QUATERNIONS AND SPACE-TIME

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A Review of Noel Curran, *The Philosophy of Mathematics and Natural Laws: Another Copernican Revolution*. Aldershot (U.K.): Ashgate, 1997. Pp. ix + 208. GBP 37.50 HB.

In this book Noel Curran suggests that considerations in the philosophy of mathematics—in particular, the proper interpretation of quaternions—leads to a "new" philosophy of space and time. According to Curran: space is Euclidean; time is absolute, flows and has a beginning; and God created the universe at the beginning of time.

Unfortunately, I can find little of merit in this work. The book is riddled with errors and confusions. To give but a few examples: (i) true propositions are continually conflated with axioms (although Curran reserves the word 'proposition' for a spoken sentence) (e.g. pp. 19, 25–26 and 93); (ii) the author seems to confuse paraconsistent logic with bivalent logic (e.g. pp. 11, 15, 19 and 171–72); (iii) we are told on page 21 that sets of the same cardinality are equal; (iv) we are also told that the commutivity of multiplication is a "fundamental axiom of axiomatic set theory" (p. 24); (v) Curran even suggests that the real numbers are countable (p. 37)! I could go on, but I think you get the picture. Moreover, various conclusions in the book are ill-supported. For example, we are told that it is "unsatisfactory" to consider points along a line as constituting a set (p. 21), but we are given no indication as to why we ought to accept this odd and extremely controversial conclusion.

The book is also rather poorly written—it is both confusing and repetitive. The reader is constantly trying to guess what Curran means, either because what he is apparently saying is clearly false (as with the previously-mentioned claim about the real numbers being countable) or, more commonly, because his confusing expression leaves it entirely unclear what is intended (as with the claim that "there are important branches of mathematics where the equations are not equal" (pp. 14–15)). Curran's tendency to repeat whole sections (most notably the consecutive sections on Frege's 'On Sense and Reference' pp. 1–15 and pp.16–20) is also very distracting.

Finally, the work fails to engage with the relevant contemporary literature. This is not so serious in and of itself, but Curran proceeds to draw unwarrantedly broad conclusions from his apparently limited research. For example, he suggests that since Frege and Husserl wrote only on the philosophy of arithmetic, there is no philosophy of algebra or geometry (p. 27).

All of the above shortcomings I found distracting to the point of making an assessment of the cogency of the main theses of the book extremely difficult and, unfortunately, somewhat irrelevant. In short, I am unable to recommend this book to anyone interested in either the philosophy of mathematics or the philosophy of physics.