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***Ampullae, re-imbursed: a formal analysis of medieval “shell-shaped” lead-alloy pilgrim ampullae<sup>1</sup>***

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**Introduction**

Abandoning one’s daily life to go on pilgrimage to a shrine of a saint was an act of religious devotion performed by a substantial number of medieval Christians, from all walks of life; contemporary physical remains relating to pilgrimage reveal much about medieval society and the role of pilgrimage in it.<sup>2</sup> Especially informative are those pilgrim souvenirs cast in lead or its alloys, since they were mass-produced in vast numbers and a wide range of forms, to satisfy all tastes and pockets.<sup>3</sup> One of the most common souvenirs were

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<sup>1</sup> The author gratefully acknowledges the aid of the people who helped bring a rather odd initial notion to fruition. Images and permission to publish them without charge were provided by: Michiel Bil (the Netherlands); Stephen N. Fliegel and Elizabeth Saluk (Cleveland Museum of Art); Willemijn Gertsen (Medieval Badges Foundation, Langbroek); the Kings, Heralds and Pursuivants of Arms, London; Amy Taylor (Ashmolean Museum); and Sarah Williams (Museum of London). Willy Peron helped with the Kunera database and provided copies of its images. Professor Michael J. Fuller (St. Louis Community College) provided information on the Tell Tuneinir pilgrim flask, and permitted its image to be published. Yael Gorin-Rosen (Israel Antiquities Authority) discussed glass in medieval-era Palestine. Dennis Trout (University of Missouri at Columbia) and Laura Veneskey (Wake Forest University) helped with the Monza glass ampullae. Mark Taylor (Roman Glassmakers, Hampshire) reproduced ampullae in glass. Meriel Jeater (Museum of London) helped with medieval ampullae, purses and purse badges, and their images. Cynthia Hahn (Hunter College, CUNY) also helped with purses. Poul Grønder-Hansen (Nationalmuseet, København) provided the information for the Slotsholmen St. James scallop-badge. Sarah Blick (Kenyon College) helped with Mont Saint Michel badges, and said this research was worth reporting. The patient assistance of Lynsey Darby (Archivist at the College of Arms) was instrumental in interpreting armorial rolls and their escallop charges. Comments from two reviewers greatly improved the text.

<sup>2</sup> Blick and Tekippe (2005).

<sup>3</sup> Blick (2007); Spencer (1998).

ampullae, small vessels containing oil or water sanctified at a pilgrimage shrine.<sup>4</sup> Large numbers of ampullae have been recovered across Europe. In April 2014 the Kunera database<sup>5</sup> recorded over 1150 examples. In England and Wales, the Portable Antiquities Scheme (PAS) has documented over 1000 ampullae since its establishment in 1997.<sup>6</sup>

Many of these ampullae are said to be "shell-shaped,"<sup>7</sup> assuming the shape and treatment referred in the medieval mind to the scallop, the symbol initially of one of the three greatest medieval pilgrimages, to Santiago de Compostela, and eventually of pilgrimage generally.<sup>8</sup> However, the "shell-shaped" ampullae exhibit a wide range of styles and features, there are several types of scallop, and scallops are not the only type of shell with potential for use as a Christian image or as a reference to a specific shrine (these potential shells are discussed below). While surface-recovered portable antiquities suffer from an inability to be dated precisely, they are well-suited to spatial and statistical analysis.<sup>9</sup> This paper presents an investigation of features on medieval "shell-shaped" lead-alloy ampullae based on those recorded by the PAS, with the initial aim of further understanding of the images of shells in common use in the medieval Christian West.

### **Medieval ampullae and potential shell imagery**

Medieval lead-alloy ampullae do not have a shape of their own: all imitate some contemporary container. Some imitate costrels, some reliquaries or *chasses*,<sup>10</sup> but most are

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<sup>4</sup> Spencer (1998), 38-39.

