CHAPTER 3

What Can the Lead Tell Us?

Hugh Bowden

The two-volume publication of the oracular tablets from Dodona from the excavations of Dimitris Evangelidis between 1929 and 1935, by Sotiris Dakaris, Ioulia Votokopoulou and Anastasios Christidis,[1] has made available over 4000 inscriptions from Dodona on over 1400 pieces of lead. As well as informing us about the concerns of visitors to the oracle over a period of roughly four centuries (c. 550–167 BCE), the published corpus allows us to engage in quantitative research, which can in turn yield valuable information about aspects of the consultation process. The focus of this chapter will be the life of the lead tablets themselves: the inscriptions on them are important in providing dates for their use, and evidence for how they were reused, but I will not generally be commenting on their contents. While I will have something to say about how they were used in the actual process of consultation, I will not be discussing this in any detail.[2] After an explanation of the methodology I am using for the quantitative study, I will consider the use of lead as a medium for writing and then look at how and when the lead we have from Dodona reached the sanctuary, and then how it was used once it had arrived.

Methodology

DVC provides text and commentary on 4216 inscriptions engraved on 1242 lead tablets. Each inscription is dated to periods of varying length, for example, 'end of the 5th cent.', 'middle of the 5th cent.', 'end of the 5th cent. to beginning of the 4th cent.', '1st half of the 4th cent.', '4th cent.', '5th–4th cent.' or 'undated'. The editors of DVC give no explanation for how they have dated the tablets, but dating is in fact based very largely on

[1] DVC.

[2] For further insights into this, see Bonnechere in this volume. And for a discussion of the tablets as individual objects see Angliker in this volume.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

palaeographic grounds.[3] Given the inevitable lack of precision in using letter forms to date texts, even these attributions to twenty-five-year periods may be inaccurate, but in the calculations that are based on them, it is assumed that any such inaccuracies will balance each other out. In order to use these dates to create a distribution, I have treated them as covering one or more twenty-five-year period, so 'end of the 5th cent.' is read as 425–400, 'middle of the 5th cent.' is 475–425 and so on. A probabilistic distribution can then be created by assigning tablets to a number of 25-year periods, so a tablet dated '5th cent.' would be treated as 0.25 in 500–475, 0.25 in 475–450, 0.25 in 450–425 and 0.25 in 425–400.

As Jessica Piccinini has observed, 'the premature death of the three editors affected the space and quality reserved to the commentary of the enquiries, which goes little beyond the linguistic analysis, as well as the edition of the texts, which is sometimes rather tentative'.[4] In response to this situation, a number of the tablets have been re-edited as part of two related projects, *Dodona Online* (*DOL*) and *Choix d'inscriptions oraculaires de Dodone* (*CIOD*).[5] This latter is the work of Éric Lhôte supported by Jan-Mathieu Carbon, while the former is led by Pierre Bonnechere. *DOL* has twenty-four entries, not all complete. As of the end of June 2023, *CIOD* includes 628 new editions of inscriptions from DVC, in many cases offering revised dates, or narrowing the chronological range. Some of these revised dates result from identifying the names of specific historical figures as consultants. For example 3109A, where the enquirer is named as 'Peseuas', is taken to be a consultation made by Perseus, king of Macedon, just after the outbreak of the Third Macedonian War.[6] Dates in *CIOD* usually explicitly use twenty-five-year divisions (e.g. 350–325), although in some cases they are more precise (e.g. 4146B is dated 410–390, and 3109A is dated 'hiver [winter] ca. 170–169'). Wherever there is a difference between DVC and *DOL* or *CIOD* I have followed *DOL* or *CIOD*.

In a number of cases inscriptions on the same tablet numbered separately in DVC are identified with confidence in *CIOD* as belonging together (for example because they are in the same hand), that is to say, they are associated with the same act of consultation. DVC does identify some cases where separate inscriptions are 'most likely' (*pithanotata*) linked, but, because these are less confidently established, for the reasons indicated by Piccinini above, these have been treated as separate

[3] Lhôte 2006: 15–21. [4] Piccinini 2017: 25.
[5] DOL: https://dodonaonline.com; CIOD: https://dodonaonline.com/ciod/. I have not included the inscriptions published in Lhôte 2006.
[6] https://dodonaonline.com/wp-content/uploads/2022/10/ciod_dvc_3109a3110b.pdf.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

inscriptions. The work of the editors of *CIOD* and *DOL* have reduced the corpus to 4086 elements, as a result of such identifications, and further work is likely to reduce it further. Publication of the tablets excavated before 1929 and after 1935, which is to be hoped for eventually, on the other hand, will increase it. For the study of any aspect of ancient Greek history, this remains a very significant collection of data. We may now turn to the tablets themselves.

Writing on Lead

There has been a tendency to read more into the use of lead as a writing material than is warranted. This is no doubt because of the use of lead in magic, most obviously for curse tablets or binding spells. Lead is heavy, inert and dull grey, although it shines like silver when it is scratched (see Angliker in this volume); it is mined from the earth. These properties make it easy to associate writing on lead with the 'chthonic'.[7] But while curse tablets are the most recognisable examples of the use of lead for writing, they are not the only ones, and probably represent only a small fraction of the overall use of lead for writing. We have a number of examples of letters written on lead.[8] What made lead the most suitable material for use in these letters was not its external associations but some very practical considerations. There was a wide range of available writing media. At the expensive end of the scale was papyrus and vellum; then there were wax tablets; then bark or thin pieces of wood, such as are known from Vindolanda and elsewhere. At the bottom end of the scale would have been ostraca, that is, broken pieces of pottery, or unfired clay, which is the medium of most surviving cuneiform writing. Lead would have been considerably cheaper than papyrus or vellum, and more durable than bark or unfired clay. And the fact that lead can be rolled or folded and then sealed makes lead letters more secure than ostraca. Any discussion of the use of lead at Dodona should start from the assumption that it was the practicality and availability of the material, rather than any magical or religious associations that it might have acquired, that made it the medium of choice for use in the divinatory process.

