

ARCL3001: Archaeometallurgy: Marcos Martinon-Torres

[View Online](#)

Agricola, Georgius, Hoover, Herbert, and Hoover, Lou Henry. 1950. *De Re Metallica*. New York: Dover.

Anguilano, L., Th. Rehren, W. Muller, and B. Rothenberg. 2009. 'Silver Production at Rio Tinto during Roman Occupation'. Proceedings: ISA 2006 : 36th International Symposium on Archaeometry : 2-6 May 2006, Quebec City, Canada Cahiers d'archéologie du CELAT.:433-44.

Anon. 2004. 'Main Archaeo-Metallurgical Bibliography'. Retrieved (<http://users.ox.ac.uk/~salter/arch-metals/met-bib-ak.htm>).

Anon. 2010. 'Archaeometallurgy: Technological, Economic and Social Perspectives in Late Prehistoric Europe (TESME).Trabajos de Prehistoria'. Trabajos de Prehistoria 67(2).

Anon. 2015. 'Archaeometallurgy. Guidelines for Best Practice'.

Anon. n.d.-a. 'Abstract of International Conservation Literature'. Retrieved (<http://aata.getty.edu/Home>).

Anon. n.d.-b. 'Archaeological and Anthropological Sciences'. Retrieved (<http://www.springer.com/earth+sciences+and+geography/journal/12520>).

Anon. n.d.-c. 'Archaeometry'.

Anon. n.d.-d. 'Arch-Metals Online Discussion List'. Retrieved (<https://www.jiscmail.ac.uk/cgi-bin/webadmin?A0=arch-metals>).

Anon. n.d.-e. 'Historical Metallurgy - The Journal'. Retrieved (<http://hist-met.org/publications/historical-metallurgy-the-journal.html>).

Anon. n.d.-f. 'HMS Datasheets'. Retrieved (<http://hist-met.org/resources/datasheets.html>).

Anon. n.d.-g. 'Journal of Archaeological Science - Elsevier'.

Archaeometallurgy in Europe. 2015. Archaeometallurgy in Europe III: Proceedings of the 3rd International Conference, Deutsches Bergbau-Museum Bochum, June 29-July 1, 2011. Vol. Der Anschnitt. Beiheft. edited by A. Hauptmann and D. Modarressi-Tehrani. Bochum: Deutsches Bergbau-Museum.

Archaeometallurgy in Europe, Associazione italiana di metallurgia. 2007.
Archaeometallurgy in Europe: 2nd International Conference, Aquileia, Italy, 17-21 June 2007 : Selected Papers. Milano: AIM.

Associazione italiana di metallurgia. 2003. Archaeometallurgy in Europe: International Conference, 24-25-26 September 2003, Milan, Italy : Proceedings. Milano: Associazione italiana di metallurgia.

Bareham, T. n.d. 'Bronze Casting Experiments'. Historical Metallurgy: Journal of the Historical Metallurgy Society 28(2):112-16.

Bartelheim, M., F. Contreras Cortés, A. Moreno Onorato, M. Murillo-Barroso, and E. Pernicka. 2012. 'The Silver of the South Iberian El Argar Culture: A First Look at Production and Distribution'. Trabajos de Prehistoria 69:293-309.

Bayley, J. 2008. 'Medieval Precious Metal Refining: Archaeology and Contemporary Texts Compared'. Archaeology, History and Science: Integrating Approaches to Ancient Materials Publications of the Institute of Archaeology, University College London:131-50.

Bayley, J. and Butcher, S. 2004. Roman Brooches in Britain: A Technological and Typological Study Based on the Richborough Collection. Vol. Reports of the Research Committee of the Society of Antiquaries. London: Society of Antiquaries of London.

Bayley, J., Crossley, David W., and Ponting, Matthew. 2008. Metals and Metalworking: A Research Framework for Archaeometallurgy. Vol. Occasional publication / Historical Metallurgy Society. London: Historical Metallurgy Society.

Bayley, J., David W. Crossley, Matthew Ponting, and Historical Metallurgy Society. 2008. Metals and Metalworking: A Research Framework for Archaeometallurgy. Vol. Occasional publication / Historical Metallurgy Society. London: Historical Metallurgy Society.

Bayley, J., and Th. Rehren. 2007. 'Towards a Functional and Typological Classification of Crucibles'. Pp. 46-55 in Metals and mines: studies in archaeometallurgy, edited by S. La Niece, D. Hook, and P. Craddock. London: Archetype.

Begemann, F., K. Kallas, S. Schmitt-Strecker, and E. Pernicka. 1999. 'Tracing Tin via Isotope Analyses'. The Beginnings of Metallurgy: Proceedings of the International Conference 'The Beginnings of Metallurgy', Bochum 1995 Der Anschnitt. Beiheft:277-84.

Benoit, Paul and Fluzin, Philippe. 1995. Paléométallurgie Du Fer & Cultures. Paris: Association pour l'Edition et la Diffusion des Etudes Historiques.

Biggs, Lynn, Bérénice Bellina, Marcos Martinón-Torres, and Thomas Oliver Pryce. 2013. 'Prehistoric Iron Production Technologies in the Upper Thai-Malay Peninsula: Metallography and Slag Inclusion Analyses of Iron Artefacts from Khao Sam Kaeo and Phu Khao Thong'. Archaeological and Anthropological Sciences 5(4):311-29. doi: 10.1007/s12520-012-0115-2.

Bisson, Michael S. and Vogel, Joseph O. 2000. Ancient African Metallurgy: The Socio-Cultural Context. Walnut Creek, Calif: AltaMira.

