
Jamblique. In Nicomachi arithmeticam. Introduction, texte critique, traduction française et notes de commentaire by Nicolas Vinel

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Reviewed by
Federico M. Petrucci
Scuola Normale Superiore, Pisa
federicofil@libero.it

The relationship between Plato and ancient Pythagoreanism remains a mystery. Yet, one can be quite sure that a strong interlacement of the Platonic tradition and a conscious Pythagorean inspiration (at least in attention to numbers and mathematics, and their applications in physics and metaphysics) characterized not only the Old Academy¹ but also Middle Platonism and Neoplatonism. The excellent book by Nicolas Vinel contributes to our knowledge of this fact by providing scholars with a very useful and careful edition of a (usually disregarded) work by Iamblichus, a Neoplatonist deeply interested in the Pythagorean tradition.

In the Old Academy, there was established a mathematical tradition that was grounded mainly in an arithmo-geometrical perspective. Although some of its elements were probably recovered to some extent and refashioned by Euclid,² the arithmo-geometrical core of this tradition was somehow left aside by the ‘major’ stream of Greek mathematics. Nonetheless, one can easily find its re-appearance in the Imperial age: for example, in the extensive work by Moderatus of Gades in the early first century AD, who gathered the opinions (ἀρέκοντα) of ‘Pythagoreans’ in 10 books, of which only a

¹ See [Burkert 1972](#) which demonstrates how far post-Platonic accounts on Pythagoreanism are influenced by Platonic and Academic elements. A different approach to the history of Pythagoreanism is now proposed by Phillip Horky in several contributions: see especially [Horky 2013](#). On the history of Pre-Platonic Pythagoreanism, see also [Centrone 1995](#) and [Huffman 2014](#). For a different perspective, see [Zhud 2012](#).

² Bernard Vitrac and Fabio Acerbi have in many works indicated the need to go beyond the traditional idea that Euclid’s *Elements* are only a *summa* of preceding discoveries.

few fragments remain, and in the writings by Nicomachus of Gerasa in the second.³ It has been demonstrated that the usual term for these authors, ‘Neopythagoreans’, is misleading since they do in fact work within the Platonic tradition [see [Centrone 2000](#)]. Nonetheless, they show a specific interest in mathematics and appeal explicitly to the Pythagorean tradition. This stream, moreover, provides an effective example of a widespread tendency of Imperial Platonism that consists in associating Plato with the Pythagorean tradition from a more general point of view. This is the case, for instance, with Numenius of Apamea [see [des Places 1973](#), fr. 24] and Plutarch’s *De E* ch. 7–16 (though this is not Plutarch’s own position, at least at the time that he wrote this work). Such a tendency of Imperial Platonism remained fundamental in the Platonic tradition, albeit to different extents. Thus, while Porphyry was generally interested in Pythagoreanism—he wrote a *Life of Pythagoras*—Iamblichus of Chalcis shows a peculiarly strong commitment to it.⁴ Indeed, besides his more traditional writings such as his commentaries on various Platonic dialogues,⁵ Iamblichus engaged in the ambitious project *On the Pythagorean School* (Περὶ τῆς Πυθαγορικῆς αἰρέσεως), which aimed to set out in 10 books an introduction to the whole of Pythagorean doctrine.⁶

³ In the same tradition, one should probably consider also other Platonists, the best known of whom is Thrasyllus [see [Tarrant 1994](#)]. The case of Theon of Smyrna is different, since his *Expositio rerum mathematicarum ad legendum Platonem utilium* must be considered rather as a technical exegesis of the mathematical sections of Plato’s psychogony. Interesting papers on the relationship between Platonism and Pythagoreanism in the Imperial age are collected in [Bonazzi, Lévy, and Steel 2007](#).

I emphasize that it is necessary to suppose that a ‘Pythagorean’ tendency was somehow preserved also in the Hellenistic age: this is almost the unique historical condition under which one can understand Moderatus’ work in the first century AD. It is worth noting, finally, that one among the ‘founders’ of post-Hellenistic Platonism, Eudorus of Alexandria, had a strong interest in the Pythagorean tradition, which he ‘used’ in order to sustain his new Platonic perspective: the so-called *Pseudo-Pythagorica* [see [Centrone 2014](#)] were probably produced, at least in the majority of cases, in the context of his school [see [Bonazzi 2013](#)].

