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Biological Systematics: Evolution of Ideas.—I. Ya. Pavlinov and G. Yu. Lyubarsky. Moscow: KMK Scientific Press Ltd. 2011. Archives of the Zoological Museum of Moscow State University, vol. 51. 676 pp. ISBN 978-5-87317-685-4. In Russian. [Original citation: И.Я. Павлинов, Г.Ю. Любарский. Биологическая систематика: Эволюция идей. 2011. Труды Зоологического музея МГУ, т.51. Москва: Товарищество книжных изданий КМК.]

From the end of the 19th century, the vast territory of the Russian Empire and its successor the Soviet Union was subject to constant botanical and zoological reviews. The founders of Russian botany and zoology proposed a broad program of biodiversity research, which was substantially implemented by the end of the 1980s. Multiple "floras" and "faunas" for almost every territorial subdivision of relatively large size reflected the enormous work of the Russian taxonomists. The most famous products are the "Flora of the USSR" and the "Fauna of the USSR" which were (only partly in the second case) translated into English.

Naturally, all these achievements would not have been possible without a sound theoretical basis. It is unfortunate, however, that the theoretical side of Russian taxonomy is almost unknown to Western science. One of the simplest explanations is that publications in foreign languages were not encouraged in the USSR from the end of the 1940s to the recent Perestroika time. Although in the 1920s and 1930s, almost every taxonomic publication contained at least a German, French, or English abstract (or an even longer overview), this tradition was broken; and even after the end of the Soviet Union it was not restored in full. For example, many significant books and papers are still written only in Russian. Moreover, I know that in the last decade, several journals have started to insist on Russian only publications again.

The book I am reviewing here is no exception to this recent tradition. Despite its fundamental scope, it is written solely in Russian and contains only a short English abstract and table of contents. Whatever criticism might be made of this work, the idea of reviewing the whole history of systematics (in almost 700 pages) is worthy of careful attention. English translation would be much more valuable than a detailed review, and so I provide here only a brief summary of the contents, to introduce this valuable book to a wider audience.

The objective of the book is a historical description of the development of taxonomy. One of the primary goals is to trace the main concepts and explain their relations in a broader historical and philosophical context. Therefore, most of the book chapters are organized in a historical sequence. It is important to note that the first author, Igor Yakovlevich Pavlinov (mostly known as a mammalogist, specializing in rodents), solely wrote almost 90% of the book, and only Chapter 7 is the work of entomologist Georgiy Yuriyevich Lyubarsky. This latter chapter is quite distinct from all the others, and in my opinion, there are actually 2 separate books within 1 cover.

The book's summary reads (slightly modified):

> The history of the core theoretical concepts of biological systematics from antiquity to the present. Characterized by the following major periods: folk taxonomy, scholastic stage, age of herbalists, scientific "classic" classification from the middle of the 18th to the middle of the 20th century, and "non-classical" systematics (second half of the 20th century). More detail of the pre-requisites for the formation of systematics in the context of science during the 15–17th centuries. The formation and theoretical content of the following major trends and schools of biological taxonomy: the scholastic, empirical (phenetic and numerical taxonomy, phenomenology), typological (classical typology of Cuvier and Goethe, neotypology, empirical and evolutionary typology), evolutionary (phylogeny and classical cladistics, evolutionary taxonomy, population systematics and biosystematics), ecomorphological (biomorphic), and rational (including biological structuralism, periodic systems, epistemic rationality). Summary of the main concepts and terms of taxonomy (cognitive situation, classification, taxon, type, homology, feature, similarity, affinity, weighting).

The "Introduction" chapter deals with basic definitions and concepts that are used throughout the remainder of the book. One important point is the distinction between systematics and taxonomy: Pavlinov prefers to regard taxonomy as a theoretical part of systematics dealing with different biological classifications, similar to the conception of Simpson (1961). Another important distinction is that of "classical" versus "nonclassical" science. The concept of nonclassical, "multilevel," or "pluralistic" science is actively promoted by Pavlinov (2006), as the author is trying to emphasize that taxonomic research will benefit from the acceptance of multiple approaches (e.g., cladistics and evolutionary taxonomy).

From the second chapter, the main historical sequence is followed (Chapter 2: "Folk taxonomy"; Chapter 3: "Protosystematics and the beginning of scientific taxon-

omy"; Chapter 4: "Maturation of scientific taxonomy"; Chapter 5: "The Twentieth century: the fragmentation of ideas"). More than one-third of the text is concerned with pre-Darwinian taxonomy. The nonclassic science approach allows Pavlinov to present most of the milestones from the history of systematics as if all these concepts are still contemporary. In my opinion, this is one of the most valuable things in the book: it separates the author's view from the common view of the old concepts as obsolete or even wrong. In due course, Pavlinov elucidates both "Western" and "Eastern" concepts in systematics, which makes this historical review the ultimate reference for Russian taxonomic thought.

Chapter 6 ("Development of the conceptual framework") is different. Here, Pavlinov tries to describe taxonomic history conceptwise. He lists all the key concepts, like "taxon," "species," "similarity," and "relationships" and discusses both their historical and their methodological aspects. Again, his goal is to be as neutral as possible, and therefore this chapter may serve as an encyclopedia of taxonomic terminology.

As already noted, the very last chapter, "Another history: The creation of plants, botany and systematics" by Lyubarsky, stands apart from the strictly logical sequence of the main book. The second author maintains his own opinion and explores here the "alternative history" of natural sciences in general. In order to find other possible routes of science development, he emphasizes the role of Paracelsus (usually regarded as the first systematic botanist) and his school. Lyubarsky states that several scientists of later times (at least partly) inherit Paracelsus' tradition and therefore are relics of the "other science" that never developed to the level of a "true" or mainstream science. In all, this chapter looks more like a separate historical essay and probably could be published separately.

The book as a whole contains a hyperconcentrated amount of information (it has more than 1600 references), and therefore English translation would be very valuable. I would welcome any effort toward a proper translation of *Biological Systematics: Evolution of Ideas*. The scope of the book, the number of reviewed references, and its nonclassic position make this work almost unique in taxonomic literature, and I believe that English-language readers will agree with me when they get to see it for themselves.

References

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