The Conference “Scientific Heritage by Schmalhausen and Its Development” (Moscow, April 23–24, 2009)

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The conference “Scientific Heritage by Schmalhausen and Its Development” was held at the Severtsov Institute of Ecology and Evolution devoted to the 125th anniversary of the birth of academician I.I. Schmalhausen. The conference was attended by researchers from Moscow State University and a number of institutes of the Russian Academy of Sciences, the Russian Academy of Medical Sciences, and the National Academy of Sciences of Ukraine.

In the last five years in Russia and abroad, the investigations have been actively developed that are related to the evolution of onto- and phylogenesis, working on the problem of organism integrity, clarification of genetic and epigenetic levels of structural organization, and identification of transitions in the “gene—morphogenesis—morphogenetic trait” triad. This range of problems falls within evolutionary biology representing modern trends of development of evolutionary theory. Historically, it was associated with outstanding Russian and foreign scientists from the twentieth century, and a number of recent conferences have been devoted to their memory. Problems of ontogenesis evolution were especially actively discussed at the International Conference “Evolutionary Morphology of Animals,” devoted to the 100th anniversary of the birth of Academician A.V. Ivanov (Zoological Institute, Russian Academy of Sciences, 2006, in St. Petersburg); at the conferences “Key, Molecular, and Evolutionary Aspects of Morphogenesis” and “Ontogenesis and Evolution” (Institute of Developmental Biology, Russian Academy of Sciences, 2007 and 2008, Moscow); at the International Conference “Modern Problems of Biological Evolution” on the centenary of the State Darwin Museum (2007, Moscow); and at the “Origin of EvoDevo” International Workshop devoted to the 10th anniversary of the death of the outstanding experimental embryologist Pere

Alberch, originator of “evo-devo” (evolutionary developmental biology) (Altenberg, Austria, 2008).

The achieved success results from the breakthrough in investigations of the regulatory mechanisms of morphogenesis, complete decoded genomes of many organisms, determination of gene expression mechanisms and function of gene pathways in ontogenesis; identification of the significant role of gene duplication in ontogenetic processes; development of a systemic approach to the evolutionary event analysis and progressive evolution; identification of the role of heterochronia in the emergence of new taxons; investigation of the relationship between molecular—genetic, morphological, and paleontological data during phylogenetic elaboration in the case of a variety of large taxons, and the search for new strategies in the development of the theory of evolution.

Many of these problems were reported on and discussed at past conference by the leading researchers from the Severtsov Institute of Ecology and Evolution, Russian Academy of Sciences; the Koltsov Institute of Developmental Biology, Russian Academy of Sciences; the Borisyak Paleontological Institute, Russian Academy of Sciences; the Zoological Institute, Russian Academy of Sciences; the Research Institute of Human Morphology, Russian Academy of Medical Sciences; Moscow State University; and the Schmalhausen Zoological Institute, National Academy of Sciences of Ukraine.

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