

aux campagnes. En outre, il est surprenant que le lien entre temple et boucherie, mis en évidence en Gaule du Nord, ne soit pas évoqué pour ces territoires. Ceci étant, M. Groot nous livre une synthèse régionale exemplaire par la quantité et la diversité des informations croisées et dont l'interprétation proposée est un véritable modèle de production agro-pastorale pour le territoire de la Cité des Bataves.

Fabienne PIGIÈRE

Vilma RUPPIENE, *Natursteinverkleidungen in den Bauten der Colonia Ulpia Traiana. Gesteinkundige Analysen, Herkunftsbestimmung und Rekonstruktion*. Darmstadt, LVR-Archäologischer Park Xanten und LVR-Römer Museum, Verlag Philip von Zabern, 2015. 1 vol., 368 p., 199 fig. (XANTENER BERICHT, 28) Prix : 59 €. ISBN 978-3-8053-4971-0.

This comprehensive and well-illustrated publication covers the results of over five years of research, as part of a Ph.D. dissertation conducted at the Julius-Maximilians-Universität in Würzburg. It is the first archaeological publication that deals with a detailed and multidisciplinary provenance study of marble and decorative stone incrustations within the antique metropole of *Colonia Ulpia Traiana* (Xanten). This work represents an excellent handbook for starting or experienced geo-archaeologists interested in the exact geological nature and geographical provenance of colored decorative stones and marbles used for the revetment of Roman public buildings and private houses in the Roman province of Germania Inferior, but also for archaeologists interested in provincial Roman archaeology. The first chapter deals with the main objectives, research history and methodology. The aims of the current work consisted of identifying the exact nature and provenance of numerous fragments (3 256 pieces) of floor and wall tiles (including profiles and panels), establishing the ratio of regional over exotic import material and reconstructing the public building decorations of *Colonia Ulpia Traiana* (CUT). Because of the obvious lack of stone quarries in the immediate surroundings of Xanten, the bulk of the decorative material has to be considered as merchandise. The marble and decorative stone fragments have not been found *in situ*, but they represent the infillings of medieval robbed-out foundation trenches. Due to the expansion of the city, there was a growing need for construction materials, so that the antique buildings have been used as quarries and their building materials have been re-used. Most probably, a large part of the incrustations has also been used for lime burning. The used methodology includes a whole series of analytical tools, depending on the nature of each rock type, applied to representative samples. After a first macroscopical examination of their polished surfaces, optical, chemical and geochemical analytical techniques have been applied to representative decorative stone samples: petrographical microscopy (of over 400 thin sections), optical grain size analysis (average and maximum grain sizes of true marbles), X-ray diffractometry and electron probe micro analysis (mainly for fine-grained rock types, especially antique metamorphic marbles), near infrared spectroscopy (mainly for sandstones), X-ray fluorescence (mainly for discriminating between various igneous and metamorphic rocks) as well as oxygen and carbon stable isotope geochemistry (applied to antique marbles, preferentially in combination with thin

section optical microscopy). The second chapter represents the main body of this book and deals with the classification and description of the main rock types, their provenance and trade. The description of each stone type includes: information about findings within CUT, its occurrence and historical utilisation (geological characteristics, provenances and usages), a detailed macroscopical and petrographical description (including color photographs and micrographs), its infrared spectroscopical, X-ray diffraction and/or X-ray fluorescence characteristics, its stable O- and C-isotope geochemical composition. The succession order is based on the color of the stone types and on the certainty of their provenance: white and grey metamorphic marbles with known and unknown provenance, and colored metamorphic marbles of known or unknown origin. The first group of white and grey metamorphic marbles of known origin includes: fine-grained Pentelic and Carrara-type marbles, Thassian marble, Proconnesian marble, *Greco scritto*, Hymettic marble and Odenwald marble. Mylonitic marble represents a white-grey metamorphic marble of uncertain origin. The combination of isotope data and petrographical characteristics is particularly useful in order to discriminate between macroscopically analogous white marble types. The presence of a German white marble (Odenwald marble) is quite interesting. Several geological samples of this particular marble have been taken as reference samples for further comparative analysis. The second group represents colored decorative stones of certain origin and contains the following species: *Fior di Pesco*, *Breccia di Sciro*, *Breccia Corallina*, *Pavonazzetto*, various red marbles (including *Rosso Antico*, *Marmo Iassense*), *Porfido Rosso*, *Cipollino Verde*, *Verde Antico*, *Porfido Verde Antico*, *Africano*, *Granito Verde Minuto della Sedia di San Lorenzo*, Drachenfels trachite, Berkum trachite, Diabase, Lower Carboniferous limestone, Belgian red marbles, light-brown limestones, Lorraine limestone, Pouillenay limestone, Ruhr sandstone, Jotnian sandstone and Kordeler sandstone. The group of colored decorative stones of uncertain origin or provenance includes the following species: orange limestone, pink-orange limestone, pink limestone, grey-brown limestone with white veins, light-brown limestone with grey veins, yellowish-white limestone. Some suggestions are given for their possible origin, pointing to potential source areas, e.g. from particular areas in northern France. However, extra comparative petrographical investigation, possibly also extra geochemical work and most importantly, the availability of reference material is needed here in order to unravel their exact origin and provenance. At the end of the same chapter, the author makes clear that the amount of decorative stone fragments derived from the Mediterranean (83%) is quite high in comparison with material from regional quarries (Germany, Northern France, Belgium: 15%). However, when looking at their respective total weight, this figure becomes somewhat different (66% versus 32%). Most of the stones were used for decorative purposes, but regional decorative stone fragments, which are mostly thicker and heavier, were rather used as floor tiles. Most Mediterranean marbles come from Asia Minor, Greece and the Greek Islands. From Egypt, we only have *Porfido Rosso* and *Granito Verde*, from Italy only Carrara marble. Other luxury marbles, like *Giallo Antico* and *Africano*, are underrepresented in Xanten. Surprisingly, some regional stone varieties come from the right banks: Drachenfels trachyte and Odenwald marble were certainly quarried by the Roman army. It is not certain if this is also the case for Ruhrsandstein: this one was possibly quarried and

