

and mediation of oracles. Mario Telò analyses Akram Khan's performance piece based on *Prometheus Bound*. We have an in-depth reading of both Khan's depiction of an Indian soldier recruited by the British Empire in the First World War and of Aeschylus' text, both contributing to an exploration of colonialism and the body that offers thoughtful comments on both the ancient tragedian and modern performance. This is only a glance at the many insights of this collection. While the attitudes and approaches to ancient culture and material are borne from a variety of disciplinary conventions, they will prove both challenging and useful to classicists with an interest in reception.

Also of interest may be a special edition of the open access journal *Clotho* on Classics in the Soviet Bloc. This reviewer chaired a panel at the original workshop and so declares too close an interest to review it.⁵

RHIANNON EASTERBROOK

Royal Holloway, University of London, UK

Rhiannon.Easterbrook@rhul.ac.uk

doi:10.1017/S0017383523000323

General

In our recent faculty meetings here in Virginia, issues regarding ChatGPT and its uses were often broached, for reasons both good and bad, and this November, as I am writing these lines, turbulences in the AI sector are making the news. In papyrology and epigraphy, we have been relying on advanced digital technologies for a while now, and there's no doubt that recent advances in generative AI will soon bear fruit for all text and image-based disciplines in the humanities. Hence, I will open this general review with four exciting books on ancient science and technology.

'Science is' indeed 'at the centre of modern society', as Liba Taub states in the first paragraph of her *Very Short Introduction* to ancient science.¹ Taub focuses on ancient science rather than technology, and takes her reader on a whirlwind tour through cosmology, astronomy, physiology, maths, geometry, medicine, and more, always careful to provide intellectual and cultural contexts for her observations and to educate the reader in the most economic and efficient fashion. The twelve chapters cover fourteen centuries of Greek and Roman science and its legacy (starting with the eighth century BC) and provide an excellent starting point for anyone interested in the topic, all the more since the author also provided a very helpful selection of further readings.

Technology is not entirely absent from Taub's book, and the reader does get acquainted with highlights such as astrolabes, armillary spheres, and, of course, with the Antikythera mechanism, an endlessly fascinating object, a true marvel of ancient technology. Fascination with technology is also a hallmark of modern society, and Maria Gerolemou's timely new book provides a synoptic overview of the three key

⁵ David Movrin, Elżbieta Olechowska, and Henry Stead, *Clotho* 4.2 (2022).

¹ *Ancient Greek and Roman Science. A Very Short Introduction*. By Liba Taub. Oxford, Oxford University Press, 2023. Pp. 154. Paperback £8.99, ISBN: 978-0-198-73699-8.

modes of technical automation in classical antiquity; that is, natural, dramatic, and technical.² Each mode is handled in a separate chapter with the view to the book's overall aims (5–6) 'to discuss sociological, scientific, and philosophical frameworks through which the notion of technical automation emerges at various stages and periods in classical antiquity'. Rereading Homer's passages featuring the famous automata crafted by Hephaestus in juxtaposition to Hesiod's myth of Pandora in the first chapter ('Natural Automation'), Gerolemou raises interesting questions regarding the relationship between *technê* and nature: how is Pandora different from Hephaestus' golden maidens, and what exactly is implied by the adjective *automatos* in terms of naturally occurring processes and spontaneity versus technically designed automation? Gerolemou makes a thought-provoking point when she says that Pandora's humanity and gendered characteristics are actually the outcome of technological tools and skills (27–9). As someone interested in religion, I tended to think of Pandora's *incarnation* (rather than *manufacturing*) in terms of animation and ensouling, not technology. Hence, the author's point that the term *automatos* early on refers to natural automatisms that are a constituent part of technological processes resonated with me. *Technê* versus nature: Pandora's ability to deceive is, on Gerolemou's reading, an outcome of the social conditioning of a product of *technê*.

