

From L'Homme Machine to metabolic closure: Steps towards understanding life

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The nature of life has been a topic of interest from the earliest of times, and efforts to explain it in mechanistic terms date at least from the 18th century. However, the impressive development of molecular biology since the 1950s has tended to have the question put on one side while biologists explore mechanisms in greater and greater detail, with the result that studies of life as such have been confined to a rather small group of researchers who have ignored one another's work almost completely, often using quite different terminology to present very similar ideas. Central among these ideas is that of closure, which implies that all of the catalysts needed for an organism to stay alive must be produced by the organism itself, relying on nothing apart from food (and hence chemical energy) from outside. The theories that embody this idea to a greater or less degree are known by a variety of names, including (M,. R) systems, autopoiesis, the chemoton, the hypercycle, symbiosis, autoc