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The Model of Biological Science

One of the central claims of this book is that for Kant, the model for the human sciences is to be found foremost in the biological sciences. To support this claim, I will show that the connection between biology and the human sciences operates at a number of levels: the methodological level (in terms of their principles of explanation), the epistemological level (in terms of the type of knowledge-claim they produce), the metaphysical level (in terms of the relationship between freedom and nature they entail), the anthropological level (in terms of their conception of human nature) and the historical level (in terms of their conception of the evolution of the human species). These connections will be explored throughout this study, so an overall picture will only emerge towards the end. In the meantime, the aim of this chapter is to examine Kant’s model of biological science in order to bring to light its specific features.

1. The part–whole relationship in organisms

Kant initially describes the distinctive features of organisms through the example of a tree. These features, which all have to do with the fact that organisms in some sense produce themselves, can be grouped into three categories: reproduction, generation and conservation. First, ‘reproduction’ means that a tree can produce other trees: ‘a tree generates another tree in accordance with a known natural law. However, the tree that it generates is of the same species; and so it generates itself as far as the species is concerned.’ Organisms produce offspring of the same kind and thus secure the survival of their species; that is, an organism produces itself at the level of the species. Second, ‘generation’ means that the tree’s leaves protect the branches that nourish them: ‘This plant first prepares the matter that it adds to itself with a quality peculiar to its
species, which could not be provided by the mechanism of nature outside of it, and develops itself further by means of material which, as far as its composition is concerned, is its own product.' In this sense, an organism produces itself as an individual. Finally, ‘conservation’ means that the tree grows, regenerates and repairs itself: ‘one part of this creature also generates itself in such a way that the preservation of the one is reciprocally dependent on the preservation of the others.’ Thus, an organism produces itself at the level of its parts.

These characteristics call for two remarks. First, the self-productive feature of organisms operates at three levels: the species, the individual and the parts. And far from being merely juxtaposed, these functions are intrinsically coordinated. It is because the parts of the organism work together towards the survival of the whole that it can then produce offspring and secure the survival of the species. Second, not only are the parts organised, but the organisation of the whole affects the organisation of each part. It is the parts’ ability to adapt for the sake of the whole that demonstrates their superiority over mechanical organisation (in which the parts are not informed of and by the aim pursued by the whole):

[I]ts parts reciprocally produce each other, as far as both their form and their combination is concerned, and thus produce a whole out of their own causality, the concept of which, conversely, is in turn the cause [...] of it in accordance with a principle; consequently the connection of efficient causes could at the same time be judged as an effect through final causes.

(C.J., 245 [5:373])

The distinction between organisms and machines consists in the fact that the parts of the latter function externally and in some sense independently of each other: ‘In a watch one part is the instrument for the motion of another, but one wheel is not the efficient cause for the production of the other: one part is certainly present for the sake of the other but not because of it.’ Whereas the parts of an organism exist for and through the whole, the parts of a machine do not produce each other and, more importantly, do not contain the cause of their production: ‘the producing cause of the watch and its form is not contained in the nature (of this matter), but outside of it, in a being that can act in accordance with an idea of a whole that is possible through its causality.’ In contrast, an organism is both the means and the end of its existence in the sense that it does not owe its organisation to an external intention; it is what Kant calls an ‘intrinsic purpose’.