

EVOLUTION AS 'BRICOLAGE' -An answer to Dennett-

Following Dennett, Darwin's dangerous idea is nothing but considering natural selection as a "crane". A "crane" is an algorithm, or a family of algorithms defined by three criteria, namely, "substrate neutrality", "underlying mindlessness", and "guaranteed results". Dennett challenges the idea that natural selection could act as a creative force.

Yet this functional vision of natural selection is not the Darwinian one, as we will argue in this presentation. If, for Darwin, the relation between variations of inheritance and the action of natural selection can be called "accidental", it doesn't mean simply that the same function could be fulfilled by various other structures, as the postulate of "substrate neutrality" requires. It means, instead, that the function cannot be defined before as a goal, since "the architect" must "rear an edifice" "without the use of cut stones". The function is not defined through and *by* the structure; it is shaped by the process of evolution, as something that did not exist before, *in* the structure.

Thus, biological complexity deals with the fact that a system is not completely defined by its internal constraints. It has to be also characterized as a part of another system that is interacting with it. We will elaborate on the consequences of such a vision of natural selection using an example of molecular genetics: the SOS box and the several functions of the RecA protein in *E. Coli* and *simultaneously* in the Lambda phage.