Blakelock, Eleanor, Marcos Martinón-Torres, Harald A. Veldhuijzen, and Tim Young. 2009a. 'Slag Inclusions in Iron Objects and the Quest for Provenance: An Experiment and a Case Study'. *Journal of Archaeological Science* 36(8):1745–57. doi: 10.1016/j.jas.2009.03.032.

Blakelock, Eleanor, Marcos Martinón-Torres, Harald A. Veldhuijzen, and Tim Young. 2009b. 'Slag Inclusions in Iron Objects and the Quest for Provenance: An Experiment and a Case Study'. *Journal of Archaeological Science* 36(8):1745–57. doi: 10.1016/j.jas.2009.03.032.

Bray, P. J., and A. M. Pollard. 2012. 'A New Interpretative Approach to the Chemistry of Copper-Alloy Objects: Source, Recycling and Technology'. *Antiquity* 86(333):853–67.

Buchwald, Vagn Fabritius. 2005. Iron and Steel in Ancient Times. Vol. Historisk-filosofiske skrifter. Copenhagen: Det Kongelige Danske Videnskabernes Selskab.

Cardale de Schrimpff, Marianne and Bray, Warwick. 2005. Calima and Malagana: Art and Archaeology in Southwestern Colombia. Bogotá: Pro Calima Foundation.

Cech, Brigitte, and Thilo Rehren, eds. 2014. Early Iron in Europe. Vol. Monographies instrumentum. Montagnac: Éditions Monique Mergoil.

Charlton, Michael F., Eleanor Blakelock, Marcos Martinón-Torres, and Tim Young. 2012. 'Investigating the Production Provenance of Iron Artifacts with Multivariate Methods'. *Journal of Archaeological Science* 39(7):2280–93. doi: 10.1016/j.jas.2012.02.037.

Charlton, Michael F., Peter Crew, Thilo Rehren, and Stephen J. Shennan. 2010. 'Explaining the Evolution of Ironmaking Recipes – An Example from Northwest Wales'. *Journal of Anthropological Archaeology* 29(3):352–67. doi: 10.1016/j.jaa.2010.05.001.

Chernych, E. N. 2002. 'Some of the Most Important Aspects and Problems of Early Metal Age Studying'. Pp. 25–31 in *The beginnings of metallurgy in the old world*. Vol. Forschungen zur Archäometrie und Altertumswissenschaft. Rahden, Westf: Verlag Marie Leidorf.

Cochet, André and Pernot, Michel. 2000. *Le Plomb En Gaule Romaine: Techniques de Fabrication et Produits*. Vol. Monographies instrumentum. Montagnac: Monique Mergoil.

Cohen, C. R., Th. Rehren, and M. Van Buren. 2009. 'When the Wind Blows: Environmental Adaptability in Current Day Silver Production within the Bolivian Andes'. Proceedings: ISA 2006 : 36th International Symposium on Archaeometry : 2-6 May 2006, Quebec City, Canada Cahiers d'archéologie du CELAT.:465–75.

Coustures, M. P., D. Beziat, F. Tollon, C. Domergue, L. Long, and A. Rebiscoul. 2003. 'The Use of Trace Element Analysis of Entrapped Slag Inclusions to Establish Ore-Bar Iron Links: Examples from Two Gallo-Roman Iron-Making Sites in France (Les Martys, Montagne Noire and Les Ferrys, Loiret)'. *Archaeometry* 45(4):599–613. doi: 10.1046/j.1475-4754.2003.00131.x.

Craddock, P. 1989. 'The Scientific Investigation of Early Mining and Metallurgy'. *Scientific Analysis in Archaeology and Its Interpretation* UCLA Institute of Archaeology, archaeological research tools:178–212.

Craddock, P., and K. Eckstein. 2003. 'Production of Brass in Antiquity by Direct Reduction'. *Mining and Metal Production through the Ages* 216–30.

Craddock, P. T. 1989. 'The Scientific Investigation of Early Mining and Smelting'. Pp. 178–212 in *Scientific analysis in archaeology and its interpretation*. Vol. UCLA Institute of Archaeology, archaeological research tools. Oxford: Oxford University Committee for Archaeology, Institute of Archaeology.

Craddock, P. T. 1991a. 'Mining and Smelting in Antiquity'. Pp. 57–73 in *Science and the past*. London: British Museum Press.

Craddock, P. T. 1991b. 'Mining and Smelting in Antiquity'. Pp. 57–73 in *Science and the past*. London: British Museum Press.

Craddock, P. T. 1995a. *Early Metal Mining and Production*. Edinburgh: Edinburgh University Press.

Craddock, P. T. 1995b. *Early Metal Mining and Production*. Edinburgh: Edinburgh University Press.

Craddock, P. T. 1995c. *Early Metal Mining and Production*. Edinburgh: Edinburgh University Press.

Craddock, P. T. 1995d. *Early Metal Mining and Production*. Edinburgh: Edinburgh University Press.

Craddock, P. T. and British Museum. 1998. *2000 Years of Zinc and Brass*. Vol. Occasional paper / British Museum. Rev. ed. London: British Museum.

Craddock, P. T., and D. Hook. 2012. 'An Economic History of the Post-Medieval World in 50 Ingots: The British Museum Collection of Ingots from Dated Wrecks.' *The British Museum Technical Research Bulletin* 6:55–68.

Craddock, P. T. and Lang, Janet. 2003. *Mining and Metal Production through the Ages*. London: British Museum.

Craddock, Paul. 1999. 'Paradigms of Metallurgical Innovation in Prehistoric Europe'. *The Beginnings of Metallurgy Der Anschnitt*. Beiheft:175–92.

Crew, P. 1991. 'The Experimental Production of Prehistoric Bar Iron'. *Historical Metallurgy: Journal of the Historical Metallurgy Society* 25:21–36.