⁴ On the Neoplatonist interest in Pythagoreanism, see [Macris 2014](#) and [O’Meara 2014](#). O’Meara, especially, has contributed studies providing an authoritative basis for deeper inquiry.

⁵ The fragments are collected in [Dillon 1973](#).

⁶ For a comprehensive account of Iamblichus, see [Dillon 1987](#). Vinet supplies a brief sketch of him and his philosophical project on pp. 11–13.

His *In Nicomachi arithmetica* belongs to this latter project, being the fourth treatise of the series.

This outstanding work by Vinel, then, has the great merit of making available to scholars a new suitably critical edition of the Greek text, a good translation, and a very careful commentary. The book consists of an introduction [11–66] dealing with general interpretative problems in this text and focusing on its most important aspects; a French translation of a new critical text in Greek that is based on a complete collation of extant manuscripts and offers a useful *apparatus* of parallel passages along with an *apparatus criticus* [68–197]; a series of notes of commentary [199–265]; and an impressive set of indices, which make the book even more useful [267–344]. At the same time, Vinel aims to make clear the originality of Iamblichus' *In Nic. arith.* by demonstrating that it is not a commentary on Nicomachus' *Introductio arithmetica* (the fundamental treatise of Pythagorean-Platonic arithmetic in the Imperial age) but a work taking Nicomachus' writings (both transmitted and now lost) as a point of departure in order to develop a new account of Pythagorean and Platonic arithmetic.⁷ Apart from some minor aspects, which I will discuss in due course, this goal is well achieved.⁸

The first among Vinel's tasks, then, is to overcome the commonplace notion that has Iamblichus' *In Nic. arith.* as only a sort of rearrangement of Nicomachus' *Intro. arith.*⁹ He begins by focusing on the title and the de-

⁷ This point is convincingly achieved by referring to Iamblichus' writing practice (*usus scribendi*) [14–15]: Iamblichus says that he will appeal to Nicomachus' τέχνη, and at the same time he uses «τέχνη» to indicate a general field of interest or study [see also 200n10]. I am less inclined to agree with Vinel's translation of «τέχνη» as 'science', since this somehow leaves aside the procedural aspects that are implied by «τέχνη».

⁸ The idea that Nicomachus is the most important reference for Iamblichus, who, however, tries to supplement his doctrines, raises the issue of Iamblichus' relation to the Euclidean tradition. Vinel emphasizes (quite briefly, though: see 23 and the notes at 216 ff.) that Iamblichus criticizes Euclid. Here it would have been helpful to explore whether Iamblichus deliberately obscures other interpretations of topics dealt with by Nicomachus (e.g., Geminus' account of the classification of sciences, which was to some extent known in Neoplatonism) or whether he was not acquainted with them.

⁹ Vinel offers a valuable survey of this prejudice against Iamblichus' originality [13] but also emphasizes that scholars still could not avoid noting, albeit in a non-systematic and inconsistent way, some originality in Iamblichus' work.

clared aim of the work [14–15]. As a matter of fact, Iamblichus never says that he is producing a commentary on Nicomachus but only that he will offer an introduction (εἰσαγωγή)¹⁰ to arithmetic by taking Nicomachus' writings (and not only his *Intro. arith.*) as a starting point. Nevertheless, Vinel demonstrates that the title offered by the manuscript tradition «Περὶ τῆς Νικομάχου ἀριθμητικῆς εἰσαγωγῆς» should not be accepted. He proposes three alternatives, the last of which («Περὶ τῆς Νικομάχου ἀριθμητικῆς») is (quite reasonably) adopted in the critical edition [15]. Accordingly, this conclusion is confirmed by means of a survey of Nicomachean doctrines and other sources in Iamblichus' text [19–23]: Nicomachus, it turns out, is a sort of *fil rouge* for discussion that Iamblichus sometimes follows and sometimes leaves behind as he introduces new doctrines and terms. This would be typical of Iamblichus' way of dealing with sources. Vinel compares this approach to Iamblichus' treatment of Porphyry's commentaries [20].¹¹

