual relation" based on abstract mathematical recurrence and characterized "the straight line, the circle, the square, etc." (p. 20). Although all this remained within the Platonic metric frame, this was his way to differentiate between meter and rhythm.

The regularity of the sequence, on the other hand, is something of value to us, because our organism, according to its constitution, demands regularity in its functions. We breathe regularly, we go regularly, every continuous activity takes place in periodic sequence [*in periodischer Folge*]. (*Prolegomena zu einer Psychologie der Architektur*, 1886, p. 20, my trans.)

Only in a second step, Wölfflin addressed the Vitruvian aspects of form: symmetry, proportion and harmony, whose requirements were respectively derived "from the structure of our body," borrowed from "the organic structure," or implied by "the inner purpose" structuring the "unified community" of the "organism."

The requirement of symmetry is derived from the system [*Anlage*] of our body. Because we are symmetrically built, we believe that we can demand this form from every architectural body. [...] The principle [of proportion] is also borrowed from the organic structure [*Aufbau*]. We find this development from rawness to refinement in the most perfect way in Man. [...] Harmony is a term that we find fully developed in morphology as the definition of an organism. The individual [*das Individuum*] is a unified community, in which all parts work together for a similar purpose (unity). This purpose is an inner one (self-determination). And the inner purpose is, at the same time, an external measure to which the development of the living does not reach (form = inner purpose). (*Prolegomena zu einer Psychologie der Architektur*, 1886, p. 22-24, my trans.)

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All Vitruvian features were now derived from the concept of "organism" and its teleological "inner drive," which were explicitly borrowed from the physician and biologist Rudolf Virchow (1821-1902) (p. 24). It was also swiftly equated with the Kantian concept of "system" exposed in the *Critique of Pure Reason - Architectonic of Pure Reason* and imprecisely quoted: "By system is meant the unity of various parts under one idea" (p. 24-25). In fact, in the first *Critique*, Kant's concern was limited to the system of knowledge and did not imply any teleology: "Then, by a system I mean the unity of various cognitions under one idea" (Kant, 1781, B 860). It would have been more accurate to quote the *Critique of Judgment* (1790) which explicitly addressed the issue of teleology in living organisms. But this little inaccuracy probably reflected the knowledge common among late-19th century Germanic academics who knew principally of the two first *Critiques*. As far as we are concerned, by conflating the biological concept of organism and the Kantian concept of system, Wölfflin was only elaborating further Kugler's and Semper's attempts at integrating the Vitruvian-Albertian concept of eurhythmy and the newer concept of rhythm based on alternation and repetition.

As a matter of fact, these organic or systemic dimensions of architectural form were not without rhythmic aspects of their own: they were all derived from the rhythms of the body and could, naturally, exert back a certain rhythmic control over the latter.

Proportions, for instance, which concerned principally the relation between vertical and horizontal axes (p. 26), had greatly varied in the past and translated into architecture a quicker or slower "pace" of the "respiration," a cold- or "warm-blooded nature," which influenced in turn those of the visitor and viewer.

Of great interest is the relationship between proportions and the *pace of breathing* [*dem Tempo des Atmens*]. There is no doubt that very narrow proportions give the impression of an almost breathless, hasty upward movement. [...] One can observe that the older the peoples get, the more rapidly they breathe in their architecture [...]. How quietly and peacefully do the lines of the old Doric temple run: everything is still largely and slowly measured. Then in the Ionian temple [appears] a more rapid mobility, one searches for the slender and light, and the more the ancient culture came close to its end, the more it demanded a feverish, accelerated movement. Peoples who have a warm-blooded nature make it the most [rapid]. Think of the suffocating hurry of Arab decoration lines. (*Prolegomena zu einer Psychologie der Architektur*, 1886, p. 28-29, my trans.)

Similarly, the principle of symmetry, which concerned primarily the horizontal axis (p. 31), was derived from the symmetry of the body and the overall need for both corporal agility and unity. Simultaneously, it naturally contented or contradicted, when it was missing, our expectations for equilibrium.

The principle of horizontal organization is called *symmetry*. [...] Thus, architectural design approaches the human organization and gains the capacity to express all that can be said about the relation of the limbs to the human body. The point here is in the greater or lesser independence of these parts. If the sense of freedom results, in the first place, from a development of parts that grow out of the mass of the body and live by themselves, the freer the connection with the central system, the happier the effect. . On the other hand, closely connected lateral parts, without independent force, point to unconditional dependence, to complete subordination to the will [*Willen*] of the center, just as an energetic volition [*Wollen*] in man expresses itself in the limbs which are close to the body. (*Prolegomena zu einer Psychologie der Architektur*, 1886, p. 31-32, my trans.)