Crew, Peter and Crew, Susan. 1990. *Early Mining in the British Isles: Proceedings of the Early Mining Workshop at Plas Tan y Bwlch, Snowdonia National Park Study Centre*, 17–19 November, 1989. Vol. *Plas Tan y Bwlch occasional paper*. Tan y Bwlch, Gwynedd: Plas Tan y Bwlch, Snowdonia National Park Study Centre.

Crossley, D. 1996. 'The Blast Furnace at Rockley, South Yorkshire'. *The Archaeological Journal* 152:291–380.

Desaulty, Anne-Marie, Philippe Dillmann, Maxime L'Héritiera, Clarisse Mariet, Bernard

Gratuze, Jean-Louis Joron, and Philippe Fluzin. 2009. 'Does It Come from the Pays de Bray? Examination of an Origin Hypothesis for the Ferrous Reinforcements Used in French Medieval Churches Using Major and Trace Element Analyses'. *Journal of Archaeological Science* 36(10):2445–62. doi: 10.1016/j.jas.2009.07.002.

Diaz-Andreu, M., and I. Montero. 2000. 'Metallurgy and Social Dynamics in the Later Prehistory of Mediterranean Spain'. Pp. 116–32 in *Metals make the world go round: the supply and circulation of metals in Bronze Age Europe : proceedings of a conference held at the University of Birmingham in June 1997*. Oxford: Oxbow.

Duncan E. Miller and Nikolaas J. Van Der Merwe. n.d. 'Early Metal Working in Sub-Saharan Africa: A Review of Recent Research'. *The Journal of African History* 35(1):1–36.

Dungworth, David. 1997a. 'Iron Age and Roman Copper Alloys from Northern Britain'. *Internet Archaeology* 2.

Dungworth, David. 1997b. 'Roman Copper Alloys: Analysis of Artefacts from Northern Britain'. *Journal of Archaeological Science* 24(10):901–10. doi: 10.1006/jasc.1996.0169.

Freestone, I. C., and M. S. Tite. 1986. 'Refractories in the Ancient and Preindustrial World'. Pp. 35–63 in *High technology ceramics: past, present, and future : the nature of innovation and change in ceramic technology*, edited by W. D. Kingery. Westerville (OH): The American Ceramic Society.

Gassmann, G. 2002. 'Recent Discoveries and Excavations of 6th-2nd Century BC Furnaces in SW Germany'. *Historical Metallurgy: Journal of the Historical Metallurgy Society* 36(2):71–77.

Giumlia-Mair, Alessandra R. and Lo Schiavo, Fulvia. 2003. *The Problem of Early Tin*. Vol. BAR international series. Oxford: Archaeopress.

Guerra, M. F., T. Calligaro, and A. Perea. 2007. 'The Treasure of Guarrazar: Tracing the Gold Supplies in the Visigothic Iberian Peninsula'. *Archaeometry* 49(1):53–74. doi: 10.1111/j.1475-4754.2007.00287.x.

Hauptmann, A. 2014. 'The Investigation of Archaeometallurgical Slag'. Pp. 91–106 in *Archaeometallurgy in global perspective: methods and syntheses*, edited by B. W. Roberts and C. P. Thornton. New York: Springer.

Hauptmann, Andreas. 2003. 'Developments in Copper Metallurgy During the Fourth and Third Millennia BC at Feinan, Jordan'. *Mining and Metal Production through the Ages* 90–100.

Hauptmann, Andreas. 2007. *The Archaeometallurgy of Copper: Evidence from Faynan, Jordan*. Vol. Natural science in archaeology. Berlin: Springer.

Haustein, M., C. Gillis, and E. Pernicka. 2010. 'Tin Isotropy - A New Method for Solving Old Questions'. *Archaeometry* 52(5):816–32. doi: 10.1111/j.1475-4754.2010.00515.x.

Hayman, Richard. 2005. *Ironmaking: The History and Archaeology of the Iron Industry*. Stroud: Tempus.

Henderson, J. 2000. 'Metals'. Pp. 208–96 in *The science and archaeology of materials: an investigation of inorganic materials*. London: Routledge.

Henderson, Julian. 2000. *The Science and Archaeology of Materials: An Investigation of Inorganic Materials*. London: Routledge.

Herbert, Eugenia W. 1984. *Red Gold of Africa: Copper in Precolonial History and Culture*. Madison, Wis: University of Wisconsin Press.

Holl, Augustin F. C. 2009. 'Early West African Metallurgies: New Data and Old Orthodoxy'. *Journal of World Prehistory* 22(4):415–38. doi: 10.1007/s10963-009-9030-6.

Hošek, Jiří, Henry Cleere,

L

,

ubomír Mihok, Radomír Pleiner, and Archeologický ústav (Akademie věd České republiky). 2011. *The Archaeometallurgy of Iron: Recent Developments in Archaeological and Scientific Research*. Praha: Institute of Archaeology of the ASCR.

Host-Madsen, L., and V. F. Buchwald. n.d. 'The Characterization and Provenancing of Ore, Slag and Iron from the Iron Age Settlements at Snorup.' *Historical Metallurgy: Journal of the Historical Metallurgy Society* 33:57–67.

Humphris, Jane, Marcos Martinón-Torres, Thilo Rehren, and Andrew Reid. 2009. 'Variability in Single Smelting Episodes – a Pilot Study Using Iron Slag from Uganda'. *Journal of Archaeological Science* 36(2):359–69. doi: 10.1016/j.jas.2008.09.020.

Humphris, Jane and Rehren, Thilo. 2013a. *The World of Iron*. London: Archetype.