There is one point that I should like to stress. As Vinel correctly notes [201n13], Iamblichus explicitly criticizes innovation (καινοτομία) and prefers to appeal to a well-established tradition, i.e., to that of Pythagoras, which he takes to have been advanced by Nicomachus. Vinel then indicates that this would seem to be inconsistent with Iamblichus' own innovations but leaves the matter without further discussion. However, in my view, this should be a

¹⁰ If this is the case, however, it would have been helpful to expand on the relationship between this work and the *prolegomena* to mathematical works [see Mansfeld 1998] and to the literary genre to which *In Nic. arith.* belongs.

¹¹ While the analysis of contents and titles of the work is effective, the latter point concerning Iamblichus' attitude towards his sources is a bit controversial. First, although a passage of Simplicius' *In Arist. cat.* [Heiberg 1894, 2.9–13] seems to work as a confirmation, one cannot establish a strict parallel between Iamblichus' methods, since the context and form of the fragments of Iamblichus' commentaries are usually puzzling. Moreover, major sources of these fragments use their own sources in turn ambiguously. This can be seen, for example, in Proclus' use of Porphyry's and Iamblichus' commentaries on the *Timaeus*: see Petrucci 2014, 339–341 for a survey. Second, if one states, as Vinel does correctly, I expect, that Iamblichus uses several different texts by Nicomachus, it may be unwarranted (at least in principle) to make a claim for Iamblichus' originality when there is no explicit criticism of Nicomachus. After all, Iamblichus could have collated different sections and doctrines from either Nicomachus' transmitted or lost writings. Thus, while Vinel is right in emphasizing a certain originality in Iamblichus' account, this point should probably not be pushed too far.

central issue: given that these statements *must be* reconciled, it is necessary to discover the ideological model of authority that allows Iamblichus to expand on and also contradict Nicomachus, without considering any of this an innovation. The solution could be set out in numerous ways. Perhaps Nicomachus was to be seen as a means through which one can have access to Pythagorean arithmetic lore: in this case, Iamblichus would follow Nicomachus unless, in his opinion, the authentic (or a suitable) Pythagorean doctrine is different than that proposed in Nicomachus' writings. At any rate, providing a solution to this problem, even tentatively, would be worth doing, since this would shed light on the ideology of Iamblichus' project and on the role of sources in it. Nonetheless, this criticism does not impact Vinel's argument on the general status of the *In Nic. arith.*

In his introduction, Vinel addresses three problems that highlight Iamblichus' work on sources and his autonomous contribution to arithmetic tradition:

- (1) the production of a theory of magic squares [23–35],
- (2) a new way of conceiving the relationship between point and line with respect to that between unity and number [35–41], and
- (3) the thematization of the arithmetical concept of zero [41–53].

A magic square is a square divided into rows and columns where consecutive numbers are placed into the cells so that the sums of the numbers in the rows, columns, and diagonals are equal. Vinel's aim is to demonstrate that a theory related to these squares was a sort of heritage of ancient Pythagoreanism and that this heritage has traces in Theon's *Expositio*, in some archaeological artifacts, and above all in Iamblichus' *In Nic. arith.* The core of the demonstration, focusing on Iamblichus, is achieved on pp. 26–31. Here Vinel indicates effectively that in *In Nic. arith.* esp. 2.33–37, 2.51–52, one can find all the basic arithmetical elements needed for a theory of magic squares.

