
Wilhelm Roux's "The Struggle of the Parts in the Organism": a physiological synthesis of Darwinism

Ghyslain Bolduc*¹

¹Université de Montréal (UdeM) – Université de Montréal C.P. 6128, succursale Centre-ville Montréal (Québec) CANADA H3C 3J7, Canada

Abstract

Wilhelm Roux's *Der Kampf der Teile im Organismus* (1881) is commonly considered to be a Haeckelian thesis unrelated both to the birth of experimental embryology and to Roux's well-known research program (*Entwicklungsmechanik*). Although the influence of the School of Jena on Roux's early work cannot be denied, a re-examination of *Der Kampf* reveals this work to be a complex physiological synthesis of Darwinism, which combines mainly four theoretical frameworks, namely (1) Wilhelm His' biomechanist methodology, (2) Rudolph Virchow's physiology, (3) Ernst Haeckel's conception of biological individuality, and (4) Charles Darwin's theory of natural selection. Roux's rejection of Haeckel's law of recapitulation clearly establishes a distinct theoretical system based on a mechanistic view of causation whereby the relationship between ontogeny and phylogeny in terms of the internal selection of the fittest parts. The main condition of such a physiological application of Darwin's mechanism lies in the implicit conception of the organism as a *milieu intérieur* such that it is exemplified by Virchow's theory of cell autonomy and his notion of cell territory. In addition to performing Darwin's natural selection, the struggle between parts contributes to a global functional adaptive process which is responsible for the emergence and the maintenance of purposeful dispositions. In this sense it acts as an epigenetic and homeostatic phenomenon in a coherent way with the self-regulative nature of life. I will argue that this theoretical system falls within Roux's quest of providing an explanation for inherited and epigenetic developmental causes as specifically maintained by the *Entwicklungsmechanik* program.

*Speaker