
This volume is a welcome and important addition to the growing corpus of modern editions of Byzantine treatises dealing with military and technical matters, and complements the volumes published in the same series by George Dennis (critical edition and translation of three military treatises of the sixth and tenth centuries) and by Eric McGeer (critical edition, translation and commentary of the Praecepta militaria of the emperor Nicephorus II Phocas). Sullivan’s texts represent a somewhat different aspect of middle Byzantine technical and specialist treatises, however, being editions of the Paraggelmata poliorkias, dealing with siege warfare and in particular the siege-engines and artillery employed in sieges, on the one hand, and of the Geodesia, dealing with the measurement of distances, volumes and mass. The texts survive in several manuscripts, but the archetype from which all later manuscripts depend was shown by Alphonse Dain to have been the Vat. Gr. 1605, dated on palaeographical grounds in the eleventh century.

Sullivan shows that while the anonymous author (generally referred to as Heron of Byzantium on the basis of a later, probably fourteenth-century, rubric) draws his information very largely from classical and Hellenistic writers, he brings it up to date both in terms of language — many technical words associated with warfare, sieges and engineering technique belong to the middle Byzantine era, more particularly the tenth century, where they are found in several other texts dealing with military or related matters — and, occasionally, in terms of content — the hand-held siphon for projecting liquid fire is described and illustrated, for example (although no clue is given as to how it actually worked!). Of the two texts, the paraggelmata deals chiefly with issues concerning the manufacture and operation of siege machines and other matters related to besieging a fortified place, while the Geodesia deals with problems of applied geometry, and in particular discusses the dioptra, a surveying instrument employed in estimating distances during sieges. The writer claims that he is writing in a simplified style that will make his work accessible — in contrast to the original texts which form the basis for his own treatment — a claim that is found in other texts of the period, notably those ascribed to the activities of the emperor Constantine VII himself. The question inevitably arises, is this work also to be ascribed in its original form to that emperor and what must have looked remarkably like a tenth-century ‘study centre’ for the re-working of older texts, both those from the more distant Hellenistic and Roman past as well as from more recent Byzantine times? For while the Greek is certainly simpler in many respects than the language of the original authors (such as Heron of Alexandria, Apollodorus of Damascus, Biton and Philo Mechanicus) it is by no means written in the sort of middle-level demoticising style of some comparable works of the same period, even though the author notes the intention of making the work accesible to several readerships — students of tactics, generals, engineers.

On the other hand, the 42 illustrations and the effort at clarity of exposition do help, even though, as the editor points out, the author often confuses important points from his original, suggesting that he was not quite as familiar with the
devices presented as he implies. This is not unusual for the period, either: the author of the tenth-century *Naumachika* presents what is at first sight a persuasively technical account of both naval warfare and various technical aspects of ship construction. Yet it has been shown that in many places the text is either garbled or nonsensical, the vocabulary of the original misunderstood, and the explanations offered confusing. It may well suggest that, in spite of Sullivan’s argument that these treatises were meant for practical application, they actually had a more didactic and intellectual function. This is not to deny their relevance to their time of composition, of course — as S. points out, the appearance in the text of a large number of contemporary terms and discussion of specifically tenth-century innovations or usages suggests that a practical application was at least intended (perhaps of the sort described in one of the treatises on imperial expeditions ascribed to Constantine VII, in which the emperor is advised to take with him a library of such technical works, including treatises on siege actions and artillery).

The editor’s line commentary is particularly useful, for the number of technical terms and phrases, the majority depending upon both the ancient technical tradition and a knowledge of a specialist field of study, makes these treatises both fascinating and at the same time difficult to use. But this again raises the question of the extent to which these texts had a real application in practice — one of the major issues confronting those who have studied the military treatises of the period. Sullivan argues on the basis of the points already noted that the texts would indeed have been used by senior officers in the field. But one may question their practical value: while claiming to be accessible, they are in fact both highly technical and by no means easily understood by persons of less than a fairly high level of literacy and classical learning. Perhaps senior Byzantine officers were of this calibre, although this may be doubted of many (even if Kekaumenos, writing towards the end of the eleventh century, recommends such literature, alongside Holy Scripture). And we might recall in particular the statement made in the *Praecepta* of Nicephorus II to the effect that Byzantine siege techniques of the second half of the tenth century no longer employed the complex machines of the ancients, depending instead on mining the walls, starving the garrison out, and bombardment or direct assault. There is little room left on this account for such machines as ‘Heron’ describes in his *Paraggelmata*.

Whatever the reality of the matter, Sullivan has produced an excellent critical edition of two texts previously found only with difficulty in older editions by scholars such as Wescher. As noted already, the critical and extensive line commentary is particularly valuable. The translation is clear and accurate, a real achievement in view of the often highly technical discussion and vocabulary. In short, an excellent volume which makes a real contribution to the study and understanding of this period, not only in respect of military treatises or practice, but also in respect of the literary activities of the period.

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