

## REVIEWS

Humberto R. Maturana and Francisco J. Varela, *The Tree of Knowledge. The Biological Roots of Human Understanding*. Boston & London: New Science Library, 1987.

Neither Humberto Maturana nor Francisco Varela are strangers to the philosopher whose interest is in epistemological questions. Both authors have indeed walked a long, but above all a rich path in the field, with partial parallels, but also with partial divergences. This path is currently and unhesitatingly being identified with the concept of "autopoiesis", a concept that, among other things, aims at emphasizing the autonomy, self-determination and self-creation of biological, linguistic and knowing organisms. At the end of this review we will give a short overview of the most important publications that have appeared by either author in the field of "autopoiesis".

This recent book *The Tree of Knowledge. The Biological Roots of Human Understanding*, could be regarded as a simplified, didactic but nonetheless essential version of the major facets in their views on knowledge, the acquisition of knowledge and the relation between knowing and living. The book gives a simplified picture, which means that it is highly accessible to laymen in the field of philosophy and biology. It has been made easier through an ample use of examples, illustrative experimental results and metaphors. It is didactic because of its construction: starting from daily experience and what in this experience is generally held to be knowledge and science, the book evolves logically on the basis of biological phenomena (chapter 2). After that we get the historical dimension which is inaugurated by sexuality (chapter 3), the concept of structural coupling and the second-order unities (chapter 4), phylogenesis (chapter 5), the behaviour and the development of the nervous system (chapter 6), the field of "cognition" and structural plasticity (chapter 7), cultural phenomena and the third-order unities (chapter 8), the linguistic fields and consciousness (chapter 9). The book ends with the question of ethics (chapter 10). With such questions as "knowing what one knows", or "the discovery of the impact of a given epistemological view", we return to the starting point and the circle is closed. Within that circle it is impossible to find a fixed point of reference, from which to judge on the truth or falseness, or on the objectivity of a certain type of knowledge.

It is for that reason that we want to call the book an essential version. The central, though by no means easily understandable new perspective on knowledge is in complete agreement with the

authors' views on biological organisation. It induces the reader to a reconsideration of so many aspects of knowledge which by and large had come to belong to the domain of the familiar and the assured, that this renewed calling into question actually makes the head swim. It is really no easy, but an essential task for the philosopher and epistemologist of today to draw the consequences from investigations and experimental results that are to be situated in the fields of biology, neurology, neurophysiology, self-organisation, neo-connectionism, etc. The central question that arises from all these results can be formulated as follows: "If the reality that we perceive, exists in no other way than the one which we ourselves - particularly through language - have determined, if both reality and the way to approach it are to an extent also the results of our own history, and if we ourselves, as biological organisations, as knowing subjects, are also determined by such disturbances without content as come from the environment, how are we to retain traditional concepts like correspondence or representation?" This much is clear: in epistemological theory the weight is moved from truth to adaptation, from representation to interaction, from a-temporal to historical, from representation to "construction" or "enaction", from objectivity to an intersubjective consensus. The ethics of knowledge have to be aimed at unmasking all forms of absolutes, which are so unmistakably dear to our Western tradition. They have to lead to the insight that it is only possible to constitute oneself through what is other, or through the other. An identity per se is an impossibility. Indeed, the ethics also imply that the other (person) and what is other are only given through the "self".

The specific autopoietic relation between subject and object is linked up too quickly and mistakenly with the position of solipsism - a position which in the tradition of philosophy has been criticized and analyzed repeatedly. What is new in the approach taken by Maturana and Varela, and in the various investigations to which I alluded only a moment ago, is that it has been composed proceeding from the unconditional choice for modelisation in biology, on the one hand, while it is itself subject to the same "restrictions", on the other. Knowing is acting, and in such acting we should shun for all fossilization into certainty, for all fossilization, finally, is antifinalistic.

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