

## LEAD OBJECTS AND ORES

Aguilella Arzo, G., Montero Ruiz, I. 2018. 'Un lingote de plomo plano-convexo hallado en la Ribera de Cabanes (Castellón)', *Quad. Preh. Arq. Cast.* 36: 123-130. <http://repositori.uji.es/xmlui/handle/10234/181783>

Anguilano, L. 2012. Roman lead silver smelting at Rio Tinto: *The case study of Corta Lago. PhD in Archaeology.* University College London. pp 311. <https://discovery.ucl.ac.uk/id/eprint/1348305/1/1348305.pdf>

Anguilano, L., Rehren, T., Müller, W., Rothenberg, B. 2010. 'The importance of lead in the silver production at Riotinto (Spain)', *ArcheoSciences* 34: 269–276. <https://doi.org/10.4000/archeosciences.2833>

Arias, D., Corretge, L.G., Suarez, O., Villa, L., Cuesta, A., Gallastegui, G. 1996. 'Lead and sulfur isotope compositions of the Ibias gold vein system (NW Spain); genetic implications', *Econ. Geol* 91: 1292–1297. <https://doi.org/10.2113/gsecongeo.91.7.1292>

Arribas, A., Tosdal, R.M. 1994. 'Isotopic composition of Pb in ore deposits of the Betic Cordillera Spain: origin and relationship to other European deposits', *Econ. Geol* 89: 1074–1093. <https://doi.org/10.2113/gsecongeo.89.5.1074>

Baron, S., Carignan, J., Laurent S., Ploquin, A. 2006. 'Medieval lead making on Mont-Lozère Massif (Cévennes-France): tracing ore sources using Pb isotopes', *Applied Geochemistry* 21: 241-252. <http://dx.doi.org/10.1016/j.apgeochem.2005.09.005>

Baron, S., Rico, C., Marín, A.A. 2017. 'Le complexe d'ateliers du Cabezo del Pino (Sierra Minera de Cartagena-La Unión, Murcia) et l'organisation de l'activité minière à Carthago Noua à la fin de la République romaine. Apports croisés de l'archéologie et de la géochimie. Arch', *Español Arqueol* 90: 147–169. <https://doi.org/10.3989/aespa.090.017.007>

Begemann, F., Schmitt-Strecker, S., Pernicka, E., Lo Schiavo, F. 2001. 'Chemical composition and lead isotopy of copper and bronze from Nuragic Sardinia', *European Journal of Archaeology* 4: 43-85. <https://doi.org/10.1177/146195710100400102>

Bode, M., Hauptmann, A., Mezger, K. 2009. 'Tracing Roman lead sources using lead isotope analyses in conjunction with archaeological and epigraphic evidence -a case study from Augustan/Tiberian Germania', *Archaeol Anthropol Sci* 1: 177-194. <https://doi.org/10.1007/s12520-009-0017-0>

Boni, M., Koepfel, V. 1985. 'Ore-lead isotope pattern from the Iglesias-Sulcis Area (SW Sardinia) and the problem of remobilization of metals', *Mineralium Deposita* 20: 185–193. <https://doi.org/10.1007/BF00204563>

Boni, M., Di Maio, G., Frei, R., Villa, I.M. 2000. 'Lead isotopic evidence for a mixed provenance for roman water pipes from pompeii', *Archaeometry* 42: 201-208. <https://doi.org/10.1111/j.1475-4754.2000.tb00876.x>

Bontempi, J.M., Di Vacri, M.L., Domergue, C., Fabry, N.B., Ferrante, M., Nestas, A., Nisi, S., Ortoli, V., Ottaviani, J.C., Pasquet, A., Quarati, P., Trincherini, P.R., Vitali, D. 2016. 'Lingots de plomb antiques trouvés dans les eaux de corse-du-sud', *BSSHNC* 754-755: 7-58.

[https://www.academia.edu/34217491/Lingots\\_de\\_Plomb\\_antiques\\_trouv%C3%A9s\\_dans\\_les\\_eaux\\_de\\_Corse\\_du\\_Sud](https://www.academia.edu/34217491/Lingots_de_Plomb_antiques_trouv%C3%A9s_dans_les_eaux_de_Corse_du_Sud)

Bouabdellah, M., Niedermann, S., Velasco, F. 2015. 'The Touissit-Bou Beker Mississippi Valley-type district of Northeastern Morocco: Relationships to the Messinian salinity crisis, Late Neogene-Quaternary alkaline magmatism, and buoyancy-driven fluid convection', *Economic Geology* 110: 1455-1484. <https://doi.org/10.2113/econgeo.110.6.1455>

Bouhlef, S., Garnit, H., Bejaoui, J., Skaggs, S. 2013. 'Lead isotope signatures of the MVT lead-zinc (+/- F) deposits across Central-North Tunisia: Evidence for the heterogeneity in uranium component of the underlying source rocks', *Proceedings of the 12<sup>th</sup> Biennial SGA Meeting, Mineral deposit research for high-tech world*, 12-15 august, Uppsala, Sweden. [https://www.researchgate.net/publication/293175562\\_Lead\\_isotopes\\_signatures\\_of\\_the\\_MVT\\_lead-zinc\\_F\\_deposits\\_across\\_Central-North\\_Tunisia\\_Evidence\\_for\\_the\\_heterogeneity\\_in\\_uranium\\_component\\_of\\_the\\_underlying\\_source\\_rocks](https://www.researchgate.net/publication/293175562_Lead_isotopes_signatures_of_the_MVT_lead-zinc_F_deposits_across_Central-North_Tunisia_Evidence_for_the_heterogeneity_in_uranium_component_of_the_underlying_source_rocks)