We can say something about where the lead of the Dodona tablets came from. There is no evidence for lead-working at the site of the oracle, and there were no local sources of metals, so the lead would have been brought

[7] For a full discussion of the physical properties of lead in relation to curse tablets, see Lamont 2021.
[8] Dana 2021; for a discussion of business letters, see Eidinow and Taylor 2010.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

to the site from further afield. None of the tablets currently in Ioannina have undergone metallurgical testing. However, a number of tablets were discovered on the site by a Polish engineer, Zygmunt Mineyko probably in the late 1870s. He took the items he found away with him, and some of them at least ended up in the *Antikensammlung* in Berlin.[9] In 2016 four of these tablets, dating from the fifth and fourth centuries, were subject to lead isotope analysis, along with various other ancient lead artefacts from Berlin museums.[10] This analysis demonstrated that the lead of three of the four tablets came from the mines of Laurion in Attica. The other may have come from Chalkidiki, Syros or Thasos – but might conceivably have been a mixture of Laurion lead with a small quantity of lead from Sardinia or Egypt. Lead was mined at Laurion from the Bronze Age. The lead ore, galena, contains silver, but exploiting the region for its silver probably only began in the middle of the first millennium BCE. Even then, the proportion of silver to lead would have been very small: Laurion galena probably contained on average 400 times as much lead as silver.[11] The fact that extracting silver at this level was still considered economically worthwhile indicates quite how plentiful and cheap lead must have been.

When Did the Lead Reach Dodona?

We can estimate roughly when supplies of lead came to Dodona by noting the date of the earliest inscription on each tablet. There are 1245 tablets with datable inscriptions within the corpus of DVC, and the distribution of dates is shown in Table 3.1.

The table demonstrates a sudden and dramatic increase in the number of tablets, and therefore presumably the supply of lead, at the beginning of the fifth century, and a continuing increase until the early part of the fourth century, followed by a rapid drop to the end of the fourth century.[12] This distribution does not correspond with our understanding of the significance of the oracle over time. The earliest literary references to the oracle at Dodona are found in Homer and Hesiod, and so date to at least as early as the seventh century. Given what we know about the issues which the inquirers brought to the oracle, it would be difficult to argue that external events would have led to this pattern of increase and then decrease in the number of visitors to the sanctuary over the period 550–167. We should

[9] Greifenhagen 1981. [10] Vogl et al. 2018. [11] Wood, Hsu and Bell 2021: table 3.
[12] The distribution is probably more extreme than these figures indicate. Just over 42 per cent of the tablets are dated to the period 425–375 BCE.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

Table 3.1 *Lead tablet dates*

DATE	NUMBER	PERCENTAGE
550–500	19	1.6%
500–450	228	18.3%
450–400	385	30.9%
400–350	423	34.0%
350–300	161	12.9%
300–250	16	1.3%
250–200	7	0.6%
200–150	4	0.4%

assume therefore that the quantity of lead tablet arriving at Dodona is not directly related to the popularity of the oracle. If it were, we would expect significantly more tablets from the seventh and sixth centuries.

One phenomenon which does map onto the pattern of lead use at Dodona is the exploitation by Athens of the Laurion silver mines, from which, as we have seen, three of the four Berlin lead tablets came. Silver production at Laurion began to grow in the late sixth century, and then increased steadily over the following century.[13] A number of ancient writers refer to the Athenian decision to spend 100 talents of silver revenue on shipbuilding in 483, on the advice of Themistokles.[14] If this represents 1/24 of the actual silver mined, taking the fourth-century tax rate to apply in the early fifth, the 100 talents would be a levy on 2,400 talents or 62 tonnes of silver mined.[15] If for each tonne of silver extracted there was also 400 tonnes of lead, it would mean that for the 100 talents of silver available to the Athenians as tax revenue, the by-product was nearly 25,000 tonnes of lead. Not all of this would have been in the form of pure metal, as the process for extracting silver from galena involved the oxidization of lead.[16] But there would have been an abundant supply, with silver production growing steadily through most of the rest of the century, and, with a probable brief reduction in the period after the loss of Dekeleia in 413, into the first half of the fourth century. This lead would have made its way throughout the Mediterranean, probably in various forms for various purposes. The

[13] Kroll 2009. [14] [Arist.] *Ath. Pol.* 22.7; Hdt. 7.144; Plut. *Them.* 4.1.
[15] Kroll 2009: 196 (note that Kroll's conversion of 2,400 talents to 62,208 metric tonnes is an error – that should be 62,208 kilograms).
[16] Wood, Hsu and Bell 2021.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

Dodona tablets are 1–3 mm thick, and possibly travelled in this form, to be cut on site, rather than as ingots that would need to be hammered thin before use. It is reasonable to suggest that pedlars of lead would have found a market for lead sheets wherever there was a need for cheap writing material, and Dodona was one such place.

The ancient literary sources have virtually nothing to say about the use of writing in the consultation process at Dodona at any period. In Sophocles' *Trachiniae*, Deianeira says that Herakles had written down the response he received from Zeus at Dodona on a tablet (*deltos*).[17] Since he took this tablet with him from the site, it clearly served a different purpose from the lead tablets left at Dodona although, as we will note below, the assumption that no lead tablets were taken away from the sanctuary is not necessarily a safe one. It is a reminder that writing might play a number of roles in oracular consultations. Other examples include the Athenian envoys writing down the answer the Pythia gave them when they consulted Delphi in 481 (Hdt. 7.142) and the story of Mys of Europos snatching a writing table from officials at the Ptoon at Thebes (Hdt. 8.135). Before the fifth century questions and answers may have been written down at Dodona on a variety of materials. It can be suggested that as lead suddenly became available, it became the medium of choice for writing at Dodona. It can further be suggested that some of the qualities of lead, including its durability and its weight (which would, for example, prevent it from being blown around in the famously stormy site),[18] led to the development of new practices for the way writing was used at the site, and led to lead supplanting all other materials for writing on. This in turn may have led to the development of new practices involving the lead tablets after the moment of consultation.

