

Ocene in prikazi / Book reviews

Alessandra Giumlia-Mair (ed.): *Aspects of Ancient Metallurgy, Materials and Manufacturing Techniques*, Vol. 32, Nos. 7–8: pp. 709–925. Taylor & Francis 2017.

Eight years after the 2009 special issue on “Manufacturing techniques from Prehistory to the Renaissance”, which covered diverse materials, from stone to glass, painting, metals and ceramics, archaeology has once again been the theme of the Journal Materials and Manufacturing Processes. The 2017 special issue is entirely dedicated to various “Aspects of Ancient Metallurgy”, from the mining of ores, through smelting, distribution, workshops, finished products and special technologies and the finishing of objects. The essays in this volume highlight the production and processing of metals through the ages, from the beginning of metallurgy to medieval times, and covers various regions, from Portugal to the UK, from Italy to Central Europe, to the Near East, Africa, India and South America.

Since at least two decades scientific analyses are an integral part of archaeological research, so much so that there are cases in which some kind of analytical work is carried out just because having analytical data attached to a paper as an appendix is “fashionable” and seems to be a must for the modern archaeologist, these studies are often without connection to relevant research. The papers collected in this issue focus on finds and objects in context, as cultural documentation and key for the understanding of a period. For these studies, the authors used manifold approaches, comparing previous studies and reading ancient texts, applying anthropological examination and detective work, as well as, obviously, analytical methods.

What we have learnt in the few decades since the study of systematic ancient metallurgy was born, is that we must know where metals come from, how they were smelted, how the working processes and alloying practices changed their properties, and how they were worked, and that all this cannot be separated from the cultural, historical, and archaeological context. Only in this way can we untangle complex tales and hidden matters, discover technology transfers, ritual usages, sophisticated processes, religious meanings and artisans’ accomplishments from items placed in burials, lost in battles, and sold in far away ancient towns. Scientific testing and classical, historical and archaeological examination must be employed in parallel.

This special issue is divided into two sections: the first is dedicated to mining, and to gold, tin, and copper and its alloys, the second to the extraction and working of iron. Both sections present new studies carried out on old and new materials. Several illustrate the characteristics and details of amazing pieces, sometimes from little-known regions. The issue begins with an excellent and comprehensive study by Simon Timberlake on Early-Middle Bronze Age mines in Britain, covering copper, tin, gold and lead-silver prospection, extraction, tools, dating and provenancing. In her outstanding contribution, Barbara Armbruster presents the manufacture of superb gold jewellery from a Bronze Age hoard found at Guînes, Pas-de-Calais, in northern

France. Xose-Lois Armada et al. discuss the manufacture of the Recouso treasure, a hoard of Iron Age gold objects from the Iberian Peninsula, with particular attention to the study of the cores and organic remains inside the gold pieces. Natalia Rueda Guerrero and Jairo Escobar Gutiérrez reconstruct the production process of the long-lost Muisca Siecha raft from Columbia by reverse engineering methodology, a new application of computer-aided calculations. Salvador Rovira and Martina Renzi give a brilliant overview of early technologies for metal production in the Iberian peninsula, and Figueredo et al. illustrate their recent experimental work on the smelting of tin ores. Two contributions on Chalcolithic materials from Portugal follow: the first by Pedro Valério et al. on São Pedro, and the second by Filipa Pereira et al. on Moita da Ladra. Ana Ávila de Melo et al. discuss the peculiar manufacturing technique and the possible provenance of a Middle Bronze Age pin from Tapada da Ajuda (Lisbon, Portugal). Iron Age materials from a workshop in Northern Italy are discussed by Livia Stefan et al. The part on Prehistoric copper is concluded by an interesting paper by Sharada Srinivasan on the Peninsular Indian bowls from Adichanallur and Boregaon in India, made of high tin beta bronze, that, because of their unusual composition, had to be worked in a special way. Presentations on Roman materials begin with the paper by Arne Jouttijärvi, on Roman alloying practice, based on an amazingly large database of around 8900 analyses. Filipa Lopes et al. discuss the anthropomorphic handle attachments of the Roman situlae from Conimbriga (Portugal). Estelle Ottenwelter et al. describe in detail the production process of Early Medieval “Gombiky”, i.e. spherical pendants made of precious metals or gilded copper, from the “Lumbe Garden” cemetery at the Prague Castle.