Bouhlef, S., Leach, D.L., Johnson, C.A. *et al.* 2016. 'A salt diapir-related Mississippi Valley-type deposit: the Bou Jaber Pb-Zn-Ba-F deposit, Tunisia: fluid inclusion and isotope study', *Mineralium Deposita* 51: 749-780. <https://doi.org/10.1007/s00126-015-0634-8>

Brevart, O., Dupré B, Allègre, C.J. 1982. 'Metallogenic provinces and the remobilization process studied by lead isotopes: lead-zinc ore deposits from the southern Massif Central, France', *Economic Geology* 77, 3: 564-575. <http://dx.doi.org/10.2113/gsecongeo.77.3.564>

Brill, R.H., Barnes, I.L., Tong, S.C., Joel, E.C., Murtaugh, M.J. 1987. 'Laboratory studies of some European artifacts excavated on San Salvador Island', in Gerace, D. (eds.), *Columbus and His World: Proceedings of the First San Salvador Conference. San Salvador, Bahamian Field Station*, pp. 247-292.

Brown, J.S., 1962. 'Ore leads and isotopes', *Econ. Geol* 57: 673-720. <https://doi.org/10.2113/gsecongeo.57.5.673>

Canals, A., Cardellach, E. 1997. 'Ore lead and sulphur isotope pattern from the low-temperature veins of the Catalonian Coastal Ranges (NE Spain)', *Miner. Depos* 32: 243-249. <https://doi.org/10.1007/s001260050089>

Cardellach, E., Canals, A., Pujals, I. 1996. 'La composicion isotopica del azufre y del plomo en las mineralizaciones de Zn-Pb del valle de Aran (Pirineo Central) y su significado metalogenetico', *Estud. Geol* 52: 189-195. <http://dx.doi.org/10.3989/egeol.96525-6265>

Carpintero Lozano, S., López Castro, J.L., Montero Ruiz, I. 2015. 'Metales y metalurgia en la Abdera fenicia. Datos isotópicos sobre la procedencia e intercambio de materias primas', *Arch. Esp. Arqueol.* 88: 7-23. <https://doi.org/10.3989/aespa.088.015.001>

Clemenza, M., Contini, A. Baccolo, G., di Vacri, M.L., Ferrante, M., Nisi, S., Carpinelli, M., Cremonesi, O., Enzo, S., Fiorini, E., Mulas, G., Prata, M., Previtali, E., Salvini, A., Sipala, V. 2017. 'Development of a multi-analytical approach for the characterization of ancient Roman lead ingots', *J. Radioanal Nucl Chem*, 311: 1495-1501. <https://doi.org/10.1007/s10967-016-5040-x>

Dayton, J.E., Dayton, A. 1986. 'Uses and Limitations of Lead Isotopes in Archaeology', in Olin, J.S., Blackman, M.J. (eds.), *Proceedings of the 24th International Archaeometry Symposium*: 13–41

Di Vacri, M.L., Ferrante, M., Nisi, S., Trincherini P.R., Pardini, G. 2017. 'Misure dei rapporti isotopici di piombo su monete di Ybshm/Ebusus e su alcune imitazioni di area campana'. in Rinvenimenti monetali e circolazione a Pompei. pp 237-286

Domergue, C., Quarati P., Nesta A. 2012. 'Retour sur les lingots de plomb de Comacchino (Ferrara Italie) en passant par l'archéométrie et l'épigraphie', *ArXiv physics and Society*:81-104. <https://arxiv.org/abs/physics/0605044>

Domergue, C., Di Vacri, M.L., Fernández Izquierdo, A., Ferrante, M., Nesta, A., Nisi, S., Quarati, P., Rico Chr., Trincherini, P.R. 2016. 'Les lingots de plom hispano-romains de Q.Vireius'. *Quad. Preh. Arq.* 34: 177-196. <https://core.ac.uk/download/pdf/80522798.pdf>

Domergue, C., Quarati, P., Nesta, A., Obejero, G., Trincherini, P.R. 2012. 'Les isotopes du plomb et l'identification des lingots de plomb romains des mines de Sierra Morena. Questons de méthode: l'exemple des lingots de l'épave Cabrera 4'. *L'Antiquité en partage Itinéraires d'histoire et d'archéologie*, 90: 243-256. <https://www.jstor.org/stable/43606139>

Durali-Mueller, S., Peter Brey, G., Wigg-Wolf, D., Lahaye, Y. 2007. 'Roman lead mining in Germany: its origin and development through time deduced from lead isotope provenance studies', *Journal of Archaeological Science*, 34: 155-1567. <https://doi.org/10.1016/j.jas.2006.11.009>

D'Orazio, M., Biagioni, C., Dini, A., Vezzoni, S. 2017. 'Thallium-rich pyrite ores from the Apuan Alps, Tuscany, Italy: constraints for their origin and environmental concerns', *Mineralium Deposita* 52: 687-707. <https://doi.org/10.1007/s00126-016-0697-1>

Fernández Díaz, M., Quejido Cabezas, A.J. 1997. 'Análisis isotópico de plomo en galenas por TIMS', in: *I Congreso Ibérico de Geoquímica-VII Congreso de Geoquímica de España. Soria, España*: 39–45.

