Presenting the purpose and contents of this enormous book is no simple matter: Gyburg Radke has rather complex philosophical motives and an unusual methodology which require explaining and which also constitute, I think, the most problematic aspect of her book. Neither the title nor the subtitle of the book mean what the reader might, at first glance, expect: this book is not a historical presentation of the concepts of number that can be found in the works of various Platonist philosophers, nor is it a manual to be consulted (or given to students) which synthesizes the main results of modern research in the field. I shall first characterize briefly what I think is intended by the title and subtitle of the book, suggesting thereby something of its contents and passing then to a more detailed discussion of these contents. The ‘theory of number in Platonism’ that is presented is in essence a speculative development by R. of a system of doctrines concerning the objects of arithmetic, with its epistemological foundations, a system which she takes to be present in and exemplified by the works of Plato, Aristotle, Pythagoreans, Neopythagoreans and Neoplatonists. ‘Platonism’, from the point of view of this book, is thus taken to refer to almost one thousand years of Platonic, Aristotelian, Pythagorean, Neoplatonic philosophy, treated as if constituting one tradition. The ‘theory of number’ is the system illustrated by this ‘tradition’. And the book is a ‘Lehrbuch’ in the sense that it is a systematic exposition of the structure of the objects of arithmetic, an exposition based on epistemological foundations.1 If this might give a first impression of the contents of this book, the reader (in particular the reader of this journal) will wonder if the book is a work of philosophy, in which historical matters are appropriated so as to serve the interests of a system, or if it is a work about the history of the philosophy of arithmetic in Antiquity. These questions raise basic methodological issues which I wish to develop in the following more detailed analysis of the book.

The book falls into two main parts, Part I (‘Der Forschungsstand zum Konzept der Artes liberales’), and Part II, the systematic exposition (‘Die Wissenschaft von der Zahl’). Part I is preceded by an Introduction in which R. discusses the structure of Nicomachus of Gerasa’s Introductio arithmetica. It is one of R.’s aims to rehabilitate Nicomachus’ manual (cf. 768), often regarded as a second-rate compilation, by showing how it fits into the ‘theory of number of Platonism’. She comes back later in the book to the study of parts of the Introductio arithmetica (cf., for example, 363 ff.), but here Nicomachus’ division of the four mathematical sciences (arithmetic, geometry, music and astronomy)

1 R. indicates in several places her debt to the teaching and publications of Arbogast Schmitt.
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– the quadrivium in Boethius’ terminology – brings in the theme of the seven ‘liberal arts’ (trivium and quadrivium). In Part I (Forschungsstand), R. criticizes historical explanations of the nature and origin of the liberal arts curriculum of late Antiquity. She directs criticism more specifically against work by A. Dihle, W. Burkert and K. Gaiser. In such historical work, described as «worte-
geschichtliche» or «begriffsgeschichtliche Forschung», R. finds modern conceptual prejudices of an empiricist origin which get in the way of a true understanding of ‘Platonic’ theory. R.’s review of research is very idiosyncratic, being limited mostly to some German publications and taking little account of research dealing more directly with the matter covered in Part II: the objects and epistemology of arithmetic in Antiquity. This may be because this research, like that of Dihle and Burkert (cf. 25, 28, 201, for example), is assumed to be infected by similar blinding anti-Platonic prejudices. At any rate, the hermeneutical deficiencies of much modern research in the field means that for R. there can be little real discussion with modern research (cf. 200, 234), and a different approach has to be followed: that of the speculative exposition offered in Part II. In Part II, however, the theme of the curriculum of the seven liberal arts largely reduces to that of the ‘Platonic’ system of mathematical sciences.

Most historians, I imagine, will concede that their approach to ancient authors is conditioned by modern perspectives, categories and interests. But this does not prevent them from making the effort to attend to what is different in ancient thought, to try to let the ancient texts speak. The concession of hermeneutical presuppositions does not mean that all historians are blinded, by the same presuppositions, to the same extent. This problem does not mean, I think, that we must go to the opposite extreme, abandon historical methods, spin out our own ideas and then claim that this is what Platonists in Antiquity thought (I do not think that this is, in fact, what R. does: I return to her speculative method below). It seems to me R. confuses categories in opposing (15) historical phenomena to the systematic thought whereby Plato and Platonists developed their sciences: the development of a scientific system involves non-historical (perhaps deductive) methods, but to the extent that this is done by a person in history (Plato, say), it is itself a historical phenomenon. Unless, perhaps, such systems are thought not to belong to history, but to find themselves instantiated in Plato’s Academy or, more than six hundred years later, for example, in Iamblichus’ school in Syria. Such a view is taken by the philosophers R. cites most frequently in Part II, the later Neoplatonists, who found one (true) philosophy in Plato, in Pythagoreanism, in Aristotle (to some extent), revealed and handed down in a tradition going back to Homer. To the extent that R.’s work assumes such a uniform philosophy going from pre-Platonic Pythagoreanism, unifying Plato and Aristotle and extending to late Neoplatonism,1 it goes against the general

1 Cf., for example, 27, 31. Symptomatic of this are: the descriptions of Apuleius and of Pappus as Neoplatonists (473, 493), the assumption that the communis mathematica scien-
tia of Iamblichus’ book goes back to Plato (cf. 15, 194n., 236; no account is taken of L. Napolitano Valditara, Le idee, i numeri, l’ordine, Naples 1988), the adoption of a Neopla-
tonic reading of the Parmenides (it is misleading to suggest that this is anything other than a minority view in modern research, cf. 92, 612); the assumption that Nicomachus’ theory
approach of historians of philosophy who see Aristotle as reacting critically to Plato on major issues (for example, on the issues of the ontological status of mathematical objects, cf. 312–313), who see Neoplatonism as a reinterpretation of Plato selectively integrating Aristotelian and Stoic ideas, a reinterpretation which itself evolved due to the new contributions of Iamblichus, for example, and Proclus. The flattening out, through uniformisation, of a variety of (sometimes conflicting) theories into one ‘tradition’ has also the effect of somewhat simplified and forced contrasts with what is supposed to be the opposing, empirical, Stoic tradition. Thus, for example, R.’s description of Stoic freedom (cf. 139, 183, 188–9, 191–2), insisting that it is a purely abstract and formal exercise of the will, without content, an abstract «Wahlfreiheit», seems to me inadequate, since it ignores the dimension of freedom in Stoicism as the autonomous rule of reason, a rule which involves content, i.e. the rationality which orders the world.