Humphris, Jane and Rehren, Thilo. 2013b. *The World of Iron*. London: Archetype.

Hunt Ortiz, Mark A. 2003. *Prehistoric Mining and Metallurgy in South West Iberian Peninsula*. Vol. BAR international series. Oxford: Archaeopress.

Hunter, F., and M. Davis. 1994. 'Early Bronze Age Lead - a Unique Necklace from Southeast Scotland'. *Antiquity* 68(261):824–30.

Iles, L., and S. T. Childs. 2014. 'Ethnoarchaeological and Historical Methods'. Pp. 193–216 in *Archaeometallurgy in Global Perspective: Methods and Syntheses*, edited by B. W. Roberts and C. P. Thornton. New York: Springer.

Iles, Louise, and Marcos Martinón-Torres. 2009. 'Pastoralist Iron Production on the Laikipia Plateau, Kenya: Wider Implications for Archaeometallurgical Studies'. *Journal of Archaeological Science* 36(10):2314–26. doi: 10.1016/j.jas.2009.06.023.

Joosten, Ineke. 2004. *Technology of Early Historical Iron Production in the Netherlands*. Vol. *Geoarchaeological and bioarchaeological Studies*. Amsterdam: Institute for Geo- and Bioarchaeology, Vrije Universiteit.

Kassianidou, V. 1998. 'Was Silver Actually Recovered from Speiss in Antiquity?' *Metallurgica Antiqua: In Honour of Hans-Gert Bachmann and Robert Maddin*

Anschnitt:69–76.

Kassianidou, V., and A. B. Knapp. 2005. 'Archaeometallurgy in the Mediterranean: The Social Context of Mining, Technology and Trade'. *The Archaeology of Mediterranean Prehistory Blackwell studies in global archaeology*:215–51.

Killick, D. 1991. 'The Relevance of Recent Iron-Smelting Practice to Reconstructions of Prehistoric Smelting Technology'. *Recent Trends in Archaeometallurgical Research MASCA research papers in science and archaeology*:47–54.

Killick, D. 1995. 'Variation in African Iron-Smelting Practice: Implications for the Study of Prehistoric Iron Technology in Europe'. *Paléométallurgie Du Fer & Cultures: Actes Du Symposium International Du Comité Pour La Sidérurgie Ancienne de l'Union Internationale Des Sciences Préhistoriques et Protohistoriques*, Belfort - Sévenans, Institut Polytechnique de Sévenans, 1-2-3 Novembre 1990.

Killick, D. 2004. 'What Do We Know about African Iron Working?' *Journal of African Archaeology* 2(1):97–112.

Killick, D. 2014. 'From Ores to Metals'. Pp. 11–46 in *Archaeometallurgy in global perspective: methods and syntheses*, edited by B. W. Roberts and C. P. Thornton. New York: Springer.

Killick, David. 2001. 'Science, Speculation and the Origins of Extractive Metallurgy'. Pp. 483–92 in *Handbook of archaeological sciences*. Chichester: John Wiley.

Killick, David. 2009a. 'Cairo to Cape: The Spread of Metallurgy Through Eastern and Southern Africa'. *Journal of World Prehistory* 22(4):399–414. doi: 10.1007/s10963-009-9025-3.

Killick, David. 2009b. 'Cairo to Cape: The Spread of Metallurgy Through Eastern and Southern Africa'. *Journal of World Prehistory* 22(4):399–414. doi: 10.1007/s10963-009-9025-3.

Killick, David, and Thomas Fenn. 2012. 'Archaeometallurgy: The Study of Preindustrial Mining and Metallurgy'. *Annual Review of Anthropology* 41(1):559–75. doi: 10.1146/annurev-anthro-092611-145719.

La Niece, S., and N. Meeks. 2000. 'Diversity of Goldsmithing Traditions in the Americas and the Old World'. *Precolumbian Gold: Technology, Style and Iconography* 220–39.

La Niece, Susan and Craddock, P. T. 1993. *Metal Plating and Patination: Cultural, Technical and Historical Developments*. Oxford: Butterworth-Heinemann.

La Niece, Susan, Duncan R. Hook, P. T. Craddock, and British Museum. 2007. *Metals and Mines: Studies in Archaeometallurgy*. London: Archetype in association with the British Museum.

Lambert, Joseph B. 1997a. 'Metals'. Pp. 168–213 in *Traces of the past: unravelling the secrets of archaeology through chemistry*. Vol. Helix books. Reading, Mass: Addison-Wesley.

Lambert, Joseph B. 1997b. 'Metals'. Pp. 168–213 in Traces of the past: unravelling the secrets of archaeology through chemistry. Vol. Helix books. Reading, Mass: Addison-Wesley.

Lambert, Joseph B. 1997. Traces of the Past: Unraveling the Secrets of Archaeology through Chemistry. Vol. Helix books. Cambridge, Mass: Perseus.

Lechtman, H. 1973. 'The Gilding of Metals in Pre-Columbian Peru'. Application of Science in Examination of Works of Art: Proceedings of the Seminar: June 15-19, 1970, Conducted by the Research Laboratory, Museum of Fine Arts, Boston, Massachusetts 38–52.

Lechtman, H. 1988. 'Traditions and Styles in Central Andean Metalworking'. The Beginning of the Use of Metals and Alloys: Papers from the Second International Conference on the Beginning of the Use of Metals and Alloys, Zhengzhou, China, 21-26 October, 1986 344–78.

Lechtman, Heather. 1984. 'Pre-Columbian Surface Metallurgy'. *Scientific American* 250(6):56–63. doi: 10.1038/scientificamerican0684-56.

