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ROMAN MULTI-FUNCTIONAL LONG-HANDLED INSTRUMENTS: A COLCHESTER PERSPECTIVE

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Roman long-handled ligulae, *spoon-probes and spatula-probes are usually referred to as toilet equipment associated with the preparation and application of cosmetics and unguents. British and continental funerary assemblages show that they can also appear in medical kits, where they would have served a similar use for salves and other medicaments, and a few have been found with writing equipment, probably having been used in the preparation of inks. There is some possibility that they may have served a similar purpose for painters' pigments. This paper brings together 197 of these instruments in the collection of Colchester Museums and assesses the evidence for their use and disposal in an urban environment, as well as any bias in their recovery. The alloys used in the manufacture of some examples have been analysed and compared to other Romano-British assemblages. A considerable number were found in the area of Colchester's suburban Temple 10, which has been associated with both healing and votive deposition, but which lay in an area also used for the disposal of urban waste.*

Keywords: Romano-British small finds; museology; metallurgy; toilet and medical equipment; Colchester

INTRODUCTION

This paper assesses the use, disposal and recovery in an urban environment of three well-represented types of Roman-period long-handled implements (sixty-eight *ligulae*, eighty-four spoon-probes and fifteen spatula-probes), along with thirty incomplete fragments of these instruments. Such objects are sometimes found in medical kits, but their more frequent recovery from occupation sites points to their being multi-purpose household or craft items. An opportunity to examine and define the possible functions of the instruments in Colchester Museums' archaeological collection, uniting those from late twentieth- and twenty-first-century excavations in the town with those from earlier interventions and casual finds, was provided by a programme of improving the documentation of the collection and rationalising its storage. Other instruments in the collection more readily identifiable as the tools of medical or surgical practitioners, such as scalpels, forceps, hooks and dipyrenes, form part of a wider assessment of the Museums' accessions relating to healthcare in the town.[1]

1. Crummy and Davis forthcoming.

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A considerable proportion of the Colchester instruments come from the western suburb, where Temple 10, lying alongside the Colchester–London road as it issues from the Balkerne Gate, has been interpreted as a centre for both healing and ritual deposition.[2] The area west and north of the temple was used as a dumping ground for the town's rubbish, blurring the distinction between urban debris and deliberately deposited temple votives.[3] Colchester's nineteenth-century workhouse (the Union) lay in the same area and the inmates' earth-moving activities, such as gardening or pit-digging, brought numerous Roman objects to light, some of which were acquired by the newly-established civic museum, as recorded in the *Colchester Museum Reports* (*CMR*). The conversion of the Union into St Mary's Hospital in the 1930s led to further ground disturbance and artefact recovery.[4] In the 1970s and early 2000s archaeological excavations in advance of redevelopment provided a further source of material from the area.[5] How far all these activities have affected the artefact deposition and recovery rate compared to elsewhere in the town is assessed below.

MATERIAL AND CONDITION

Illustrated objects are listed in appendix 1 here and the full catalogue is in appendix 2 (see supplementary material). Catalogue numbers are in bold and prefixed by **L** for *ligula*, **SP** for spoon-probe, **SPT** for spatula-probe and **P** for probe fragments. Apart from a few bone items (**L69**–**L71**) and one of base silver (**SP40**), all are of copper-alloy. Three have silver inlay, in at least one case probably combined with contrasting black niello (**SP1**–**SP2**, **SP23**). The general condition and conservation of the objects is summarised in the introduction to appendix 2. Most are damaged in some way, while the blunting of some terminals more probably represents wear. Analysis of the metal forms part of an ongoing programme of research by the Roman and Early Medieval Alloys Defined (REMADE) team of the University of Reading. Items with complex mouldings, such as the spoon-probes, were generally cast, while the simpler rod-like *ligulae* were wrought.

FORM

The general forms taken by all three instruments are given here. The terminology associated with each, both in Britain and on the continent, is outlined in appendix 3 (supplementary material). Many of the items, especially the spoon-probes, match the variants established by Emilie Riha for these artefact types from Augst and Kaiseraugst (*Augusta Raurica*), Switzerland.[6] Summaries of these typologies are given in appendix 4 (supplementary material).

The *ligula* usually has a small flat disc (scoop) set at an angle at one end of a long thin shaft, but there are a few with the disc continuing the line of the shaft (fig 1, **L4** and **L56**).

2. Crummy 2006.
3. Hull 1958, 243–4, 254–5.
4. Ibid.
5. *CAR* 3, 93–154; CAT 2001.64; Birbeck 2009.
6. Riha 1986.

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Fig 1. **L4**, Variant E *ligula* with an angled scoop; **L56**, Variant E *ligula* with a straight scoop; **SP10**, **SP12** and **SP14**, Variant E spoon-probes; **SPT1**, Variant A spatula-probe. Scale 1:1. *Photos*: D Atfield; © Colchester Museums.

Of the sixty-eight in the collection, the longest measures slightly over 180mm (the very tip of the shaft is missing), the shortest complete example is 85.4mm. The scoops vary in diameter from 4–7.5mm. Any *ligula* with a cupped scoop has been defined as a medical ear-probe.[7] That there are only four ear-probes compared to sixty-eight metal *ligulae* in the Museum's collection arguably supports this distinction.[8]

Spoon-probes are double-ended implements with an olivary probe at one end, a long concave or V-section spoon of varying form at the other and at least one moulded grip (fig 1, **SP10**, **SP12** and **SP14**). Ralph Jackson preferred the term scoop probe,[9] but here we use spoon-probe to match the more familiar usage. There are eighty-four in the collection, the longest complete example measuring 174mm, the shortest (unbent) 131.5mm. Unless it has been reworked following breakage, at least one (**SP18**), appears never to have had an

7. Jackson 2023a, 73.
8. Crummy and Davis forthcoming.
9. Jackson 2023a, 73.

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olivary probe at the opposite end but, following the precedent set by Riha,[10] it is still catalogued with the spoon-probes, as is the more ambiguous **SP31**.

Spatula-probes have a tongue- or leaf-shaped spatula at one end and an olivary probe at the other (fig 1, **SPT1**). None of those from Colchester has a grip on the shaft. There are only eight certain and up to seven probable examples in the collection. Three complete examples are between 143.5mm and 154mm long. Riha suggests that Variants A, D, E and G had a surgical use.[11] Certainly the comparative rarity of spatula-probes in general at Colchester may be an indication of a more specialised use and/or a shorter period of manufacture than for *ligulae* and spoon-probes.