What Use Was Made of the Lead?

Most lead tablets were used more than once at Dodona. Earlier texts would have been hammered or rubbed out before reuse. In many cases it has been possible to recover the erased texts, wholly or partly. The editors of DVC identified thirteen separate inscriptions on one tablet (M652) and twelve on another (M1307). The latter is probably a misleading case since the tablet broke into twelve pieces after excavation, and the fragment of text on each piece has been treated as a separate inscription and given its own number. It is possible that in some other cases more than one text was inscribed on the same occasion, so the number of inscriptions is greater

[17] Soph. *Trach.* 157. [18] Hom. *Il.* 2.750.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

Table 3.2 *Multiple uses*

NUMBER OF INSCRIPTIONS ON A TABLET	NUMBER OF TABLETS
1	234
2	268
3	256
4	191
5	128
6	80
7	55
8	14
9	11
10	4
11	0
12	1
13	1

than the number of occasions of use of the tablet (see the earlier discussion of the corpus). But it is also likely that some erasures were effective enough that texts have completely vanished, and therefore that the data may underestimate the number of occasions on which a tablet was used. Table 3.2 provides the numerical data about table reuse.

The distribution has a mode of 2, a median of 3 and a mean of 3.29. It indicates that it was a lot more common for tablets to be reused than for them to be used only once. In some cases the period between uses was quite long. So, for example, tablet M91 has inscriptions dated to the beginning of the fifth century (500–475), the middle of the fifth century (475–425) and the end of the fourth century or beginning of the third (325–275), suggesting a span of use of between 150 and 225 years. And tablet M1268 has two inscriptions dated to the beginning of the fourth century (i.e. 400–375), possibly inscribed at the same time, and a third dated to 225–167, at least 150 years later.[19] A tablet where all the inscriptions are dated to the same half-century or quarter-century may still have had decades between uses.

If we turn from the tablets to the inscriptions on them, we can say something about the popularity of the oracle over time. As Table 3.3 shows,

[19] 3846A and 3847B are dated to the beginning of the fourth century by DVC; 3845A dated to 225–167 in *CIOD* (beginning of the fourth century in DVC).

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

Table 3.3 *Dates of inscriptions*

DATE	NUMBER OF INSCRIPTIONS	PERCENTAGE OF DATED INSCRIPTIONS
550–525	3	0.1%
525–500	30	0.8%
500–475	195	5.0%
475–450	274	7.0%
450–425	344	8.8%
425–400	738	18.9%
400–375	804	20.6%
375–350	589	15.1%
350–325	431	11.0%
325–300	398	10.2%
300–275	34	0.9%
275–250	21	0.5%
250–225	19	0.5%
225–200	14	0.4%
200–175	6	0.1%
175–150	10	0.3%
NO DATE	176	

the distribution of inscriptions looks fairly similar to the distribution of the tablets.

While the distribution shows a similar rise to that of the tablets, reaching its peak in the first quarter of the fourth century, the subsequent drop is more gradual, at least until the end of the fourth century. After that we see much smaller numbers: 88 inscriptions for the whole of the third century, compared with 2,222 for the fourth. This difference might be expected: the pieces of lead that arrived in the fifth century were available for reuse in subsequent centuries. What needs explanation here is not the rise in the number of inscriptions in the fifth century but the decline in the fourth and subsequent centuries. By 300 BCE there were potentially 1218 tablets available for inscribing (although some might have become too fragile to be usable), and yet we have only 104 inscriptions from the following century and a half. The simplest explanation is that the number of inquirers visiting Dodona began to decline from around 375 and then dropped significantly from the end of the fourth century. Alternatively, the oracle retained its popularity, but fewer pilgrims made use of lead tablets when they consulted the oracle, or at least left the tablets on site after their consultation. Or possibly fewer of the tablets from later periods have

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

survived, for reasons we will explore below. We will return to this question after following the tablets through the consultation process, and then discuss what happened to them after the pilgrims had received their answers. The way the lead tablets may have been used during the consultation process is explored by Pierre Bonnechere in this volume. Our focus will therefore be on what happened to them next.

It is possible that some inquirers took tablets away with them from the sanctuary, as Herakles is described as doing. As lead was so readily available, we need not assume that individuals would not sometimes have used a piece of it to record the answer they received and then take it away. Nothing resembling a Dodona tablet has been found outside the sanctuary, but that can be explained by subsequent reuse for completely other purposes. However, since a large number of tablets were left behind by pilgrims, we need to be able to explain how and why this happened. And in order to help us to think about possible cognitive processes, we can turn to modern examples of ritual practices that use similar materials in similar settings.

