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Book Review

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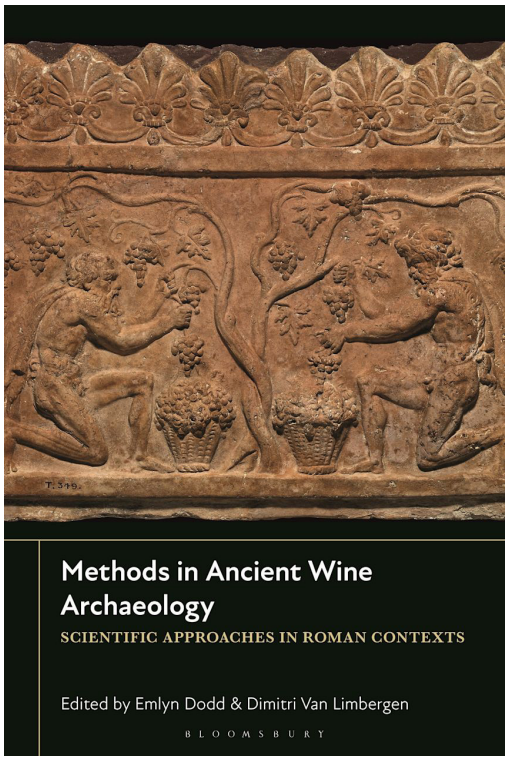

This volume is fruit from a conference, 'Vine-growing and Winemaking in the Roman World' (Rome, 2021), containing 17 well-proportioned chapters on ancient wine archaeology discussing a wide range of topics. The editors, Emlyn Dodd and Dimitri Van Limbergen, have succeeded in providing an accessible guide to scientific methods used to research Roman winemaking. The book starts off with three introductory chapters and thereafter is subdivided into four thematic sections.

In the first chapter, the editors sketch the general origin, distribution and development of vine growing and winemaking processes, and highlight the contribution of a multitude of scientific methods to this dynamic field of study. The chapter also outlines some topics that remain to be further investigated, like the use of skins, barrels and wooden pressing equipment, and the editors also note some lacunae in the volume; comparative historical analysis and ethnographic analogy do not feature prominently in the book,

and geographically it leans heavily on Italy and the central and western Mediterranean. The editors hope that the geographical distribution of specific production facilities or tools will receive more attention in the future, with additional work on the role of the climate and greater systematic investigation of vineyards.

Patrick McGovern, in the second chapter, focuses on various scientific disciplines which contribute to an archaeology of wine, amongst which Organic Residue Analysis (ORA) plays an important part. ORA aids in the identification of wine producing facilities and containers, and leads to an improved understanding of different manufacturing techniques. Drawing on his expertise and experience he formulates a hypothesis how viniculture spread from East to West, but most importantly he provides context for the modern scientific and archaeological study of wine.

Van Limbergen and Pieter Gurdebeke, in the third chapter, introduce the concept of 'palaeo-terroir': a holistic framework which takes into account not only factors usually perceived as terroir, mostly physical features of a vineyard, but also the economic, cultural and political significance of viti- and viniculture. Palaeo-terroir facilitates the study of how people shaped agricultural systems and viticultural landscapes, and leads to the deepening of our knowledge of wine manufacturing techniques and facilities. The book itself unites different research techniques that may be included in the toolbox to study palaeo-terroir.

The first of the four thematic sections is devoted to biomolecular archaeology and chemical analysis. Morphometric analysis of grape seeds is supplemented by genetic analysis by Andrea Zifferero in Chapter 4; the study of ancient DNA (aDNA) is particularly useful to study the dissemination of specific grape cultivars. ORA analysis is particularly useful to determine whether production facilities were used for wine or oil, because it can be applied not only to ceramic containers, such as dolia and amphorae, but also to plaster, mortars and *spica* in production areas or vats (Alessandra Pecci in Chapter 5 and Corinne Rousse et al. in Chapter 6).

Archaeobotany and palynology is the theme of the second section. Archaeobotanical remains of the vine can take a variety of forms, including macro remains, charcoal, pollen, phytoliths and seeds. The value of multiple archaeobotanical methods is highlighted by Patrizia Basso and Diana Dobreva (Chapter 7) who stress that it is crucial that archaeologists and scientists work together in unravelling Roman viticulture and wine making. It can be difficult to ascertain how grapes were consumed archaeobotanically, as raisins, table grapes or wine, yet the finds of grape pomace (consisting of grape seeds, skins, berries and pedicels) in production facilities is highly suggestive of winemaking (Marco Marchesini et al. in Chapter 8). Archaeobotanical data can also help determine

whether domesticated or wild grapes were used for winemaking. A close morphological study of the seeds from a hoard of grape pips which was found in a Roman villa in the Marche region for example, to the surprise of Riccardo Carmenati et al. in Chapter 9, revealed a preponderance of wild types. Pollen samples not only have the potential to indicate the presence of a vineyard nearby, as Antony Brown et al. show in Chapter 10 for the British Isles, but also to inform us about the other flora present in and around the vineyard, and which cultivation methods were being used. Sedimentary ancient DNA and fungal spores are also promising avenues for the detection of more vineyards and pests.

The third topic addressed in the book is vineyard and landscape archaeology, which zooms in on geophysical survey, remote sensing and micro excavation as particularly useful methods to detect and study ancient vineyards. Vineyards may be discovered through the use of non-invasive methods, like modelling, geophysics and remote sensing (GPR and magnetometry prove especially useful). Small scale excavations can supplement more detailed data about the methods of planting and furthermore allows the sampling of botanical remains (Pedro Trapero Fernández et al. in Chapter 11). In some exceptionally well-preserved agricultural landscapes, like in the hinterland of Pompeii, micro excavations provide even more detailed information, for example about the training and propagation of the vines, manuring or which plants were present in and around the vineyard (Florian Seiler in Chapter 12). In other areas, ancient vineyards may be discovered by the presence of feral vines; Christopher Dore and Nicholas Rauh (Chapter 13) revealed a relatively untouched palimpsest of ancient cultivation patterns covered in maquis shrub by using multispectral satellite imagery.

Modelling and experimental archaeology is the fourth and final theme addressed in the volume. Data modelling can be based on the information offered by ancient writers (Antoni Martín i Oliveras, Chapter 14), or on location data of wine production facilities in a well-studied region (Andrew McLean, Chapter 16). The models allow a quantification of the wine production in a specific area, thereby assessing its economic significance (Chapter 14), while they also provide insight into regional preferences for vineyard locations, due to the prevailing winds in a specific area, for example (Chapter 16). Climate can also be integrated in the models: climate fluctuations throughout the Roman period may have contributed to the development and decline of wine estates in specific regions (Nicolas Bernigaud et al. in Chapter 15). The physical recreation of vineyards, winemaking facilities and their products in experimental archaeology offers not only a sensory experience of the wines, but adds a practical understanding of wine

production which illuminates specific production practices (Mkrtich Harutyunyan et al. in Chapter 17).

Collectively, the guide to scientific methods in ancient winemaking that Dodd and Van Limbergen have composed is inspirational. It not only provides practical inspiration regarding which methods to choose (or to combine) in a specific archaeological context, which specialists to involve, how to sample and how to interpret results, but it also makes the reader curious about what questions we can start to answer by using all these methods and especially by combining and comparing results. For example, can we unravel the dissemination of specific winemaking practices and grapes, the (spatial and social) organization of winemaking, the sensory experience of ancient wines and the role of climate in winemaking? The methods and case studies described in this book provide the methodological building blocks for a comprehensive history of winemaking in the Roman world.

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