

fundamental issues arise, in particular assumptions of unity and a somewhat myopic take on the subject more generally.

Mithraic scholarship in the past fifteen years has tended to avoid overarching narratives, and has instead concentrated on local and regional, or object- and evidence-specific case studies (with few exceptions, e.g. A. Mastrocinque, *The Mysteries of Mithras* (2017)). This is a result of the widely held view that diversity in religious practice and belief was common between groups of worshippers, and that we should be extremely cautious of imposing a straightforward unity, for example through the use of ‘Mithra-ism’ to describe Mithraic cult. W. assiduously avoids the term ‘Mithraism’, and yet the picture of Mithras-worship offered in the Introduction (4–12) draws uncritically on the work of Manfred Clauss and Roger Beck, both of whom commonly referred to ‘Mithraism’ or unified cult, and in Beck’s case to a religion of Mithras.

A direct consequence of this is W.’s framing of ritual diversity amongst Mithraic communities as a peculiarly late antique phenomenon. In contrast to later sections where aspects of cult are subdivided (e.g. ‘Mithraic Architecture’, ‘Mithraic Iconography’, ‘Ritual Practice’ including ‘Initiation Rituals’), the introduction deals with them in a continuous narrative. Initiation before c. 270 is summarily presented as both uniform and identifiable for Mithraic cult (10), seamlessly combined with interpretations of iconography and architecture to present a coherent cult package. In discussions of developments in Late Antiquity (30–1), this presentation is confirmed, for example where W. refers to the so-called ‘Mithras Liturgy’ papyri from fourth-century Egypt as evidence for continuing initiation rituals, later suggesting that ‘a script had to be followed in Mithraic initiations’ (62).

Unfortunately, the ‘Mithras Liturgy’, which W. acknowledges might not even be ‘Mithraic’ (without citing important contributions, e.g. H. D. Betz, *The ‘Mithras Liturgy’* (2003)), does not substantiate claims of an initiatory script. Accounts of uniform Mithraic grades and initiation rely heavily on evidence from Rome and Ostia that cannot be easily extended to other parts of our corpus. It is thus far from clear to what extent initiation rituals were either ubiquitous or uniform. W.’s argument that ritual change was a factor in the cult’s demise remains interesting, but needs rethinking in light of this. Indeed, the suggestion that coin-offerings came to replace initiation rituals (32–3) remains speculative, as there is no firm evidence to suggest an equivalency between these varied acts. Consideration of the phenomena more broadly, outside Mithras-worship, would have been welcome.

This interpretation reflects the somewhat limited approach taken to the relationship between Mithras-worship and other religious phenomena. Christianity – in all its complexity – is at times the elephant in the room; despite W.’s critique of decline being the product of Mithraic-Christian conflict, there is no substantial attempt to rethink this relationship. The sociological perspectives that W. introduces are welcome, but fall short of convincing when applied to overly abstracted situations.

Early in the work, W. introduces a fictional late antique Mithraic adherent who travels across the Roman world between places of worship. This traveller goes from Syria to North Africa via Rome and Gaul (39–41), but encounters nothing but *mithraea* on their travels. Could they have reflected on Mithras-worship without a view on where they were and what else was around them? In a work on Mithras, this focus is perhaps to be expected, but one has to question what the purpose of this fictional character is if not to encourage us to reflect on a lived experience. There remains much to be done on the worship of Mithras in Late Antiquity, but despite the work’s shortcomings, W. has made a valuable contribution to this collective scholarly endeavour.

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JENS-OLAF LINDERMANN, EBERHARD KNOBLOCH and COSIMA MÖLLER (EDS),
HYGINUS GROMATICUS. DAS FELDMESSERBUCH: EIN MEISTERWERK DER SPÄTANTIKEN BUCHKUNST. Darmstadt: Wissenschaftliche Buchgesellschaft, 2018.
Pp. 233, illus. ISBN 9783534269907. €127.20.