Coin Trees and Love Locks

The coin tree is a phenomenon known from Britain and Ireland, which has become popular in the twenty-first century, but has its roots in the eighteenth or nineteenth centuries. In certain locations, tree stumps or large logs can be found into which people have hammered coins, edge-on.[20] Such tree stumps will often become so coin-encrusted that the wood is scarcely visible beneath. It has been proposed that the origin of this practice lies in the practice of leaving tokens in the form of pieces of cloth by sacred wells visited for their healing powers. The pieces of cloth would be pinned or nailed to a nearby tree. The pins or nails would outlast the cloth, and eventually these metallic objects would replace the cloth as tokens. Coins would then be used instead of nails or pins, and the focus would then shift from the well to the tree.[21] The history of one such tree, on Isle Maree in Loch Maree in the northwest Highlands of Scotland, can be traced back to the late eighteenth century.[22] It was next to a well that had a reputation for curing insanity. Queen Victoria visited the tree in 1877, and noted in her diary:

> An old tree stands close to it [the well], and into the bark of this it is the custom, from time immemorial, for everyone who goes there to insert with

[20] Houlbrook 2018b. [21] Houlbrook 2021: 66–68. [22] Houlbrook 2015.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

> a hammer a copper coin, as a sort of offering to the saint who lived there in the eighth century, . . . We hammered some pennies into the tree.[23]

By the end of the nineteenth century, the tree was described as a 'wishing tree', and the understanding was that those who hammered a coin into it should make a wish when they did so.[24] This indicates that over time both the ritual practice and the interpretation of that practice changed. The site, and specifically the tree, remained constant. There are a number of coin trees in Britain and Ireland, mostly considerably more recent than the Isle Maree tree.[25] In many sites the original tree has become so thickly covered in coins that nearby trees are then also brought into use. Along a short stretch of the Ingleton Waterfall Trail in North Yorkshire, coins have been hammered into twenty-nine trees. At the centre of these is the original, which Houlbrook describes: 'The Ingleton coin tree is immense. It stretches across the footpath in a graceful arch, tall enough to walk beneath, encrusted with so many folded coins that barely an inch of its bark remains.'[26] Coin trees are usually in areas of natural beauty, often near waterfalls and streams. As the changing understanding of the Isle Maree tree suggests, it is not always clear why people contribute coins to coin trees. The coin tree at Bolton Abbey started in the 1990s after a tree fell across a path. The forester who cleared it away from the path found a coin on the ground, and pressed it into the tree: other visitors then followed this example.[27] Hammering a nail into the tree has become a ritual that is carried out because other people have done the same thing before.

The development of coin trees can cast light on the reasons why lead tablets may have been left by visitors to Dodona. The locations of coin trees in woods close to waterfalls and streams suggest that the numinosity of the place may be important. It is clear that the value of the coins is not significant: most coins hammered into trees tend to be copper rather than silver. But the choice to leave something metal, like a coin, does seem to be important. There may be various explanations for this. For example, the fact that metal is unchanging, in contrast to the trees, and the waterfalls and streams, or that they are hard and cold. Lead tablets are too malleable to be hammered into trees, but there would have been other ways of attaching them to trees. We will return to this comparison after looking at another modern practice.

[23] Duff 1968: 332–333, quoted in Houlbrook 2021: 67. [24] Houlbrook 2015: 137.
[25] Houlbrook 2018b: 255–256 lists forty sites, nineteen of which are estimated to have been created since 2000.
[26] Houlbrook 2018b: 107.
[27] Houlbrook 2018b: 4, quoting the explanation provided by the Bolton Abbey estate visitor manager.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

Love locks have become a common sight, particularly on some city bridges, since the early twenty-first century.[28] Across the world individuals or couples attach small padlocks to the railings of city bridges and other monuments to symbolize romantic relationships. The padlocks are usually very cheap, and often have inscriptions on them – sometimes expensively etched, more commonly scrawled on with a sharpie, or painted on with nail-varnish. Bridges are the preferred location for them because once they have been attached, the key can be thrown into the river below. The popularity of love locks is mainly a twenty-first-century development, inspired by the 2006 novel by Federico Moccia and the 2007 film *Ho voglia di te*.[29] Certain sites, particularly in Paris, a city associated with love, became particularly associated with love locks. Between 2008 and 2015 around 700,000 love locks were attached to the Pont des Arts there. The total weight of these was around forty-five tonnes, and this caused significant damage to the bridge.[30]

Although the padlocks are now usually associated with love, the practice appears to have developed in more than one place, with different motivations in each. There are at least three sites where padlocks were left before 2006 and where the 'meaning' of the locks appears not to have anything to do with romantic love.[31] In Pécs in Hungary, locks were first attached to a fence in the early 1980s, and these have been interpreted as representing resistance to the communist authorities and as being inspired by punk rock fashion.[32] In Merano in northern Italy between the 1980s and 2005, soldiers completing their term of military service would hang the padlock from their barracks locker on the bridge in the centre of the town, sometimes inscribed with their dates of service, as a sign of their freedom from the army.[33] And there is a fence on Mount Huangshan in Anhui province in China where padlocks were hung from around 2000, although it is not clear how the practice started.[34] Even at sites where the phenomenon postdates Moccia's novel, locks may hold other meanings. One person who left a lock on the Weir Bridge in Bakewell in Derbyshire noted, 'My sister and her husband loved Bakewell, they both passed away within a few short weeks of each other in 2016. There is a padlock in memory of them on the bridge.'[35]

[28] Houlbrook 2018a. [29] Houlbrook 2021. [30] Rubin and Breeden 2015.
[31] Houlbrook 2021: 16–17. [32] Hammond 2010. [33] Houlbrook 2021: 16.
[34] Houlbrook 2021: 121.
[35] www.derbytelegraph.co.uk/news/local-news/concern-over-plan-remove-love-5214159 (accessed 25 September 2023).