Leusch, Verena, Barbara Armbruster, Ernst Pernicka, and Vladimir Slavčev. 2015. 'On the Invention of Gold Metallurgy: The Gold Objects from the Varna I Cemetery (Bulgaria)—Technological Consequence and Inventive Creativity'. *Cambridge Archaeological Journal* 25(01):353–76. doi: 10.1017/S0959774314001140.

Levy, Thomas E., Russell B. Adams, Andreas Hauptmann, Michael Prange, Sigrid Schmitt-Strecker, and Mohammad Najjar. 2002. 'Early Bronze Age Metallurgy: A Newly Discovered Copper Manufactory in Southern Jordan'. *Antiquity* 76(292):425–37. doi: 10.1017/S0003598X00090530.

Liu, Siran, Kai Wang, Quanfa Cai, and Jianli Chen. 2013. 'Microscopic Study of Chinese Bronze Casting Moulds from the Eastern Zhou Period'. *Journal of Archaeological Science* 40(5):2402–14. doi: 10.1016/j.jas.2012.11.010.

Lleras Pérez, Roberto. 1999. Prehispanic Metallurgy and Votive Offerings in the Eastern Cordillera Colombia. Vol. BAR international series. Oxford: Archaeopress.

MacDonald, Kevin C., Robert Vernet, Marcos Martinón-Torres, and Dorian Q. Fuller. 2009. 'Dhar Néma: From Early Agriculture to Metallurgy in Southeastern Mauritania'. *Azania: Archaeological Research in Africa* 44(1):3–48. doi: 10.1080/00671990902811330.

Martinis-Torres, M., and Th. Rehren. 2009. 'Post-Medieval Crucible Production and Distribution: A Study of Materials and Materialities'. *Archaeometry* 51(1):49–74. doi: 10.1111/j.1475-4754.2007.00380.x.

Martinón-Torres, M. 2012. 'Inside Solomon's House: An Archaeological Study of the Old Ashmolean Chymical Laboratory in Oxford'. *Ambix* 59(1):22–48.

Martinón-Torres, M., and T. Rehren. 2005. 'Alchemy, Chemistry and Metallurgy in Renaissance Europe. A Wider Context for Fire Assay Remains'. *Historical Metallurgy: Journal of the Historical Metallurgy Society* 39(1):14–31.

Martinón-Torres, M., T. Rehren, and S. von Osten. 2003. 'A 16th Century Lab in a 21st Century Lab: Archaeometric Study of the Laboratory Equipment from Oberstockstall'. *Antiquity* 77(298). Retrieved (<http://antiquity.ac.uk/projgall/martinon/>).

Martinón-Torres, M., and Th. Rehren. 2002. 'Agricola and Zwickau: Theory and Practice of Renaissance Brass Production in SE Germany'. *Historical Metallurgy: Journal of the Historical Metallurgy Society* 36:95–111.

Martinón-Torres, M., and Th. Rehren. 2014. 'Tecnhical Ceramics'. Pp. 107–31 in *Archaeometallurgy in global perspective: methods and syntheses*, edited by B. W. Roberts and C. P. Thornton. New York: Springer.

Martinón-Torres, M., N. Thomas, Th. Rehren, and A. Mongiatti. 2008. 'Some Problems and Potentials of the Study of Cupellation Remains: The Case of Post-Medieval Montbéliard'. *ArcheoSciences: Revue d'Archeometrie* 32:59–70.

Martinón-Torres, Marcos. 2012. 'The Archaeology of Alchemy and Chemistry in the Early Modern World: An Afterthought'. *Archaeology International* 15. doi: 10.5334/ai.1508.

Martinón-Torres, Marcos, Jago Cooper, Roberto Valcárcel Rojas, and Thilo Rehren. 2006. 'Diversifying the Picture: Indigenous Responses to European Arrival in Cuba'. *Archaeology International* 10. doi: 10.5334/ai.1008.

Martinón-Torres, Marcos, Xiuzhen Janice Li, Andrew Bevan, Yin Xia, Kun Zhao, and Thilo Rehren. 2012. 'Forty Thousand Arms for a Single Emperor: From Chemical Data to the Labor Organization Behind the Bronze Arrows of the Terracotta Army'. *Journal of Archaeological Method and Theory*. doi: 10.1007/s10816-012-9158-z.

Martinón-Torres, Marcos, Roberto Valcárcel Rojas, Jago Cooper, and Thilo Rehren. 2007. 'Metals, Microanalysis and Meaning: A Study of Metal Objects Excavated from the Indigenous Cemetery of El Chorro de Maíta, Cuba'. *Journal of Archaeological Science* 34(2):194–204. doi: 10.1016/j.jas.2006.04.013.

Martinón-Torres, Marcos, and María Alicia Uribe-Villegas. 2015a. 'The Prehistoric Individual, Connoisseurship and Archaeological Science: The Muisca Goldwork of Colombia'. *Journal of Archaeological Science* 63:136–55. doi: 10.1016/j.jas.2015.08.014.

Martinón-Torres, Marcos, and María Alicia Uribe-Villegas. 2015b. 'The Prehistoric Individual, Connoisseurship and Archaeological Science: The Muisca Goldwork of Colombia'. *Journal of Archaeological Science* 63:136–55. doi: 10.1016/j.jas.2015.08.014.

Martinón-Torres, Marcos, Roberto Valcárcel Rojas, Juanita Sáenz Samper, and María Filomena Guerra. 2012. 'Metallic Encounters in Cuba: The Technology, Exchange and Meaning of Metals before and after Columbus'. *Journal of Anthropological Archaeology* 31(4):439–54. doi: 10.1016/j.jaa.2012.03.006.