Every time I see our dog's arch-enemy, Roomba, in action, I do think of technology, of course, but my perception of that *automaton* is certainly not constrained to its inorganic artificiality; more than once I had conversations with it about its pigheadedness in the vain hope it would mend its ways. Gerolemou's second chapter, 'Dramatic Automation', provides a discussion of the ways in which technologies enable the artificial to become perceived as the physical and vice versa on the dramatic stage. This key tension between *physis* and *technê* is a major tenor of the whole book. Manufactured devices of classical Athens with a particular focus on the theatre are discussed: prosthetic tools, theatrical machines, and other theatrical automata. Gerolemou develops here her concept of 'technomimesis' (artificial reproduction and enhancement of human bodies and minds), and takes the reader through the uncanny valleys of Euripides and Aristophanes to point out that, on the whole, dramatic automata (66) 'ask whether artificial mental or bodily mechanisms could replace, complement or improve the human body and mind'.

The final chapter deals with mechanical automation from the fourth century BC onwards, with the main argument revolving around the shift from the production of lifelike art to manufactured liveness. In the first half of the chapter we learn about engineers, miracle workers, and puppeteers involved in the process of producing *thaumata* (things marvellous) and *neurospasta* (devices operated by pulling of strings), as well as about the technologies of automation in the Hellenistic period. Hero of Alexandria makes repeated appearances here, but we will hear more about him in a moment. This section is then followed by an account of late antique sources, with a particular emphasis on the works of Callistratus and Triphiodorus (fifth century AD), and with a glance at the 'automatic art' of the Byzantine period. Automation is here understood broadly, in terms of ekphrastic verisimilitude of representation, especially

² *Technical Automation in Classical Antiquity*. By Maria Gerolemou. London, Bloomsbury Academic, 2023. Pp. 200. Hardback £85.00, ISBN: 978-1-350-07759-1.

regarding potential movement of statuary, and brought in dialogue with the tradition of mechanical automation. A brief conclusion is followed by the bibliography, notes, and an index. This concise, clearly written, and informative book was a pleasure to read, and I recommend it also to those who have not had an opportunity to learn about ancient automata before.

It is serendipitous that Gerolemou's book features 'ancient Greek steam engine as designed by Hero of Alexandria' on its cover, since one of the books that landed on my desk a few months ago deals precisely with Hero, or more precisely with the Heronian tradition. Hero of Alexandria, an influential engineer and mathematician, is an elusive character who lived at some point between the third century BC and fourth century AD, and this seven-century span is the most precise we can reliably date him. We have quite a bit of Hero's work, but the problem is that at some point Hero transcended into a trademark of sorts, so Courtney Ann Roby's book³ approaches Hero of Alexandria as 'Hero'; that is, the grand total of the Heronian textual traditions from antiquity until the early modern period, which, however, includes also the historical Hero's works. In the introduction she delimits the Heronian corpus as one that developed through accretion over centuries and discusses dating issues. Since no conclusive position is taken on the problem of date, this allows Roby to examine, later on, 'Hero' against the backdrop of different periods to which he has been ascribed. Two chapters survey Hero's appropriations and adaptations of previous exegetical models, casting light along the way on Hero's uses and adaptations of Euclid in particular ('Systems of Explanation') and his general pedagogy ('Theorizing the World'), respectively. Chapter four provides, in effect, an exciting thought experiment in which Hero's work is read against its possible cultural and historical contexts (from Hellenistic Alexandria over Rome of the late Republic and early Principate, to the high Imperial period, and on to the Byzantine period and the Persian and Arabic reception and translations). The book closes with an illuminating examination of Heronian science and the impact of his work during 'Hero's humanistic revival' (272), the Italian Renaissance. While parts of this book represented a challenging read for someone like me who is less than ideally versed in issues of ancient mathematics and mechanics, I found this learned and sophisticated book nevertheless stimulating and engaging.