<sup>5</sup> the online catalogue of European medieval badges and ampullae held by Radboud University, Nijmegen: <[www.kunera.nl](http://www.kunera.nl)>.

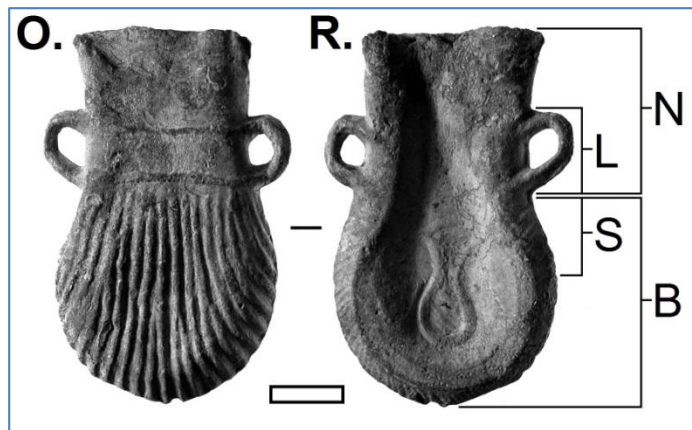
<sup>6</sup> the online catalogue of artifacts found by the public, principally by metal-detectorists, held by the British Museum: <[www.finds.org.uk](http://www.finds.org.uk)>; for its origins and development, see Bland (2005).

<sup>7</sup> e.g.: Spencer (1998), 244-246.

<sup>8</sup> Köster (1985).

<sup>9</sup> Hinton (2005), 2-3.

<sup>10</sup> Spencer (1998), 38-39.



**Figure 1** Example of a ‘flask-shaped’ medieval lead-alloy ampulla with obverse ribbing. PAS No. SF-A37D38; Fressingfield, Suffolk. (O.): obverse; (R.): reverse; (L): lug-handle; (S): shoulder; (N): neck; (B): body. Scale bar: 10mm. Amended from PAS (<[finds.org.uk](http://finds.org.uk)>) / CC-BY-SA 2.0.

"flask-shaped,"<sup>11</sup> imitating early earthenware flask ampullae (*eulogiai*) from eastern Mediterranean shrines, especially St. Menas' in Egypt, since these were known throughout Christendom.<sup>12</sup> They have a hollow lentoid body with a distended obverse side, a flattened reverse side, and a pair of small lug-handles either side of the body's junction with the wide (typically flaring) neck.<sup>13</sup>

The reverse usually bears an emblematic image.<sup>14</sup> Images are rare on the obverse, where ribs are common (**Figure 1**); these are thought to imitate the ribbing of the great scallop or St. James' shell.<sup>15</sup> Initially an actual scallop-shell acted as a badge of a successful pilgrimage to the shrine of St. James the Great at Santiago de Compostela in northwest Spain, but the shape was replicated in other materials, reproduced in those materials at other shrines, and over time became a visual indicator of pilgrimage in general.<sup>16</sup>

This contrast between types of image on mass-produced, mass-marketed and widely-recognized religious objects raised the possibility that more than one type of shell was a familiar

<sup>11</sup> Anderson (2010), 184.

<sup>12</sup> Anderson (2004, 2007) outlines the use of these flasks as religious objects; Evely (2010) sketches their prehistoric origin and subsequent development.

<sup>13</sup> Anderson (2010), 185; Spencer (1990), 58.

<sup>14</sup> Spencer (1990), 58; Anderson (2010) has cataloged and interpreted the English imagery.

<sup>15</sup> Spencer (1990), 41.

<sup>16</sup> Köster (1985); Spencer (1998), 244-246.

image in medieval Christian iconography. **Table 1** lists the shells most probably portrayed: Mediterranean or sub-Arctic European Atlantic equilateral<sup>17</sup> bivalve shells with ribbed sculpture that are fished commonly in Europe, or were at some time in history.<sup>18</sup> The most visible differences between candidate genera are their "ears"<sup>19</sup>: differences between species in the same genus (the two *Pecten* scallops, the three *Acanthocardia* cockles, and the two *Cerastoderma* cockles) are subtle, and therefore unlikely to be portrayed on ampullae.