Mary Van Buren and Barbara H. Mills. 2005a. 'Huayrachinas and Tocochimbos: Traditional Smelting Technology of the Southern Andes'. *Latin American Antiquity* 16(1):3–25.

Mary Van Buren and Barbara H. Mills. 2005b. 'Huayrachinas and Tocochimbos: Traditional Smelting Technology of the Southern Andes'. *Latin American Antiquity* 16(1):3–25.

McEwan, Colin. 2000a. *Precolumbian Gold: Technology, Style and Iconography*. London: British Museum Press.

McEwan, Colin. 2000b. *Precolumbian Gold: Technology, Style and Iconography*. London: British Museum Press.

Mei, J. 2009. 'Early Metallurgy in China: Some Challenging Issues in Current Studies'. *Metallurgy and Civilisation: Eurasia and beyond : Proceedings of the 6th International Conference on the Beginnings of the Use of Metals and Alloys (BUMA VI)* 9–16.

Mei, Jianjun, and Thilo Rehren. 2009. *Metallurgy and Civilisation: Eurasia and beyond : Proceedings of the 6th International Conference on the Beginnings of the Use of Metals and Alloys (BUMA VI)*. London: Archetype, and the Institute for Archaeo-Metallurgical Studies, in association with the University of Science and Technology, Beijing.

Mitteldeutscher Archäologentag. 2014. *Metals of Power – Early Gold and Silver [Metalle Der Macht: Frühes Gold Und Silber]*. Vol. Tagungen des Landesmuseums für Vorgeschichte Halle. edited by H. Meller, R. Risch, and E. Pernicka. Halle (Saale): Landesamt für Denkmalpflege und Archäologie Sachsen-Anhalt, Landesmuseum für Vorgeschichte.

Murphy, S., and H. Baldwin. n.d. 'Early Lead Smelting Sites in the Swaledale Area of Yorkshire'. *Historical Metallurgy: Journal of the Historical Metallurgy Society* 35(1):1-22.

Nørbach, Lars Christian. 2003. *Prehistoric and Medieval Direct Iron Smelting in Scandinavia and Europe: Aspects of Technology and Society*. Vol. *Acta Jutlandica*. Aarhus: Aarhus University Press.

Notis, M. R. 2014. 'Metals'. Pp. 47–66 in *Archaeometallurgy in global perspective: methods and syntheses*, edited by B. W. Roberts and C. P. Thornton. New York: Springer.

O'Brien, William. 1996. *Bronze Age Copper Mining in Britain and Ireland*. Princes Risborough: Shire.

Ottaway, B. 2001a. 'Innovation, Production and Specialization in Early Prehistoric Copper Metallurgy'. *European Journal of Archaeology* 4(1):87-112.

Ottaway, B. 2001b. 'Innovation, Production and Specialization in Early Prehistoric Copper Metallurgy'. *European Journal of Archaeology* 4(1):87-112.

Ottaway, Barbara S. and Wang, Quanyu. 2004. *Casting Experiments and Microstructure of Archaeologically Relevant Bronzes*. Vol. BAR international series. Oxford: Archaeopress.

Patterson, Clair C. 1971. 'Native Copper, Silver, and Gold Accessible to Early Metallurgists'. *American Antiquity* 36(3):286-321.

Paul T. CRADDOCK. 2000. 'From Hearth to Furnace : Evidences for the Earliest Metal Smelting Technologies in the Eastern Mediterranean'. *Paléorient* 26(2):151–65.

Paul T. Craddock. 2013. 'Refractories: Ceramics with a Purpose'. *The Old Potter's Almanack* 18(2):9-20.

Paul T. Craddock. 2014. 'Refractories with a Purpose II: Ceramics for Casting'. *The Old Potter's Almanack* 19(1):2-17.

Paynter, S., E. Blakelock, and P. Belford, eds. 2014. 'Iron and Ironworking'. *Historical Metallurgy: Journal of the Historical Metallurgy Society* 48.

Pearce, M. 1998. 'Reconstructing Prehistoric Metallurgical Knowledge: The Northern Italian Copper and Bronze Ages'. *European Journal of Archaeology* 1(1):51-70.

Pernicka, E., Th. Rehren, and S. Schmitt-Strecker. 1998. 'Late Uruk Silver Production by Cupellation at Habuba Kabira, Syria'. *Metallurgica Antiqua: In Honour of Hans-Gert Bachmann and Robert Maddin Anschnitt*:123-34.

Piggott, V. C., and G. Weisgerber. 1998. 'Mining Archaeology in Geological Context. The Prehistoric Copper Mining Complex at Phu Lon, Nong Khai Province, Northeast Thailand'. Pp. 69-76 in *Metallurgica Antiqua*.

Pigott, V. C. 1999. 'Reconstructing the Copper Production Process as Practised among Prehistoric Mining/ Metallurgical Communities in the Khao Wong Prachan Valley of Central Thailand'. *Metals in Antiquity BAR international series*:10-21.

Pigott, V. C., and R. Ciarla. 2007. 'On the Origins of Metallurgy in Prehistoric Southeast Asia: The View from Thailand'. *Metals and Mines: Studies in Archaeometallurgy* 76-88.

Pleiner, Radomír. 2000. *Iron in Archaeology: The European Bloomery Smelters*. Praha: Archeologický ústav AV ČR.

Pleiner, Radomír. 2006. *Iron in Archaeology: Early European Blacksmiths*. Praha: Archeologický ústav AV ČR.

Ponting, Mathew. 2002. 'Keeping up with the Romans? Romanisation and Copper Alloys in First Revolt Palestine'. *IAMS* 22:3-6.

