THE DYNAMICS OF BIOCYBERNETICS AND BIOENGINEERING

E. Nicolau, The Polytechnic Institute, Bucharest, (Romania)

The explanation of homeostasy in terms of control theory was one of the most important achievements of Cybernetics, in the early fifties. Since then Cybernetics has in many ways allowed to biologists to have a better understanding of life phenomena, via Biocybernetics. Biocybernetics is a division of Cybernetics, dealing with application of general Cybernetics to Biology. We must mention the importance of operational description in physiology and pathology the simulation of biological events on digital computers, the therapy optimization. The author wishes to point out the very impressive development of Neurocybernetics — in one sense a division of Biocybernetics. We must note also, an important cross-fertilization between Computer Sciences and Brain Science.

The last years have marked a new progress in the field of Life Sciences — a more accurate quantification of biological phenomena both on chemical and informational basis; we also witness a geometrisation of Biology.

Form the point of view of the Philosophy of Science, the conception associated with entropy must be ranked as a great contribution to scientific thought.

The next step can be the design of new, desired species of plants and animals. After centuries of observation and selection, the biologist is able now to pass on a higher level, like every engineer.