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★**A new history of Greek mathematics.**
Cambridge University Press, Cambridge, 2022. *xvi*+523 *pp. ISBN* 978-1-108-83384-4

The book under review here is, as emphasized by its author, not the all-too-familiar *rewriting* which claims to replace everything done so far and therefore to free the readers from caring about the difficult old stuff. It was published 101 years after Thomas L. Heath's *A history of Greek mathematics* [*A history of Greek mathematics. Vol. I*, corrected reprint of the 1921 original, Dover, New York, 1981; MR0654679; *A history of Greek mathematics. Vol. II*, corrected reprint of the 1921 original, Dover, New York, 1981; MR0654680]—and, in Netz's words, "I keep Heath by my side, and I urge you to do so as well. This new history does not aim to replace Heath's, and I do not aim at his encyclopedic coverage. My goal, instead, is to provide a historical *account*."

This account, with its inherent periodization, is the most important aspect of the book. It provides a framework within which future workers of ancient Greek mathematics may locate their work on details—evidently submitting it to all the criticism and revisions which their own work may inspire.

Whereas Heath does not go much beyond theoretical arithmetic and geometry, Netz devotes two chapters to "Mathematics in the World", that is, to "mechanical" and similar applications (we may also say "engineering", mostly military), and to "Mathematics of the Stars", and points out obvious but often forgotten lacunae in our knowledge about practical mathematics beyond the fact (not rarely cut in still standing stone) that *it was there*.

In contrast to what was normally done until a few decades ago (also by Heath and other giants of the field, not to speak of the less gigantic figures), Netz disregards the late ancient tales that made earlier generations of historians see Thales and Pythagoras as inventors of insights we now know were familiar in the Near East a thousand years before their time (the Pythagorean theorem; that the diameter of a circle is seen as a right angle from a point on the perimeter), and as the founders of deductive theoretical mathematics. His first period, "the Threshold of Greek Mathematics", therefore combines Babylonian mathematics (and some ethnomathematics) with what little we can say about Greek mathematics before 450 BCE—ending with Oenopides and Hippocrates (both of Chios). Even here Netz is a minimalist, pointing out that the later claim that Hippocrates was the first to "write in the tradition of Euclid's *Elements*" does not imply that he wrote a book in the style of Euclid's. He argues that Hippocrates may well have been the first Greek to *write* about mathematics, probably with some kind of proofs.

In the next period, under the heading "The Generation of Archytas" (ca. 400 BCE to 320 BCE, Archytas to Menaechmos), Netz finds dialogue between mathematics and philosophy (now both written genres); this is also the period where the Euclidean style develops.

The third period is "The Generation of Archimedes"—obviously asking for an initial discussion of "Euclid, the In-Between Mathematician" (together with other "in-between" figures like Autolycus and Aristarchus). As emphasized by Netz, the center for mathematical production now moved to Alexandria, and also moved away from philosophy. In seeming consequence, the changes of social and intellectual setting caused a transformation of mathematical global style, bringing *challenges* within a competitive network to the foreground—evidently on the basis of what had been developed during the second and the “in-between” periods, which can now be taken for granted.

The “Generation of Archimedes” first of all encompasses Archimedes himself and Apollonius, but also Diocles, Philo of Byzantium, Hypsicles and (according to Netz’s list) some 30 more names, not all certain. Like the “Generation of Archytas”, it consists of the founders, their followers, and the followers of the followers—after which the scene is emptied.

Netz thus sees no strong creative continuity from beginning to end in Greek mathematics. What he deals with after the intervening chapters on “the World” and “the Stars” is the “Canonization of Greek Mathematics”, fourth to sixth centuries CE. Here we encounter Pappus, Theon, Hypatia, Porphyry, Diophantus (with uncertain date), Proclus and Eutocius. Several of these names indicate that the connection to philosophy was re-established (except in the case of Eutocius, in whose theocratic times confessed interest in philosophy would have been dangerous, as Simplicius and others discovered). This is the period which created our *still canonical* image of Greek mathematics: pure, theoretical, axiomatic—often even serving as canonical ideology for what genuine mathematics should be.

A final chapter deals with the “Legacy of Greek Mathematics”. First the copying of manuscripts in Byzantium—not creative at all but the sine qua non for what followed; next, the adoption and creative use in the Medieval Islamic world (to which, in this respect, the Latin Middle Ages also belong after the 12th-century translations); finally, in the “Renaissance to End All Renaissances”, that is, the European 17th century.

Where we have surviving texts (e.g., Euclid, Archimedes, Apollonius), the kind of history presented by Heath is firmly based—problems such as possible interpolation, though not absent, are definitely minor. Netz’s orientation, on the other hand—not just toward sociology but to some extent even toward sociology of knowledge—involves generalizations and bridges over uncharted swamp. At times the pilework supporting the bridges is not as solid as one might wish (the reviewer has objected to some cases elsewhere); but Netz mostly points out when he guesses or extrapolates. Sometimes, on the other hand, the reader may discover at second thought that the foundation is more stable than one would at first believe.

There is relatively little technical mathematics in the book—technical mathematics is, precisely, what the reader who asks for technical information is exhorted to find in Heath’s beautiful 1050 pages (almost twice the length of Netz’s new history). The technical mathematics that is there serves as illustration of the mathematical style of the arguments of the original authors. It sometimes cuts corners or simplifies, exactly as the pedagogical professor at the blackboard sometimes does in the interest of clarity or because certain subtleties are not what the whole thing is about.

Whoever reads the book will recognize in Netz such a professor. Historians may read the book as a suggestive new framework and perhaps as a challenge to their preconceived ideas (and may of course, sources at hand, object to Netz’s ideas or to his details). Readers who want a well-told story in which most is true and most of the rest is hardly too far from the truth will have it here. *Jens Høyrup*