I remain sceptical on two points, however. First, Vinel's analysis of a passage from Theon's *Expositio* [Hiller 1878, 101.14–20] fails to take into account its context. In a section devoted to the arithmological properties of the numbers of the decad, Theon emphasizes that 5 is the arithmetical middle term between couples of 'opposite' numbers in the decad (i.e., 1 and 9, 2 and 8, 3 and 7, 4 and 6). Vinel's quite speculative argument, which appeals to some controversial elements of the passage, suggests that an ancient theory of magic squares could be the basis of this statement. However, this property of 5 is a commonplace in arithmological works [see Heiberg 1901, 9.23–10.4

(Anatolius); Iamblichus, *Theol. arith.* / De Falco 1922, 31.12–16; Wünsch 1898, 2:30–31 (Lydus)] and nothing in Theon’s remarks suggests that he views this property as something more than what it is meant to be: evidence for a ‘structural’ link between the number 5 and the arithmetic mean.

Second, and more importantly, I doubt that the theory at issue can be traced back to ancient Pythagoreanism as Vinel suggests.¹² In order to obtain the desired conclusion, Vinel emphasizes that Iamblichus describes 5 using epithets which have parallels in ancient literature or which seem to have ancient origins. However, it is easy to imagine a context that admits ‘ancient-fashioned’ theories and terminologies, while also reproducing Homeric or archaic language, for example, in the period between the Hellenistic age and the very early Imperial age, when different kinds of a Pythagorean revival took place.¹³ In other words, the fact that a notion is treated with a language which appears to be archaic does not prove that the notion has ancient origins.¹⁴

¹² Vinel’s notes on the problem are very interesting. However, a part of the argument for antiquity is misleading in that it draws on a citation of Philolaus in Iamblichus’ text [2.51 = Huffman 1993, fr. 9] as additional proof that the theme of the magic square was related to justice in ancient Pythagoreanism. Vinel [215n71] says that there is a consensus that this fragment is authentic and then quotes Huffman’s commentary:

The use of the distinction ...seems perfectly plausible for Philolaus in the second half of the fifth century...and Burkert accordingly regards F9 as authentic. [Huffman 1993, 415]

But note the following sentence in Huffman’s commentary, which Vinel does not quote:

However, the idea that the properties...would fit well in a hymn to number such as we find in the spurious F11. When dealing with such a brief statement it is impossible to be confident of its authenticity. Moreover, such a phrase, when considered independently of any context, tells us virtually nothing about Philolaus’ philosophy.

Indeed, fr. 9 is listed by Huffman among the spurious and doubtful fragments.

¹³ See, for example, the fragment of a poem by Alexander of Ephesus transmitted by Theon of Smyrna [Hiller 1878, 139.1–10] or the corpus of the *Pseudo-pythagorica doria*.

¹⁴ The only testimony that one might consider telling with respect to the antiquity of the doctrine is Aristotle, *De cael.* 293b1–4 with Rose 1863, fr. 204, which indicate that Pythagoreans called the center of the universe Διὸς φυλακὴ and Ζηνὸς πύργος [25]. The latter term is used also in Iamblichus’ *Theol. arith.* as an epithet of 5. The

The second problem that Vinel focuses on is the way in which Iamblichus refashions a commonplace in the arithmetic tradition: that is, the idea that a line should not be considered as composed by points. To address this difficulty, a specific notion was introduced perhaps in the Old Academy [see Tarán 1981, 362–363], namely, that the line is produced by a flowing (ῥύσις) of the point. Now, Iamblichus accepts this notion, which became quite widespread. But, as Vinel effectively demonstrates,¹⁵ he is the only author to produce a direct and rigorous demonstration denying that a point is a part of a line. Moreover, he refashions traditional terminology and modifies the standard approach to this problem by avoiding the notion of ‘nothing’ («οὐδέν»), which plays a fundamental role in his own account (as we shall see immediately). Vinel’s analysis is very valuable: he considers carefully the traditional approach to the problem and then clarifies Iamblichus’ argument, which is posited in a very compact and puzzling way [4.4–6]. He then shows how Iamblichus’ argument can be regarded as both conclusive and obscure (as ancient sources also said about Iamblichus’ style).