A few years ago, the technical writings of the Roman land surveyors (*Agrimensores*) were obscure objects of study. More recently there has been a steady stream of books, articles, conferences and

collaborative projects devoted to illuminating the importance of these writings for Roman history and society. This owed much to the pioneering work of Oswald Dilke; his *The Roman Land Surveyors* (1971) made the subject comprehensible and available to a wider audience, while F. T. Hinrichs' *Die Geschichte der gromatischen Institutionen. Untersuchungen zu Landverteilung, Landvermessung, Bodenverwaltung und Bodenrecht im römischen Reich* (1974) produced a masterly exposition of Roman land measurement, and F. Castagnoli's *Le ricerche sui resti della centuriazione* (1958) offered a superb introduction, outstanding for its clarity and common sense, to the identification of the remains of ancient field systems. The writings of the *agrimensores* now receive the attention they deserve, given their multiple areas of scholarly interest: colonial foundations, land division techniques, administrative structures and record-keeping, land disputes and the law, the role of the emperor, the education and provenance of surveyors, astronomy, mathematics, Roman technical vocabulary and the Latin language, not to mention the history of the manuscripts and the copying of the texts in the *scriptoria* of the great monasteries.

This addition to the subject includes text, translation into German and a selective commentary on Hyginus, *On the Establishment of Limites*, concentrating on philological issues, the history of the MSS and various editions, the scientific background of orientation and cosmology and the legal context of the measurement of land. There is a short glossary and an excellent presentation of the beautiful manuscript illustrations from MSS A and P; reproductions of this quality make a significant contribution to the study of the texts.

Lindermann discusses the content and structure of the treatise of Hyginus, who remains a mysterious figure (probably living in the second half of the first century A.D.), including a survey of the history of the text and an assessment of its relationship to other surveying texts (19–22). He emphasises the connection between the text and the illustrations, which in his view are not merely decorative but can contribute to construing the text; he therefore argues convincingly that they should be placed in the text where appropriate (35–8). Overall, it is likely that Hyginus' work was primarily intended as a handbook for those with a special knowledge of or interest in surveying.

Knobloch argues that Hyginus' method is different from earlier and later writers on land survey, through his astronomical understanding and precise scientific methodology, which formed the basis for measuring *limites* and designating *centuriae*. Surveyors worked on the basis that the earth was spherical but also geocentric; the sphere of the earth was divided into five zones, an idea based on the work of Eratosthenes. Centuriation could be orientated from some appropriate landmark or from compass points; this required a portable sundial (*gnomon*) and the measurement of shadows. Hyginus is critical of surveyors who used the sun's rising or setting as the basis for their orientation; it should start from the sun's mid-point at the sixth hour, that is, midday (73–5).

More could be said about the training and education of surveyors. It is, after all, interesting that Hyginus quotes Vergil as an authority on the five zones of the celestial sphere with their corresponding five zones on earth (*Georgics* 1.233–51) and Lucan for the inhabitants of the fourth zone (*Civil War* 3.247–8). And where did land surveyors receive their education in mathematics (for measuring distance, calculating area, and conducting orientation), and in cosmology or astronomy? Surveyors were presumably expected somehow to obtain a wide general knowledge of the type that Vitruvius said was essential for architects (*De Architectura* 1.1.3–10).

Möller examines legal and juristic aspects in Hyginus, and identifies three important themes: the status of *limites* as boundaries which formed the basis of land division and provided roads and access; the organisation of plots of land in which the map or plan (*forma*) was very important; the differing legal character of pasture land and forests, with the complication of servitudes allowing rights of pasture for communities and neighbouring landholders. M. accepts that Hyginus is interested in the big picture of land settlement and encompasses the entire process for setting up or extending a settlement, but thinks that his real passion was in establishing boundary lines as an exercise in the science of land measurement; he was less interested in disputes and the complicated history of plots of land, which through private transactions of various kinds got new owners (101). But Hyginus was certainly interested in boundary marking and disputes (cf. C. Thulin, *Corpus Agrimensorum Romanorum* (1913), 138.19–20 and 145.20–21), and we do not know if he wrote other works dealing with these issues.