Gale, N.H. 1980. 'Some aspects of lead and silver Mining in the Aegean', in: Dumas, C. (eds.), *Thera and the Aegean World*. London: 161–195.

García de Madinabeitia, S., 2003. *Implementación y aplicación de los análisis isotópicos de Pb al estudio de las mineralizaciones y la geocronología del área Los Pedroches-Alcudia (Zona Centro-Ibérica)*. Serie Tesis Doctorales. UPV/EHU.

García-Sansegundo, J., Martin-Izard, A., Gavalda, J. 2014. 'Structural control and geological significance of the Zn-Pb ores formed in the Benasque Pass area (Central Pyrenees) during the post-late Ordovician extensional event of the Gondwana margin', *Ore Geol. Rev.* 56: 516–527. <https://doi.org/10.1016/j.oregeorev.2013.06.001>

García-Bellido, M.P., Bellón Ruiz, J.P., Montero Ruiz, I. 2015. 'La moneda de un campo de batalla: Baecula'. En: *La segunda Guerra Púnica en la península Ibérica. Baecula: arqueología de una batalla*. [https://www.academia.edu/33499499/15\\_La\\_moneda\\_de\\_un\\_campo\\_de\\_batalla\\_Baecula](https://www.academia.edu/33499499/15_La_moneda_de_un_campo_de_batalla_Baecula)

Gomes, S.S., Monge Soares, A., Araújo, M.F., Correia, V.H., 2016. 'Lead isotopes and elemental composition of Roman fistulae plumbeae aquariae from Conimbriga (Portugal) using Quadrupole ICP-MS', *Microchem. J.* 129: 184–193. <https://doi.org/10.1016/j.microc.2016.06.027>

Gomes, S.S., Araújo, M.F., Monge Soares, A.M., Correia, V.H. 2017. 'Provenance evidence for Roman lead artefacts of distinct chronology from Portuguese archaeological sites', *J. Archaeol. Sci. Reports*, 16: 149–156. <https://doi.org/10.1016/j.jasrep.2017.10.002>

Gomes, S.S., Araújo, M.F., Monge Soares, A.M., Pimenta, J., Mendes, H. 2018. 'Lead provenance of Late Roman Republican artefacts from Monte dos Castelinhos archaeological site (Portugal): Insights from elemental and isotopic characterization by Q-ICPMS', *Microchem. J.* 141: 337–345. <https://doi.org/10.1016/j.microc.2018.05.046>

Graeser, S., Friedrich, G. 1970. 'Zur Frage der Altersstellung und Genese der Blei-Zink-Vorkommen der Sierra de Cartagena in Spanien', *Miner. Depos.* 5: 365–374. <https://doi.org/10.1007/BF00206733>

Grögler, N., Geiss, J., Grünenfelder, M., Houtermans, F.G. 1966. 'Isotopenuntersuchungen zur Bestimmung der Herkunft römischer Bleirohre und Bleibarren. Zeitschrift für Naturforsch. – Sect', *A J. Phys. Sci.* 21: 1167–1172. <https://doi.org/10.1515/zna-1966-0744>

Henjes-Kunst, E. 2014. *The Pb-Zn deposits in the Drau Range (Eastern Alps, Austria/Slovenia): A multi-analytical research approach for investigation of the ore-forming mechanisms*. PhD. Dissertation, Montanuniversität Leoben, Austria. [https://pure.unileoben.ac.at/portal/en/publications/the-pbzn-deposits-in-the-drau-range-eastern-alps-austriaslovenia-a-multianalytical-research-approach-for-investigation-of-the-oreforming-mechanisms\(2df0f919-05ba-4724-aa0a-22fab0b7a65b\).html](https://pure.unileoben.ac.at/portal/en/publications/the-pbzn-deposits-in-the-drau-range-eastern-alps-austriaslovenia-a-multianalytical-research-approach-for-investigation-of-the-oreforming-mechanisms(2df0f919-05ba-4724-aa0a-22fab0b7a65b).html)

Hermanns, M.H. 2014a. 'La Zona Minera De S' Argentera, Isla De Ibiza (Islas Baleares)', *Cuad. Prehist. y Arqueol. la Univ. Granada*, 24: 301–318. <https://doi.org/10.30827/cpag.v24i0.4096>

Hermanns, M.H., 2014b. 'Avances en el estudio histórico de la mina de galena de Bunyla (isla de Mallorca)', *SAGVNTVM. Papeles del Lab. Arqueol* 46: 189–200. <https://doi.org/10.7203/sagvntvm.46.3761>

Hunt-Ortiz, M.A., Consuegra-Rodríguez, S., Díaz del Río-Español, P., M., H.-P.V., Montero-Ruiz, I. 2011. 'Neolithic and Chalcolithic -VI to III millennia BC- use of cinnabar (HgS) in the Iberian Peninsula: Analytical identification and lead isotope data for early mineral exploitation of the Almadén (Ciudad Real, Spain) mining district', in Ortiz, J.E., Puche, O., Rábano, I., Mazadiego, L.F. (eds.), *History of Research in Mineral Resources. Cuadernos Del Museo Geominero*, 13. Instituto Geológico y Minero de España, pp. 3–13.