The section on iron begins with a paper by Alessandra Giumlia-Mair et al. on an Iron Age smithy in Zambana (Trento) in northern Italy. Janet Lang gives an excellent overview of Roman iron and steel, and also discusses the production of steel in the furnace, surface carburization and fire welding. Adam Thiele et al. present the metallographic examination of two medieval knives from Kobilić (Republic of Croatia), one of which is pattern-welded and, at least for the moment, the only example of this technique in Croatia. Francisco Javier Franco Pérez and Marc Gener Moret discuss the extensive work carried out in the “haizeolac”, the mountain-side ironworks in Biscay (Basque Country, Spain): survey, excavation, experimentation and materials characterization. Jiří Hošek et al. present the metallographic work carried out on an interesting example of pattern-welded and silver-inlaid sword, excavated at Kyjov, in the Czech Republic, and describe their experience with the manufacturing process of the replica. Papers on non-European materials consist in Vincent Serneels’ work on the smelting site of Korsimoro in Burkina Faso, where he conducted two fieldwork campaigns in 2011 and 2012, and identified chronologically separated and different traditions in the period between 600 and 1000 AD. Sharada Srinivasan describes the technique of production and the characteristics of ultra-high carbon

“wootz” from Tamil Nadu at Mel-siruvalur. This very special steel was apparently exported to the West in antiquity and might be the famous *ferrum Indicum*, mentioned by Greek and Latin texts. Finally, the last paper, by Béla Török et al., discusses the manufacturing process of Medieval arrowheads and chain-mail fragments from the Crusader Al-Marqab citadel (Syria).

This publication contains papers presenting scientifically revealed details of our past. Technology played a central role in these studies, but the archaeological input has been fundamental in all cases. Through a common effort, we have the ability to reconstruct the technical history of the artefacts and to reveal the individual experience of the ancient metalworkers.

Alessandra GIUMLIA-MAIR

Sara Zanni (ur.): *La route antique et médiévale: nouvelles approches, nouveaux outils*, Actes de la table ronde internationale, Bordeaux, 15 novembre 2016, Ausonius Éditions, Scripta Antiqua 106, Bordeaux 2017, ISBN: 978-2-35613-204-8. 175 strani.

V knjigi so objavljeni prispevki z okrogle mize, ki je potekala v letu 2016 na univerzi Bordeaux Montaigne in na kateri je sodelovalo deset raziskovalcev iz Akvitanije, Španije, severne Italije, Sicilije in Srbije. Posvečena je bila mreži cest in poti od prazgodovine do srednjega veka. Prispevki so bili usmerjeni v tri glavne teme: soočenju pisnih in arheoloških virov, uporabi novih tehnologij in njihovim preverbam na terenu (geografski informacijski sistemi, prostorske analize, daljinsko zaznavanje, optimalne poti, letalske fotografije in satelitske slike) ter novim možnostim objave cestnih mrež.

Francis Tassaux je v uvodnem poglavju predstavil razvoj kart antične poselitve in rimskih cest na območju Akvitanije. Obdobje po letu 2000 zaznamujejo mikroregionalne študije, ki se posvečajo poselitveni dinamiki in arheologiji pokrajine. Veliko vlogo v raziskavah imajo sistematični terenski pregledi in različne oblike daljinskega zaznavanja. Prispevek zaključí s pogledom v prihodnost, novimi raziskovalnimi perspektivami in možnostmi novih načinov objav. Osnovni cilj modernih študij je rekonstrukcija cestne mreže, hierarhija cest ter določitev funkcij posameznih prometnih povezav. Pri rekonstrukciji poteka posameznih odsekov cest priporoča določitev različnih stopenj zanesljivosti.

Florence Verdin s sodelavci je predstavila raziskave prazgodovinskih, rimskih in srednjeveških cest v Akvitaniji. Uporabili so različne raziskovalne pristope in tehnologije (letalski posnetki, lidarski posnetki z modeliranjem rezultatov, klasični terenski pregledi, pregledi z iskalnikom kovin, sondiranja), ki so omogočili ugotavljanje poteka poti in tudi veliko natančnost lociranja starejših arheoloških podatkov. Med drugim so raziskali pot na lesenih pilotih, ki poteka tik ob atlantski obali in sodi v starejšo železno dobo. Lege naselbin in gomilna grobišča, odkrita z lidarskimi posnetki, kažejo na potek nekdanjih poti.

