

ORIGINAL ARTICLE

‘Nothing new under the sun’: Rethinking recycling in the past— Editorial

Victoria A. Sainsbury¹  | Ruiliang Liu² ¹Research Laboratory for Archaeology and the History of Art, University of Oxford²Department of Asia, British Museum, London**Correspondence**

Victoria A. Sainsbury, Research Laboratory for Archaeology and the History of Art, University of Oxford.

Email: victoria.sainsbury@arch.ox.ac.uk**Funding information**

H2020 European Research Council, Grant/Award Number: 670010

Abstract

Editorial for the Special Issue of *Archaeometry* ‘Tackling Recycling in the Past’. The practice of recycling has undoubtedly become one of the most important strategies to build a long-term sustainable society in the modern world. However, both the perception and practice of recycling can be traced back to prehistory through various archaeological records. Objects made of stone, jade, mortar, textiles, pottery and bones display evidence of physical reshaping and repair, as do objects of metal and glass. Metal and glass, moreover, are materials which can be melted and recast, freeing ancient people from the limitations of the physical form of the original object. Illustrating and understanding patterns of recycling and the underlying social organization can significantly advance our knowledge of ancient people, their economic, political and cultural motivations for recycling, as well as the broad interaction between the social and material world. Though the issue of recycling is not novel in the discussions and debates of the archaeological circle, new theoretical frameworks, methodologies and archaeometric data encourage us to revisit the topic in this special issue. In this editorial, we consider what recycling means in the past, and why these papers are vital.

KEYWORDS

recycling, legacy data, mutability, theory

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2022 The Authors. *Archaeometry* published by John Wiley & Sons Ltd on behalf of University of Oxford.

INTRODUCTION

As the title of this editorial suggests, recycling is, pardon the pun, nothing *new*. By this, we mean several disparate and interconnected things: The prevalence of cyclic patterns of using in the past, the interest in this cycling across the history of archaeological thought, the modern reliance on recycling for resource management, and our present interest in all three. Over the past decade, there have been an increasing number of workshops, conferences, and papers that focused, at least in part, on recycling in antiquity. It was this milieu that caused us to consider the terms we use, and what we *mean* by the thorny word ‘recycling’ (Sainsbury et al., 2021). Increasingly, it became clear that this meant many different things in different archaeological fields, encompassing a wide range of behaviours in the past. Some of these behaviours were immediately obvious, some frustratingly invisible, and their drivers were diverse. In the modern sense, recycling is in inexorably bound to concepts of sustainability, dwindling reserves, ecological destruction, and essentially cost, both pecuniary and environmental. The same can not necessarily be assumed to be true of the past.

Despite the recent increase in papers concerning recycling, we felt that it was still significantly underestimated in the existing literature, and therefore, more space should be given to materialize these thoughts and achievements. In the following papers, we invited authors who were considering ‘recycling’ already in their work to reflect on mutability. They have considered recycling across a range of materials, periods, and regions, with the particular attention to the place of materials science to illuminate questions of recycling. What we would like to reflect on first is, why does this recycling matter?

Archaeologists’ concern about recycling is not new, neither is that of archaeological scientists. In 1972 Schiffer included in his ‘life cycle’ or, to use Leroi-Gourhan’s (1964) now universal term, *chaîne opératoire*, three terms: ‘lateral cycling’, ‘recycling’, and ‘maintenance’. Schiffer was drawing both on the work of other archaeologists and on discussions about how humans interacted with and exploited their environments, specifically how humans turned environment in to commodity (Wagner, 1960). As we have discussed elsewhere, many of these ideas smashed into other important theoretical concepts such as commoditization and have remained a key part of the slow growth of object biography (Kopytoff, 1986; Gosden & Marshall, 1999; and Swift, 2012; discussed in Sainsbury et al., 2021). However, some long existing forms of recycling and reuse remained tightly bound to their specific definitions and rarely feature in modern surveys outside this, for example *Spoila* (Kinney, 2001), Ancestor Artefacts (cf. Caple, 2010), and counterstamped coins (Wood, 1914).