Fragments

Given the rarity of medical *ligula*-probes,[12] incomplete copper-alloy *ligulae* in the collection are assumed to have been single-ended instruments. While this is also probably the case for the few catalogued bone *ligulae*, there is a double-ended example from Ham Hill, Somerset.[13]

Very few of the spoon-probes are complete, but comparison with this and other assemblages shows that spoons with a broken shaft can, with a high degree of confidence, be assumed to have had a probe on the missing terminal, especially if the shaft is long and has one or more grips. As no spatula-probe with a grip has been found in the town, the probes with a grip but no spoon are also assumed to be from spoon-probes. Thirty probes with only a short part of a plain shaft remaining are probably also from spoon-probes, but there are examples from elsewhere of plain probe shafts terminating in a series of mouldings.[14]

Not included here are particularly narrow olivary probes, about 2.5–3.5mm in diameter compared to the more usual 4.5–6mm. These are dipyrenes, medical instruments used where a particularly delicate probe or cautery was necessary.[15] There are three from Colchester, one of which is pierced.[16]

TYPOLOGY AND DATE

That many of the Colchester and Augst/Kaiseraugst items are similar, especially the spoon-probes, suggests that they came from the same continental workshop or manufacturing hub (table 1). Although few of the Colchester instruments are from secure archaeological contexts pre-dating the destruction of the town by Boudica in AD 60/61, others closely match forms found at Augst/Kaiseraugst in first-century AD contexts earlier than or

10. Riha 1986, 70, no. 523.
11. Ibid, 77.
12. Crummy and Davis forthcoming.
13. Greep 1983, 438.
14. Künzl 2002, Taf 16, A68, Taf 53, C71–C72, C74.
15. Ibid, 20, *urologische Doppelsonde*, Taf 7, A36; Jackson 2023a, 72–3.
16. Jackson 2011, 258, fig 19, f; Crummy and Davis forthcoming.

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Table 1. Numbers of Colchester metal *ligulae*, spoon-probes and spatula-probes by the variants from Augst/Kaiseraugst in Riha 1986.

	A	B	C	D	E	F	G	H	J	Uncertain	Unattributed fragments	Totals
Ligulae	–	–	–	1	53	n/a	n/a	n/a	n/a	3	11	68
Spoon-probes	3	3	2	3	42	1	–	8	n/a	1	21	84
Spatula-probes	5	1	–	1	–	–	–	–	1	4	3	15
Total												167

contemporary with the establishment of Colchester's legionary fortress in about AD 44 and the early colony around AD 49.[17] They imply that at least some of those from post-Boudican contexts here may be residual, particularly any from redeposited destruction debris.

Ligulae

Most of the Colchester *ligulae* fall within Riha's plain Variant E, which first appears at Augst in the early first century AD.[18] The emphasis here on plain shafts is not always matched on other sites. For example, of sixteen *ligulae* from the area of the fort at Piercebridge, County Durham, five had some form of decoration on the shaft, usually at the neck, and six were pierced, three of them at a point where the shaft had been flattened for that purpose.[19] Others from the river Tees at Piercebridge were treated in the same way, which may be related to ritual practice.[20]

Only four Colchester *ligulae* have detailing on the shaft. One has a rectangular-section decorated zone immediately above the scoop, which places it within Variant A (fig 2, **L1**), although its polygonal section shaft is the distinguishing feature of Variant C.[21] A fragment with a spiral groove above the scoop is matched at Woodeaton, Oxfordshire (fig 2, **L2**).[22] Another, with a complex grip above round punch marks, is of Variant D, which is found at Augst in first-century AD contexts and because the grip is considered by Riha to be unequivocally medical (fig 2, **L3**).[23] No good parallel has been found for one with a particularly thick grip (fig 2, **L5**).

Spoon-probes

There are eighty-four catalogued spoon-probes, one of which is base silver (**SP40**). Most belong to Riha's Variant E, with a grip at the neck. Examples of the same variant are rarely of the same length, and their grips can take different forms.[24] A sufficiently large data-set

17. *CAR* 3, 3–9; *CAR* 6, 7–14.
18. Riha 1986, Tabelle 11a.
19. Cool 2008, 11-31–11-33, figs D11.18–D.11.20.
20. Eckardt and Walton 2021, 10–50, 269–79, fig 5.4, A and C.
21. Riha 1986, Tafn 25–27, nos 224–47, 251–3.
22. Kirk 1949, fig 6, 3; Bagnall Smith 1998, fig 10, 11.9.
23. Riha 1986, 60.
24. Ibid, Tafn 39–48.

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Fig 2. **L1**, Variant A/C *ligula*; **L2**, Variant A? *ligula*; **L3**, Variant D *ligula*; **L5**, *ligula* of unmatched form. Scale 1:1. *Photos*: D Atfield; © Colchester Museums.

may allow sub-types to be identified. Two Variant E spoon-probes from North Hill date to the Claudian period, and at least two from the St Mary's Hospital site are from a Claudian–Neronian context.[25] These four may have a military connection, either having been brought to Britain by the army, early veteran colonists or Gallo-Roman traders exploiting the new market opened up at the conquest.

A few spoon-probes belong to other variants. One Variant A was inlaid with silver wire and a contrasting material, probably niello (fig 3, **SP1**), another has just silver wire (**SP23**), and a third has tiny ring-and-dot motifs on the shaft, some of which retain silver inserts (fig 3, **SP2**). A reliable Claudian date is provided for the latter by a similar example from Augst found with Tiberian–Claudian pottery and a Republican coin.[26] Three spoon-probes belong to Augst Variant B with twisted shaft (fig 3, **SP3** and **SP4**).[27] One Augst Variant B has two lugs at the neck above a flat area marked by two contiguous incised circles, and this is almost replicated on **SP4**, which has two non-touching partial circles and appears to lack the lugs, although they may have been lost to decay. Spoon-probe **SP5** (fig 3) belongs to Augst Variant C.[28] It has a fluted shaft separated by mouldings from a long flat neck with short side volutes, giving the impression that the spoon rises from a calyx. It is also matched by a spoon-probe from Silchester and by one in the British Museum's Blacas Collection that is almost certainly of continental origin.[29] Four Variant D spoon-probes (fig 4, **SP6**) also have a fluted shaft, and all have a grip above both the

25. Dunnett 1966, 45, nos 8–9; CAT 2001.64, SF 2235 and SF 1793.
26. Riha 1986, 68, Taf 39, 417.
27. Ibid, nos 425–6.
28. Ibid, Taf 40.
29. Milanese 2005; Crummy 2020, fig 163, 70; Jackson 2023a, 117, fig 127, 3.113.

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Fig 3. **SP1**–**SP2**, Variant A spoon-probes; **SP3**–**SP4**, Variant B spoon-probes; **SP5**, Variant B spoon-probe. Scale 1:1. *Photos*: D Atfield; © Colchester Museums.

spoon and the probe, which is not always the case with the Augst examples.[30] A single item tentatively assigned to Variant F is from a second-century context. It has a long central panel of tiny punches that allies it to two examples from Augst, although its neck is comparatively short (fig 4, **SP17**).[31]

Variant H has a wide and sometimes long bowl with a V-shaped profile (fig 4, **SP19** and **SP21**).[32] There are at least five examples from Colchester, and probably three more. Most have a distinctive bead or pear-shaped moulding and one or more narrow reels immediately above the spoon. The earliest stratified example from Augst was in a later first- to early second-century context, but there are two in the National Archaeological Museum of Naples from the Campanian towns destroyed by Vesuvius.[33] The form is widespread, with examples from the eastern Mediterranean to western and northern Britain.[34]

30. Riha 1986, 69, Tafn 41–3.
31. Ibid, 65, 71, Taf 46, 503–4.
32. Ibid, 71, Taf 48, 519–27.
33. Bliquez 1994, 147, nos 155–6.
34. Künzl 2002, Tafn 3, 35, 51–52; Lentowicz 2002, 54–5, fig 248, 115; Durham and Fulford 2014, 190, fig 125, 216; Eckardt and Walton 2021, fig 5.4, D.

