

## **Hierarchical thinking in organicist and systems biology**

**Jon Umerez**

*IAS- Research, University of the Basque Country (UPV/EHU)*

There are, at least, three wide conceptual elements that characterize, quite obviously, the philosophical significance of, at least, the “developmentally oriented” strand of early twentieth century organicism: centrality of the organism, systemic perspective, and hierarchical thinking in terms of levels of organization.

The hypothesis I want to explore in this work would hold that one of the aspects that deserves scrutiny, from an epistemological point of view, as a signal of the persistence of early 20th century organicist views in later decades is, precisely, **hierarchical thinking**.

I hold that it happens that both its presence and oblivion are coincident with a more general attitude (positive or negative) towards organicist like views in the life sciences. Even in some cases, this hierarchical view may be the only apparent trace of a more encompassing view.

As a specific and practical illustration I will offer the long trajectory of experimental and theoretical research of Paul A. Weiss. The concepts of ‘system’ or ‘levels of organization’ were key elements in the theories of organicists such as Bertalanffy, Needham and others. Among them, the work of Weiss in particular embodies rather nicely the continuity of hierarchical thinking in biology from the 20s to the 70s and the analysis of his scientific and intellectual career corroborates these claims.

As a complementary claim, I maintain that the absence of a genuine hierarchical approach in some current proposals as, for instance, within the emerging area of Systems Biology might indicate a different source and ambition of these proposals