In many ways, traditional archaeology has been more positive in its discussions of recycling than archaeological science. Although it has often been lamented by the former as ‘invisible’, for scientists it has been more complex. Not only has identification of recycling been regarded as notoriously difficult, but it has also potentially frustrated key ideas that had been key areas of the field, notably provenance. However, increasingly researchers have seen this as an opportunity rather than an impediment (Pollard et al., 2014). This is because, as demonstrated by all the papers in this special issue, careful integration of scientific and archaeological information enables us not only to reveal recycling but also bridge the gap between science, archaeology, history, and other subjects in a broader context.

Across this long history, papers on ‘recycling’ in its many forms and many materials have proliferated, both from traditional archaeology and from the scientific community. For a *very* brief survey: *stone*: Hodder & Lane, 1982; Munro, 2012; Hiscock, 2015; *precious metals*: Gondonneau & Guerra, 2002; Swift, 2012; Codine-Trécourt, 2014; Ponting, 2020; *copper and its alloys*: Bradley, 1988; Bourgarit & Thomas, 2012; Bray & Pollard, 2012; Fleming, 2012; Liu et al., 2020; *glass*: Freestone, 2015; Jackson & Paynter, 2016; Schibille et al., 2017; Sainsbury, 2018; *ceramics*: Arthur, 2002; Puschnigg, 2010; Vieugué, 2015; *textiles*: Wild, 2020; *papyrus*: Salmenkivi, 2020; and *wood*: Sands & Marlière, 2020; Labbas, 2019; Cooney, 2017;

Ford, 2013). In 2021, we consolidated these forms of mutability into changes along axes of form, function, and ownership, which then moved within time and space, to try and problematise what many of us have known for a long time: Recycling and reuse in the past is diverse, driven by a range of factors (Sainsbury et al., 2021).

What we and the proceeding papers have tried to illuminate, however, is how archaeological science can meaningfully add to this discussion. Although certain exempla objects made of stone, jade, mortar, textiles, pottery, and bones all display physical reshaping and repair, materials that can be melted and recast, such as metal and glass, are not limited by the physical form of the original object, and thus changes are harder to immediately see. However, increasingly it seems these objects have sometimes been invisibly recycled for centuries. As archaeology deals with what is left behind and recycling or reuse can fundamentally alter what and how things are left in that record, understanding it better should be a key concern to all of us. Illustrating and understanding patterns of recycling and the underlying social organization can significantly advance our knowledge of ancient people; their economic, political, and cultural motivations for recycling; as well as the broader interaction between the social and material world.

A number of issues that challenged explorations of recycling have been approached in this special issue. First of all, recycling is a complicated set of processes that varies between different types of materials. As such, it was essential to establish a range of defined terminologies before jumping into specific case studies in archaeology. Several contributions to this special issue have highlighted the recent efforts to set up a more sophisticated vocabulary in order to better capture and convey these differences in material type and manufacturing process. Secondly, that while the increasing access to instruments such as LA-(MC)-ICP-MS has enabled more and better quality data to be obtained, particularly for objects under curatorial restrictions, we also benefit from the large number of data from other subjects such as geology and geochemistry. Without these, studies that drew on and indeed required interregional comparison and big-data approaches would have not succeeded. Thirdly, these papers have highlighted the importance of new ways of modelling scientific data, aimed at identifying recycling. A simple example is plotting lead isotopic ratio against lead concentration. This approach was employed in geo-science decades ago, it was only recently included in archaeologists' toolkit (Pollard et al., 2018; Pollard & Bray, 2015). Moreover, an increasing number of scholars, especially in metals and glass, have greater access and ability to characterise objects and are more willing and able to publish complete sets of data, including major elements, trace elements, and various isotopes.

The first paper in this special edition by Maria Guerra starts with a familiar form of recycling, that driven by access and the importance of a raw material that has had a significant place in many societies, *gold*. Guerra's case studies elegantly show that both reuse and recycling in seemingly utilitarian cyclings are complex in driver and interpretation. As well as issues in scientific archaeology such as the how to identify these practices, the complexity of this, caused by alloying and how we can deal with materials that are combined in recycling, this piece also touches on many archaeological issues that we see echoed in base metals: interpretation of foundry versus votive hoards, how we understand chronology, the place of colour versus chemistry, and why objects were made.

Remaining in broad material approaches, Peter Bray warns of the pitfalls in searching for evidence of recycling in copper alloys rather than letting it emerge from the data. His paper emphasises that although recycling has not necessarily occurred in all places, it should be a potential in models. The second half of Bray's papers deals with how we can detect recycling amongst other practices in copper alloys given the lack of direct methods.