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Fig 4. **SP6**, Variant D spoon-probe; **SP17**, Variant F spoon-probe; **SP19** and **SP21**, Variant H spoon-probes; **SP8**–**SP9**, spoon-probes found in the same pit. Scale 1:1. *Photos*: D Atfield; © Colchester Museums.

An exception in the Augst assemblage was made without a probe,[35] as was **SP18** from Colchester.[36]

With spoon-probes that fit into the Augst typology being so widespread, the question of workshop centres or local manufacture to a recognised standard is raised. Riha suggested that her Variants C and G were workshop groups, although assigning the more frequently-occurring Variants D and E to a single workshop was not possible as they differed so much in detail.[37] They may, though, have been produced by only a small number of workshops.[38]

Spatula-probes

Five spatula-probes are of Riha's Variant A (fig 5, **SPT3**) and one each of Variants B, D and J (fig 5, **SPT6**, **SPT7** and **SPT8**).[39] Other Colchester items are less confidently placed.

35. Riha 1986, Taf 48, 523.
36. *CAR* 2, 60, fig 64, 1921.
37. Riha 1986, 65.
38. Jackson 2023a, 13–14.
39. Riha 1986, 72–8.

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Fig 5. **SPT3**, Variant A spatula-probe; **SPT6**, Variant B spatula-probe; **SPT7**, Variant D spatula-probe; **SPT8**, Variant J spatula-probe; **SPT9**, Variant C? spatula-probe; **SPT11**, Variant H or J spatula-probe. Scale 1:1. *Photos*: D Atfield; © Colchester Museums.

SPT11 (fig 5) has the hammered blade of Variant J but lacks its rolled shaft, and **SPT9** (fig 5) has the low triangular-section blade seen on two examples of Variant C, but is too incomplete for positive identification. The enigmatic **SPT12** may be a Variant J with rolled shaft and pointed blade but with no probe surviving it resembles a model spear.[40]

All the excavated examples from Colchester are from post-Boudican contexts apart from the Variant D, which is dated to the military occupation of AD 43–9 at Sheepen.[41] Variants A, B and J all first appear at Augst/Kaiseraugst in the early–mid first century, and Variants A, B and C have been found at Pompeii and in the eastern Mediterranean.[42] Variant As are among the instruments in sets of medical equipment from Bingen and Cologne in Germany, and two Variant Cs are in one from Paris.[43]

40. *CAR* 2, fig 48, 1950; cf Kirk 1949, 40–1.
41. Hawkes and Hull 1947, 333, pl C, 23.
42. Riha 1986, 73, Tabelle 12a; Bliquez 1994, 135–40.
43. Künzl 1982, fig 51, 17–18, fig 57, 11, fig 68, 6; 2002, Tafn 30–2.

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Table 2. Breakdown of the terminology used for copper alloys. N: not present; Y: present.

Alloy	Tin >1%	Lead >1%	Zinc >1%
Copper	N	N	N
Leaded copper	N	Y	N
Bronze	Y	N	N
Leaded bronze	Y	Y	N
Brass	N	N	Y
Leaded brass	N	Y	Y
Gunmetal	Y	N	Y
Leaded gunmetal	Y	Y	Y

Instrument sets?

Some instruments found in the same context may derive from the same set of instruments, whether or not they are stylistically similar. This applies in particular to two spoon-probes from a Claudian context on North Hill, one certain and one probable Variant E (fig 1, **SP10**; **SP36**), and to two Variant Es from an early second-century pit at Maldon Road (fig 4, **SP8** and **SP9**).[44] To them might perhaps be added two Variant D spoon-probes from Balkerne Heights (**SP26** and **SP27**).[45]

METALLURGICAL ANALYSIS

by Peter Bray, Owen Humphreys, Kathryn Murphy and Keith Nyakubaya[46]

As a common category of object, long-handled toilet instruments are vital to our understanding of the production of these and other copper-alloy implements in the Roman world. Work by Riederer has examined 300 medical/toilet items found in Europe and the Eastern Mediterranean, establishing broad differences in the use of alloys between object types.[47] To date there has, however, been no similar large-scale study of these objects in Britain. To address this, a total of seventeen long-handled toilet instruments from Colchester have been chemically characterised using portable X-ray fluorescence. Readings were taken for sixty seconds using a Niton XL5+ portable X-ray fluorescence spectrometer. Whilst Riederer employs a complex system of alloy groupings, we consider that a simplified approach (table 2) is better for facilitating inter-site and diachronic comparison and for understanding the metalworking process.[48] Together with other objects from London Bloomberg, Vindolanda and northern Britain,[49] more than 150 long-handled toilet instruments from the province have now been studied, revealing striking differences with Riederer's data.

44. Dunnett 1966, 45, nos 8–9; *CAR* 2, 60–1.
45. Birbeck 2009, 134, fig 27, 2 and 7.
46. REMADE team, Department of Archaeology, School of Archaeology, Geography and Environment Sciences, Whiteknights Campus, University of Reading, Reading RG6 6AB.
47. Riederer 2002.
48. Bray *et al* 2015; Bray 2020.
49. Dungworth 1997.

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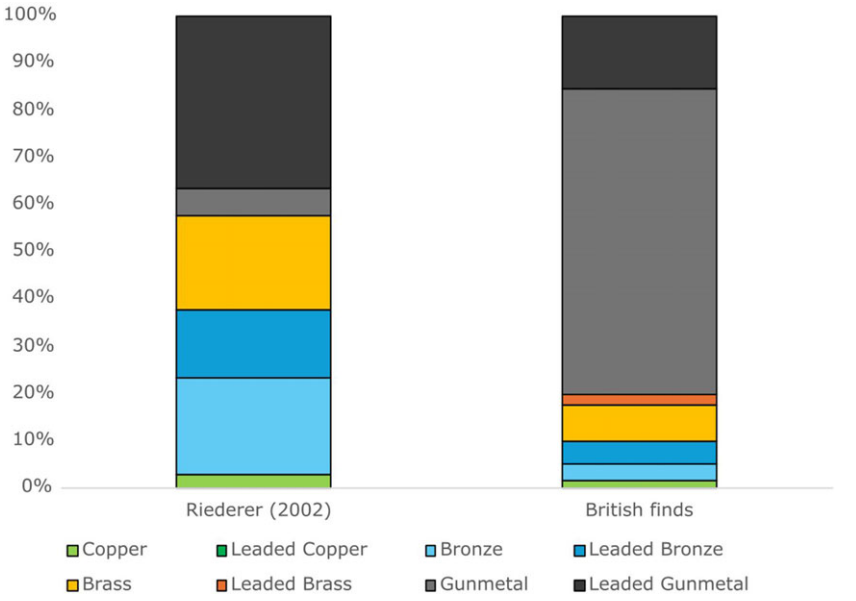


Fig 6. Graph showing the composition of long-handled toilet instruments from Britain (incorporating data from Dungworth 1997 and unpublished REMADE analyses) compared to those analysed by Riederer (2002). *Chart*: © REMADE, University of Reading.