Ilmen, S., Alansari, A., Baidada, B., Maacha, L., Bajddi, A. 2016. 'Minerals of the Ag-Bi-Cu-Pb-S system from the Amensif carbonate-replacement deposit (western High Atlas, Morocco)', *Journal of Geochemical Exploration* 161: 85-97. <http://dx.doi.org/10.1016/j.gexplo.2015.11.008>

Ingo, G.M., Agus, T., Ruggeri, R., Amore Bonapasta, A., Bultrini, G., Chiozzini, G. 1997. 'Lead and silver production in the Montevecchio Basin (Western Sardinia, Italy)', *Symposium DD- Materials Issues in Art and Archaeology V* 462. <https://doi.org/10.1557/PROC-462-411>

Jébrak, M., Marcoux, É., Nasloubi, M., Zaharaoui, M. 1998. 'From sandstone- to carbonate-hosted stratabound deposits: an isotope study of galena in the Upper-Moulouya District (Morocco)', *Mineralium Deposita*, 33: 406-415.

<https://doi.org/10.1007/s001260050158>

Jemmali, N., Souissi, F., Vennemann, T.W., Carranza, E.J.M. 2011. 'Genesis of the Jurassic Carbonate-Hosted Pb-Zn deposits of Jebel Ressas (North-Eastern Tunisia): Evidence from mineralogy, petrography and trace metal contents and isotope (O, C, S, Pb) Geochemistry', *Resource Geology* 61, 4 : 367-383.

<https://doi.org/10.1111/j.1751-3928.2011.00173.x>

Jemmali, N., Souissi, F., Villa, I.M., Vennemann, T.W. 2011. 'Ore genesis of Pb-Zn deposits in the Nappe zone of Northern Tunisia: Constraints from Pb-S-C-O isotopic systems', *Ore Geology Reviews* 40: 41-53.

<https://doi.org/10.1016/j.oregeorev.2011.04.005>

Jemmali, N., Souissi, F., Carranza, E.J.M., Henchiri, M. 2011b. 'Geochemistry of Triassic Carbonates : Exploration Guide to Pb-Zn Mineralization in North Tunisia', *Resource Geology* 66, 4 : 335-350.

<https://doi.org/10.1111/rge.12104>

Jemmali, N., Souissi, F., Carranza, E.J.M., Vennemann, T.W. 2013. 'Sulfur and lead isotopes of Guern Halfaya and Bou Grine deposits (Domes zone, northern Tunisia): Implications for sources of metals and timing of mineralization', *Ore Geology Reviews* 54: 17-28.

<http://dx.doi.org/10.1016/j.oregeorev.2012.04.005>

Jemmali, N., Souissi, F., Carranza, E.J.M., Bouabdellah, M. 2013b. 'Lead and sulfur isotope constraints on the genesis of the polymetallic mineralization at Oued Maden, Jebel Hallouf and Fedj Hassene carbonate-hosted Pb-Zn (As-Cu-Hg-Sb) deposits, Northern Tunisia', *Journal of Geochemical Exploration* 132 : 6-14.

<http://dx.doi.org/10.1016/j.gexplo.2013.03.004>

Jemmali, N., Souissi, F., Carranza, E.J.M., Vennemann, T.W., Bogdanov, K. 2014. 'Geochemical constraints on the genesis of the Pb-Zn deposit of Jalta (northern Tunisia): Implications for timing of mineralization, sources of metals and relationship to the Neogene volcanism', *Chemie der Erde* 74: 601-613.

<http://dx.doi.org/10.1016/j.chemer.2014.01.002>

Jemmali, N., Carranza, E.J.M., Zimmel, B. 2017. 'Isotope geochemistry of Mississippi Valley Type stratabound F-Ba-(Pb-Zn) ores of Hammam Zriba (Province of Zaghuan, Tunisia)', *Chemie der Erde / Geochemistry*, 77: 477-486.

<https://doi.org/10.1016/j.chemer.2017.07.003>

Jemmali, N., Rddad, L., Souissi, F., Carranza, E.J.M. 2019. 'The ore genesis of the Jebel Mecella and Sidi Taya F-Ba-(Pb-Zn) Mississippi Valley-type deposits, Fluorite Zaghuan Province, NE Tunisia, in relation to Alpine orogeny: constraints from geological, sulfur, and lead isotope studies', *Comptes Rendus Geoscience*, 351: 312-320.

<https://doi.org/10.1016/j.crte.2018.11.006>

Koepfel, K., Schroll E. 1983. 'Lead isotopes of Palaeozoic, strata-bound to stratiform galena bearing sulfide deposits of the Eastern Alps (Austria); implications for their geotectonic setting', *Schweizerische mineralogische und petrographische Mitteilungen*, 63: 347-360.