traded by native inhabitants. The occurrence of Odenwald marble proves that local marble workers – although we do not know where to locate them – were part of the *chaîne opératoire*. For architectural elements like columns or capitals, regional stones like Jurassic limestone, tuff, basalt, grauwacke, sandstone or trachyte, were used. The import of Mediterranean marbles did not start in the 3rd or 4th Century, but already existed during the 2nd Century when CUT became a *colonia*, and when it was monumentalized. Cologne did not play any role as a transshipment port, but the marbles were directly imported via the Rhine-Rhone axes. The author stresses also that a comparison with other sites, cities as well as rural properties, is quite difficult, because of the lack of good data, based on modern petrographic and geochemical research. In the last chapter the author writes her concluding remarks about the abundance of stone varieties and the decorative architectural schemes. The studied material counts over 40 varieties of which the Mediterranean marbles represent its major part. In fact, only the Port Temple, the Capitol Temple and to a lesser degree the forum, delivered some statistically interesting stone material. Here, different assortments of decorative stones were used, depending on the status, function and symbolic connotation of the building. On the forum, a lot of *Pavonazzo* is used, which is comparable with Rome. But when looking in detail at the Port Temple, the situation is different: here, *Fior di Pesco* is abundant whereas *Cippolino Verde*, *Greco Scritto* and white marble are strongly represented as well. In the Capitol Temple, we see a lot of *Breccia di Sciro*, *Fior di Pesco*, *Breccia Corallina*, *Cippolino Verde* and grey limestones, whereas the most important buildings in Rome were abundantly decorated with *Pavonazzo*, *Giallo Antico*, and *Africano*. So, it seems that in CUT, we are dealing with somewhat cheaper counterparts, as often seen in provincial cities. It is likely that the reddish-pink *Fior di Pesco* is replacing the more expensive and “imperial” purplish *Pavonazzo*, so often used in Rome. Sometimes, e.g. in the Public Baths, a lot of regional stones are used. So, an own regional decorative style was found in Xanten – with Rome and other provincial cities as examples – whilst integrating somewhat cheaper regional materials. In private buildings, we see that more expensive materials such as *Pavonazzo*, *Porfido Rosso* and *Porfido Verde Antico* were used, pointing to the relative wealth of their inhabitants. Marbles, and in a broader sense also colored decorative stone, reflected thus the luxury and the “*Romanitas*” of the elite on the borders of the Roman Empire. According to the author, future research needs to focus on far more urban, as well as rural settings, using well-documented and statistically representative datasets.

Roland DREESEN & Guido CREEMERS

Sylvia FÜNFSCHILLING, *Die römischen Gläser aus Augst und Kaiseraugst. Kommentierter Formenkatalog und ausgewählte Neufunde 1981-2010 aus Augusta Raurica*. Muttenz, Augusta Raurica, 2015. 2 vol., 713 p., 644 fig., 98 pl., 5 tabl. (FORSCHUNGEN IN AUGST, 51). Prix : 160 €. ISBN 978-3-7151-0051-7.

Le sujet principal de l'ouvrage est l'étude des récipients en verre trouvés de 1981 à 2010 à *Augusta Raurica*, colonie romaine fondée entre 20 et 10 avant J.-C. sur la rive sud du Haut-Rhin, à une douzaine de kilomètres à l'est de Bâle. La chronologie