Whilst Riederer's instruments were primarily bronze, brass or leaded gunmetal, the British finds are primarily unleaded gunmetal (fig 6), a distinction unaffected by the simplified approach. Within this gunmetal there are important distinctions. In early Roman London 'dilute' gunmetals were produced via a multi-stage alloying process, suggestive of specialised production. At Vindolanda, both the chemistry and chronology of the assemblage was more diverse, and the finds display a range of compositions more typical of mid–late Roman metallurgy, which employed leaded and low-zinc alloys more widely. This is suggestive of chronological change, with increasing use of recycled metal over time.

Beyond the broad differences between object types identified by Riederer, this analysis also shows differences based on object typology and form. At both London and Vindolanda, (wrought) instruments without a grip employed more zinc, whilst lower zinc alloys were primarily used for more complex pieces with a grip (which could be wrought or cast).

Although small, the assemblage of analysed instruments from Colchester reinforces an emerging picture of diversity in the composition of toilet instruments between sites, which has implications for our understanding of the production of these objects. The assemblage is also notable for some unusual objects that show more affinity with Riederer's collections than is demonstrated at other British sites (table 3; fig 3, **SP3**; fig 4, **SP17**).

The Colchester instruments have a similar chemical profile to those from Vindolanda, suggesting a similarly broad date range (table 3). The full results are given in appendix 5 (see supplementary material). The objects without a grip sometimes have higher zinc than those with one, although this is not as clear a distinction as on other sites (fig 7). Some

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Table 3. Alloy composition of the long-handled toilet instruments from Colchester.

Catalogue no.	Accession no.	Riha variant	Excavated context date	Alloy
L6	COLEM:2025.6.31	C?	–	leaded gunmetal
SP2	COLEM:1909.1933	A	–	gunmetal
SP3	COLEM:1986.65.2030	B	late Roman+ (residual?)	bronze
SP5	COLEM:1937.827	C	–	gunmetal
SP7	COLEM:1986.67.2602	E	post-Roman (residual)	brass
SP8	COLEM:1986.53.70	E	*c* early 2nd century	leaded gunmetal
SP10	COLEM:2003.241	E	Claudian	gunmetal
SP14	COLEM:1998.157	E	–	brass
SP17	COLEM:1981.1.1338	F	AD 100/125–275/325	leaded gunmetal
SP32	COLEM:1981.1.866	E	AD 60/61–100/150	gunmetal
SP54	COLEM:1998.158	E	–	gunmetal
SP60	COLEM:2003.280.167	E	AD 43–8 or later	leaded bronze
SPT1	COLEM:1936.622	A	–	gunmetal
SPT3	COLEM:2010.T188	A	–	gunmetal
SPT4	COLEM:1986.65.3517	A	AD 150–400+, or post-Roman	leaded bronze
SPT6	COLEM:PC.1156	B	–	gunmetal
SPT14	COLEM:2004.266.3	–	–	leaded gunmetal

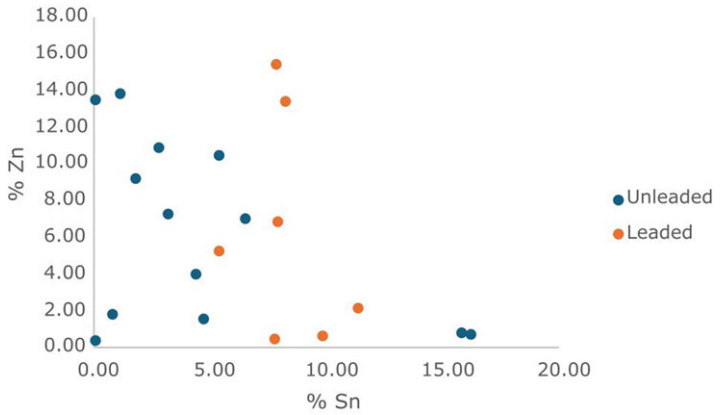


Fig 7. Graph showing the tin and zinc content of the long-handled toilet instruments from Colchester. *Chart*: © REMADE, University of Reading.

objects fit the 'dilute' gunmetal profile seen in early Roman London, and this includes the typologically early spoon-probe COLEM:1909.1933 (fig 3, **SP2**). This example also contained a small amount of silver from the inlays on the shaft.

Among the outliers is another early spoon-probe, COLEM:1981.1.1338 (fig 4, **SP17**), which is unusual for being a leaded gunmetal high in zinc. It is most probably an import and may belong to the group of leaded high-zinc gunmetals that Riederer identifies as the product of a specialised workshop, although the lead levels recorded are lower than in

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Riederer's objects.[50] Spoon-probe COLEM:1986.65.2030 (fig 3, **SP3**) is an unleaded bronze. Given the rarity of bronze in other analysed instruments from Britain, this may also be an import. Its composition is similar to other wrought bronze artefacts, such as vessels, with the torc-twisted shaft of this example showing that it too was wrought.

FUNCTIONS

In his inventory of medical instruments in graves dating to the period of the Roman Empire, Ernst Künzl suggested that *ligulae*, spoon-probes and spatula-probes (and possibly other types of probes) were among a group of objects that were not enough to define the person with whom they were buried as a doctor, dentist or pharmacist unless indisputably medical implements were also present.[51] The other ambiguous items are stone grinding palettes, pestles and mortars, spoons of various forms, weighing scales, multi-compartment boxes and copper-alloy tubular étuis. Along with others,[52] Künzl defined the alternative use of these loan tools as the preparation and application of cosmetics and unguents.

