

Adjectives, Footnotes and Captions: The Bias Against Performance Among Midwar Scientists

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Preformation is the term currently used to designate a theory of reproduction that emerged in the mid-17th century, largely as the result of the introduction of the microscope in life studies. In its crudest, initial form, the theory postulated that all organisms of all species, of all generations to come, and been created directly by God during the six days of creation, and had then been encased inside each other, in smaller and smaller sizes, much in the fashion of a Russian doll. Thus generation was nothing but the unfolding of a pre-existent form from the sexual organs of the parent. This parent was the mother for the *ovists* (those who held that all generations were encased inside the egg) and the father for the *animalculists* (those who held that all generations were encased inside the head of the sperm cell, known as *animalcule* when it was first discovered). By the mid-18th century there were no more animalculists left, and, in its ovist version, preformation had reached a much more sophisticated conceptual level. Mainly under the guidance of the intellectual effort developed by Swiss naturalist Charles Bonnet, the idea was now that each egg contained not the individuals of the future generations already fully preformed, but rather the blueprint for the individuals of the next generations – a set of guidelines, as it were, to direct the shaping of the embryo. To this blueprint Bonnet called the *germ*. This germ was supposed to play a role that is not much different from the one actually played by what we now call the genes. We can thus argue that preformation was the first biological construction to come close to the modern concept of genetics, greatly expanding the understanding of microscopic developmental mechanisms and steps along the way.

However, preformation strangely fell from grace among historians of biology. The treatises on history of embryology published from the 1930s onwards, be it introductions to textbooks or full studies of the matter, all treat this theory as a joke at best – and often as a dangerous idea. More often than not, preformation is depicted as an ominous lapse of reason that for one entire century obstructed the harmonious development of its rival concept of *epigenesis* – the theory according to which organisms are formed *de novo* at each generation and grow from a slow accretion of parts and succession of forms, until they reach the stage of embryonic maturity. In this communication we shall first analyze in detail how the animosity against preformation is expressed in 20th century publications, and then try to understand where such animosity came from.

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