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

In the Chinese case, and on the Ponte Milvio in Florence, where Moccia himself added a padlock the night before his novel was published,[36] the number of padlocks at the site grew very rapidly – something also observed in the case of coin trees – and the same is probably true in the other locations. This suggests that there is something instinctively attractive about the action of leaving a padlock, regardless of what meaning is attached to it. The attitude of the civic authorities to padlocks demonstrates an ambivalence that also suggests that the practice cannot be simply ignored. Local councils can simultaneously consider banning the practice because of the damage caused by the weight of the metal to the fences to which the locks are attached, and also advertise the existence of love lock sites to improve tourism. There is also recognition that the locks continue to have meaning, and to belong to the people who left them, leading to proposals to allow padlocks that have been removed to be reclaimed.[37]

What Did Pilgrims to Dodona Do with Their Tablets?

Most of the questions asked by those who visited the oracle were about personal matters, including health, future prospects, having children and so on.[38] These are very similar to the kind of requests made at healing springs, or the wishes made at wishing wells and wishing trees in Britain and Ireland more recently, at the sites that eventually became coin trees. It is plausible therefore that the same mental processes that led those who visited healing sites to leave behind a token of some kind led visitors to Dodona to leave behind some kind of token. Once the practice of writing questions on lead tablets grew common, as lead became readily available at the site, then the tablets would have become obvious candidates to be left as tokens. Whether we should consider these tokens to be dedications, or votive offerings, or simply markers indicating that someone had visited the oracle is not clear and is not important. As we have seen, the practice of leaving a coin or a padlock did not have to have an explicitly understood meaning. It was something people did because other people had done it, and because it seemed an appropriate thing to do. The sanctuary at Dodona down to the end of the fifth century, and probably through

[36] Houlbrook 2021: 17.

[37] See for example the debate about the Weir Bridge in Bakewell in Derbyshire, covered in the local newspapers: www.derbytelegraph.co.uk/news/local-news/concern-over-plan-remove-love-5214159, www.buxtonadvertiser.co.uk/news/people/love-locks-removal-plan-on-derbyshire-bridge-postponed-3519607 (both accessed 25 September 2023).

[38] Eidinow 2007 remains the best discussion of the content of the tablets.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

much of the fourth century, will have been a largely wooded area with, presumably, a numinous atmosphere, like the coin tree sites.[39] Some tablets are long and narrow, extreme examples including M166 (193mm long and 8mm wide) and M531 (185mm long and 17mm wide): we could imagine these wrapped around branches. Some have holes in them, suggesting that they were nailed to a tree, for example, M824. Others may have been tied onto branches or stuck in clefts in the bark. Alongside the trees, the sanctuary was noted from an early period for the dedication of large bronze tripods,[40] and tablets might have been left in or around these as well. Whether explanations were ever provided to visitors to explain the presence of the lead tablets around the site is unknowable. And such explanations may well have changed over time. One thing that visitors could be expected to conclude when they saw a large number of tablets visible in the sanctuary was that the oracle had many pilgrims visiting it. There would be good reason therefore why the practice of having tablets on display would be encouraged by the community that managed the sanctuary.

How Did the Lead Come to Be Reused?

The fact that some of the lead tablets were found in the area west of the enclosure which surrounded the sacred oak, and others to the south, near statue bases, supports the idea that they would have been displayed after consultations.[41] It is not possible to tell, on the basis of the published reports, which tablets were found where. The vast majority, however, were found together in the area of the Christian basilica in the northeast part of the site. There is no evidence for earlier buildings in this area, and it would not have been on the routes taken by pilgrims visiting the site, at least after the building of the temples to the East of the sacred oak in the fourth century. Those moving through the site would have come to, or moved past, the fronts of these buildings rather than the backs. The most plausible explanation for the presence of so many tablets in this area was that this was where tablets were deliberately moved to, whenever it was decided to move them from places where they had been displayed. Just as the quantities of love locks on some bridges has led to the local authorities removing them, to limit damage to the structures, so those responsible for the sanctuary at Dodona may have been concerned about the potential damage to trees

[39] Chapinal-Heras in this volume explores the atmosphere of the sanctuary later, when it had become a more monumentalized site.
[40] Piccinini 2017.
[41] For evidence of the location of the excavated tablets see Carapanos 1878: 19, 26–27; Dakaris 1971: 36.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

caused by too much lead wrapped around the branches or covering the trunks. If lead was left on or in bronze tripods, it is quite likely that these might buckle under the weight if they were not emptied from time to time. Again, this would have many modern parallels. For example, the low-value coins thrown into the Trevi fountain in Rome are cleared away daily, and in 2006 it was estimated that around €3,000 was being collected every day.[42] If this were not done the fountain would presumably fill up very quickly. Periodically, therefore, we can assume that the lead on display was cleared away and essentially dumped in an unused area of the sanctuary. If the visibility of lead tablets was considered a good thing, because their number indicated the popularity of the sanctuary and oracle, we should assume that tablets would be cleared away from different places at different times. It is likely that some areas in the sanctuary would have been more popular as places for display than others, and as a result that tablets would be cleared from those areas more frequently than from others.

A process like this would help to explain the somewhat random patterns of reuse of tablets. Some tablets will have remained on display for considerably longer than others before being collected and dumped. As we have seen earlier, the majority of tablets were used more than once. There would have been a number of factors that will have determined when and how often tablets were reused. One would be how easily the inscriptions on the tablets could be erased. The long thin tablets we noted earlier were each only used on one occasion, probably because they would have been difficult to rub or scrape clean without tearing (M166 is now in three pieces). In contrast, M652, which has thirteen inscriptions identified on it (mostly rather short), is almost square, being 23mm long by 21mm wide. The larger M1124, which has ten inscriptions on it, is 48mm long, by 26mm wide, and M1130, which has nine inscriptions, is 40mm long by 47mm wide. But another factor would be how easily accessible a tablet was. Tablets that had been more recently deposited in the storage area would have been nearer the surface of the pile, and they would be more likely to be picked up and reused. It is possible then that a piece of lead might be used for the first time, and then left in a popular spot, so cleared away after a few years, and then erased and reused, before again being put in a popular spot, and being cleared away once again. Another tablet might be left in a less visited spot, and be left there for a century before being removed and returned to the pile. Or it might slip down the pile and remain undisturbed there for a long period.