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This resulted in another rhythmic rule derived from the body: the association of the symmetrical partition with a division in odd number, like the one resulting from a series of four or six windows on the façade of a symmetrical building.

We apply the symmetrical partition [*Gliederung*] or the odd division [*Teilung*] (3 =, 5 = division) to everything independent, since the center which is then emphasized and [stands] different from the parts represents the inner cohesion, analogous to the system of our and every animal organism. Against binary division [*Zweiteilung*] we have a decided aversion: it is inorganic to let the thing fall apart in the middle. (*Prolegomena zu einer Psychologie der Architektur*, 1886, p. 32, my trans.)

There were naturally cases, like in Greek temples, where architects had played with this rhythmic rule using both an odd number of intercolumniations for the front side and an even number for the lateral sides.

A fine feeling, however, has brought the binary division [*Zweiteilung*] into dependent bodies. In Greek temples, for example, the front side is symmetrical and oddly divided, we have 5 or 7 intercolumniations (and these do not depend on the columns because only 2 columns together are something independent like the 2 legs of the human body). On the other hand, on the sides we find an even number of them, that is, the side is not independent in itself: it has no center, rather the middle is filled by a supporting part. (*Prolegomena zu einer Psychologie der Architektur*, 1886, p. 32-33, my trans.)

Finally, the principle of harmony, or eurhythmia, which as symmetry mainly concerned the horizontal axis, was derived from the physical need for regularity and, as expected, could influence back the body of the visitor or viewer.

The consideration of the states of equilibrium leads us to what has been called in architecture *regularity of the sequence* [*Regelmässigkeit der Folge*] or eurhythmia [*Eurhythmie*] (Semper). We have already dealt with the necessity of the regularity for every living being, as well as with its pace on the occasion of [our discussion] of proportions. (*Prolegomena zu einer Psychologie der Architektur*, 1886, p. 34, my trans.)

As one may have noticed, although he explicitly quoted Semper, Wölfflin significantly transformed the definition proposed by his predecessor, which was based both on a more or less elaborated repetition of segments *and* a closure: "*The Eurhythmia consists in a closed sequence of similarly shaped sections of space.*" (*Der Stil*, I, 1861, p. XXVIII, my trans.) (see above chap. 6). Instead, in tune with the general trend in the end of the 19th century, Wölfflin got rid of the notion of closure and reduced eurhythmia to the mere "*regularity of the sequence.*" Naturally, just as the principle of symmetry tolerated slight asymmetries, that of harmony, viz. regularity, accepted minor irregularities. It was, Wölfflin added, just as the *rubato* in music around the regular beat.

That *irregularity* is allowed to a certain extent within the bounds of something already formed corroborates the analogy with the symmetry and the general source, the human breathing figure, which is symmetrical in its arrangement and regular in its functions. The same determinations apply in both cases: the normal, strictly regular can, by a certain loosening of the rule, win the character of the cheerful and the free, but also that of the unsatisfying and restless. In monumental buildings we imperatively demand the uniformity of the rule. On the other hand, a slight irregularity will increase the charm of rural constructions, but it must be a light one, for we have to look at the regularity [in architecture] like at the beat in music which, although there is, here and there, something stretched, must still be considered as an enduring fundamental rule. (*Prolegomena zu einer Psychologie der Architektur*, 1886, p. 34-35, my trans.)

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In other words, harmony was exactly for architecture what rhythm was for music: a regular recurrence of segments, which in turn could be again regularly segmented by stronger elements, which Semper, as we know, called "caesurae."

To speak of a *rhythm* of the sequence [*Rhythmus der Folge*] seems daring. But because we now have a *sequence* of different parts [*eine Folge unterschiedener Teile*] and thus the elements of the beat [*des Taktes*] in front of us, why should not a rhythm arise from a stronger emphasis on the 2nd or 3rd part? Example: St. Michael's Church in Hildesheim, where every two columns comes one pillar. After all, this kind of rhythmization [*Rhythmisierung*] is an unusual one, because from a stronger part we demand a greater appearance, which is not here the case. But there is still another possibility [to account for this rhythmization] since we have several differently arranged sequences, *side by side* and *one above the other*, and the weaker parts must subordinate themselves [*sich einordnen*] to the stronger ones, like in music the light figures accompanying the slow-progressing main theme. In the resulting rhythm there is indeed a moment of essential importance, that plays a role in the impression made by the whole and should not be underestimated. (*Prolegomena zu einer Psychologie der Architektur*, 1886, p. 35, my trans.)