Of key interest in Bray's paper is the value of log-normal distributions in geochemical data. Log ratios and their potential to highlight recycling feature heavily in the next paper, by Jonathan Wood. His paper focuses on three different statistical approaches (log-ratios, linear mixing models, and histograms) in three different case studies (glass recycled into Parthian glazes, Iron Age Levantine silver, and New Kingdom Egyptian glass). Wood's paper neatly

demonstrates the complexity of recycling practices and the impossibility of using a single approach of identifying it. This paper highlights why most of the papers in this volume are rooted in specific case studies.

The final paper deals with recycling in a broad sense in a very exciting diversion from high temperature inorganics to wood. Rob Sands presents a range of examples of the mutability of wood and woodlands. Not only does Sands discuss practical examples of recycling, but the paper evocatively places ourselves in to this discussion of reuse and recycling, as the wine barrels of Vindolanda become the museum objects of today. He highlights the uniquely distinct transformation of *a tree*, an object, to become *material* used to make objects and the nuances between those states.

Our most multicraft paper, by Shadreck Chirikure, draws on the theory of the Material Science Tetrahedron to consider the relationship between high temperature technologies in Iron Age southern Africa. Looking particularly at what might incautiously be referred to as 'technical ceramics', Chirikure shows how recycling is interweaved along *chaîne opératoire*, tying multiple materials together and how the remaking and remarking was a key part of daily routines and a socio-technical endeavour that differed across the region. This shift of focus away from materials that *are* crucibles to those that are *used as* crucibles is a key discussion.

The socio-technical relationship in recycling choices is also explored by Elisabeth Holmsqvist in her work on the use of grog in ceramics from the Baltic Sea. Holmsqvist takes on the thorny question of what is and is not grog, and what choices in what is used as grog might tell us about the potters and their cultures. What is particularly interesting is how this work can potentially highlight the movement of individuals into a community whose productions were linked both to their present and past cultural setting.

This link between past, present, and future is also relevant in Sarah Paynter and Caroline Jackson's paper on the recycling of Iron Age glass in Britain. Although a great deal of study has been done on glass recycling in the Roman period in Britain, very little work exists on this earlier period. Paynter and Jackson discuss how markers of recycling in glass are complicated by the incorporative nature of glass and the many choices that glassmakers can make in the first production, as well as any subsequent iterations. They demonstrate how there are clear choices made by glassmakers when they recycle and show a great deal of skill and control by glassworkers working in perceived marginal areas, illuminating a complicated network of connections and recycling across late Iron Age and early Roman Britain.

Jane Kershaw and Stephen Merkel also push into the comparatively understudied areas of recycling in historical periods. Their work shows that recycling played a prominent role in the circulation of silver in the Viking Age. Although silver was prized in Viking culture, Scandinavia lacks silver sources, and thus it required the exploitation of material coming from either western Europe or Islamic world. It seems this want for silver was a significant driver in Viking exploration. Combination of lead isotopes and trace elements of the silver coins and artefacts in the Viking Age Scandinavia has successfully revealed these two groups and indicates a heavier reliance on the Islamic silver at that time. Kershaw and colleagues also carried out a systematic survey on any archaeological remains and conclude that, so far, the evidence for large-scale refining/cupellation of silver in the Viking age is slim. This is vital to interpretation of lead isotopic ratios because the process of refining/cupellation could easily change the original signature of silver by introducing exogenous lead.

Unconventional metal exploitation by mobile societies is also the focus on the paper by Cheng Liu and colleagues. It has been assumed that pastoral societies, dependent on herding, are more likely to rely on recycling of metals; however, there has been little systematic investigation of this. They offer what is probably the first full set of compositional and lead isotopic analysis of the copper-based objects in Ili, western Xinjiang. Intriguingly, even though a convenient access to local mines is available, local copper ingots/object still show evidence of being mixed copper from various sources. The variety of metal resources exploited also echoes the

strategic location of Ili, acting as a nexus among many crucial geographical regions including Central Asia, Tianshan Mountains, and Altai Mountains. This location, as well as the multi-ethnic population of the region, might explain the choice of mixing materials as the people mixed.

