

Rationalising individuality : the notion of individuality in biology, philosophy, (bio)ethics

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SUMMARY

This dissertation addresses the notion of individuality in both biology and philosophy. This topic is not new. Biologists, philosophers of science and bioethicists have often explored the complexity of the above-mentioned topic. What is new is an issues that brings together a number of scientific disciplines (from neuroscience to molecular biology, from genetics to biological systematics, and so on) to claim a theory that refers to what we do know about living beings' biological existence. This analysis across different branches of the Natural sciences is enriched by the philosophical interpretations and explanations of the individuality problem in order to advocate a theory, based on science and philosophy, that explains living beings' individuality as biological and psychological entities.

In parallel the dissertation addresses issues related to the use of biotechnology in producing genetically manufactured organisms (GMOs, transgenic animals, chimeras, and so on). At the present time, biotechnology can modify the biological source of living beings. Cloning, germline gene transformations and the production of chimeras, are feasible. Technical problems are being solved. Nevertheless, every growth of the human knowledge needs to be implemented by critical studies on the right way to use the available discoveries. History teaches us that a reflection on the potentialities of new technologies is a pre-requisite for their use. This will help to avoid unexpected consequences or simply to prevent a cascade of events transforming potential benefits in unexpected negative consequences.

Thus, to analyse problematic implications arising from the use of new technologies is an urgent need of modern society. Accordingly in this dissertation I address case studies that are being debated among biologists and bioethicists from ANDi to Dolly, from the oncomouse to the human-cow hybrid. The above mentioned case studies have a common factor: they change the biologic features of future-born organisms. They not only change the natural reproductive mechanisms, as other new reproductive techniques do (such as in vitro fertilisation, assisted reproduction, etc.), they also change the genetic makeup of individuals at a certain time and trough time.

In the following sections I will present a summary of the various chapters of the thesis. The thesis has two parts. The first part deals with biological and philosophical problems involved in the notion of individuality. The second part deals with issues related to the use of biotechnology to genetically modify future born organisms' genes.