Pryce, T. O., Y. Bassiakos, M. Catapotis, and R. C. Donna. 2007. '"De Caerimoniae". Technological Choices in Copper-Smelting Furnace Design at Early Bronze Age Chrysokamino, Crete'. *Archaeometry* 49(3):543-57. doi: 10.1111/j.1475-4754.2007.00319.x.

Pulak, C. 2000. 'The Copper and Tin Ingots from the Late Bronze Age Shipwreck at Uluburun'. *Anatolian Metal I Veröffentlichungen aus dem Deutschen Bergbau-Museum Bochum*:137-57.

Radivojević, M., T. Rehren, J. Kuzmanović Cvetković, M. Jovanovic, and P. Northover. 2013. 'Tainted Ores and the Rise of Tin Bronzes in Eurasia, c. 6500 Years Ago'. *Antiquity* 87(338):1030-45.

Radivojević, Miljana, Thilo Rehren, Ernst Pernicka, Dušan Šljivar, Michael Brauns, and Dušan Borić. 2010a. 'On the Origins of Extractive Metallurgy: New Evidence from Europe'. *Journal of Archaeological Science* 37(11):2775-87. doi: 10.1016/j.jas.2010.06.012.

Radivojević, Miljana, Thilo Rehren, Ernst Pernicka, Dušan Šljivar, Michael Brauns, and

Dušan Borić. 2010b. 'On the Origins of Extractive Metallurgy: New Evidence from Europe'. *Journal of Archaeological Science* 37(11):2775–87. doi: 10.1016/j.jas.2010.06.012.

Ramage, Andrew, Craddock, P. T., and Cowell, M. R. 2000. King Croesus' Gold: Excavations at Sardis and the History of Gold Refining. London: British Museum Press in association with Archaeological Exploration of Sardis, Harvard University Art Museums.

Rehren, T. 1999. 'The Same... but Different: A Juxtaposition of Roman and Medieval Brass Making in Central Europe'. Pp. 252–57 in *Metals in antiquity*. Vol. BAR international series. Oxford: Archaeopress.

Rehren, T., and M. Martinón-Torres. 2008. 'Naturam Ars Imitata: European Brassmaking between Craft and Science'. Pp. 167–88 in *Archaeology, history and science: integrating approaches to ancient materials*. Vol. Publications of the Institute of Archaeology, University College London. Walnut Creek, CA: Left Coast Press.

Rehren, T., J. Schneider, and C. Bartels. 1999. 'Medieval Lead-Silver Smelting in the Siegerland, West Germany'. *Historical Metallurgy: Journal of the Historical Metallurgy Society* 33:73–84.

Rehren, Th. 1996. 'Alchemy and Fire Assay – an Analytical Approach'. *Historical Metallurgy: Journal of the Historical Metallurgy Society* 30:136–42.

Rehren, Th. 2003. 'Crucibles as Reaction Vessels in Ancient Metallurgy'. Pp. 207–15 in *Mining and metal production through the ages*, edited by P. T. Craddock and J. Lang. London: The British Museum Press.

Rehren, Th., M. Chalton, S. Chirikure, J. Humphris, A. Ige, and H. A. Veldhuijzen. 2007. 'Decisions Set in Slag: The Human Factor in African Iron Smelting'. *Metals and Mines: Studies in Archaeometallurgy* 211–18.

Rehren, Thilo. 2008. 'Metals - Chemical Analysis'. Pp. 1614–16 in *Encyclopedia of Archaeology*. Elsevier.

Rehren, Thilo. 2011. 'The Production of Silver in South America'. *Archaeology International* 13:76–83. doi: 10.5334/ai.1318.

Rehren, Thilo, Tamás Belgya, Albert Jambon, György Káli, Zsolt Kasztovszky, Zoltán Kis, Imre Kovács, Boglárka Maróti, Marcos Martinón-Torres, Gianluca Miniaci, Vincent C. Pigott, Miljana Radivojević, László Rosta, László Szentmiklósi, and Zoltán Szőkefalvi-Nagy. 2013. '5,000 Years Old Egyptian Iron Beads Made from Hammered Meteoritic Iron'. *Journal of Archaeological Science* 40(12):4785–92. doi: 10.1016/j.jas.2013.06.002.

Rehren, Thilo and Prange, Michael. 1998. Teaching Collection (Archaeology / ARCL 3001): Lead Metal and Patina : A Comparison.

Renfrew, Colin. 1999. Before Civilization: The Radiocarbon Revolution and Prehistoric Europe. London: Pimlico.

Roberts, B. W., C. P. Thornton, and V. C. Pigott. 2009. 'Development of Metallurgy in Eurasia'. *Antiquity* 83(322):1012–22.

Roberts, Benjamin W., and Christopher P. Thornton, eds. 2014. *Archaeometallurgy in Global Perspective: Methods and Syntheses*. New York: Springer.

Roger Matthews and Hassan Fazeli. 2004. 'Copper and Complexity: Iran and Mesopotamia in the Fourth Millennium B.C.' *Iran* 42:61-75.

Rostoker, William and Bronson, Bennet. 1990. *Pre-Industrial Iron: Its Technology and Ethnology*. Vol. Archeomaterials monograph. Philadelphia, Pa: [Archeomaterials].

Rothenberg, Benno. and Bachmann, H. G. 1990. *The Ancient Metallurgy of Copper: Archaeology, Experiment, Theory*. Vol. Metal in history. London: Institute for Archaeo-Metallurgical Studies [and] Institute of Archaeology, University College, London.

Rovira, S., M. Lopez-Medina, M. P. Roman-Diaz, and C. Martinez-Padillar. 2004. 'Los Callejones: A Roman Republican Iron Mining and Smelting Centre in the South East of the Iberian Peninsula'. *Historical Metallurgy: Journal of the Historical Metallurgy Society* 38(1):1-9.