From engineers onwards to doctors: Kassandra J. Miller's *Time and Ancient Medicine*⁴ explores the impact that new time-keeping devices had on ancient medical practices, with the aim to provide 'the first sustained social history of hourly time-keeping within Greco-Roman medicine' (11). The book is split into two parts, the first of which, 'Clockworks', provides in four chapters a sociocultural history of Greco-Roman practices of time-keeping in general and in Greco-Roman medicine specifically. There is a lot of interesting material here relating to the likely Greek appropriation of the concept of seasonal hour (hour of unequal length) from the Egyptians: rather than assigning numerical values to individual hours, Egyptians of the Pharaonic periods assigned a god to each hour. One learns about the remarkably different concept of hour which

³ *The Mechanical Tradition of Hero of Alexandria*. By Courtney Ann Roby. Cambridge, Cambridge University Press, 2023. Pp. 320. 15 plates. Hardback £85.00, ISBN: 978-1-316-51623-2.

⁴ *Time and Ancient Medicine. How Sundials and Water Clocks Changed Medical Science*. By Kassandra J. Miller. Oxford, Oxford University Press, 2023. Pp. 220. 10 illustrations, 2 tables. Hardback £83.00, ISBN: 978-0-198-88517-7.

Akkadians employed; namely, the concept of a time unit comprising our two hours which were then further subdivided into thirty units of four minutes each. Brief but very informative is the historical overview of water-clocks (some actually even equipped with whistles and bells!) and of sundials whose precision and quality of time-indication actually *deteriorated* from the Hellenistic period until late antiquity. In the following two chapters, Miller discusses the ways in which Greek medical practitioners adopted an interest in time-keeping from the Assyro-Babylonian and Egyptian cultures in order to track temporal development of afflictions and recognize the right time (*kairos*) for administration of therapy (chapter 2) and Galen's own engagement with concepts of time, precision, and time-keeping instruments in the context of a dress-down of contemporary philosophers (chapter 3, in which Galen's *Affections and Errors* looms large, as it does in the next chapter). The fourth and final chapter of the first part then examines semiology of clocks among Galen's contemporaries; that is, specifically among the Roman elite. Miller argues persuasively and vividly that, by Galen's day, clocks and sundials specifically 'had become overly determined symbols among the Roman elite...both morally and politically connotative and closely associated with Greek *paideia* and scholarship' (87), and showcases also the ways in which clocks symbolically embodied rhythms of human and celestial bodies, even of the totality of the Roman empire. This discussion threw the horologium of Trimalchio's tomb into a sharp relief for me. The second part, 'Hours in Action', comprises three chapters and zeroes in on the Galenic corpus to examine Galen's refinement of Hippocratic concepts of time and provide an investigation of Galen's attitudes towards precision in time-keeping. While the first part of the book will be an attractive read for most classicists, the second will be appreciated more by those with an interest in ancient medicine. The chapters deal, crudely generalized, with Galen's development of attitudes towards temporal precision, uses of time for prognosis, diagnosis, and treatment of afflictions, and the concept of 'the right time', *kairos*, for a medical intervention. The book closes with a concise conclusion, bibliography, and a general index, which, however, also includes entries on the key passages discussed. Miller has given us a well written, lucid, and erudite synthesis of the topic, and I am certain that this stimulating book will find many admirers.

Speaking of medicine, I am very happy to report that those who are interested in teaching any of its aspects will profit from a rich new handbook⁵ that provides a wonderfully varied collection of materials from the fifth century BC until the sixth century AD. The material is organized according to key topics such as the main actors in and the contexts of ancient medicine (patients, physicians, healing spaces), common complaints and treatments, key philosophical, ethical, and medical tenets regarding the human body, to mention but some of them. This book, however, is much more than its modest subtitle, 'A Sourcebook', would intimate; it is the first ancient medicine primer that I know of: the source material is first contextualized with an overview of the development of Greco-Roman medicine down to late antiquity and a discussion of common threats to human body in antiquity. The introductory essays prefacing

⁵ *Medicine, Health and Healing in the Ancient Mediterranean, 500 BCE–600 CE. A Sourcebook*. By Kristi Upson-Saia, Heidi Marx, and Jared Secord. Oakland, University of California Press, 2023. Pp. 432. 72 illustrations, 1 map, 1 table. Paperback £34.00, ISBN: 978-0-520-29972-6.

each chapter do a fantastic job of facilitating students' understanding of the sources with which they are about to engage. Plentiful illustrations, pedagogically soundly placed and well discussed definitions, helpful maps, concise and clear glossaries, and tabular overviews will greatly facilitate acquisition of knowledge relating to many basic aspects of ancient medicine.