The importance in space, and the control of it, and how this affects or does not affect recycling is also the key question in Joyce Ho and Nathaniel Urb-Satullo's paper (originally invited for this special issue but published in *Archaeometry* 63[6]: Ho & Erb-Satullo, 2021). This paper focuses on the prolific bronze industry of Bronze Age Colchis and how it was sustained. Using legacy data, they identify a system that relied heavily on the recycling of material but experienced a massive influx of freshly smelted material at the turn of the age. However, one of the most interesting things they identified was that this material was not uniformly exploited. There is a high degree of selectivity seen in which alloys were used for certain classes of objects. This work shows that drivers of these choices are not always what metallurgical scholars have assumed, for example they show that colour seems to be of equal importance to alloy hardness. This also shows geographic variability in composition, creating zones of material that do not map simply onto the topography of this deeply mountainous region.

Our penultimate paper is a study by Daniel Berger and colleagues, which builds on many of the themes raised by the previous papers. Presenting an extensive set of chemical and isotopic values of objects from the Early and Middle Bronze Age, they have shown significant mixing of metal from the two key Bronze Age mines (the Mitterberg region in Austria and the Hron valley in the Slovakian Ore Mountains). This model is particularly interesting in that it takes into careful account the typology, context, and chemistry of objects (or, as they call it, a material typology to accompany an object typology). The multiscale and integrated approach in this paper is laudable particularly for what it can bring to our interpretation of object biography. A final interesting sidenote in this paper is the inclusion of the Nebra Sky Disc, a significant Bronze Age artefact that is presently receiving a great deal of public attention in Britain, as it is one of the star objects in the British Museum's present 'The World of Stonehenge Exhibition'.

This leads us into our final paper, in which recycling is shown as a surprising concern within the permanent collection of the British Museum. Perucchetti and Dowler, using stylistic and chemical analysis, identified three coins within the collection that are modern forgeries, showing distinct chemical signatures with the obvious presence of zinc. Given the growing number of chemical analyses of ancient coinage was published since 19th century, it is likely that the forger was also equipped with some level of knowledge on the ancient coin composition and therefore decided to recycle ancient artefacts/coins to make these counterfeits. However, the pieces were not chosen well enough, and this work shows that such deception can still be easily identified.

The range of materials and case studies in this special edition is broad, and this is deliberately meant to be so. Recycling, reuse, transformation, mutability—they are diverse practises in the past and require diverse approaches in the present to untangle. The theoretical and scientific shift in the consideration of these works is a small part of this work. The roles that recycling played in the past can be multitudinous. Through recycling, the life history of objects can be extensively or even infinitely extended from the past to the present. However, many recycling systems, by their very nature, are invisible. However, this offers valuable opportunities for archaeologists and scientists to work together to reverse engineer the interaction between materials and human societies. Such exercises should be by no means limited to discussion of ancient economy but stimulate more cross-disciplinary studies of religion, geopolitics, and social organization. They should also be used to reflect on our current concerns about resource management, ecology, and recycling. We hope this special issue will stimulate further studies, combining archaeology and science, to seriously consider recycling in the *chaîne opératoire*, and all that can flow forth from that.

ACKNOWLEDGEMENTS

We would like to thank the European Research Council (FLAME project, 670010) for providing funding for the authors and the editorial board of *Archaeometry*, especially Professor Mark Pollard, for supporting this special issue. Open access funding enabled and organized by Projekt DEAL.

PEER REVIEW

The peer review history for this article is available at <https://publons.com/publon/10.1111/arc.12789>.

DATA AVAILABILITY STATEMENT

Data sharing not applicable - no new data generated.