Healthcare

Ligulae can be found in the kits of medical practitioners, including dentists.[53] They could be used in minor surgery as a fine cautery or blunt hook, and as a dental scaler.[54] Spoon-probes and spatula-probes could be used in the measurement, preparation and application of powders, salves and other medications, as curettes and cauteries, in the removal of stones and in many other ways.[55] They are also found in sets of medical equipment, such as the spoon-probe in the conquest-period Doctor's grave in the native British élite cemetery at Stanway near Colchester (fig 8).[56] A grave from Mayen, Germany, contained a slate palette, a spoon-probe and the remains of two salves, further evidence for medical use.[57] Numerous glass and pottery vessels, a multi-compartment box containing a variety of organic substances, an alabaster mortar, a wooden-handled knife, a stone grinding palette and an étui that contained two spoon-probes were found in the nineteenth century in a burial on the villa site at Saint-Médard-des-Prés, Vendée, France.[58] Previously considered to be the equipment of an artist, new work on the organic remains from this grave led to the group's reinterpretation as an oculist's kit.[59] Other spoon-probes found in both male and

50. Riederer 2002, alloy 4.g.
51. Künzl 1982, 5–6.
52. For example: Milne 1907, 55, 90; Riha 1986, 56, 64, 73; Lambert 1994; Jackson 2002, 87, and 2013, 53; Bliquez 2015, 109, 120, 263–9.
53. Jackson 1986, 128, fig 4, 28–9, 2023a, 15–32; Künzl and Weber 1991, 92–3; Künzl 2002, 19–22.
54. Jackson 2023a, 73; also Bliquez 2015, 130–8.
55. Bliquez 2015, 118–38; Jackson 2023a, 73.
56. Jackson 1986, 128, 2003, 321, 2007, 244, 2011, 243, 253, 257, 2023a, 15–36; Künzl and Weber 1991, 93; Künzl 2002, 18.
57. Oxe and Stokar 1941, 28–30; Künzl 1982, 85.
58. Fillon 1849.
59. Künzl 1982, 58; Ling 1991, 211, fig 230; Robin 2011, 140; Santrot and Corson 2012, 205–6, 210–11.

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Fig 8. Replicas by Nodge Nolan† of the instruments in the Stanway Doctor's kit. From left to right: two iron scalpels, iron saw, copper-alloy sharp and blunt hook, iron sharp and blunt hook, copper-alloy? retractor, copper-alloy forceps, iron forceps/tweezers, three handled? needles, copper-alloy spoon-probe, copper-alloy handle with fragment of an iron component, iron knife. Not to scale. *Photo*: D Atfield; © Colchester Museums.

unsexed burials, perhaps with a stone grinding palette but with no other specifically medical equipment, have been interpreted as evidence that the deceased suffered from eye disease and was self-administering a medication, or was a pharmacist or doctor, or used them for preparing and applying cosmetics.[60]

Literacy

An alternative for both spoon-probes and spatula-probes is presented by a male grave from Salzburg, Austria, that held an inkwell, a stone palette, a spoon-probe, a knife and a bone strip, a variant form of the rulers found in sets of writing equipment.[61] Künzl suggested, from the form of the knife, that this might be the burial of a doctor, but Eckardt has proposed that some of these objects may have been used to make ink, especially if oak-apples were used to make iron gall ink.[62] In at least two other burials, spoon-probes were found in conjunction with an inkwell and other items associated with writing. One was in a grave from Emona (Ljubljana), Slovenia, along with an inkwell and a wax spatula used for preparing writing tablets.[63] The other had been deposited in a well-furnished mid–late first-century burial from Cologne, Germany, along with two spatula-probes, a *ligula*, an inkwell with the corroded remains of two styli, a stone palette, two bone-handled knives

60. Künzl 1982, 55, 86, 96–7, 118; Vanvinckenroye 1984, 29–30; Tartari 2004, 31–2, 69, 72, 74; Eckardt and Crummy 2008, 82–3. See Feugère 1993, 132, for the appearance of palette and spoon-probe burials in Gaul in the 1st century BC.
61. Künzl 1982, 114, Abb 90; Božič and Feugère 2004, 39–40.
62. Eckardt 2018, 27–8, 215–17.
63. Ibid, 217.

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with silver fittings, a copper-alloy handle and some fragments of bone inlay or veneer from a wooden box, ceramic and glass vessels and a coin of Nero.[64] A rather more ambiguous sarcophagus burial from Cologne contained an inkwell, a Variant C spatula-probe, a surgical needle, a medical(?) hook, a razor, a picture lamp with an image of Hercules on the discus, pottery vessels, a notched stone strip (perhaps for making pills) and a glass egg.[65]

In two of the inkwell graves the association between spoon-probes, spatula-probes, *ligulae* and a stone palette calls into question the assumption for other burials that, in the absence of medical equipment, these objects must have been used in the preparation and application of cosmetics.[66] While most of the burials listed by Künzl are antiquarian finds with no age or sex data attached to the human remains, two inhumations from Romania identified as male contained only a spoon-probe and a palette that he suggested were for cosmetic use.[67] These burials raise a number of questions concerning the reliability of osteological evidence, the use of the artefacts and the wearing of make-up. Whether the deceased were male or female, were these implements used to grind ink, pharmaceutical ingredients, cosmetic pigments or other substances?

The toilette

In the Roman world, the daily toilette made use of a wide range of implements that are generally gendered as either male or female, such as razors and mirrors.[68] We have seen above that spoon-probes and spatula-probes cannot be assumed to be gender-specific, and they are appropriately categorised by Bertrand as *ustensiles servant manipuler les différentes substances*, which covers their use as both pharmaceutical and toilet instruments.[69] The toilette-related uses proposed for *ligulae* include mixing unguents and cosmetics, scooping small quantities of them out of containers, pushing back the cuticle, painting on kohl or rouge or applying make-up to the eyelid.[70] A *ligula* and spoon-probe from Grave 567 in the northern cemetery at Emona have both been described as cosmetic spoons, as have bone *ligulae*, and a gilt bronze *ligula* from Vieux-Poitiers, Vienne, is best seen as a statement piece of cosmetic equipment rather than part of a medical professional's kit.[71]

Painting

The possible use of spoon- or spatula-probes in preparing pigments for use in wall-painting, perhaps even applying them, is particularly ambiguous. Some disulphide of arsenic from Silchester may have been used as an antiseptic or a painter's pigment, and experimental work has found that several substances usually associated with wall-painting

64. Künzl 1982, 91–3; Eckardt 2018, 217.
65. Freudenberg 1857, 107–8, n 4, pl 4; Künzl 1982, 96; Eckardt 2018, 217.
66. For example, Künzl 1982, 43, 55, 86, 96–7, 118.
67. Ibid, 55.
68. Garbsch 1975; Lloyd-Morgan 1981; Boon 1991; Berg 2023.
69. Bertrand 2003, 97.
70. Milne 1907, 77; Merrifield 1965, 187–8; Bertrand 2003, 99; Cool 2008, 11–31; Jackson 2013, 53.
71. Plesničar-Gec 1972, 230, fig 131, nos 11 and 13; Greep 1983, 433, 435–7, type B1; Bertrand 2003, fig 110, left.

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also made effective cosmetics.[72] As mentioned above, the Saint-Médard-des-Prés burial in France was considered to be that of an artist, but analysis of the organic residues has led to the reinterpretation of the equipment as that of an oculist.

BURIALS

Any of the uses defined above could be pertinent to a long-handled instrument found in an urban milieu, where medical practitioners of various types worked, texts were written, make-up was applied and walls were painted. Distinguishing the use to which any instrument was put is therefore difficult unless it came from a specific context or was found in association with less ambiguous items, such as the continental burials cited above that attest to, or at least imply, its use. Examples of such burials in Britain are very scarce, with the four summarised below being the most pertinent.[73]

A spoon-probe was included in the set of surgical equipment placed in the richly-furnished conquest-period Doctor's grave in the late Iron Age to early Roman cemetery at Stanway near Colchester (fig 8).[74] The age and sex of the deceased could not be determined from the cremated bone, but other factors pointed to this being the burial of an adult male.[75] The grave contained both imported and British-made objects, with the spoon-probe providing a visible form of Gallo-Roman acculturation in the sphere of pre-conquest medical treatment. Coming from the grave of an inhabitant of the Iron Age *oppidum* of Camulodunum, this is not considered as part of the Romano-British urban assemblage from Colchester assessed here.

