



Janina WELLMANN, *The Form of Becoming : Embryology and the Epistemology of Rhythm, 1760-1830*

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Janina Wellmann, *The Form of Becoming : Embryology and the Epistemology of Rhythm, 1760-1830*, trans. Kate Sturge (New York : Zone Books, 2017), 424 pp.

Janina Wellmann's ambitious, cross-disciplinary book, first published in German in 2010, sets out to achieve two main aims. First, it attempts to retell and reframe the emergence of a somewhat neglected discourse around rhythm, form and becoming as it appears in the history of science (and embryology specifically) from around the late eighteenth century. Second, it seeks to bring out the broader epistemological implications of this discourse as it emerges from within philosophy, literature, aesthetics and musicology. Wellman organises this project by analysing the emergence of the rhythmic episteme from three perspectives : early German romanticism (in which post-Kantian literary and philosophical critique produce a 'new epistemology of rhythm') ; the emergent biological and scientific focus on life and becoming ('biological rhythms') ; and the subsequently transformed observational and instructional modes of visuality ('serial iconography').

In contextualising her project, Wellmann argues that, in exploring the rhythmic episteme, her book can help us see how a new epistemology of rhythm and becoming emerged long before critical theories of becoming were employed specifically to destabilise the history of ideas by later nineteenth- and twentieth-century thinkers. So, for example, whilst the young Nietzsche may have sketched out, around 1870, a 'theory of quantitative rhythm' that sought to investigate how the human body is restructured by the rhythmical movement of music and poetry operating upon it, one of Wellman's key arguments is that rhythm thus conceived was an emergent category in the history of ideas much earlier. Other—albeit more speculative—claims to contemporary relevance are that the project may help us to contextualise more historically the radical temporalisations and spatialisations which occur in modern philosophy (epitomised by Derrida's *différance*) or the novel

bodily and aesthetic demands of 'new media' also. In a book that already covers so much historical ground, however, it would no doubt be impossible to explore these contemporary derivations of becoming across philosophy and visual culture in any substantial detail. Instead, Wellmann circumvents this issue by carefully delimiting her project to a specific period : 1760 to 1830.

The Form of Becoming traces the emergence of the 'embryological and rhythmic episteme' across those domains of knowledge which became focussed on the 'temporalisation' or 'dynamisation' of observable phenomena from the second half of the eighteenth to the early nineteenth century. One of the key achievements of Wellmann's project is its tracking of the sheer amount of iconographical and conceptual attempts at representing 'rhythm as becoming' from multiple texts in different disciplines. Unsurprisingly, the acknowledgements reference a dazzling range of academic and scientific institutions, across a number of specialisms and territories. Looming over this encyclopaedic landscape, perhaps inevitably, stands Goethe, whose simultaneously literaryscientific obsession with becoming and metamorphosis could be seen to act as a model for the ambitious crossdisciplinary sweep of Wellmann's book itself.

Nonetheless, Wellmann tames a potentially sprawling project by clarifying that the intention is not to identify any single field of knowledge in which the concept of rhythm originated, and she is equally dismissive of any attempt to address 'migrations, adaptations or mutual influence' across disciplines. Rather, the methodological intent is to trace the changing meanings of the concept as they were formed in the experimental systems, research practices and technologies of observation of the period : the 'numerous theatres' attempting to capture rhythm and becoming running simultaneously. This is therefore as much a book about a certain moment in visibility and iconology as it is a history of science or ideas : 'Observation and experiment, text and image, concepts and material objects are all part of this understanding of how a concept is constituted as a category.'

The theory and practice of rhythm became a familiar issue in early twentieth-century modernist aesthetic discourses, particularly in the visual, musical and poetic realms. However its epistemological roots, Wellmann argues, actually lie in the history of science, and the development of embryology more particularly. Embryology, understood as the transformed sense of the relationship between time, rhythm and becoming, is foundational for the critical developments in time and temporality which took hold across human knowledge around 1800—what Reinhart Koselleck calls the *Sattelzeit* period of European modernity. Wellman makes an explicit connection here by acknowledging Koselleck's studies of the transformation and secularisation of western concepts of temporality in relation to progress, history and culture. However, Wellmann wants to show here not only that rhythm as a concept has a history, but that the impact of temporalisation on the nascent scientific discourse of biological development as becoming—and most specifically embryology—created a wholly new episteme and iconography of form and rhythm.

This striving for the 'form of becoming' manifested itself most immediately in new scientific conceptions of life. Wellmann cites the Haller-Wolff debate of the 1760s, the roots of modern embryology. Swiss naturalist Albrecht von Haller observed that organic life emerges out of pre-formed germ cells, whilst the German physician Caspar Friedrich Wolff argued, based on observation and—more importantly—schematic and visual interpretation, that development is a process of the gradual emergence of forms. Whilst, ultimately, the Wolffian theory of epigenesis dominated and survives in embryological discourse to this day, what is as important here is the employment of new modes of visual interpretation at a certain moment and the novel understanding of rhythm and temporalisation that embryology demanded. The becoming of form emerges as a

scientific issue at the level of observation, and so is as much about iconography and visual interpretation as it is about concepts.