[42] http://news.bbc.co.uk/1/hi/6188052.stm (consulted 30 September 2023).

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

One more element to bring into this picture is the issue of fresh lead. It is most likely that when fresh supplies of lead arrived at the sanctuary, they would be stored alongside the reused tablets. Not all of the lead that arrived there might be particularly suitable for use as tablets – possibly sheets would be too thick, or too uneven. So while some new lead might be chosen in preference to used tablets, there might be reasons for preferring old lead. As we will see in the next section of this chapter, there were uses for the lead other than just for tablets.

How Do We Explain the Decreasing Number of Inscriptions from the Fourth Century On?

The monumentalization of the sanctuary at Dodona began significantly later than at other major sanctuaries.[43] Up until the end of the fifth century, to visit the sanctuary would have been to visit a wooded site, with a few simple wooden buildings. There would have been bronze tripods near to the sacred oak, and other smaller metal dedications, including weapons, but the site would have been characterized mainly by natural features, above all trees and the birds that lived in them. The earliest surviving architectural remains date to around 400 BCE, which is roughly when the numbers of consultations attested on lead tablets begins to decline. The oldest stone building was constructed close to the sacred oak, and is described by Dakaris in the guide to the site as a 'small temple', dedicated to Zeus.[44] The next phase of building was in the middle of the fourth century, and included the creation of a low wall around the sacred oak, incorporating the small temple, as well as additional buildings referred to as the old temple of Dione[45] and the temple of Themis,[46] close to the temple of Zeus and the sacred oak. None of these building was very large: the longest, the temple of Themis, was just over 10 metres long. Up to the end of the fourth century therefore the sanctuary continued to be characterized more by trees than by stone buildings. This will have changed early in the third century when the theatre and the bouleuterion were constructed, and walls were built to enclose the sanctuary area, and around the acropolis above the sanctuary.[47] These constructions are associated with Pyrrhos (297–272), and indicate the increased prominence of the sanctuary as the meeting place of Molossian and Epirote leagues and alliances.[48]

[43] Dieterle 2007: 105. [44] Dakaris 1971: 40. See also Dieterle 2007: 107–117.
[45] Dakaris 1971: 50–51, Dieterle 2007:117–119. [46] Dakaris 1971: 52–53, Dieterle 2007: 119–122.
[47] Dieterle 2007: 165–168, Piccinini 2016: 155. [48] Dieterle 2007: 19–20, Meyer 2013: 72–90.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

From this point onwards, Dodona will have appeared much more like other major Greek sanctuaries, dominated by stone buildings, and statues and other major dedications, rather than by trees.

The architectural development of the site as outlined here is important for our understanding of why there appears to have been so dramatic a drop in the use of lead tablets in the later fourth and third centuries. The monumentalizing of the sanctuary is likely to have had several distinct effects on the practices of pilgrims and the reliability of the archaeological record. We cannot be certain that these provide the full explanation for the pattern of survival of inscribed tablets, but they are likely to be part of it.

First, the change in the character of the sanctuary may have made the practice of displaying lead tablets at the site less attractive. As we have seen, the tablets were probably not considered to be dedications in the way that, for example, the small bronze figurines found at the site were. They were part of a more demotic practice, which probably fitted better in a less formalised sanctuary where the natural features dominated more than the human ones. Visitors may have felt that leaving a lead tablet was less appropriate in a built environment than in a tree-filled area; or those who were responsible for the fabric of the sanctuary may have discouraged pilgrims from leaving the tablets on display, on the basis that it did not fit with the culture of a sanctuary that aimed to look more like Delphi or Olympia.

Second, as the sanctuary became increasingly the focus of regional political and diplomatic activity, the social status of the visitors may have changed. Fewer of the pilgrims may have been non-elite individuals seeking guidance about their life choices, and more of them may have been delegates from communities. A small number of lead tablets recording inquiries by communities have been published.[49] These date from the fourth century, as does a reference to an oracle from Dodona to the Athenians by Demosthenes.[50] It was from the fourth century that the sanctuary became the regular meeting point for Epirote and Molossian leagues.[51] This will have led to the regular presence of delegations from these communities, and they are likely to have consulted the oracle as part of their activities there.[52] This increased use of the sanctuary and oracle by formal delegations from communities may have made it more difficult for private individuals to gain access. Communities are likely to have received grants of *promanteia*, giving them greater access to the oracle.

[49] E.g. *LOD* 1 and 3: https://dodonaonline.files.wordpress.com/2020/11/ciod_lod_1.pdf, https://dodonaonline.files.wordpress.com/2020/11/ciod_lod_3.pdf; Eidinow 2007: App.1 no. 5.
[50] Dem. 21.51–52. [51] Meyer 2013: 72–90.
[52] Cf. Bowden 2020 and also Xenophon's note that delegates meeting at Delphi in 368 chose not to consult the oracle: Xen. *Hell.* 7.1.27.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

Not only might there be less time available for individuals to consult the oracle but the expense of visiting the sanctuary might also have increased: there would be fewer places for pilgrims to stay, and they would presumably be more expensive. Delegates from communities would have prioritised reporting answers back to the communities which sent them, rather than leaving a token of their presence (although of course visitors could do both). If, as we have seen, the practice of leaving lead tablets at the site was not a formal part of the process but something that had become a traditional practice, delegates may have been less likely to follow this tradition, since it was not what was normal at other oracular sanctuaries.