ORCID

Victoria A. Sainsbury  <https://orcid.org/0000-0002-2849-2524>

Ruiliang Liu  <https://orcid.org/0000-0001-7745-5933>

REFERENCES

- Arthur, J. W. (2002). Pottery use-alteration as an indicator of socioeconomic status: An ethnoarchaeological study of the Gamo of Ethiopia. *Journal of Archaeological Method and Theory*, 9(4), 331–355. <https://doi.org/10.1023/A:1021309616231>
- Bourgarit, D., & Thomas, N. (2012). Late medieval copper alloying practices: A view from a Parisian workshop of the 14th century AD. *Journal of Archaeological Science*, 39(10), 3052–3070. <https://doi.org/10.1016/j.jas.2012.04.009>
- Bradley, R. (1988). Hoarding, recycling and the consumption of prehistoric metalwork: Technological change in Western Europe. *World Archaeology*, 20, 249–260. <https://doi.org/10.1080/00438243.1988.9980070>
- Bray, P. J., & Pollard, A. M. (2012). A new interpretative approach to the chemistry of copper-alloy objects: Source, recycling and technology. *Antiquity*, 86(333), 853–867. <https://doi.org/10.1017/S0003598X00047967>
- Caple, C. (2010). Ancestor artefacts – Ancestor materials. *Oxford Journal of Archaeology*, 29, 305–318. <https://doi.org/10.1111/j.1468-0092.2010.00350.x>
- Codine-Trécourt, F. (2014). Les monnaies mérovingiennes modifiées à des fins non monétaires. *Revue Numismatique*, 171, 497–547. <https://doi.org/10.3406/numi.2014.3258>
- Cooney, K. M. (2017). Reuse of Egyptian coffins in the 21st dynasty: Ritual materialism in the context of scarcity. In A. Amenta (Ed.), *The first Vatican coffins conference, 19–22 June, 2013* (pp. 101–112). Gregorian Museums.
- Fleming, R. (2012). Recycling in Britain after the fall of Rome's metal economy. *Past & Present*, 217(1), 3–45. <https://doi.org/10.1093/pastj/gts027>
- Ford, B. (2013). The reuse of vessels as harbor structures: A cross-cultural comparison. *Journal of Maritime Archaeology*, 8(2), 197–219. <https://doi.org/10.1007/s11457-013-9116-2>
- Freestone, I. C. (2015). The recycling and reuse of Roman glass: Analytical approaches. *Journal of Glass Studies*, 57, 29–40.
- Gondonneau, A., & Guerra, M. F. (2002). The circulation of precious metals in the Arabic empire: The case of the near and the Middle East. *Archaeometry*, 44, 573–599. <https://doi.org/10.1111/1475-4754.00087>
- Gosden, C., & Marshall, Y. (1999). The cultural biography of objects. *World Archaeology*, 31(2), 169–178. <https://doi.org/10.1080/00438243.1999.9980439>
- Hiscock, P. (2015). Making it small in the Palaeolithic: Bipolar stone-working, miniature artefacts and models of core recycling. *World Archaeology*, 47(1), 158–169. <https://doi.org/10.1080/00438243.2014.991808>
- Ho, J. W., & Erb-Satullo, N. L. (2021). Spatial investigation of technological choice and recycling in copper-base metal-lurgy of the South Caucasus. *Archaeometry*, 63(6), 1306–1326. <https://doi.org/10.1111/arc.12668>
- Hodder, I., & Lane, P. (1982). A contextual examination of Neolithic axe distribution in Britain. In J. E. Ericson & T. K. Earle (Eds.), *Contexts for prehistoric exchange* (pp. 213–235). Academic Press. <https://doi.org/10.1016/B978-0-12-241580-7.50015-2>
- Jackson, C. M., & Paynter, S. (2016). A great big melting pot: Exploring patterns of glass supply, consumption and recycling in Roman Coppergate, York. *Archaeometry*, 58(1), 68–95. <https://doi.org/10.1111/arc.12158>
- Kinney, D. (2001). Roman architectural spolia. *Proceedings of the American Philosophical Society*, 145, 138–161.
- Kopytoff, I. (1986). The cultural biography of things: Commoditization as process. In A. Appadurai (Ed.), *The social life of things: Commodities in cultural perspective* (pp. 64–91). Cambridge University Press. <https://doi.org/10.1017/CBO9780511819582.004>