To this end, Wellman describes in detail some fascinating observational experiments, revealing their formal particularities and the ways in which each attempt to visualise becoming entailed a transformation of the problem as it moved between concept and image. So, we range from incubated chick eggs (the urtext of embryology) via the knotting of a fishing net (captured for the *Encyclopédie*) to the various choreographies of dancing, fencing and military manoeuvres. These alone make the book fascinating, revealing how seriality and transformation were a formal issue outside of and prior to the emergence of a modernist visual culture.

For Wellman, however, the scientific transformations of the iconography of temporality and becoming manifest themselves in other visual discourses after 1800 largely unconsciously and intermittently. Furthermore, explicit reflection on the development and nature of these connections has been neglected. This is in stark contrast with the plethora of early to mid-modernist cultural discourses around rhythm, which tend to frame it in terms of avant-garde aesthetic reorientations (art nouveau, expressionism, dada, Bauhaus experimentalism) or, sociologically, as the specific articulation of a cultural moment (where for example rhythm signifies a historical response to the demand for 'vitality, order and unity' in the Fascist worldview). Where writers have tried to focus explicitly on rhythm and its mediating role between biology and culture, such as is the case in Ludwig Klage's 1933 *On the Essence of Rhythm*, they have tended to retain a dualism between rhythm as a principle of blind 'life', on the one hand, and meter/cadence as a human act of rationality. By returning to the pre-modernist sources of rhythm as episteme, Wellmann intends to place the origins of this debate a century earlier.

For Wellmann, it is in musicology around 1800 that these theoretical reflections on rhythm become most evident, as the discipline expands into generalised concerns with meter, measure (*Takt*) and accent (*Akzenttheorie*) as the keys to an aesthetics of musical form and beauty. Coupled with the physiological disposition of the human as 'rhythmic being', which both romanticism and musicology inherit from contemporary science, a more philosophically systematic account of nature and becoming is revealed. As such, what was new in 1800 was not the musical concept of rhythm itself, but that the changed 'vision of rhythm in both music theory and biology had—unconsciously—reordered knowledge in each domain. Rhythm became understood as the underlying structure of flowing movement, 'development' in both aesthetic and organic meanings of the term. This is important not least because this places rhythm back into its truly multi-disciplinary origins : the category of rhythm for Wellmann indicates a lost unity of cultural and natural thought, which existed before nineteenth century academic and scientific specialisation split them into separate and distinct spheres.

It will be no surprise to anyone familiar with the all-encompassing cross-disciplinarity of German romanticism that thinkers such as Hölderlin, Schelling, Novalis and the Schlegel brothers play such a crucial role in this story. Romantic conceptions of poetic form and becoming, and their crucial role in re-unifying imagination and understanding, place issues of language, and rhythm and meter, at the centre of poetic theory. It was Klopstock, with his long-term involvement in developing a theory of 'versification' and 'co-expression' of motion and syllables, who paved the way. Poetry might be raised to a form of knowledge in itself, or may even become, in Hölderlin's phrase, a 'better philosophy', and it is the latter who will attempt to marry language as acoustic event with the 'calculable laws' of poetic theory. Issues of literary rhythm, most notably the 'counter-rhythmic

rupture' or the caesura, are its most famous moments for Wellmann. Hölderlin's conception of tonal/rhythmic alternation and temporal interruption places him at the heart of contemporary physiological debates on the alternation of matter, wherein the continuing oscillation of organic matter between solid and liquid states is seen as the definitive quality of organic existence itself. The physiology of the body is constituted by transitional matter, ordered according to particular rules. It is the search for these rules of development and transformation which unite romanticism and science at this time, the search for a teleological principle or drive behind 'becoming' itself, which will motivate later contributions to romanticism such as those of Novalis. Wellmann focuses upon August Wilhelm Schlegel's historical exposition of *Urlanguage* and shows how its emergence from the corporeality of the human being (in his 1795 Letters on poetry, poetic meter and language) speculatively extend romantic principles into cultural history itself. In his later Jena lectures on the history of poetic form, art history thus becomes natural and biological history, centred around the understanding of 'humanness' as rhythmical organisation and expression.

With Schelling, the claim became even stronger : rhythm, reconceived systematically via language, philosophy of nature and theories of artistic form, opens up a path to the absolute itself. Music is the art form of the 'informing [*Einbildung*] of unity into multiplicity' as it brings together individual tones and the plurality of their sequences and permutations. Rhythm—which Schelling did not conceive of as a property specific to musical representation alone—is primal to nature and the universe itself, 'pure movement, separated from the object' making visible the original identity of the absolute. Wellmann briefly describes how Schelling's *Naturphilosophie* fulfils this philosophical task. However, she ultimately stops short of expounding the fuller epistemological and critical implications of this development in the history of ideas. There is, for example, only a passing reference to how Hegel's subsequent *Phenomenology of Spirit* 'overshadowed' Schelling's work at this point.

Perhaps inevitably for such a wide-ranging project, the philosophical considerations are often handled briefly, and, read from a contemporary perspective, may beg more questions than they can possibly answer. The reflections on the inheritance of German romanticism, for example, stop short of any detailed discussion of dialectical philosophy, or any prolonged consideration of how this new episteme may actually have been picked up by other radical or scientifically-minded philosophies of temporality from the mid twentieth century onwards. Overall, one should treat this fascinating project as a philosophically-cognisant and visually-literate history of ideas rather than a work of philosophy per se. It will be up to others to capitalise on its historical foundations, particularly the multidisciplinary connections it makes and the close visual analysis it offers of early iconographical experiments in capturing becoming.