Like Semper who contrasted Ancient and Medieval uses of his most complex kind of *Eurhythmie*, but for other reasons, Wölfflin thus distinguished two main types of architectural harmony, i.e. for him of regularity: the first based on a binary segmentation (2/2 or 4/4); the second on a ternary one (3/3 or 3/4). Whereas the former, which had been applied in most Greek and Roman temples, looked "austere," the second, which appeared quite late in Antiquity, was "light and floating," like our going when we march on "a 3/4 time signature."

Take the Greek temple architecture, for instance: the columns are all the same, the triglyphs above are the same; but whether 2 or 3 triglyphs come on top of each column, in other words, whether the space between each two columns is divided into 2/2 or 3/3, entirely changes the rhythm. [In the latter case,] the triglyphic slot corresponding to the column will immediately appear as the more accented one [*der stärker betonte erscheinen*]. The effect in both cases is quite different. When a triglyph falls on the center of gravity of the entablature portion, that is, exactly in the middle of the intercolumnium, it gives us an impression of strict bondage. By contrast, when this point remains unmarked, a freer order unfurls lightly and cheerfully. But this is not a sufficient explanation. It may be good to remember the consequence [*Bedeutung*] of the 4/4 and 3/4 time signature [*des 4/4 and 3/4 Takts*] for our movement: we march more easily on a 3/4 time signature. The accented step [*der betonte Tritt*] then does not always coincide with the same foot but alternates; the walk becomes light and floating.

I refrain from citing further cases: generally it can be said that the old, austere art only corresponds to the binary division [*Zweiteilung*]. The Greco-Roman architecture has applied late the stimulant if I may say so of the 3/4 time signature [*des 3/4 Taktes*]. I first find it in the round temple in Tivoli. (*Prolegomena zu einer Psychologie der Architektur*, 1886, p. 35-36, my trans.)

In the last pages of his dissertation, Wölfflin finally explored the "vertical segmentation" and the "ornament." Rhythm was not any longer mobilized but there were some allusions to Vitruvius' and Alberti's own comparison between the

proportions and articulations of a building and those of the human body.

We have recognized the growing shaping of the matter [*Durchformung des Stoffes*] as the principle of vertical construction. In man, this shaping [*Durchformung*] consists in the formation [*Bildung*] of finer organs, which are able to move more freely along the body, and are, in themselves, more diversely articulated. Further, it implies, as it were, the openings in the closed mass, which, for example, confront us in the eyes. What is the equivalent in architecture? The latter divides its material [*Stoff*] in the same way and breaks openings through the walls. When the openings increase in size, the divisions become finer, the organs more independent. The support, which first appeared as a wall pillar, can become a free column with its own base. But I do not want to go into detail, it only depends on the principle: on the development of the vertical force of form. (*Prolegomena zu einer Psychologie der Architektur*, 1886, p. 36-37, my trans.)

All the evidence gathered so far show that Tobias Teutenberg was quite right when he recently underlined the fact that "Wölfflin traced rhythm back to the biological makeup of mankind and thus incorporated this principle in his anthropocentric architectural theory" (2018, p. 166), yet simultaneously quite mistaken not only to claim that Wölfflin's dissertation was "the earliest evocation of architectural rhythm in German art history" (p. 165) but also to allege that he "[stopped] short of declaring rhythm to be one of his four laws of form (*Formgesetze*) namely, regularity, symmetry, proportion and harmony" (p. 165). In fact, each one of these formal categories was based on rhythm, particularly the first and the last one.

I could not study as much as I wanted Wölfflin's use of the concept of rhythm in the 1890s. In *Renaissance und Barock - Renaissance and Baroque* (1888) and *Die klassische Kunst - Classic Art* (1898), he quite interestingly extended its use to painting. This is something that remains to be studied. Nevertheless, as Vasold accurately noticed (2010, p. 54), Wölfflin's concern for the rhythm seems to have regressed simultaneously with his growing interest in a formalistic method. In his *Kunstgeschichtliche Grundbegriffe - Principles of Art History* published in 1915, the concept was still used here and there but it was not any more of a central concern. The rhythm had recessed into the background with the interest in body and time.

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