Schmidt, Peter R. 1997. *Iron Technology in East Africa: Symbolism, Science, and Archaeology*. Bloomington, IN: Indiana University Press.

Schwab, R., D. HEGER, B. HOPPNER, and E. PERNICKA. 2006. 'The Provenance of Iron Artefacts from Manching: A Multi-Technique Approach'. *Archaeometry* 48(3):433-52. doi: 10.1111/j.1475-4754.2006.00265.x.

Scott, David A. 1991. *Metallography and Microstructure of Ancient and Historic Metals*. [Marina del Rey, CA]: Getty Conservation Institute.

Shadreck Chirikure and Thilo Rehren. 2004. 'Ores, Furnaces, Slags, and Prehistoric Societies: Aspects of Iron Working in the Nyanga Agricultural Complex, AD 1300-1900'. *The African Archaeological Review* 21(3):135-52.

Shennan, S. 1999. 'Cost, Benefit and Value in the Organization of Early European Copper Production'. *Antiquity* 73(280):352-63.

Shimada, I., A. Gordus, J. A. Griffin, and J. F. Merkel. 1999. 'Sicán Alloying, Working and Use of Precious Metals: An Interdisciplinary Perspective'. *Metals in Antiquity BAR international series*:301-9.

Sim, David and Ridge, Isabel. 1998. *Beyond the Bloom: Bloom Refining and Iron Artifact Production in the Roman World*. Vol. BAR international series. Oxford: Archaeopress.

Stanley B. Alpern. 2005. 'Did They or Didn't They Invent It? Iron in Sub-Saharan Africa'. *History in Africa* 32:41-94.

Starley, David. 1999. 'Determining the Technological Origins of Iron and Steel'. *Journal of Archaeological Science* 26(8):1127-33. doi: 10.1006/jasc.1999.0408.

T Kearns, M Martinón-Torres, Th Rehren. 2010. 'Metal to Mould: Alloy Identification in Experimental Casting Moulds Using XRF Available as Print Journal'. *Historical Metallurgy: Journal of the Historical Metallurgy Society* 44(1):48-58.

Thilo, Rehren. 2008. 'Metals: Chemical Analysis'. Pp. 1614–20 in Encyclopedia of archaeology. [Amsterdam?]: ScienceDirect.

Thondhlana, T., and M. Martinón-Torres. 2009. 'Small Size, High Value. Composition and Manufacture of Copper-Base Beads from Second Millennium AD Northern Zimbabwe'. *Journal of African Archaeology* 7(1):79–97.

Timberlake, S. 2003. 'Early Mining Research in Britain: The Developments of the Last Ten Years'. Pp. 22–42 in Mining and metal production through the ages. London: British Museum.

Timberlake, Simon and Mighall, Tim. 2003. Excavations on Copa Hill, Cwmystwyth (1986–1999): An Early Bronze Age Copper Mine within the Uplands of Central Wales. Vol. BAR British series. Oxford: Archaeopress.

Tylecote, R. F. 1987a. The Early History of Metallurgy in Europe. Vol. Longman archaeology series. London: Longman.

Tylecote, R. F. 1987b. The Early History of Metallurgy in Europe. Vol. Longman archaeology series. London: Longman.

Tylecote, R. F. 1987c. The Early History of Metallurgy in Europe. Vol. Longman archaeology series. London: Longman.

Veldhuijzen, H. A., and Th. Rehren. 2007. 'Slags and the City: Early Iron Production at Tell Hammeh, Jordan and Tell Beth-Shemesh, Israel'. *Metals and Mines: Studies in Archaeometallurgy* 189–201.

Villegas, M. A. U., and M. Martinón-Torres. 2012a. 'Composition, Colour and Context in Muisca Votive Metalwork (Colombia, AD 600–1800)'. *Antiquity* 86(333):772–91.

Villegas, M. A. U., and M. Martinón-Torres. 2012b. 'Composition, Colour and Context in Muisca Votive Metalwork (Colombia, AD 600–1800)'. *Antiquity* 86(333):772–91.

Wagner, Donald. 2003. 'Chinese Blast Furnaces from the 10th to the 14th Century'. *Historical Metallurgy: Journal of the Historical Metallurgy Society* 37(1):25–37.

Waldbaum, J. 1999. 'The Coming of Iron in the Eastern Mediterranean'. *The Archaeometallurgy of the Asian Old World University Museum monograph*:27–57.

Wertime, Theodore A. and Muhly, James David. 1980. *The Coming of the Age of Iron*. New Haven: Yale University Press.

Williams, Dyfri and Ogden, Jack. 1994a. *Greek Gold: Jewelry of the Classical World*. New York: Abrams.

Williams, Dyfri and Ogden, Jack. 1994b. *Greek Gold: Jewelry of the Classical World*. New York: Abrams.

Woodhouse, J. 1998. 'Iron in Africa: The Metal from Nowhere'. *Transformations in Africa: Essays on Africa's Later Past* 160–85.

Yener, K. Aslihan. 2000. The Domestication of Metals: The Rise of Complex Metal Industries in Anatolia. Vol. Culture and history of the ancient Near East. Leiden: Brill.

Zacharias, S. 1989. 'Brass Making in Medieval Western Europe'. All That Glitters: Readings in Historical Metallurgy 35-40.

Zhou, Wenli, Marcos Martinón-Torres, Jianli Chen, Haiwang Liu, and Yanxiang Li. 2012. 'Distilling Zinc for the Ming Dynasty: The Technology of Large Scale Zinc Production in Fengdu, Southwest China'. Journal of Archaeological Science 39(4):908-21. doi: 10.1016/j.jas.2011.10.021.