The last problem that Vinel discusses in his introduction is probably the most interesting [211–215]. In Iamblichus’ *In Nic. arith.*, it is possible to detect a first (and subsequently obscured) arithmetic thematization of the notion of zero. After demonstrating that the pre-Iamblichean hints at this do not presuppose any actual arithmetic theory [42–44], Vinel proposes that Iamblichus, by taking a passage from Nicomachus [*Intro. arith.* 1.8.12] as a starting point, independently developed the first arithmetic doctrine of zero. Indeed, Vinel applies Nicomachus’ remark, according to which each number is equal to the half-sum of the immediately preceding and the following numbers in order to establish that *number* 1 must be the half-sum of two ‘numbers’—although both 1 and 0 can be defined as numbers only in an improper sense [2.45]—namely, 2 and τὸ οὐδέν [2.31–33]. The fact that Iamblichus’ ‘discovery’ is not incidental is confirmed by his appeal to the same notion in subsequent passages [2.38, 2.42–47], which suggests that he really does consider zero to be an operative, arithmetic entity preceding 1 (the unit). Vinel also argues that such a fundamental discovery was totally lost

passages from Aristotle, however, only demonstrate that «Ζητὸς πρόγος» was an epithet used in a certain context by Pythagoreans. Its use in a new context can be ascribed to some intermediate text.

¹⁵ See also the very interesting notes 156–161 on pp. 235–237.

in the tradition because Neoplatonists such as Proclus (but also Nicomachus' commentators, Asclepius and Philoponus) preferred to follow Nicomachus as their authority in arithmetic.¹⁶ For this, Vinel's analysis is of great value.

At the same time, however, I am not inclined to agree with Vinel's attempt to associate the discovery of zero (τὸ οὐδέν) with an item in Iamblichus' ontology: that is, with the idea of a totally unqualified entity beyond the One.¹⁷ On the one hand, there is no real hint at the ontological relevance of the doctrine of zero in the *In Nic. arith.* As Vinel emphasizes, Iamblichus' discussion is deeply rooted in an *arithmetic* perspective. Moreover, since there is necessarily an ontological difference between numbers and principles—e.g., the One as principle is not one as a number *sui generis*—there is no compelling link between the ontological thematization of an ἄρητον and absolutely transcendent principle and that of the arithmetical notion of zero. In other terms, the discovery and elaboration of the notion of zero can be totally understood without going beyond arithmetic theory. In addition, even though one might wish to establish a link between Iamblichus' 'discovery' of zero and his ontology (as Vinel does), it would be important to push the analysis farther to answer the following philosophical questions: What are the implications of such a strict connection between arithmetic and ontological features? To what extent does this connection hold? And, above all, does Iamblichus ascribe a sort of 'heuristic' priority to arithmetic with respect to ontology? Or is this priority grounded in a certain ontological status of mathematical entities?

Such a philosophical discussion is missing (at least to some extent) in Vinel's book—justifiably, perhaps. These aspects of Iamblichus' thought may belong to a different 'part' of his production and legitimately remain outside the goals of an analysis of *In Nic. arith.* However, given that Vinel wishes to involve ontology in his analysis, he should address to some extent the more general problem concerning the actual status of numbers and their principles (such as the One) and their epistemological function in a wider Platonic perspective, i.e., whether the alleged projection of arithmetic properties on ontological principles produces a philosophically consistent account. This

¹⁶ Vinel correctly emphasizes this point, which is important from the point of view of the history of the Platonic approach to mathematics: his analysis focuses on Nicomachus' authority in the Platonic tradition [see Marinus, *Vita Procli* 28].

¹⁷ See Damascius, *De princ.* / Ruelle 1889, 1.5.19–22; 2.1.5–8.

does not negate, of course, the great value of Vinel's technical analysis and the utility of his balanced references to other Iamblichean writings.