A third explanation for the low number of tablets from the later period may relate to the actual work of constructing the new buildings on the site. The stone blocks from which the monumental buildings at Dodona were constructed were held together by iron dowels and clamps covered in lead. To build the sanctuary walls, the theatre and the bouleuterion would therefore have required large quantities of lead that would have been melted down and poured over the iron fastenings. While extra lead was probably brought to the site for these purposes, as we have seen, the supply from Laurion would have decreased significantly by the end of the fourth century. The storage area for the lead tablets awaiting reuse would have been a very convenient source for lead for the builders. Lead would also have been used for fixing statues to their bases.[53] There is no easy way to estimate how much lead would have been required for the building works over time, and equally there is no way of estimating how much lead there was at Dodona at the time the various new buildings were constructed. However, we may assume that faced with a large pile of lead the builders will have taken the pieces from the top of the pile. These will have been the most recently deposited, and therefore generally those most recently used in the consultation process. It is quite possible therefore that the rapid fall-off in the number of surviving inscriptions over the course of the fourth century, and the almost complete absence of inscriptions from the third and second centuries, is a result of these tablets being melted down on the site. The evidence from the latest used tablets might support this interpretation. The majority of the sixteen tablets that were used in the second century were either used for the first time then (6) or were previously used at least a century earlier (6).[54] Had there been tablets used in the third century available at the top of the storage pile, we might have expected a higher proportion of them to be

[53] Dakaris 1971: 101.

[54] First used in second century: M78, M285, M798, M876, M877, M1051; reused after a century: M192, M629, M806, M1065, M1237, M1268; used in third century: M264, M956, M1006, M1089.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

reused in the second century, so either there were few tablets inscribed in the third century or most of those that were used had been taken out of circulation.

What Has the Lead Told Us?

In this chapter I have aimed to explain how the lead tablets from Dodona came to be in the condition in which the excavators found them. In particular I have proposed explanations for the spread of dates of the inscriptions on the published tablets. We have looked at where the lead came from, and why the supply would have increased through the fifth century. We have also considered a range of explanations for why the number of inscriptions decreased through the fourth century and dropped to almost nothing after that. We have looked at what patterns of use and reuse might best explain the range of dates for multiple inscriptions on individual tablets. And I have offered an explanation for why the tablets were found in the places within the sanctuary where they were found. The suggestions about the ritual practices and other human activities that we have examined cannot easily be proved to be true, but at least they are compatible with the state of the evidence.

In order to support the proposals made here, I have introduced examples of ritual practice that might cast light on the actions of pilgrims at Dodona. The similarities between the accounts of the development of coin trees and love locks on the one hand and the use of tablets at Dodona on the other can be summed up in this way: both situations are about ordinary people looking for help at times of personal crisis, in places of numinous significance, using low-value metal objects. I am not suggesting that the different phenomena map onto each other precisely. But I think that the modern examples offer a way of thinking about how the kind of ritual behaviour I am suggesting happened at Dodona might be understood.

So, while this chapter offers a set of hypotheses rather than an irrefutable argument, it is a set of hypotheses that aims to explain why the lead tablets are the way they are. Any alternative account of the way the lead tablets were used at Dodona needs to fit with this evidence at least as convincingly.

Appendix

In 2013 in a chapter exploring the changing ways in which oracular responses were used by communities in Greece and Asia Minor from the fifth century BCE to the fourth century CE, I included a table indicating the distribution of dated oracular consultations at Delphi

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

and Didyma based on the catalogues of Fontenrose. The data are rather different from the lead tablets at Dodona: the material for Delphi and Didyma is entirely based on inscriptions on stone, which were generally erected to be seen by fellow citizens of the inquirers. In the case of Delphi these are all state consultations. In the case of Didyma in the Roman period some of the inscriptions record consultations by individual members of the elite. The evidence for Didyma includes the period between 494 and 334 when the oracle was not functioning. The evidence for consultations of Dodona from inscriptions on stone is much more limited. An inscription from the 260s records a consultation of Dodona by the Athenians in the 430s that led them to allow the Thracians to establish a temple to Bendis in Athens.[55] The Lindian Chronicle (99 BCE) records that Pyrrhos of Epiros set up a dedication to Athena at Lindos possibly in 274, in accordance with an oracle from Dodona.[56] At that time Dodona was the central sanctuary of the Epirote state, so Pyrrhus' consultation of the oracle there tells us little about its wider status. It is important to recognise that the epigraphic evidence gives only a partial picture of the importance of the various oracular sanctuaries over time. As with Dodona, the literary evidence indicates that consultation of Delphi began considerably earlier than the surviving epigraphic material.

In Table 3.4 I have added the data from Dodona (inscriptions both on stone and on lead) to that from Delphi and Didyma. To the extent that meaningful comparisons can be made, we see that Dodona did not have the renaissance in the Roman imperial period that the other oracles had (along with the oracle of Apollo at Klaros). The sanctuary was largely destroyed by the Romans in 167 BCE, and then by Mithridates in 88 BCE. Strabo (7.7.10 450) notes that in his time the oracle was more or less abandoned, although this may give an unduly pessimistic picture.[57] He mentions the sacred oak tree, but he suggests that divination at the site was through the observation of 'prophetic doves' (*mantikai peliai* 7 fr. 1c = Eustathius on *Od.* 14.327). Pausanias, writing in the mid-second century, mentions the sanctuary and the oak tree, but has nothing to say about any oracle. We can safely say that any oracular activity in the Roman period did not involve using lead tablets.[58] We can also note that it did not attract any attention from cities or individuals that has left a trace in the epigraphic record.