The adult Grave 6635 from excavations in Kent is of very similar date to the Stanway burial, was again richly-furnished and contained both imported and British-made items.[76] The grave goods included a wooden multi-compartment box with copper-alloy internal walls and fittings, a spatula-probe and a limestone grinding palette with associated copper-alloy sliding cover that incorporated a small dish.[77] The sex of the deceased could not be determined and the burial may have included the remains of more than one person. The presence of metal vessels for ritual hand-washing and formal feasting implies that the deceased was male, but, while acknowledging that the box, palette and spatula-probe may have belonged to a pharmacist, the excavators preferred to associate them with cosmetics and to interpret this as a female burial.[78]

Colchester Grave 302, the 'Lockhart burial', was found close to the pottery kilns at Sheepen in 1933.[79] Among the considerable number of grave deposits that had been placed inside an amphora were a copper-alloy probe with broken plain shaft (**P22**), a bone needle, a square

72. Boon 1974, 137; Jackson 2010, 12–14, 2013, 53.
73. Philpott 1991, 280, 356. Although listed by Philpott as a grave deposit, a fragment of a spatula (-probe) from the inhumation of a young male at Ilchester, Somerset, can be discounted as residual: Leach 1982, 86, fig 122, 130.
74. Crummy *et al* 2007; Jackson 2007.
75. Ibid; Crummy 2007, 320, 380–1.
76. Allen *et al* 2012, 354–73, 454; note that on pp 358, 369 and 481 the spatula-probe (sf 1562) is referred to as a *ligula*.
77. For a more intact example of the last from Lyon, see Jackson 2023a, fig 78; it was associated with sticks of eye-salve.
78. Crummy 2007, 320; Allen *et al* 2012, 355.
79. Hull 1963, 13, 144–6, figs 9 and 79–81.

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wooden-framed high-tin leaded bronze mirror,[80] two brooches of unparalleled form, twenty small green and blue glass beads, some bone fittings from scrolls,[81] a bone-handled knife and several pottery vessels, some locally-made. Dating to the later second or early third century, this is almost certainly the burial of a female, probably an older adolescent or young adult, with the probe being part of a spoon-probe used in her toilette. The scroll fittings and perhaps the knife may alternatively be evidence that she was literate, with the spoon-probe used to prepare her ink.[82]

In London, an adult male was buried in the late third century with a spoon-probe, tweezers, miniature black-burnished ware jar and coin of Severus.[83] The two metal instruments lay across the man's throat, perhaps having been in a bag worn around his neck. He has been interpreted as an oculist, with the jar used to contain a salve.[84]

Setting the rarity of long-handled instruments within burials against the number of graves excavated in Colchester's Romano-British cemeteries and the quantities of the instruments recovered from the town and its suburbs, it seems that most were regarded as commonplace disposable equipment. In contrast, these four burials, two or possibly three being of medical professionals, point to a very different milieu, one in which spoon-probes were valued tools that defined the deceased's status in the afterlife.

DISTRIBUTION

Ligulae, spoon-probes and spatula-probes have been found on both intra- and extramural excavated sites in Colchester, with their numbers boosted by casual finds. While widely spread, they are concentrated in the western suburb immediately outside the Balkerne Gate, the reasons for which are explored below.

There have been comparatively few modern excavations in the eastern part of Colchester's walled Roman town, much of which now lies within the Castle Park, while parts of the northern and eastern suburbs lie within the flood-plain of the river Colne, leading to a distinct western emphasis in site distribution terms (fig 9).[85] This bias is again reflected in many of the finds acquired by Colchester Museums from the nineteenth century onwards. As well as the early collection being dominated by burial groups from the town's western cemetery,[86] up until the 1930s the find-spots given for casual accessions are dominated by the Union, later St Mary's Hospital, which lay just outside the Balkerne Gate. With the exception of those from Sheepen, items from other sites pre-dating the late 1960s are comparatively rare and most are single finds (see appendix 6, supplementary material).

Intramural v extramural

Given the western bias noted above, it is to be expected that considerably more long-handled instruments have been found on sites in the extramural western area than in the

80. K Manby, pers comm.
81. Greep and Rijkelijkhuizen 2019.
82. Eckardt 2018, 155–65.
83. Whytehead 1986, 64.
84. Eckardt and Crummy 2008, 82–3.
85. Hull 1958; Dunnett 1966, 1971; *CAR* 3; *CAR* 6.
86. May 1928.

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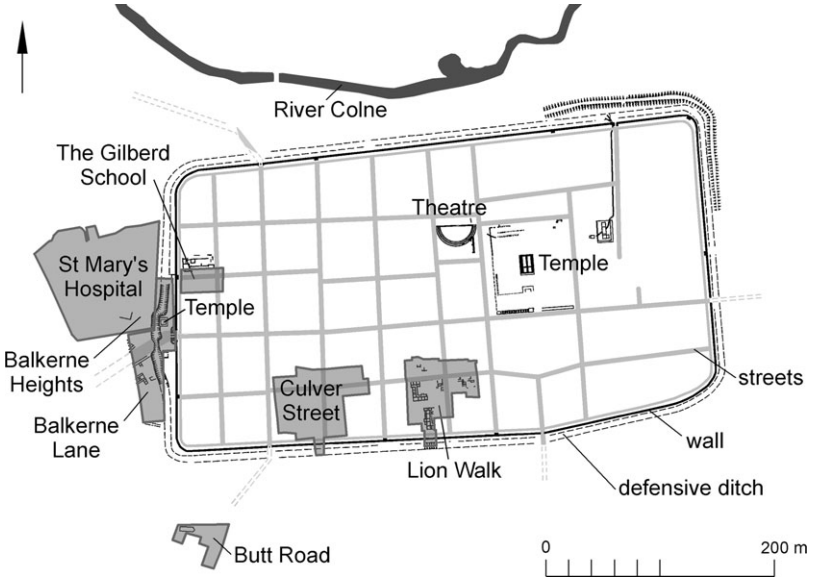


Fig 9. Roman Colchester, showing the sites mentioned in the text. *Map*: drawn by E Holloway; © Colchester Archaeological Trust.

Table 4. Distribution of long-handled instruments. Site-specific distribution is given in the online supplementary material.

