

Vortrag an der Tagung „Leben in Bewegung – Perspektiven für Evolution und Züchtung“

7. – 9. Oktober 2010

Universität Kassel, Witzenhausen, ökologische Agrarwissenschaften

(Der Vortrag wird auf Englisch gehalten)

Evolution in Four Dimensions

Eva Jablonka¹

¹*The Cohn Institute for the History and Philosophy of Science and Ideas Il-Tel Aviv*

Abstract

Darwin used domestication to illustrate the process of evolution: in the *Origin of Species* he used artificial selection as a model for natural selection, as well as a model for the generation of heritable variation under extreme natural conditions, the very conditions that favor the formation of new species. Darwin's domestication model was criticized during his own lifetime and afterwards, but recent studies are showing that domestication provides important insights for the study of heredity and evolution. In this lecture I focus on domestication as a model for the generation of new heritable variations and of new selective regimes. I discuss studies showing that new genetic and epigenetic variations arise under the stressful conditions of domestication; that crosses between genetically dissimilar organisms (such as different plant species) can inform us about the importance of the effects of hybridization in evolution; that selection for new behaviors is crucial for the evolution of animals; and that human culture, of which domestication is part, is an important factor in the evolution of the domesticating (human) species. Hence, domestication can illustrate the richness and the multi-dimensional nature of biological evolution.