Isaac Moreno Gallo piše o velikem projektu, posvečenem rimskim cestam v Kastilji. Govori o tehnikah gradnje cest in metodologiji zajema podatkov, ki vključuje klasične arheološke podatke (ledinska imena, epigrafski viri, ostanki

cestišč) in daljinsko zaznavanje. Uspelo jim je identificirati okoli 2400 kilometrov rimskih cest in pripraviti bazo podatkov v okolju GIS.

Davide Comunale je proučeval srednjeveške romarske poti po Siciliji ter jih rekonstruiral s pomočjo pisnih virov in objektov ob poteh.

Raziskave na cesti *Via Claudia Augusta*, ki jih je predstavila Patrizia Basso, so bile usmerjene na širše območje kraja Gazzo Veronese, blizu južnega začetka ceste ob reki Pad. Ob cesti, vidni na letalskih posnetkih, so potekali intenzivni terenski pregledi, na več mestih so naredili sonde. Najdeni so bili ostanki monumentalnih nagrobnih spomenikov. V sondah so tik ob cesti odkrili grobove od srednjeavgustejskega obdobja dalje, ki potrjujejo datacijo gradnje. Kaže, da so grobovi ob cesti pripadali manjšim naselbinam ali vilam, ki so ležale na širšem območju.

Davide Gherdevich je s pomočjo letalskih posnetkov, geografskega informacijskega sistema in prostorske analize poskusil rekonstruirati zgodnesrednjeveško cestno mrežo v Furlaniji. Rezultate je primerjal z dosedanjimi ugotovitvami o poteku rimskih in srednjeveških poti.

Vladimir Petrović govori o cestni povezavi med Zgornjo Mezijo in Tracijo, med naseljema *Timacum Minus* in *Pautalia*.

V zaključnem prispevku Sara Zanni predstavlja metodologijo, ki jo je uporabila pri raziskavi ceste Akvileja–Singidunum. Zanimajo jo zajem terenskih podatkov, metode daljinskega zaznavanja, študij rimskih itinerarjev in kartografska analiza. Govori o različnih možnostih objave rezultatov.

Zbornik je s prikazom različnih raziskovalnih projektov posvečen predvsem pogledu v prihodnost: kako zastavljati raziskovalna vprašanja, kako izbrati primerno metodologijo raziskovanja cestne mreže ter kako rezultate predstaviti strokovni in, ne nazadnje, širši javnosti.

Jana HORVAT

Werner Zanier (ur.): *Die frühromische Holz-Kies-Strasse im Eschenloher Moos*, Münchner Beiträge zur Vor- und Frühgeschichte 64, Bayerische Akademie der Wissenschaften, München 2017, ISBN 978-3-406-10765-8. 2 knjigi. Prva knjiga: 263 strani, 105 slik, 17 tabel. Druga knjiga: 9 prilog.

Murnauer Moos, katerega južni del se imenuje Eschenloher Moos, je eno največjih močvirij na severnem obrobju Alp, z visokim nivojem vode in šoto, katere debelina presega 20 m. Leta 1934 so na območju močvirja Eschenloher Moos v globini 1,7 m naleteli na cesto, grajeno iz lesenih debel in pokrito s plastjo peska. Z vrtinami so določili raven potek ceste prek močvirja, v dolžini več kot 5 km, in domnevali datacijo v rimsko obdobje.

V letu 1996 so se začele nove raziskave, da bi pridobili podatke za natančno datacijo ceste. Zastavljene so bile velikopotezno interdisciplinarno: arheološka sondiranja, vrtine, georadarske raziskave, analiza lidarskih posnetkov, dendrologija in dendrokronologija, radiokarbonske datacije, palinološke in geološke raziskave.

Arheološke terenske raziskave je v knjigi predstavil Mark Bankus. Odprta je bila 14 × 4,4 m velika površina. Prečno na potek ceste so bila neposredno na šoto položena debela. Širina ceste je bila 4,8 m. Debla je pokrivala do 10 cm