General location	*Ligulae*, disc angled or straight	Spoon-probes, including fragments	Spatula-probes including fragments	Probe fragments	Totals	%
Intramural	8	12	5	8	33	31
Extramural, west	18	32	1	7	58	55
Other extramural	6	6	2	–	14	14
Totals	32	50	8	15	105	100

other suburbs combined. There are also substantially more than from within the walled town, even though the excavated intramural sites usually had a more prolonged period of use as well as a greater concentration of occupation and depth of archaeology (table 4). The 2001–2 St Mary's Hospital and 2003 Balkerne Heights assemblages are included in table 4, but objects that pre-date the town wall have been omitted. The balance of the figures for bone hairpins from the same sites and in the same location groups is much the same (42:55:3 per cent). The difference between the suburbs is no doubt due not only to more Victorian and later redevelopment leading to more excavation in the west, but also to the area's use in the Roman period for the dumping of urban detritus.[87]

If the twenty-four per cent distinction for long-handled instruments between the intramural and western suburb assemblages is meaningful (it is just thirteen per cent for hairpins), then a factor other than the disposal of rubbish has enhanced the numbers of

87. Hull 1958, 243–4, 254–5; *CAR* 3, 98–115; Birbeck 2009, 102–11, 113, 128, fig 2.

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long-handled instruments in the west, and this, we propose, was the presence of Temple 10, which lay just outside the Balkerne Gate.

Temple 10: a healthcare hub?

Temple 10 on the Balkerne Lane site, Colchester Building 52, was of typical Romano-Celtic form with an ambulatory set around a *cella*. It had probably been constructed in the very late first or early second century, then sometime in the fourth century the ambulatory was demolished and its foundations robbed out. The *cella* was left intact and was presumably still in use until the end of the Roman period. Both before its construction, and at least until the use of the area for burials, the ground around the building was used for the dumping of household waste, particularly oyster shells.[88]

An association of the building with Mercury has been suggested by several objects from the St Mary's Hospital, Balkerne Heights and Balkerne Lane sites, including figurines of the god and a priestess.[89] His other attributes of a caduceus, winged hat and winged sandals, along with two of his three animal companions, are represented by model votives, figurines and brooches.[90] As he was the patron deity of travel, a temple dedicated to his worship outside the west gate of the town lay in an appropriate setting, next to the road leading both to and from London, Verulamium and the wider province. A complete figure-group of Mercury and his animal companions was found in a similar location outside the south-west gate of Verulamium, close to the road to Silchester.[91]

Mercury had other roles: patron of eloquence and commerce, messenger of the gods and psychopomp, he was also associated with healing and, like Aesculapius the physician and the goddess Salus, might be shown with a snake.[92] On a figurine from Caistor St Edmund, Norfolk, he wears a torc with snake-head terminals, and in the healing spring of Néris-les-Bains, Allier, France, he is shown with a ram-headed snake.[93] As well as appearing on the model caducei found near Temple 10, simple snake images were also recovered there.[94] Medical implements, a scalpel and two stamps used to mark eye-salves came from the same area,[95] as did a grinding palette and a fragment of an alabaster vessel, both artefact types found in medical practitioners' kits, including that of the Saint-Médard-des-Prés oculist.[96] Two other items that may have been credited with prophylactic powers might also be pertinent here, a copper-alloy mount cleverly combining images of phallus, bird and chariot, and a small second- to third-century mica-gilt bowl with phallic spout.[97]

In this context, many of Colchester's multi-functional long-handled instruments might plausibly be associated with healers working in or close to Temple 10. Bending some complete examples in a probable act of ritual mutilation has been noted around the temple,

88. *CAR* 3, 123–6, 327–8.
89. *CAR* 2, 142; Crummy 2006; Durham 2012, nos 1,030, 1,041–2.
90. *CAR* 2, 143; Crummy 2006; Birbeck 2009, fig 13, 2; Durham 2012, nos 1,034–5, 1,038–40.
91. Green 1976, 58–9; Pitts 1979, pl 12, 39; Lindgren 1980, pl 19; Niblett 2001, 120, pl 14.
92. Green 1997, 185–6; Jackson 2011, 246.
93. *LIMC* VI.2, 750, pl 306, 544; Green 1976, 31, 204, 1989, fig 21.
94. *CAR* 2, 143; Crummy 2006.
95. *CAR* 2, fig 61, 1867, fig 69, 1951; Crummy 2006, fig 30, 1–2.
96. Fillon 1849, 27, 37; Künzl 1982, 43, 55, 68, 70, 75, 85–6, 88, 9, 96–7. 102–3, 105, 107; Birbeck 2009, 128; Jackson 2023a, 15–32.
97. Crummy 2006, 63, fig 32, 3; CAT 2001.64 Phase 1, (968) pit F125.

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and can also be seen on other items such as metal needles, spoons, hairpins and small toilet instruments.[98] The inclusion of needles and spoons among these objects introduces the possibility that they, too, belonged to medical practitioners, as examples occur in a number of medical kits.[99]

Votive deposition or waste disposal?

The disposal of waste in extramural areas of Roman towns is well-attested. It chiefly consisted of general household debris, but sometimes had an emphasis on particular types of material, such as craft waste, and may have been deposited as a single event or over a long period of time.[100] Distinguishing between deliberate deposits and the disposal of rubbish has been the subject of prolonged debate, particularly in London, where the finds from the Walbrook stream have been defined in the past as rubbish or ritual, but are now seen as undoubtedly both.[101] The same issue pertains for the medical instruments from the extramural rubbish dump (*Schutthügel*) outside the fortress at Vindonissa (Windisch), Switzerland.[102] Similarly, the concentration of medical and possibly medical artefacts in the area outside Colchester's Balkerne Gate can be postulated as ritually connected to Temple 10 and the healing arts, but, given the dumping of general rubbish over at least the second and third century in both the area immediately around the building and further west and north, this interpretation must remain uncertain.[103]

In the late Roman period, use of the St Mary's Hospital site for burials, including some of high-status, implies that the area was no longer used for dumping, which provides a probable *terminus ante quem* for the long-handled instruments found there, coinciding with the demolition of Temple 10's ambulatory. Did the temple cease to be a focus for healing, causing medical equipment to be dumped?

CONCLUSION

Unless their context provides an unambiguous interpretation, items of toilet and medical equipment are usually catalogued together.[104] Even when there is an intention to concentrate on only one of these functions, objects belonging to the other may creep in.[105] Use in the preparation of inks and possibly paints should now also be considered, further hampering precise interpretation.

The large numbers of *ligulae* and spoon-probes found at Colchester suggest that the majority were used in the home, although this may not necessarily be the case for the less

98. Crummy 2006, 65; Birbeck 2009, 105–6, 128–9.
99. Künzl 1982, figs 13, 18, 75; Jackson 2023a, 64, 74, figs 5, 21c, 30–1, 34a, 76.
100. Ettlinger and Simonett 1952; Ettlinger and von Gonzenbach 1956; Grünewald 1983; Opper 2008, 36–8; Rees *et al* 2008, 381–2; Eckardt and Walton 2021, 8–9.
101. Merrifield 1987, 26–7, 1995; Wilmott 1991, 61–7; Crummy 2008, 218–19; Merrifield and Hall 2008; Garrow 2012; M Marshall pers comm.
102. Cruse 2025, 107.
103. Birbeck 2009, 108, 112–13; Crummy and Davis forthcoming.
104. *CAR* 2; Riha 1986; Jackson 2013.
105. Bertrand 2003: compare tweezers 1, 3 and 6 on pl 28 with medical forceps in Jackson 2023a, figs 117–19.