<https://www.e-periodica.ch/digbib/view?pid=smp-001:1983:63#397>

Lattanzi, P., Hansmann, W., Koepfel, V., Costagliola, P. 1992. 'Processes in the Apuane Alps (NW Tuscany, Italy): constraints by Pb-isotope data', *Mineralogy and Petrology*, 45: 217-229. <https://doi.org/10.1007/BF01163113>

Le Guen, M., Orgeval, J.J., Lancelot, J. 1991. 'Lead isotope behaviour in a polyphased Pb-Zn ore deposit: Les Malines (Cévennes, France)', *Mineralium Deposita*, 26: 180-188. <https://doi.org/10.1007/BF00209256>

Levresse, G., Bouabdellah, M., Cheilletz, A., Gasquet, D., Maacha, L., Tritlla, J., Banks, D., Moulay Rachid, A.S. 2016. 'Degassing as the main ore-forming process at the giant Imiter Ag-Hg vein deposit in the Anti-Atlas Mountains, Morocco', in Bouabdellah and Slack (eds), *Mineral Deposits of North Africa*, Mineral Resource Reviews. Springer. [https://doi.org/10.1007/978-3-319-31733-5\\_2](https://doi.org/10.1007/978-3-319-31733-5_2)

Lillo, J. 1992. 'Vein-type base-metal ores in Linares-La Carolina (Spain): ore-lead isotopic constraints', *Eur. J. Mineral* 4, 2: 337-343. <http://dx.doi.org/10.1127/ejm/4/2/0337>

Ludwig, K.R., Vollmer, R., Turi, B., Simmons, K.R., Perna, G. 1989. 'Isotopic constraints on the genesis of base-metal ores in southern and central Sardinia', *European Journal of Mineralogy* 1: 657-666. <http://dx.doi.org/10.1127/ejm/1/5/0657>

Marcoux, E., Wadajiny A. 2005. 'Le gisement Ag-Hg de Zgouder (Jebel Siroua, Anti-Atlas, Maroc) : un épithermal néoprotérozoïque de type Imiter', *Comptes Rendu Geoscience* 337: 1439-1446. <https://doi.org/10.1016/j.crte.2005.09.005>

Marcoux, E. 1998. 'Lead isotope systematics of the giant massive sulphide deposits in the Iberian Pyrite Belt', *Miner. Depos* 33: 45-58. <https://doi.org/10.1007/s001260050132>

Marcoux, E., Leistel, J.M., Sobol, J., Milesi, J.P., Lescuyer, J.L., Leca, X. 1992. 'Signature isotopique du plomb des amas sulfurés de la province de Huelva, Espagne. Conséquences métallogéniques et géodynamiques', *C.R. Acad. Sci. Paris* 314: 1469-1476.

Marcoux, É., Sáez, R. 1994. 'Geoquímica isotópica de plomo en las mineralizaciones hidrotermales de la Faja Pirítica Ibérica', *Bol. la Soc. Española Mineral* 17: 202-203.

Marcoux, É., Pascual, E., Onézime, J. 2002. 'Hydrothermalisme anté-Hercynien en Sud-Ibérie : apport de la géochimie isotopique du plomb', *Comptes Rendus Geosci* 334: 259-265. [https://doi.org/10.1016/S1631-0713\(02\)01734-0](https://doi.org/10.1016/S1631-0713(02)01734-0)

Marques de Sá, C., Noronha, F. 2011. 'Mineralogia, inclusões fluidas e isótopos de chumbo dos filões de Pb-(Zn-Ag) do Complexo Mineiro do Braçal, Centro-Oeste de Portugal', *Comun. Geol* 98: 41-54. [https://www.researchgate.net/publication/284463202\\_Mineralogia\\_inclusoes\\_fluidas\\_isotopos\\_de\\_chumbo\\_dos\\_filoes\\_Pb-Zn\\_Ag\\_do\\_Complexo\\_Mineiro\\_do\\_Bracal\\_Centro-Oeste\\_de\\_Portugal](https://www.researchgate.net/publication/284463202_Mineralogia_inclusoes_fluidas_isotopos_de_chumbo_dos_filoes_Pb-Zn_Ag_do_Complexo_Mineiro_do_Bracal_Centro-Oeste_de_Portugal)

Marques de Sá, C., Noronha, F. 2014. 'Isótopos de Pb em galenas de jazigos de Pb-Zn de Portugal e de Marrocos', *Comunicações Geológicas* 101: 803-806. <http://www.lneg.pt/iedt/unidades/16/paginas/26/30/185>

Medina, J., Tassinari, C., Martins, M.E.R., Kawashita, K., Azevedo, M.R., Santos, J.F., Pessoa, J.M., Valle-Aguado, B., Pinto, M.S. 2003. 'Mineralizações de galenas em Portugal: composição isotópica do chumbo',

in Ferrerina, M. (eds) *Geologia de Engenharia e Os Recursos Geológicos*. Vol. 2: Recursos geológicos e formação. Imprensa da Universidade de Coimbra, Coimbra. pp 169-178  
[http://dx.doi.org/10.14195/978-989-26-0322-3\\_12](http://dx.doi.org/10.14195/978-989-26-0322-3_12)

Montero-Ruiz, I., Murillo-Barroso, M. 2010. 'La producción metalúrgica en las sociedades argáricas y sus implicaciones sociales: una propuesta de investigación', *Menga. Rev. Prehist. Andalucía* 1: 37–51.  
<https://dialnet.unirioja.es/servlet/articulo?codigo=3657018>

