Alejandro R. Garciadiego. *Bertrand Russell and the Origins of the Set-theoretic 'Paradoxes'*. Basel/Boston/Berlin, Birkhäuser Verlag, 1992.

Reviewed by

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A central feature in the history of 20th century mathematical logic is Bertrand Russell's discovery of the paradox named for him. It is central for two reasons. One is that the existence of paradoxes in naive set theory is responsible for the form of the two most influential foundational accounts of mathematics in the 20th century, Russell's own type theory and Zermelo's set theory (both published in 1908). The other is that the need for foundational studies of mathematics at all has often been attributed, by both mathematicians and historians, to a crisis in mathematics caused by discovery of the paradoxes. Recent historians have raised doubt about the existence of this "crisis" or its influence on the foundational work that was done.

Certainly in Russell's own foundational work it was a crisis. It is commonplace to say that Russell's communication to Frege that the system of the *Grundgesetze* [Frege *1893*] is infected by Russell's paradox was a devastating blow to Frege. What is less often remarked is that it was also a devastating blow to Russell. His discovery of what he called simply "the contradiction" came in the midst of a three year struggle to formulate his logicism in *Principles of Mathematics* [Russell 1903]. It left him at the end of that struggle forced to "confess" that he had no adequate concept of *class*, one of the "indefinable notions" on which his logicism was to rest. In his "Preface" [Russell *1903*, xv--xvi] he says,

> In the case of classes, I must confess, I have failed to perceive any concept fulfilling the conditions requisite for the notion of *class*. And the contradiction discussed in Chapter X proves that something is amiss, but what this is I have hitherto failed to discover.