

Logique & Analyse 214 (2011), 317–320

BOOK REVIEW

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Whitehead. *The Algebra of Metaphysics*

R. DESMET & M. WEBER (Eds)

Les éditions Chromatika, Louvain-la-Neuve, 2010

376 pp. ISBN 978-2-930517-08-7, € 40 (paperback)

Is it a formalist, a logicist, a structuralist, an intuitionist, an empiricist or even a realist? Well, all of these and more. It's Alfred North Whitehead, a fundamental thinker of outstanding calibre, remarkable finesse and extraordinary versatility. Not far from a century after his most productive period, the philosophical community is still struggling to come to terms with his enormous legacy as a philosopher of mathematics and physics. Past the stereotypes, that is, the most famous of which no doubt concerns the identification of Whitehead as a philosopher of mathematics with *Principia Mathematica*, a logicist response to the set theoretical antinomies conceived by its co-author Bertrand Russell. The nicely edited volume under consideration contributes to that general goal in a most elegant and effective way. Rather than pretending to do full justice to all parts of the reader, a general appreciation will be aimed at through a personal reading.

The volume sets out with insightful complementary reading guides to the whole of the Whitehead corpus by co-editor Michel Weber (I) and Randall E. Auxier (II). After giving a view on legacy and contemporary studies, Weber focuses on what for him is the leading idea of Whitehead scholarship: maintaining a delicate equilibrium between the rational requirements of coherence and consistency (whereby the former outweighs the latter) and the empirical requirements of applicability and adequacy, the unity or "fouring" of which is sealed by a Kantian-like categorial of necessity. He then goes on to specify the question of this volume as a search for the categorial conditions for scholars to "be not only convinced but also persuaded of the virtues (rather than the vices) of Whiteheadian process thought" (p. 51), pointing out that "persuasion strikes when rational and empirical conviction merge" (p. 53).

Auxier in his turn addresses the obvious difficulties in grasping Whitehead's writings. Their terminology should be understood organically and hermeneutically, he explains, each occurrence refining and thus complementing all previous ones throughout a work (without there necessarily being a similar correspondence between different contexts however!): "The introduction of a new term, never undertaken lightly by Whitehead, is just the beginning of a process of getting it to do the work he has in mind for it" (p. 63). This also has the consequence that grasping one term requires an understanding of all others, and one passage an understanding of the entire work. Another apparent feature of Whiteheadian discourse, adding to its intricacy, is that it operates at different levels of abstraction or generality at once. Auxier shows this for the magnum opus, *Process and Reality*, "but the pattern is the same in every book, and even in the essays" (p. 75). In summary, if there is to be named one secret key to the unraveling of this corpus, it seems to be patience. Fortunately, in philosophy, where for Whiteheadians before all the profoundness of our human understanding of things is what counts, we are not — or at least should not be — in a hurry, *pace* the risk of missing scoops and thus being overlooked (see also below, on IV).

With reference to the extreme difficulty of pinpointing Whitehead as a philosopher of mathematics alluded to at the very outset of this text, co-editor Ronny Desmet makes a strong case for the "structuralist" label (III). Although indeed there are reasons to characterize Whitehead otherwise, Desmet claims, even these reasons cannot be understood "without understanding that his ultimate drive was the drive to unify the mathematical structures underlying the analogical reasonings that constitute the art of physics, an art which his Cambridge training [from 1880] impressed upon him" (p. 121). A particular role for the lecturers Edward Routh and William Davidson Niven is reserved in this respect, for it is argued to have been mainly their conviction, that "analogical application of common mathematical techniques across mathematical physics is the appropriate method, not only to solve a variety of problems in mathematical physics as an undergraduate and graduate student, but also as a researcher after graduation" (p. 92), that had a deep and lasting influence on Whitehead.

Back to the aforementioned stereotypes, which in view of the complexity of Whitehead's thought are indeed to be understood, if not condoned. In a lengthy and central insertion (IV), again Ronny Desmet, who through selections from his doctoral research furnished nearly half of the material published here, concentrates on another of those powerful stereotypes, one also instilled on us by Bertrand Russell, one time pupil, colleague and quite intimate friend of Whitehead's. Exploiting Whitehead's correspondence with Russell (unfortunately only the part of which addressed to the latter has been

preserved), Desmet manages to show that contrary to what Russell would have us believe in *Portraits from Memory* and *My Philosophical Development*, there was no real philosophical turn in Whitehead, culminating in an end to their collaboration, but that right from the start there were inherent differences, which were however initially overshadowed by similarities, and thus only gradually became dominant. On the basis of Whitehead's letters to Russell, Desmet documents several of these, including differences about the role of geometry and logic (discussing Poincaré's criticism of Russell's early geometry, 1899, as well as his attack on logicism, 1905–6) and about the nature of facts and truth (at the occasion of James's *Pragmatism*, 1908). All this refutes Russell's bold claim that Whitehead moved to America to plunge into Kantian idealism after the death of his son Eric during the First World War, issuing in their philosophical departure.

Strikingly, the Whitehead-Russell correspondence also lays bare a divergence in style next to content. Desmet: "Russell is an intellectual athlete, who flourishes amid controversy and polemic, and who impresses friend and foe with his lightening mind, whereas Whitehead is an intellectual ruminant, who grows by assimilation and synthesis, and whose philosophical digestion impresses rather by thoroughness than by speed" (p. 185). Differences in content and style having smouldered beneath the surface for a long time, the immediate cause of the rupture came early 1917, when in a most touching episode, Whitehead refused to send Russell his personal notes for the envisaged fourth volume of *Principia Mathematica*, as his emerging ideas had not grown to full maturity yet, thus for fear of their being misused. Actually at stake here is the very essence of philosophical inquiry, a theme picked up again by Desmet in beautiful coda to this contribution.

Ivor Grattan-Guinness, arguably the most distinguished historian of mathematics alive, in his contribution (VI) documents one of the marked consequences of Whitehead's sudden career switch in 1910, when moving from Cambridge to London, in search of a more varied life in the big city. For despite the fact that he had already been a lecturer for the twenty years before that, this change of air apparently first aroused in him a desire to write about mathematical education. Whitehead defended a liberal approach to education, referring back to the medieval trivium and quadrivium, aimed at both very technical or practical and more worldly, social skills. In the few essays he produced about this topic, which illustrate some of his known philosophical concerns without however having aroused much response, he pondered on the importance of geometry (over algebra), the modest place of logic, mathematical certainty as demonstrated by the axioms, and lively teaching.

In an afterthought, Grattan-Guinness interestingly explores a line of influence from J.F. Herbart.

Approaching the end of this modest review article, I must confess to have mainly focussed here on pieces with a bearing on the philosophy of mathematics, and to have skipped over a number of (mostly briefer) contributions to the volume dealing with issues in metaphysics (subject vs object), psychology (consciousness), politics (*Weltanschauung*) or physics (relativity). This should however not in the least be taken as an implicit hint to ignore them, so the reader is as much invited to inspect these as highlighted papers. All in all, this entire volume should be warmly embraced as another substantial step in the direction of a more nuanced and thus complete understanding of Whitehead as a process thinker, both for experts in fields covered and philosophers in general.

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