Montero-Ruiz, I., Gener, M., Renzi, M., Hunt, M., Rovira, S., Santos-Zalduegui, J.F. 2006. 'Provenance of lead in first iron age sites in southern Catalonia (Spain)', *Proceedings ISA*: 391-398.  
[https://www.researchgate.net/publication/290127561\\_Provenance\\_of\\_lead\\_in\\_first\\_Iron\\_Age\\_sites\\_in\\_southern\\_Catalonia\\_Spain](https://www.researchgate.net/publication/290127561_Provenance_of_lead_in_first_Iron_Age_sites_in_southern_Catalonia_Spain)

Montero-Ruiz, I., Gener, M., Hunt, M., Renzi, M., Rovira, S. 2008. 'Caracterització analítica de la producció metalúrgica protohistòrica de plata en Catalunya', *Revista d'arqueologia de Ponent*, 18: 292-328.  
<https://www.raco.cat/index.php/RAP/article/view/251824>

Montero-Ruiz, I., Castanyer, P., Santos-Retolaza, M., Hunt, M., Mata, J.M., Pons, E., Rovira-Llorens, S., Rovira-Hortalá, C., Santos-Zalduegui, J.F. 2009a. 'Lead and silver metallurgy in Emporion (L'Escal, Girona, Spain)', in: *Archaeometal- Lurgy in Europe*

Montero-Ruiz, I., Nuria Rafel, A.P. 2011. 'Sobre la procedencia de los metales de las primeras monedas del Ne. Ibérico. Aplicación de análisis de isótopos de plomo'. In García-Bellido, M., Callegarin, L., Jiménez, A. (eds) *Barter, Money and coinage in the ancient mediterranean (10th-1st Century BC)*, CSIC, pp 423–434.

Montero-Ruiz, I., Aguilera G., Rovira-Hortalá, C. 2013. 'Plomo metálico en yacimientos de la I Edad del Hierro en la provincia de Castellón: explotación de recursos mineros y circulación del metal', *X Congreso ibérico de arqueometría*: 200-213

Montero Ruiz, I. 2017. 'La Solana del Bepo from an archaeometallurgical perspective', *Rev. d'arqueologia Ponent*, 2: 65–79.

Müller, R., Brey, G.P., Seitz, H.M., Klein, S. 2015. 'Lead isotope analyses on Late Republican sling bullets', *Archaeol. Anthropol. Sci.* 7: 473–485. <https://doi.org/10.1007/s12520-014-0209-0>

Munoz, M., Baron, S., Boucher, A., Béziat, D., Salvi, S. 2016. 'Mesozoic vein-type Pb-Zn mineralization in the Pyrenees: Lead isotopic and fluid inclusion evidence from the Les Aregentières and Lacore deposits', *Comptes Rendus Geoscience* 348: 322-332. <http://dx.doi.org/10.1016/j.crte.2015.07.001>

Navarro-Ciurana, D., Cardellach, E., Vindel, E., Griera, A., Gómez-Gras, D., Corbella, M. 2017. 'Sulfur and lead isotope systematics: Implications for the genesis of the Riópar Zn-(Fe-Pb) carbonate-hosted deposit (Prebetic Zone, SE Spain)', *Ore Geol. Rev.* 91: 928–944.  
<https://doi.org/10.1016/j.oregeorev.2017.08.013>.

Nesta, A., Renato Trinchieri, P., Klein, S., Rico, C., Quarati, P., Domergue, C. 2011. 'Sobre el origen de los lingotes de Chipiona. Aportación del método de los isótopos del plomo'. *Habis* 42: 191–207.  
<https://doi.org/10.12795/Habis.2011.i42.12>.

Orejas Saco del Valle, A., Montero Ruiz, I., Álvarez González, Y., López González, L.F., López Marcos, M.A., Rodríguez Casanova, I. 2015. 'Roman denarii from north-western Hispania, findings from Castromaior (Lugo). A contextual, numismatic and analytic approach', *Madriider Mitteilungen*: 232-257

Palinkas. 1985. 'Lead isotope patterns in galenas from some selected ore deposits in Croatia and NW Bosnia', *Geoloki vjesnik* 38: 175-189. [http://31.147.204.208/clanci/1985\\_Palinkas\\_839.pdf](http://31.147.204.208/clanci/1985_Palinkas_839.pdf)

Perelló Mateo, L. 2017. *Tecnología metalúrgica del cobre y del bronce durante el período Postalayótico en Mallorca (ca. s. vi a. C. - s. i a. C.)*. Universitat de les Illes Balears.

Perelló Mateo, L., Llull Estarellas, B. 2019. 'Circulación y consumo de plomo en las Islas Baleares durante la Edad del Hierro. Nuevos datos isotópicos de galenas y metales arqueológicos'. *Zephyrus* LXXXIV, 84: 89–113. <https://doi.org/10.14201/zephyrus20198489113>

Pomiès, C., Cocherie, A., Guerrot, C., Marcoux, E., Lancelot, J. 1998. 'Assessment of the precision and accuracy of lead-isotope ratios measured by TIMS for geochemical applications: Example of massive sulphide deposits (Rio Tinto, Spain)', *Chem. Geol* 144: 137–214

Raepsaet, G., Demaife, D., Raepsaet-Charlier, M.T. 2015. 'La production, la diffusion et la consommation du plomb germanique en gaule du nord. Apports des isotopes du plomb', *ÉTUDES*: 65-90

Rafel Fontanals, N., Montero Ruiz, I., Castanyer, P. 2009. 'Plata prerromana en Cataluña. Explotación y circulación del plomo y la plata en el primer milenio a.n.e.', *Revista d'Arqueologia de Ponent*, 18: 243-328.