[55] *IG* II² 1283.6. [56] Higbie 2003: 138–139. [57] Piccinini 2013.
[58] Chapinal-Heras 2017: 27, Lhôte 2006: 11–21.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

Table 3.4 *Comparative epigraphic evidence for oracular consultation at Delphi, Didyma and Dodona*

DATE	DELPHI	DIDYMA	DODONA INSCRIPTIONS ON STONE	DODONA LEAD TABLETS
600–550		6.5%		
550–500		3.2%		0.8%
500–450				12%
450–400	8.0%		50.0%	27.7%
400–350	8.0%			35.6%
350–300	18.0%			21.2%
300–250	10.0%		50.0%	1.4%
250–200	18.0%	19.4%		0.9%
200–150	12.0%	3.2%		0.4%
150–100	6.0%	12.9%		
100–50				
50–1	4.0%			
1–50	4.0%	3.2%		
50–100	6.0%	3.2%		
100–150	2.0%	16.1%		
150–200	2.0%	6.5%		
200–250	2.0%	9.7%		
250–300		9.7%		
300–350		6.5%		
	50 inscriptions	31 inscriptions	2 inscriptions	4086 inscriptions

Bibliography

Carapanos, C. 1878. *Dodone et ses Ruines. Vol. I, Textes; Vol. II, Planches*. Paris.

Chapinal-Heras, D. 2017. 'Between the Oak and the Doves: Changes in the Sanctuary of Dodona over the Centuries', in S. Marchesini, and J. N. Novoa, eds. *Simple Twists of Faith. Changing Beliefs, Changing Faiths: People and Places*, 17–38. Verona.

Dakaris, S. I. 1971. *Archaeological guide to Dodona*. Ioannina.

Dana, M. 2021. *La correspondance grecque privée sur plomb et sur tesson. Corpus épigraphique et commentaire historique*. Munich.

Dieterle, M. 2007. *Dodona: Religionsgeschichtliche und Historische Untersuchungen zur Entstehung und Entwicklung des Zeus-Heiligtums*. Hildesheim.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

Duff, D. ed. 1968. *Victoria in the Highlands: The Personal Journal of Her Majesty Queen Victoria: With Notes and Introductions, and a Description of the Acquisition and Rebuilding of Balmoral Castle*. London.
Eidinow, E. 2007. *Oracles, Curses, and Risk among the Ancient Greeks*. Oxford.
Eidinow, E., and Taylor, C. 2010. 'Lead-Letter Days: Writing, Communication and Crisis in the Ancient Greek World', *The Classical Quarterly* 60: 30–62.
Greifenhagen, A. 1981. 'Zu den Funden von Dodona', *Jahrbuch der Berliner Museen* 23: 5–10.
Hammond, C. I. 2010. 'Renegade Ornament and the Image of the Post-Socialist City: The Pécs "Love Locks", Hungary', in T. Kovács, ed. *The Present of the Recent Past: Reinterpretations of Socialist Modernism in East Central Europe*, 181–195. Köln.
Higbie, C. 2003. *The Lindian Chronicle and the Greek Creation of their Past.* Oxford.
Houlbrook, C. 2015. 'The Wishing-Tree of Isle Maree: The Evolution of a Scottish Folkloric Practice', in C. Houlbrook and N. Armitage, eds. *The Materiality of Magic: An Artefactual Investigation into Ritual Practices and Popular Beliefs*, 123–142. Oxford.
Houlbrook, C. 2018a. 'Lessons from Love-locks: The Archaeology of the Contemporary Assemblage', *Journal of Material Culture* 23: 214–238.
Houlbrook, C. 2018b. *The Magic of Coin-Trees from Religion to Recreation: The Roots of a Ritual*. London.
Houlbrook, C. 2021. *Unlocking the Love-Lock: The History and Heritage of a Contemporary Custom*. New York.
Kroll, J. 2009. 'What about Coinage', in J. Ma, N. Papazarkadas and R. Parker, eds. *Interpreting the Athenian Empire*, 195–209. London.
Lamont, J. 2021. 'Cold and Worthless: The Role of Lead in Curse Tablets', *Transactions of the American Philological Society* 151: 35–68.
Lhôte, E. 2006. *Les lamelles oraculaires de Dodone*. Geneva.
Meyer, E. A. 2013. *The Inscriptions of Dodona and a New History of Molossia. Heidelberger althistorische Beiträge und epigraphische Studien (HABES), 54*. Stuttgart.
Piccinini, J. 2013. 'Dodona at the Time of Augustus: A Few Notes', in M. Galli, ed. *Roman Power and Greek Sanctuaries: Forms of Interaction and Communication*. *Tripodes* 14, 177–192. Athens.
Piccinini, J. 2016. 'Renaissance or Decline? The Shrine of Dodona in the Hellenistic Period', in M. Melfi and O. Bobou, eds. *Hellenistic Sanctuaries: Between Greece and Rome*, 152–169. Oxford.
Piccinini, J. 2017. *The Shrine of Dodona in the Archaic and Classical Ages: A History*. Macerata.
Rubin, A. and Breeden, A. 2015. 'Paris Bridge's Love Locks Are Taken Down'. *New York Times* 1 June 2015: www.nytimes.com/2015/06/02/world/europe/paris-bridges-locks-of-love-taken-down.html (consulted 24 August 2023).

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005

Vogl, J., Rosner, M., Curbera, J. Peltz, U. and Peplinski, B. 2018. 'Lead Isotope Analysis in Magic Artefacts from the Berlin Museums', *Archaeological and Anthropological Sciences* 10: 1111–1127.

Wood, J. R., Hsu, Y.-T and Bell, C. 2021. 'Sending Laurion Back to the Future: Bronze Age Silver and the Source of Confusion', *Internet Archaeology* 56. https://doi.org/10.11141/ia.56.9.

Downloaded from https://www.cambridge.org/core. UNIVERSIDAD AUTONOMA METROPOLITANA, on 18 Nov 2026 at 21:02:46, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/9781009632218.005