

**O przekonaniach leżących u źródeł matematyki**

**On convictions lying at the sources of mathematics**

SUMMARY

Convictions rather than looking for foundations determine the development of mathematics. Since the antiquity up to the last centuries the conviction that continuum cannot be composed of point, and that infinite objects cannot be included into mathematical reasoning, limited the creation of mathematical concepts. These restrictions were completed by claims of positive character, the most famous one of which is the Archimedes' postulate. The restrictions mentioned above had their sources in the paradoxes of Zeno. Newton added to the canon of Euclidean geometry the notions of time and motion, assuming about motion – or more generally – about change, that the intensity of change determines the quantity of change. This postulate was an echo of old scholastic, or even older – Democritus' concepts. It was transformed into the fundamental theorem of analysis. Till the seventeenth century mathematics developed according to the metaphysical beliefs mentioned above. Let us complete the list of such beliefs with the postulate of Euclid concerning the parallels, which was treated by Gauss in nineteenth century as a statement of a physical character, or even as a metaphysical one, as was claimed by Kant. The situation changed rapidly in the second half of the nineteenth century, when – as a result of efforts made by Cauchy, Bolzano, Dedekind and Cantor – mathematics was subdued to arithmetic and to the theory of sets – a discipline non-existent in mathematics before. The metaphysical background of this new mathematics was not so clear as before. What became important was the problem of applicability of mathematics.

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