Ramon Torres, J., Rafel Fontanals, N., Montero, I., Santos, M., Renzi, M., Hunt, M.A., Armada, X.L. 2011: 'Comercio protohistórico: el registro del Nordeste peninsular y circulación de mineral de plomo en Ibiza y el Bajo Priorato (Tarragona)', *SAGVNTVM. Papeles del Lab. Arqueol.* 43: 55–81. <https://doi.org/10.7203/sagvntvm.43.1644>

Rddad & Bouhlel. 2016: 'The Bou Dahar Jurassic carbonate-hosted Pb-Zn-Ba deposits (Oriental High Atlas, Morocco): Fluid inclusion and C-O-S-Pb isotope studies', *Ore Geology Reviews* 72: 1072-1087. <http://dx.doi.org/10.1016/j.oregeorev.2015.08.011>

Renzi, M., Montero-Ruiz, I., Bode, M. 2009. 'Non-ferrous metallurgy from the Phoenician site of La Fonteta (Alicante, Spain): a study of provenance', *J. Archaeol. Sci.* 36: 2584–2596. <https://doi.org/10.1016/j.jas.2009.07.016>

Renzi, M., Bode, M., Marzoli, D., Aguayo de Hoyos, P., Martín León, C., Rodríguez Vinceiro, F., Sierra de Cózar, G., Suárez Padilla, J., González Uriarte, A. 2016. 'Ausbeutung von Bergbauressourcen im Umland von Los Castillejos de Alcorrín (Manilva, Málaga) (Ende 9. und 8. Jh. v. Chr.). Ein Vorbericht', in Aguayo, P., César, D.H., Martín, L., Rodríguez, F., Gerardo, V., Cózar, S. De, Suárez, J., Antonio, P., González, U. (eds.), *Madriider Mitteilungen*. pp. 139–211.

Resano, M., Marzo, M.P., Alloza, R., Saénz, C., Vanhaecke, F., Yang, L., Willie, S., Sturgeon, R.E. 2010. 'Laser ablation single-collector inductively coupled plasma mass spectrometry for lead isotopic analysis to investigate evolution of the Bilbilis mint'. *Analytica Chimica Acta*, 677: 55-63. <https://doi.org/10.1016/j.aca.2010.07.032>

Romer, R.L., Soler, A. 1995. 'U-Pb age and lead isotopic characterization of Au-bearing skarn related to the Andorra granite (central Pyrenees, Spain)', *Miner. Depos.* 30: 374–383. <https://doi.org/10.1007/BF00202280>



Ross, V. 2008. *Caratterizzazione isotopica e multielementare dei minerali per la valutazione delle aree sorgenti*. Tesi di laurea. Università Ca' Foscari, Venezia. <https://docplayer.it/36927863-Universita-ca-foscari-venez.html>

Rothenhöfer, P., Bode, M., Hanel, N. 2018. 'Metallum Messallini- A new Roman lead ingot from the Danube provinces', *Metalla Nr*, 24.1: 33-38.

Russell, R.D., Farquhar, R.M. 1961. 'Lead Isotopes in Geology', *Geological Magazine*. 98, 2: 174. <https://doi.org/10.1017/S0016756800060404>

Santos Zalduegui, J.F., Guinea, A., Abalos, B., Gil- Ibarguchi, J.I. 2007. 'Composición isotópica del Pb en galenas de la región de la Falla de Azuaga: Aportaciones al modelo plimbotectónico de la zona de Ossa-Morena', *Geogaceta* 43: 7–10

Sinner A.G., Martínez-Chico D., Ferrante, M. 2020a. 'El yacimiento subacuático de las Amoladeras Cabo de Palos (Cartagena). Nuevos enfoques arqueométricos', *Zephyrus, Revista de prehistoria y arqueología*: 139-162.  
<https://revistas.usal.es/index.php/0514-7336/article/view/zephyrus202085139162/22687>

Sinner, A.G., Ferrante, M., Nisi, S., Trincherini, P.R. 2020b. 'Lead isotope evidence of lead supply in ancient Ilduro (second-first centuries B.C.E.)', *Archaeological and Anthropological Sciences*, 12: 131. <https://doi.org/10.1007/s12520-020-01073-7>

Sinner, A.G. 2021. 'Un nuevo lingote de plomo de Q. Haterius Gallus y la participación de la gens Hateria en la explotación de las minas de Sierra Morena', *PYRENAE*, 52, 1:137-159.

Skaggs, S., Norman, N., Garrison, E., Coleman, D., Bouhleb, S. 2012. 'Local mining or lead importation in the Roman province of Africa Proconsularis. Lead isotope analysis of course tablets from Roman Carthage, Tunisia', *Journal of Archaeological Science*, 39: 970-983.

