BOOK REVIEW

Matthias Schirn (ed.) *Frege: Importance and Legacy*, Perspektiven der Analytischen Philosophie/Perspectives in Analytic Philosophy, Band 13 (Berlin & New York, De Gruyter, 1996), pp. x + 466, ISBN 3-11-015054-9

Matthias Schirn (ed.) *The Philosophy of Mathematics Today* (Oxford, Clarendon Press, 1998) pp. xii + 638, ISBN 0-19-823654-9

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Both these collections originated in two very successful colloquia held in Munich, in 1991 and 1993, organised by the editor, the indefatigable Matthias Schirn. In the time that has elapsed between the colloquia and the publication of these volumes a few of the papers included have already been published elsewhere.[1] Nonetheless, it should be said immediately that both volumes are indispensable resources for any serious student of Frege and/or the philosophy of mathematics.

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[1] In the case of *Frege: Importance and Legacy*, four of the sixteen articles, those by Bob Hale & Crispin Wright, George Boolos, Michael Dummett, and Tyler Burge. In the case of *The Philosophy of Mathematics Today*, three of the twenty articles, those by Paul Benacerraf, Hartry Field, and Bob Hale.

Frege: Importance and Legacy contains original and important articles on all aspects of Frege's work by leading scholars in the field. In the space available, I cannot even mention, much less discuss, all the interesting ideas to be found here. But of particular interest are the articles by Gottfried Gabriel ("Frege's 'Epistemology in Disguise'"), Eva Picardi ("Frege's Anti-Psychologism"), and Tyler Burge ("Frege on Knowing the Third Realm"), which address an aspect of Frege's thought that has attracted less attention than his logic and philosophy of mathematics. The editor also contributes a substantial preface, which contains a very interesting discussion of another aspect of Frege's thought which has been somewhat neglected, viz., his views on geometry. Yet, as Schirn demonstrates, we do well not to ignore Frege's views on this subject. It should not be forgotten that Frege began his philosophical career with investigations in geometry, and at the very end of it, after admitting the complete failure of his attempt to provide logical foundations for arithmetic, it was to geometry that he returned in his efforts to find a new and better foundation. A proper understanding of Frege's view of geometry is also essential for the much discussed question of his relation to the neo-Kantian tradition.

The Philosophy of Mathematics Today, as its title suggests, provides an accurate picture of the preoccupations which are at the centre of mainstream philosophy of mathematics, with contributions by most of the leading figures in the field. If you want to get an idea what issues are central to contemporary debate in this area, then this is certainly the book to read. Once again, it is impossible to summarise the richness of many interesting new ideas that are to be found in this volume. I will limit myself to making a few comments. Firstly, it is noteworthy that the "maverick" tradition in twentieth century philosophy

of mathematics[2], which originates in the work of Imré Lakatos (cf. Lakatos (1976)), is not represented in this collection. This tradition is characterised: (1), by an emphasis on the fact that mathematics is a historical phenomenon, and that an adequate philosophy of mathematics must account for the fact that mathematical knowledge is not something static, but grows, and: (2), a hostility to equating mathematics with completely rigorous, formalised mathematics. The perspective to which the maverick tradition is opposed is epitomised in Russell's claim that "there probably did not exist, in the eighteenth century, any single logically correct piece of mathematical reasoning, that is to say, any reasoning which correctly deduced its result from the explicit premisses laid down by the author." (Russell (1937), p. 457). How curious, then, Lakatos and his fellow mavericks would remark, that eighteenth century mathematicians succeeded in adding so much to the stock of mathematical knowledge. Although Aspray and Kitcher see this maverick tradition as beginning with Lakatos, who has undoubtedly been very important in challenging the mainstream tradition, the later Wittgenstein is, or at least ought to be, equally important.

Secondly, some important figures who wrote extensively on the philosophy of mathematics are not discussed. Perhaps the most notable omissions are Husserl, whose profound and original ideas in this area are only slowly beginning to be properly understood in the Anglo-American philosophical

[2] The phrase is William Aspray and Philip Kitcher's, in the "Opinionated Introduction" to their collection *History and Philosophy of Modern Mathematics* (Aspray & Kitcher (1988), p. 17).

scene, and, once again, Wittgenstein, whose voluminous writings on mathematics still remain largely a closed book.[3]

Finally, I would like to draw attention to a discussion which figures in both volumes. In 1973 the *doyen* of contemporary Frege scholars, Michael Dummett, threw down the gauntlet when he observed that "[Frege's] work in the philosophy of mathematics appears to a certain extent archaic" ((1981), p. xxxiv). Since he wrote those words one of the most interesting developments in the philosophy of mathematics has been precisely an attempt to revive two of Frege's fundamental theses about mathematics, his platonism and his logicism (although, of course, in a weaker form than that envisaged in Frege's *Grundlagen* and *Grundgesetze*). This neo-Fregean programme largely originates in the work of Crispin Wright, in his monograph of 1983, *Frege's Conception of Numbers as Objects* (Wright (1983)). Both these volumes contain important contributions to the debates which this project has generated, not least two papers by Dummett himself. In his exchange with Crispin Wright in *The Philosophy of Mathematics Today* Dummett observes "Wright and I differ in that he believes that Frege's attempt [to provide a sure foundation for arithmetic] essentially succeeded, whereas I think that it failed" (Dummett (1998), p. 370). But even if Dummett is ultimately proved right in his negative verdict on these neo-Fregean proposals, his earlier charge of archaism seems to have been decisively refuted by central and very fruitful role that this debate concerning key Fregean ideas has occupied in recent philosophy of mathematics.

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[3] Two notable recent contributions to the difficult task of making sense of what Wittgenstein had to say in this area, and deciding whether what he said was true or not, are Frascolla (1994) and Marion (1998).

As well as those by Dummett and Wright, both volumes contain important contributions to these neo-Fregean debates by George Boolos, who carried out some brilliant formal investigations of Frege's *Grundlagen* and *Grundgesetze* the results of which are fundamental to evaluating the viability of neo-Fregean logicism.[4] His tragically premature death in 1996 was an irreparable loss to the philosophical community, and it is fitting that *Frege: Importance and Legacy* is dedicated to his memory.

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[4] The key papers are reprinted in William Demopoulos (ed.) *Frege's Philosophy of Mathematics* (Demopoulos (1995)), and in Boolos's collected papers, *Logic, Logic and Logic* (Boolos (1998)).

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