John L. Bell: A biographical note

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Born in 1945, John Lane Bell grew up in California and was early recognised as a prodigy child, who in a commutative Platonic realm is also a child prodigy. At the age of 13 he moved to England and at 15 he was awarded a scholarship. As a student at the University of Oxford, his main interests focused on logic and set theory and he gave courses on both subjects, from 1965, three years before achieving his PhD in mathematics in 1968, with John Crossley as supervisor. For 21 «local» years (1968-1989) he taught, as Lecturer and Reader, at the London School of Economics and Political Science.

His first book, *Models and Ultraproducts* (1969)*,* written with Alan Slomson, has been a reference book for anyone approaching model theory. His handbook of logic (*A Course in Mathematical Logic*, written with Moshé Machover), published in 1977, reached its fourth edition in 2003 its fourth edition. Since 1989, Bell has been Professor of Philosophy at the University of Western Ontario. In 2009 he was elected as Fellow of the Royal Society of Canada.

It is a macrophysical confirmation of Bell's intellectual generosity and contagious enthusiasm that so many prominent researchers and scholars in American and European universities have been among his former students.

From his initial investigations in logic, set theory and algebra Bell broadened his area of research by considering the logical and philosophical aspects of category theory ("From absolute to local mathematics", 1986) and, more specifically, of topos theory. After showing how the principles of a constructive set theory can be expressed in the "internal language" of a topos (*Toposes and local set theories,* 1988), he presented infinitesimal analysis in autonomous form with respect to the category-theoretic background (*A primer of infinitesimal analysis,* 1998) and reconsidered the classical issues related to the axiom of choice (*The Axiom of Choice*, 2009) in a new light, before choosing to provide a systematic framework for the intuitionistic notion of set (*Intuitionistic Set Theory*, 2013).

In addition to a long list of research papers in mathematics, and many reviews and critical essays, the range of topics on which Bell focused his attention covers conceptual and foundational issues in mathematics, notably the notions of continuous and discrete, as well as aspects of the history of mathematics, the relationship between logic and physics, and the way philosophy manifests itself in literature.

Bell is not only one of the greatest logicians of our time, but he is also one the most gifted in the art of writing, as witnessed by the success of his introductory texts, many of which were originally written as lecture notes: their essential clarity is an exemplar of the Attic style. More generally, Bell's works are a rare example of how rigour and sophisticated elegance can coexist. Traits of his personality emerge in the autobiography, confined (for now) to his first thirty years (*Perpetual Motion*, 2010) as well as in his poems (yet unpublished).

A collection of essays in his honour appeared in 2011 (*Logic, Mathematics, Philosophy,* edited by Daniel DeVidi, Michael Hallett and Peter Clark). This book also includes a contributed paper, "Inscrutable harmonies" by J. Bennhall, revealing Bell's views about the link between mathematics and music. An intuitionistic proof of the existence of this link is yet to be found.