A wider approach would be useful to establish the context of the increasingly professional status of land surveyors, who eventually could be sued if they produced misleading or inaccurate information. A factor in this development was their public role assisting magistrates responsible for founding or re-founding settlements and establishing boundaries. After the age of frequent colonial foundations, surveyors will have been much more involved in settling private disputes, but

they had a crucial role, often on the emperor's instructions, in adjudicating land ownership and jurisdiction between communities in the light of changes in a community's status, requiring an understanding of the layout of fields, earlier decisions, and consultation of records. Territorial boundaries were important because communities drew taxes, resources and public services from those in the area they controlled.

Overall, in my view a lemmatised, detailed commentary would be better for surveying technicalities and legal issues. Nevertheless, this is a welcome addition to current research. With its sumptuous presentation and clearly argued if rather limited approach, it will form a valuable part of the still incomplete mosaic of land survey studies.

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JAAKO FRÖSEN, ANTTI ARJAVA and MARJO LEHTINEN (EDS), *THE PETRA PAPYRI I*. Amman: American Center of Oriental Research, 2002. Pp. xix + 142, plates. ISBN 090956543. \$100.

LUDWIG KOENEN, JORMA KAIMIO, MAARIT KAIMIO and ROBERT W. DANIEL (EDS), *THE PETRA PAPYRI II*. Amman: American Center of Oriental Research, 2013. Pp. xix + 195, plates. ISBN 9789957854362. \$100.

ANTTI ARJAVA, MATIAS BUCHHOLZ and TRAIANOS GAGOS (EDS), *THE PETRA PAPYRI III*. Amman: American Center of Oriental Research, 2007. Pp. xxi + 216, plates. ISBN 9789957854324. \$115.

ANTTI ARJAVA, MATIAS BUCHHOLZ, TRAIANOS GAGOS and MAARIT KAIMIO (EDS), *THE PETRA PAPYRI IV*. Amman: American Center of Oriental Research, 2011. Pp. xx + 212, plates. ISBN 9789957854355. \$115.

ANTTI ARJAVA, JAAKKI FRÖSEN and JORMA KAIMIO (EDS), *THE PETRA PAPYRI V*. Amman: American Center of Oriental Research, 2018. Pp. xxiii + 338, plates. ISBN 9789957854379. \$135.

Up until thirty years ago, little was known about Petra in Late Antiquity. Excavations in Petra had revealed almost nothing of the city after the 363 earthquake. Some scholars suggested that the city was abandoned by the middle of the sixth century; however, the discovery of the Petra Church began to change this narrative, especially when excavators discovered the charred remains of dozens of rolls of papyrus in 1992. These carbonised scrolls were preserved by a Finnish team, and a joint Finnish–University of Michigan team was charged with analysing the documents. They were able to reconstruct approximately 90 different documents, dated from 529 (document no. 50) to 592 (43), with one document possibly dating to 593 (32). Due to the fragmentary nature of many of the documents, approximately half could not be assigned a date. The main figure in the papyrus is Theodoros son of Obodianos, archdeacon of the Petra Church, and almost all of the recovered documents could be connected to Theodoros.

This archive contains no literary papyrus, and the documents provide almost no historical information. Only one historical figure, the phylarch Abu Karib, son of Harith ibn Jabala, leader of the Ghassanids, appears in the archive, and his appearance is fleeting (39). The vast majority of the Petra Papyrus involve either taxation or contracts between private individuals. These latter documents include leases, divisions of property, agreements concerning marriage and limited quantities of other documents. These documents provide information about five general areas of interest: taxation, land ownership and property transmission, agricultural practices, household matters and linguistic evidence for Arabic speakers in the region.

The taxation documents can be divided into two categories: those dealing with a transfer of tax liability and receipts for the payment of taxes. The documents attesting the transfer of tax liability suggest that it was customary at Petra to delay the transfer of tax liability on the official rolls, sometimes for years (3–5, 19, 23–25, 50, 65, 66). In 22, this tax arrangement seems to have lasted for at least a generation. In these cases, it appears that the new owner of the property paid the