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frequently-found spatula-probes. Note also Riha's suggestion that Variant D *ligulae*, one of which is in the Colchester assemblage, were medical instruments.[106] Identifying individual urban properties as those of healers introduces another difficulty, and it is generally only a disaster, such as the fire that destroyed a surgeon's house in Rimini, or a concentration of implements, as on Silchester's Insula IX, that might pinpoint a healer's premises.[107] Gathering together here Colchester Museums' urban and suburban assemblages of these long-handled instruments has substantially increased the number previously thought to come from the area adjacent to Colchester's Temple 10. Despite use of this part of the western suburb as a rubbish dump, they suggest that, along with other items connected to healing and healing deities, the building was a focus for healthcare, perhaps particularly for the easily-spread eye diseases that appear to have plagued Roman-period populations.[108]

The Colchester instruments examined here have been set against those in the Augst/Kaiseraugst typologies and some pieces have been matched to examples from other site assemblages, which, although smaller than that presented here, appear to be equally diverse and in some cases very different. No comparative study of a large urban assemblage drawing together both antiquarian and modern accessions held by a local museum in Britain has been attempted here, nor any concentrated look at the Romano-British assemblage as a whole, but the published excavation reports consulted suggest that both could be a fruitful field for typological work, perhaps leading to a clearer view of the forms used in medical treatment, well-dated chronologies, regional variations and differences in deposition by site type.

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SUPPLEMENTARY MATERIAL

To view supplementary material for this article, please visit https://doi.org/10.1017/S0003581526100596.

106. Riha 1986, 60.
107. Jackson 2023a, 18, 2023b; Crummy 2024, 182–5.
108. Jackson 2013; Crummy and Davis forthcoming.

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ABBREVIATIONS AND BIBLIOGRAPHY

Abbreviations

CAR 2[109]	Crummy 1983
CAR 3	Crummy 1984
CAR 6	Crummy 1992
CAT	Colchester Archaeological Trust
CMR[110]	Colchester Museum Reports
LIMC	*Lexicon Iconographicum Mythologiae Classicae*, Artemis Verlag, Zurich/Munich
REMADE	Roman and Early Medieval Alloys Defined

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109. All the *CAT* volumes, with their microfiche supplements, are available at https://catuk.org/online-reports/.

110. The *CMR* are available at https://www.esah1852.org.uk/research/colchester-museum-reports.

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APPENDIX 1: SUMMARY CATALOGUE OF ILLUSTRATED ITEMS

Variants for all three artefact types are as in Riha 1986. For descriptions and selected images from the Augst/Kaiseraugst assemblages, see appendix 4 in the supplementary material. Letters in bold refer to *ligulae* (**L**), spoon-probes (**SP**) and spatula-probes (**SPT**). L = length.

L1, fig 2. COLEM:1930.266. The Union; *CMR* 1931, 39. Variant A/C. L 114mm.

L2, fig 2. COLEM:1986.66.1714. Butt Road excavation. *CAR* 2, 266 (fiche), 1916. Variant A? L 30mm.

L3, fig 2. COLEM:PC.1078. Colchester? Unpublished. Variant D. L 51mm.

L4, fig 1. COLEM:JOS.1032.1. Colchester? Price 1888, 78. Variant E. L 161mm.

L5, fig 2. COLEM:1907.1307. Colchester. Unpublished. Variant uncertain. L 103mm.

L56, fig 1. COLEM:1998.165. Colchester?, Joslin Collection?. Unpublished. Variant E. L 155mm.

SP1, fig 3. COLEM:1986.65.3417. Lion Walk excavation. *CAR* 2, 60, fig 65, 1927. Variant A. L115mm.

SP2, fig 3. COLEM:1909.1933. Colchester Royal Grammar School, Lexden Road. *CMR* 1910, 11. Variant A, gunmetal. L 119.5mm.

SP3, fig 3. COLEM:1986.65.2030. Lion Walk excavation. *CAR* 2, 60, fig 65, 1926. Variant B, bronze. L 155.5mm.

SP4, fig 3. COLEM:2025.6.20. Colchester? Unpublished. Variant B. L 103.5mm.

SP5, fig 3. COLEM:1937.827. Sheepen School (now St Helena's School). *CMR* 1937–44, 29. Variant C, gunmetal. L137mm.

SP6, fig 4. COLEM:2025.6.4. Colchester. Unpublished. Variant D. L 85.5mm.

SP8, fig 4. COLEM:1986.53.70. Maldon Road excavation. *CAR* 2, 61, fig 65, 1932. Variant E, leaded gunmetal. L 152.5mm.

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SP9, fig 4. COLEM:1986.53.74. Maldon Road excavation. *CAR* 2, 60–1, fig 65, 1931. Variant E. L127.5mm.
SP10, fig 1. COLEM:2003.241. North Hill excavation. Dunnett 1966, 45, no. 8, fig 7, 15. Variant E, gunmetal. L 132.5mm.
SP12, fig. 1. COLEM:1931.1595. National Bus garage, Queen Street. *CMR* 1932, 39. Variant E. L 147.5mm.
SP14, fig 1. COLEM:1998.157. Colchester? Unpublished. Variant E, brass. L 86.5mm.
SP17, fig 4. COLEM:1981.1.1338. Culver Street excavation. *CAR* 6, 154, fig 5.12, 469. Variant F, leaded gunmetal. L 115mm.
SP19, fig 4. COLEM:PC.1157. Colchester?, Acton Collection? Unpublished. Variant H. L 154mm.
SP21, fig 4. COLEM:1935.175. Colchester? *CMR* 1935–7, 26. Variant H. L 133.5mm.
SPT1, fig 1. COLEM:1936.622. Castle Park. *CMR* 1936–7, 26, pl 13, 5. Variant A, gunmetal. L 154mm.
SPT3, fig 5. COLEM:2010.T188. Colchester? Unpublished. Variant A, gunmetal. L 146mm.
SPT6, fig 5. COLEM:PC.1156. Colchester? Unpublished. Variant B, gunmetal. L 143.5mm.
SPT7, fig 5. COLEM:2003.208.8. Sheepen, 1930s bypass excavations. Hawkes and Hull 1947, pl C, 23. Variant D. L 110mm when published, but probe and most of spatula now missing, L 83mm.
SPT8, fig 5. COLEM:1988.44.266. Gilberd School excavation. *CAR* 6, 213, fig 6.8, 98. Variant J. L 31mm.
SPT9, fig 5. COLEM:1909.1833.1. St John's Abbey. Unpublished. Variant C? L 58mm.
SPT11, fig 5. COLEM:1986.67.5135. Balkerne Lane excavation. *CAR* 6, 63, fig 68, 1949. Variant H or J? L 67.5mm.

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