I turn now to two books dealing with religion, the first one in German and the second in Spanish. How did the Christians of the fourth and the fifth centuries AD deal with pagan festivals? Silvester Kreisel's *Old Festivals in New Time. On Development of the Festival Culture under the Influence of Late Antique Christianity*,⁶ is a monograph based on a revised version of the author's dissertation defended at the University of Flensburg in 2021. In five chapters the author investigates persistence of pagan festivals and their interactions with Christianity in a wide geographic scope. In some ways Kreisel's book is a complementary study to Fritz Graf's 2015 book on the Roman festivals in the Greek East.⁷ The first two chapters set the scene by defining the general framework of the study, laying down the source-related problems and providing an up-to-date account of scholarly positions regarding concepts of Christianization, secularization, and neutralization of pagan festivals, and then turning to the problem of definition: what makes an ancient festival a festival, how does it differ from non-festive days, what are its formal characteristics, and what functions did the festivals serve? Chapter three, comprising about 280 pages, is the heart of the book: here Kreisel provides a series of seven case studies centred on the cities that represented important religious centres and their festival cultures. So, readers are, in individual subsections, taken to Antiochia, Gaza, Alexandria, Constantinople, Rome, Trier, and Carthage, and informed first about relevant historical contexts, provided with an overview of pagan festivals, and familiarized with local religious idiosyncrasies relevant for our understanding of an individual city's attitudes towards pagan festivals (or religion at large). In the next chapter, Kreisel studies agencies that influenced development, status, and perception of festivals and provides a general overview of the sociocultural and economic contexts in which the festivals were organized. A brief conclusion is followed by a bibliography and a splendid set of indexes. While the book's origin in a dissertation is evident throughout, the author made every effort to organize his material meticulously and substantiate the main narrative as fully as possible. Kreisel has provided an erudite and detailed account that will be helpful both to those who want to be quickly informed on details of a festival in one of the cities examined by the author and to those who might want to get the full picture.

Miguel Herrero de Jáuregui has published an exciting book on literary portrayals of catabasis in Greco-Roman antiquity, and occasionally beyond.⁸ The book formally has the shape of a trade book and is written in a clear and accessible fashion (even though my Spanish is rudimentary, I could nevertheless get much out of the book without

⁶ *Alte Feste in neuer Zeit - Zur Entwicklung der paganen Festkultur unter dem Einfluss des spätantiken Christentums. Pharos Band 50.* By Silvester Kreisel. Rahden/Westf., Verlag Marie Leidorf, 2023. Pp. 576. Hardback €59.80, ISBN: 978-3-867-57278-1.

⁷ Fritz Graf, *Roman Festivals in the Greek East. From the Early Empire to the Middle Byzantine Era, Greek Culture in the Roman World series* (Cambridge, 2015).

⁸ *Catábasis: el viaje infernal en la Antigüedad.* By Miguel Herrero de Jáuregui. Madrid, Alianza Editorial, 2023. Pp. 503. 8 illustrations. Paperback, €17.50, ISBN: 978-8-411-48208-0.

reaching for a dictionary too often). That said, the book is also a display of great erudition, characterized by a clear sense of direction and authoritative command of the material and scholarship. Herrero de Jáuregui covers here a vast amount of ground, from Homer, Plato, tragedy, Orphics, and Virgil to New Testament and onwards to forays in Dante and more, to give a general reader and a specialist alike a synoptic overview of the most important ancient catabatic narratives and their religious, philosophical, and literary contexts. As evidenced by the sheer number of conferences on the topic, recent years have seen a sharp rise in interest in catabatic narratives, within and without Classics, so Herrero de Jáuregui's book is both timely and most welcome – I hope it will be translated into English soon and acquire an even broader readership.

ANDREJ PETROVIC

University of Virginia, USA

andrej.petrovic@virginia.edu

doi:10.1017/S0017383523000335

This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.