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The embryonic tree: A themata of Entwicklungsgeschichte

WITH HIS *ENTWICKELUNGSGESCHICHTE DER THIERE* Karl Ernst von Baer (1792-1876) initiated a new research program searching for the mechanisms that transform an egg into an embryo (von Baer 1828, 1837). He intended his ‘observation and reflection’ on embryogenesis to enhance the comparative approach of animal classification by demonstrating vertebrate affinities (homology). Supported by his observations he stated that vertebrate and articulate animals emerge from the primitive streak and, therefore, share a homologous structure for a short moment during their developmental history. Further, he proposed that everybody interested in developmental history should apply the botanists’ method that classified the plant classes according to their embryonic shapes instead of describing the adult form. In stressing his idea that the type is more perspicuous during embryogenesis than in the adult forms he emphasized the comparison of the different developmental stages. For illustrating his reflections how species-specific embryogenesis creates a branching tree of animal classes von Baer constructed a tabular diagram. He openly conceded that the ‘flatness’ of the table was futile to depict the dynamics of developmental stages and demanded for literary dumping the genealogical stepladder of Enlightenment. In his article *On the unity of structure in the animal kingdom* Martin Barry (1802–1852) paraphrased von Baer’s statements and depicted a tree-like diagram of animal development which should demonstrate the ‘common structure’ as well as the causes of morphogenetic and histological variety. It is speculated that Charles Darwin (1809–1882) did know Barry’s diagram and utilized this image when drawing the idea of a branched evolution in his diary.

My talk will present a short sketch of von Baer’s research program and its three-dimensional mapping by Barry. I want to demonstrate that von Baer’s tabular diagram and Barry’s tree-like image are congruent when one rotates the former to the right. To visualize his argument of the inadequacy of two-dimensional images, I will discuss von Baer’s unpublished hand drawing of an embryonic tree resembling the famous tree-like figure in Darwin’s diary. Methodically I am employing the concept of themata (cf. Cavailles) for tracing how the tree metaphor became embedded even in apparently incommensurable theories like, e.g. idealistic embryology and Darwinian evolution. My main objective is to elucidate the differences and/or similarities of their reasoning on development. European and American) scientific and cultural elements.

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