Vinel's edition of the text itself is one among the most important achievements of his book. Iamblichus' *In Nic. arith.* was among those texts—such as Nicomachus' *Introductio*, Theon's *Expositio* or Iamblichus' *De communi mathematica scientia*—that were first published during the 18th century in the Bibliotheca Teubneriana and require a new critical edition grounded on a complete *recensio* of the manuscripts, a careful evaluation of stemmatic relationships, and a balanced *constitutio textus*.¹⁸ Vinel's edition makes *In Nic. arith.* available in this long-awaited philological form. As is clear from the last part of his introduction [53–65], Vinel has collated every single testimony about the text and now brings to light a quite complex textual tradition. His most important achievement concerns the identification of two primary witnesses: Laurentianus 86, 3 (F) and Laurentianus 86, 29 (L). Vinel demolishes the idea (proposed without any good reason by Pistelli, the editor of the text in 1894, and never really submitted to verification) that F (14th century) is the only independent manuscript copy of the text. He demonstrates to the contrary that L (15th century) is independent of F and that both derive from the same lost manuscript. Moreover, he shows that all other manuscripts (produced between the 15th and 17th centuries) stem from L either directly or indirectly (while the three Latin translations were produced on the basis of manuscripts still extant).

Regarding Vinel's analysis, which is excellent, one may note the absence of a close paleographical and codicological description of the most important manuscripts. This would not only have been a desirable addition on its own, it would also have supported Vinel's account of the textual tradition. Vinel is inclined to consider the copyist of L to be not so gifted: against the claim that many errors found in F with respect to L depend on corrections (διορθώσεις) by the copyist of L, Vinel emphasizes that there are blatant errors still present in L. However, he also identifies a series of 10 firsthand notes in L (both interlinear and marginal) which are not present in F and

¹⁸ With respect to the other works, Iamblichus' *In Nic. arith.* has two noteworthy advantages: it is limited in length and comes in a reasonably small number of manuscripts (24 Greek manuscripts, plus three Latin translations), while the manuscript traditions of both Nicomachus' *Intro. arith.* and Theon's *Expositio* are much richer.

stem in part from a collation of a copy of the antigraph of L with F.¹⁹ This produces a quite strange image of the copyist of L, who, it seems, is not good enough to correct some blatant errors but is still so philologically gifted and careful as to produce a collation of manuscripts and to choose among different readings [e.g., at 2.17.1].²⁰

Another valuable contribution of Vinel's edition and translation consists in the fact that he divides the translation (and, wisely, not the text) into thematic chapters and paragraphs: this helps us to understand the sequence of Iamblichus' reasoning and the compositional logic of the work. I will not focus on the commentary apart from the references indicated above. In general, it is a very careful, exhaustive, and informative commentary, which deals with technical, philosophical, and philological problems. In this sense, it is useful not only in order to clarify Iamblichus' statements and their mathematical background but also to grasp the function of various passages in the work.

My remarks are meant only to present the more interesting elements that the author analyzes carefully and extensively: I emphasize that any criticism must be considered in the framework of my positive evaluation of every part of the book, which satisfies the requirements of consistency, completeness, conclusiveness, and utility. All in all, Vinel's book—the third in the well-established and most valuable series *Mathematica Graeca Antiqua* edited

¹⁹ Vinel hints at this briefly [64]; it is also quite telling in relation to the traditional misunderstanding of the stemma.

²⁰ A new paleographical and codicological inquiry would give substance to Vinel's first argument for the independence of L. He indicates that 'le Laur. 86, 3 est un manuscrit de lecture très difficile, avec une mise en page très lourde, des lignes longues et serrées' [60], with many abbreviations and a careless use of diacritics, while 'le Laur. 86, 29 est très bien écrit, de lecture facile et agreeable, avec très peu d'abréviations et une mise en page aérée'. From this, Vinel deduces that it is very unlikely that L is a copy of F. I must say that I cannot see the point of such an argument as it stands. Yet, although F is more difficult to read with respect to L, its quality from the point of view of both writing and « mise en page » is neither anomalous nor exceptionally obscure, especially in comparison with other manuscripts of the same period (good reproductions of both manuscripts are now available in the website of the Biblioteca Medicea Laurenziana). Moreover, it was common enough to copy a text found in what we see as a less accurate manuscript in order to provide it in a form that makes it more accessible.

by Fabio Acerbi and Bernard Vitrac—is an outstanding piece of scholarship, which will remain as a helpful tool in many fields of research.

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