If current historical methods are incapable of truly comprehending the ‘theory of number of Platonism’, how then is this theory to be grasped? In Part II of her book, R. provides what I have described above as a speculative development of a system of doctrines concerning the objects of arithmetic. Some of the materials for this are taken from Nicomachus’ *Introductio arithmetica* and many from later Neoplatonic commentaries, not only on Nicomachus (Iamblichus, Philoponus), but also on Euclid (Proclus), on Plato (in particular Proclus’ commentary on the *Parmenides*), on Aristotle (including Syrianus’ commentary on *Metaphysics* M and N), from Proclus’ *Platonic Theology*, and from other texts. It is fair to say, I think, that the system of doctrines developed by R. often corresponds to later Neoplatonists’ conceptions of the objects of arithmetic and their metaphysical principles. However, R.’s system of doctrines is selectively exemplified by these authors, rather than derived from any one of them. In the following I give some examples.

R. takes as her highest axiom of thinking the axiom «dass alles, was und sofern es gedacht wird, etwas Bestimmtes, von anderem Unterscheidbares ist» (256, cf. 243). If, however, we wish to know what later Neoplatonists themselves held to be the highest axioms of thought, we find, as the first axiom of the activity of thinking, the principle of non-contradiction (Syrianus, *In met.* 65, 16 ff. Kroll), and, as the first axiom concerning what is thought, the proposition that ‘the one, if it is one, is not many’ (Proclus, *Theol. plat.* II, 12, 66,1–8 Saffrey-Westenink). Similarly, in the interests of systematic thought, R. alters the account given in Nicomachus of the criteria distinguishing the four mathematical sciences when it comes to the distinction between geometry and astronomy (cf. 251–253) and furthermore does not consider how Nicomachus’ views on number in the *Introductio* may fit with those in his *Theologoumena arithmeticae*. Or, to give a third example, three methods for communicating knowledge mentioned in Proclus’ commentary on the *Timaeus* are given an interpretation (269ff.) which does not take account of an important chapter in Proclus’ *Platonic Theology* (I, 4, used,

of the objects of the mathematical sciences holds for ‘all’ Platonic texts on mathematical theory (251n.: one proof is given: Iamblichus’ commentary on Nicomachus).

1 For a more differentiated description see, for example, A. Voelke, *L’idée de volonté dans le stoïcisme*, Paris 1973.
however, later by R., 453ff.) which throws light on what Proclus himself means by these methods.

What governs R.’s systematic approach, as far as I can tell, is the claim that reflection on the conditions of the possibility of thought must arrive at ‘conceptual’ principles and distinctions (for example, that between the concepts of unity and plurality). These conceptual principles (‘begriffliche Prinzipien’) are not mere concepts (in the sense of pure abstractions, in an empiricist, nominalist sense, cf. 764), but relate to objective reality as it can be thought (cf. 387, 593[1]). Unfortunately, this epistemological theory is not adequately defined and supported, so that the reader is not clear as to what its hermeneutical status is. The word ‘begrifflich’ can easily be misunderstood in a nominalist sense. In R.’s translation of later Neoplatonic texts, the word is used to translate noêros or noêtos (cf. 636, 719). In later Neoplatonic epistemology, scientific thought, for example mathematics, may be provoked by the perception of sensible particulars (from which concepts can be abstracted), but its true objects are concepts in the soul which are not abstractions from sensation, but images of the ousiôdeis logoi whereby the divine Demiurge of the world constitutes soul and which are found also in a diminished expression in the forms of sensible particulars (cf. Syrianus, In met. 27.9 ff. Kroll, and the texts from Proclus cited by R. at 696, 754–5). Human reason thus can articulate these concepts in a system of truths to which the world roughly corresponds. This theory of science is part of an elaborate metaphysics which is characteristic of late Neoplatonism from the time of Iamblichus. However, R., rather than basing herself on this metaphysics, develops her system of ‘Begriffe’ as if it were a general epistemology, somehow transcending the historical specificities of later Neoplatonism.

In conclusion: if we are not to read this book as (implicitly) a work in the field of modern philosophy of mathematics arguing, not on the basis of debate with other contemporary work in the field, but by rethinking systematically ancient texts for the most part belonging to later Neoplatonism, then, as historians, we could read it as just such as systematic rethinking which might stimulate and widen our approach to ancient texts. R. shows theoretical daring and creativity in attempting this. She provides and translates many passages taken from a very wide range of late antique philosophical authors, some rarely cited by historians of ancient philosophy. However I feel that the historian who works on the specificities of a particular period, author, text, will need to use this book with caution. The book is relatively free of typographical errors and the translations of the passages cited are on the whole good. Some words have dropped out of the passage from Nicomachus cited at 358. The book is too long: cutting down on repetitions, summaries (which can be very extensive), digressions, additional notes and unwieldy footnotes would have made it more accessible.

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