

**YURI IVANOVICH MANIN,  
AN EXTRAORDINARY MATHEMATICIAN**

ABSTRACT. Yuri Manin not only made seminal contributions to a broad array of abstract mathematics and theoretical physics, he also brought his intellectual prowess to bear on a wide range of humanistic endeavors. In the following review W.T. Gowers discusses Manin’s book, *Mathematics as Metaphor*.

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**Manin, Yuri I.**

**Mathematics as metaphor.**

Selected essays of Yuri I. Manin. With a foreword by Freeman J. Dyson.

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Yuri Manin is known as one of the world’s top mathematicians, and also as an extraordinarily broad mathematician, with important work in areas ranging from number theory and algebraic geometry to differential equations and theoretical physics. However, as this collection of his essays amply demonstrates, to describe him as a broad mathematician is to fail to do justice to his even greater breadth as an intellectual. He reads like a mathematician/scientist and a humanities professor rolled into one, at one moment giving a detailed exposition of Gödel’s theorem, at another giving an outline of quantum mechanics, and at yet another speculating very interestingly about the origins of language. He is just as comfortable referring to thinkers such as Lévi-Strauss, Freud, Jung, Fromm, Bakhtin, or Jacobson as he is referring to Cantor, Hilbert, Einstein, Gödel, Grothendieck, or Atiyah (to give far from complete lists), and it is clear from what he writes that he is not just dropping names.

The book is divided into three main sections, entitled “Mathematics as Metaphor”, “Mathematics and Physics”, and “Language, Consciousness, Book Reviews”. One common thread that runs through the diverse topics discussed is Manin’s deep interest in language. Some of the essays in the third section are explicitly about language, but language plays an important part in the mathematical essays as well, which are mainly about logic and the cultural practice of mathematics. For example, his discussion of Gödel’s theorem contains, as it must, a description of a formal language of mathematics, and it seems very likely that it is this aspect of the theorem, as much as its philosophical significance, that appeals to him. And in his writings about mathematics and physics, he continually discusses how the insights of these two subjects are communicated.

At the beginning of the third section is the essay that is furthest towards the humanities side. It is entitled “The Mythological Trickster: A Study in Psychology and Culture Theory”. Mathematicians unused to this kind of writing may find themselves bewildered by sentences such as these: “Juvenility is at the core of the trickster complex. In the phylogenetic aspect this means a reference to the early period of neoanthropus formation; in the ontogenetic aspect, to the period of

youth.” Just why Manin should be interested in what he calls the Trickster figure becomes much clearer in the subsequent essay, “On Early Development of Speech and Consciousness (Phylogeny)”. I would recommend reading that one first. (In fact, there is considerable overlap between the two.) These two essays repay careful reading, because in them Manin puts forward a theory about the very early development of language—long before the eras we can to some extent reach using evidence from archaeology and historical linguistics—which, though necessarily speculative, is surprisingly plausible, or at least highly thought-provoking. Very briefly, his thesis is that in the early days of language there were some people who specialized in being unusually articulate; these people, Manin’s tricksters, were able to play with language in a way that was crucial to its development and increasing abstraction.

The last entry in the book is an interview that Manin gave in 1998. It is always interesting to hear what mathematicians of his calibre have to say about what their mathematical preferences are and why, and this essay may be where many people will want to start reading. It is to be hoped that they will continue, as to do so is to see a remarkable mind at work.

W. T. GOWERS

#### ABOUT THE REVIEWER

Sir William Timothy Gowers, FRS (Fellow of the Royal Society), is a British mathematician. He is Professeur titulaire of the Combinatorics chair at the Collège de France, director of research at the University of Cambridge, and Fellow of Trinity College, Cambridge.