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*Mathematics of the 19<sup>th</sup> Century. Mathematical Logic - Algebra -  
Number Theory - Probability Theory*, 2<sup>nd</sup> revised edition

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## REVIEW

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This book was originally published in 1978 in Russian. This second and revised edition coincides to a very large extent with the 1978 one. The quarter of century that has passed since the first publication of this book drastically changed the style and even the nature of the history of science (history of mathematics and logic included) in Russia today. These conceptual shifts were already evident in the mid to late 1980s. Until the mid 1980s, the history of science studies in the USSR dealt only with the history of scientific ideas, putting aside both the social and political milieu, as well as the personal features of the scholar who generated these ideas. When the ‘perestroika’ period started in the mid 1980s, the picture of the development of ideas essentially expanded: the social and political milieu proved to be an important factor for the growth of ideas, as well as personal features of scholars. Briefly, external aspects—despite the fact that in the USSR Marxist-Leninist ideology which insisted upon the socio-political determination of science, an approach toward science founded by B.M. Gessen, a well known Soviet historian of physics,—were intentionally avoided by Soviet historians of science for it was not safe enough in the USSR to be concerned with something different than ‘pure’ ideas. The Soviet history of science restricted itself to an internal approach.

The book under review is written precisely in this spirit. Mathematicians in the book exist as though in airless space; their ideas have been hatching and developing within themselves. That’s why, from the standpoint of the modern style of the history of science, this book is outdated. Nevertheless, it provides a skillful (but concise) description

of the ideas that flow in mathematical logic, algebra, theory of numbers, and theory of probability (the development of mathematical logic is presented in chapter One).

The chapter on mathematical logic (pp. 1-34) was written by Z.A. Kuzicheva, a skilled researcher from Moscow State University (born in the early 1930s). Some years ago she published a much more detailed paper covering the same period [1], though from a traditional (internal) point of view.

In the latest English edition she deals with the history of logic since antiquity (antiquity and the middle ages are described in a couple of pages).

Much more comprehensive is the analysis of Leibniz's ideas—the author relies to some extent upon the works of L. Couturat, G. Ploucquet, J.H. Lambert, A. De Morgan, J. Boole, W.S. Jevons (along with his logical machine), J. Venn, E. Schröder, and P.S. Poretsky. The author only mentions I.V. Sleshinsky, E.L. Bunitsky, and S.O. Shatunovsky.

Very important figures in mathematical logic such as C.S. Peirce, J. Peano and G. Frege are scarcely mentioned (Peirce and Frege are mentioned twice, Peano—only once).

In summary, the chapter “Mathematical Logic”, gives a quite superficial and, to a large extent, outdated panorama of the development of logical ideas. Nevertheless, it is enough for someone who has just begun to ramble through the history of mathematical logic.

I must express regret that the contemporary histories of logic and of mathematics in Russia are (almost) unknown in the West. Although the author of this review has published some texts in the West, his main (latest) books [2, 3] are in Russian. The work of B.V. Biryukov [5,6] or V.I. Kobzar [7], for example, are not known to their Western colleagues.

## REFERENCES

- [1] Kuzicheva, Z.A., “The Making and Development of Mathematical Logic”, in: Gnedenko B.V. ed., *Essays in the History of Mathematics*, Moscow: Moscow University press, 1997, pp. 339- 422 (Russian).
- [2] Bazhanov, V.A., *The Interrupted Flight. History of University Philosophy and Logic in Russia*, Moscow: Moscow University Press, 1995 (Russian).
- [3] Bazhanov, V.A., *Essays on the Social History of Logic in Russia*, Simbirsk-Ulyanovsk: Mid Volga Research Center, 2002 (Russian).
- [4] Bazhanov, V.A. “P.S. Poretsky as Logician and Scientist. New Documents”, in: *Continual Algebraic Logics and Neuralinformatics in Science and Technology*, Ulyanovsk: ULSTU press, 2003, pp. 5-11 (Russian).

- [5] Biryukov, B.V., Turovtseva, A.Yu., “Logical and Epistemological Views of E. Schröder”, in: Gorsky D.P. ed., *Cybernetics and Logic*, Moscow: Nauka, 1978, pp. 153-253 (Russian).
- [6] Biryukov, B.V., Biryukova, L.G. “On the Making of Constructive Mathematics: Contribution by H. and R. Grassman”, in: Biryukov B.V. and Spirkin A.G. (eds), *Research on Logic of Science*, Moscow: Nauka, 1990, pp. 172-186 (Russian).
- [7] Kobzar, V.I. “The Department of Logic at St.-Petersburg University”, *Veche*, 1996, n. 7, pp. 56-76.

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