- Labbas, V. (2019). Remploi et recyclage du bois d'œuvre Sur la longue durée dans le bâti paysan des Alpes du Sud Une lecture dendrochronologique et archéologique du bâti subalpin médiéval et moderne dans le massif du Mercantour (Alpes françaises). *Ædificare*, 2(4), 157–175.
- Leroi-Gourhan, A. (1964). *Le geste et la parole. Technique et langage*. Albin Michel.
- Liu, R., Pollard, A. M., Cao, Q., Liu, C., Sainsbury, V., Howarth, P., Bray, P., Huan, L., Yao, B., Fu, Y., & Tang, J. (2020). Social hierarchy and the choice of metal recycling at Anyang, the last capital of bronze age Shang China. *Scientific Reports*, 10(1), 1–9 18794. <https://doi.org/10.1038/s41598-020-75920-x>
- Munro, B. (2012). Recycling, demand for materials, and landownership at villas in Italy and the western provinces in late antiquity. *Journal of Roman Archaeology*, 25, 351–370. <https://doi.org/10.1017/S1047759400001240>
- Pollard, A., Bray, P., & Gosden, C. (2014). Is there something missing in scientific provenance studies of prehistoric artefacts? *Antiquity*, 88(340), 625–631. <https://doi.org/10.1017/S0003598X00101255>
- Pollard, A. M., Bray, P., Hommel, P., Liu, R., Pouncett, J., Saunders, M., Howarth, P., Cuenod, A., Hsu, Y.-K., & Perucchetti, L. (2018). *Beyond provenance: New approaches to interpreting the chemistry of archaeological copper alloys*. Leuven University Press. <https://doi.org/10.2307/j.ctv7xbs5r>
- Pollard, A. M., & Bray, P. J. (2015). A new method for combining lead isotope and lead abundance data to characterize archaeological copper alloys. *Archaeometry*, 57(6), 996–1008. <https://doi.org/10.1111/arcm.12145>
- Ponting, M. J. (2020). Recycling and Roman silver coinage. In C. N. Duckworth & A. Wilson (Eds.), *Recycling and reuse in the Roman economy* (pp. 265–284). Oxford University Press. <https://doi.org/10.1093/oso/9780198860846.003.0008>
- Puschnig, G. (2010). *Ceramics of the Merv oasis: Recycling the city*. Left Coast Press.
- Sainsbury, V., Bray, P., Gosden, C., & Pollard, A. (2021). Mutable objects, places and chronologies. *Antiquity*, 95(379), 215–227. <https://doi.org/10.15184/aqy.2020.240>
- Sainsbury, V. A. (2018). When things stopped travelling recycling and the glass industry in Britain from the first to fifth century CE. In D. Rosenow, M. Phelps, A. Meek, & I. C. Freestone (Eds.), *Things that travelled: Mediterranean glass in the first millennium AD* (pp. 324–345). UCL Press.
- Salmenkivi, E. (2020). Reuse and recycling of papyrus. In C. N. Duckworth & A. Wilson (Eds.), *Recycling and reuse in the Roman economy* (pp. 191–236). Oxford University Press. <https://doi.org/10.1093/oso/9780198860846.003.0004>
- Sands, R., & Marlière, E. (2020). Produce, repair, reuse, adapt, and recycle: The multiple biographies of a Roman barrel. *European Journal of Archaeology*, 23(3), 356–380. <https://doi.org/10.1017/eea.2020.7>
- Schibille, N., Sterrett-Krause, A., & Freestone, I. C. (2017). Glass groups, glass supply and recycling in late Roman Carthage. *Archaeological and Anthropological Sciences*, 9(6), 1223–1241. <https://doi.org/10.1007/s12520-016-0316-1>
- Schiffer, M. B. (1972). Archaeological context and systemic context. *American Antiquity*, 37(2), 156–165. <https://doi.org/10.2307/278203>
- Swift, E. (2012). Object biography, re-use and recycling in the late to post-Roman transition period and beyond: Rings made from Romano-British bracelets. *Britannia*, 43, 167–215. <https://doi.org/10.1017/S0068113X12000281>
- Vieugué, J. (2015). What were the recycled potsherds used for? Use-wear analysis of early Neolithic ceramic tools from Bulgaria (6100–5600 cal. BC). *Journal of Archaeological Science*, 58, 89–102. <https://doi.org/10.1016/j.jas.2015.03.016>
- Wagner, P. L. (1960). *The human use of the earth*. The Free Press.
- Wild, J. P. (2020). The reuse of textiles in the Roman world. In C. N. Duckworth & A. Wilson (Eds.), *Recycling and reuse in the Roman economy* (pp. 61–88). Oxford University Press. <https://doi.org/10.1093/oso/9780198860846.003.0003>
- Wood, H. (1914). The coinage of the West Indies: With especial reference to the cut and counterstamped pieces. *American Journal of Numismatics*, 48, 89–128.

How to cite this article: Sainsbury, V. A., & Liu, R. (2022). ‘Nothing new under the sun’: Rethinking recycling in the past– Editorial. *Archaeometry*, 64(S1), 1–7. <https://doi.org/10.1111/arcm.12789>