Stannard, C., Sinner, A.G., Ferrante, M. 2019. 'Trade between Minturnae and Hispania in the Late Republic. A comparative isotopic analysis of the Minturnean lead issues and the Spanish plomos monetiformes of the Italo-Baetican series, and numismatic and epigraphic evidence of the trade', *The numismatic chronicle* 179 offprint.

Stos-Gale, Z. 2001. 'The impact of the natural sciences on studies of Hacksilber and early silver coinage', in Balmuth, M. (eds.), *Hacksilber to Coinage: New Insights into the Monetary History of the Near East and Greece. Numismatic Studies* 24. The American Numismatic Society, New York, pp. 53–76.

Ströbele, F., Hildebrandt, L.H., Baumann, A., Pernicka, E., Markl, G. 2015. 'Pb isotope data of Roman and medieval objects from Wiesloch near Heidelberg, Germany', *Archaeological and Anthropological Science*, 7, 4:465.  
<http://dx.doi.org/10.1007/s12520-014-0208-1>

Subías, I., Fanlo, I., Mateo, E., Billström, K., Recio, C. 2010. 'Isotopic studies of Pb-Zn-(Ag) and barite Alpine vein deposits in the Iberian Range (NE Spain)', *Chemie der Erde* 70, 2: 149–158.  
<http://dx.doi.org/10.1016/j.chemer.2009.12.004>

Swainbank, Shepherd, Caboi & Massoli-Novelli. 1982. 'Lead isotope composition of some galena ores from Sardinia', *Periodico di Mineralogia* 51: 275-286.

Tornos, F., Arias, D. 1993. 'Sulphur and lead isotope geochemistry of the Rubiales Zn-Pb ore deposit (NW Spain)', *Eur. J. Mineral* 5, 4: 763-773.  
<http://dx.doi.org/10.1127/ejm/5/4/0763>

Tornos, F., Chiaradia, M. 2004. 'Plumbotectonic evolution of the Ossa Morena zone, Iberian Peninsula: Tracing the influence of mantle-crust interaction in ore-forming processes', *Econ. Geol* 99: 965-985.  
<https://doi.org/10.2113/gsecongeo.99.5.965>

Tornos, F., Ribera, F., Shepherd, T.J., Spiro, B. 1996. 'The geological and metallogenic setting of stratabound carbonate-hosted Zn-Pb mineralizations in the West Asturian Leonese Zone, NW Spain', *Miner. Depos* 31, 1-2: 27-40.  
<http://dx.doi.org/10.1007/BF00225393>

Trincherini, P.R., Barbero, P., Quarati, P., Domergue, C., Long, L. 2001. 'Where do the lead ingots of the saintes-maries-de-la-mer wreck come from? Archaeology compared with physics', *Archaeometry*, 43, 3: 393-406.  
<http://dx.doi.org/10.1111/1475-4754.00023>

Trincherini, P.R., Domergue, C., Manteca, I., Nesta, A., Quarati, P. 2009. 'The identification of lead ingots from the Roman mines of Cartagena: The rôle of lead isotope analysis', *J. Rom. Archaeol.* 22: 123-145.  
<https://doi.org/10.1017/S1047759400020626>

Tysseyre, P., Tusa S., Cairns, W.R.L., Selvaggio, F., Barbante, C., Ciriminna R., Pagliaro M. 2008. 'The lead ingots of Capo Passero: Roman Global Mediterranean trade', *Oxford Journal of Archaeology* 27, 3: 315-323. <http://dx.doi.org/10.1111/j.1468-0092.2008.00310.x>

Valera, R.G., Valera, P.G., Rivoldini, A. 2005. 'Sardinian ore deposits and metals in the Bronze Age', in Lo Schiavo (eds.) *Archaeometallurgy in Sardinia*, pp. 43-87.

Velasco, F., Pesquera, A., Herrero, J.M. 1996. 'Lead isotope study of Zn-Pb ore deposits associated with the Basque-Cantabrian basin and Paleozoic basement, Northern Spain', *Miner. Depos* 31: 84-92.  
<https://doi.org/10.1007/BF00225398>

Velasco, F., Herrero, J.M., Yusta, I., Alonso, J.A., Seibold, I., Leach, D. 2003. 'Geology and geochemistry of the Reocín zinc-lead deposit, Basque-Cantabrian Basin, Northern Spain', *Econ. Geol* 98: 1371-1396.  
<https://doi.org/10.2113/gsecongeo.98.7.1371>

Villaseca, C., Lopez García, J.A., Barbero, L. 2005. 'Estudio de la composición isotópica (Pb-S-O) de las mineralizaciones Pb-Zn de Mazarambroz (Banda Milonítica de Toledo)', *Geogaceta* 38: 271-274.

Vogl, J., Rosner, M. Curbera, J., Peltz., U., Peplinski, B. 2016. 'Lead isotope analysis in magic artefacts from the Berlin museums', *Archaeol Antropol Sci.*, 10: 1111-1127. <https://doi.org/10.1007/s12520-016-0445-6>

Westner, K.J., Kemmers, F., Klein, S. 2020. 'A novel combined approach for compositional and Pb isotope data of (leaded) copper-based alloys: bronze coinage in Magna Graecia and Rome (5<sup>th</sup> to 2<sup>nd</sup> centuries BCE)', *Journal of Archaeological Science*, 121: 105-204. <http://dx.doi.org/10.1016/j.jas.2020.105204>