**Table 1:** Candidate shells: equilateral bivalves with radial sculpture regularly harvested in sub-Arctic Atlantic or Mediterranean Europe

common name	Species name	max size (mm)	No. Ribs	Auricles ('ears')	Distr.
Great Scallop, or St. James Shell	<i>Pecten maximus</i>	150	17	two equal	Atlantic
	<i>Pecten jacobaeus</i>	130	17-19	two equal	Medit.
Queen Scallop	<i>Aequipecten opercularis</i>	100	20	two uneq.	Atl. / Med.
Smooth Scallop	<i>Flexopecten glaber</i>	53	10-11	two uneq.	Med.
Variiegated Scallop	<i>Chlamys varia</i>	65	27-36	one, large	Atl. / Med.
Rough Cockle	<i>Acanthocardia tuberculata</i>	90	18-20	none	Atl. / Med.
Spiny Cockle	<i>Acanthocardia aculeata</i>	100	20-22	none	Atl. / Med.
Prickly Cockle	<i>Acanthocardia echinata</i>	75	18-23	none	Atl. / Med.
Common Cockle	<i>Cerastoderma edule</i>	50	22-28	none	Atlantic
Lagoon Cockle	<i>Cerastoderma glaucum</i>	50	22-28	none	Atl. / Med.

Information for scallops from Wagner (1991); for other shells, Hayward and Ryland (1995) and Tebble (1966).

<sup>17</sup> Those with valves that are roughly symmetrical about the midline: Tebble (1966), 8.

<sup>18</sup> Quero and Vayne (1992) list the modern shellfish; Voultziadou *et al.* (2010) list those with a history.

<sup>19</sup> Anterior and posterior extensions of the hinge which zoologists refer to as "auricles."

Few kinds of shell are known to have meaning to medieval Christians. The image of the great scallop or St. James shell (*Pecten* scallops) and its association with St. James and with pilgrimage is well-studied, and its interment with remains of pilgrims documented archaeologically.<sup>20</sup> How and when this scallop became associated with St. James and Santiago is not clear; its association was well known, and its origins mythologized, by the early 12th century.<sup>21</sup> The survival from Roman times of the Classical association of this shell with the goddess Venus seems just possible; scallops are common along the coast near Santiago, so the symbol may have developed from its easy collection on the shore or its distinctive use in the local cuisine.<sup>22</sup> No other genus of scallop was interred in a medieval grave in western Europe, even in large pilgrim cemeteries:<sup>23</sup> in the medieval Christian mind, "scallop" meant the *Pecten* of Santiago fame. The variegated scallop (*Chlamys varia*),<sup>24</sup> a delicate little finely-ribbed scallop with a single large "ear" (**Figure 2d**), is often claimed to be a badge of pilgrimage to Mont Saint-Michel;<sup>25</sup> however, this appears apocryphal. Catalogs of Mont Saint-Michel pilgrim souvenirs<sup>26</sup> show no actual shells. The single possible example, the violet scallop from Slotsholmen in Copenhagen, is a *Pecten maximus*.<sup>27</sup> Most shell-shaped St. Michel badges portray St. James scallops, coarse-ribbed with two equal "ears" (**Figure 2a**); few bear enough ribs to portray *C. varia*. The 15<sup>th</sup>-century arms of the Abbey used the standard St. James "escallop" of medieval

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<sup>20</sup> Köster (1985) outlines the association of the great scallop with St James; studies of the shells buried with pilgrims include Andersson (1989), Köster (1983), and especially Vallet (2008).

<sup>21</sup> Hohler (1957), 56-59.

<sup>22</sup> See Pullan (2013) for a review.

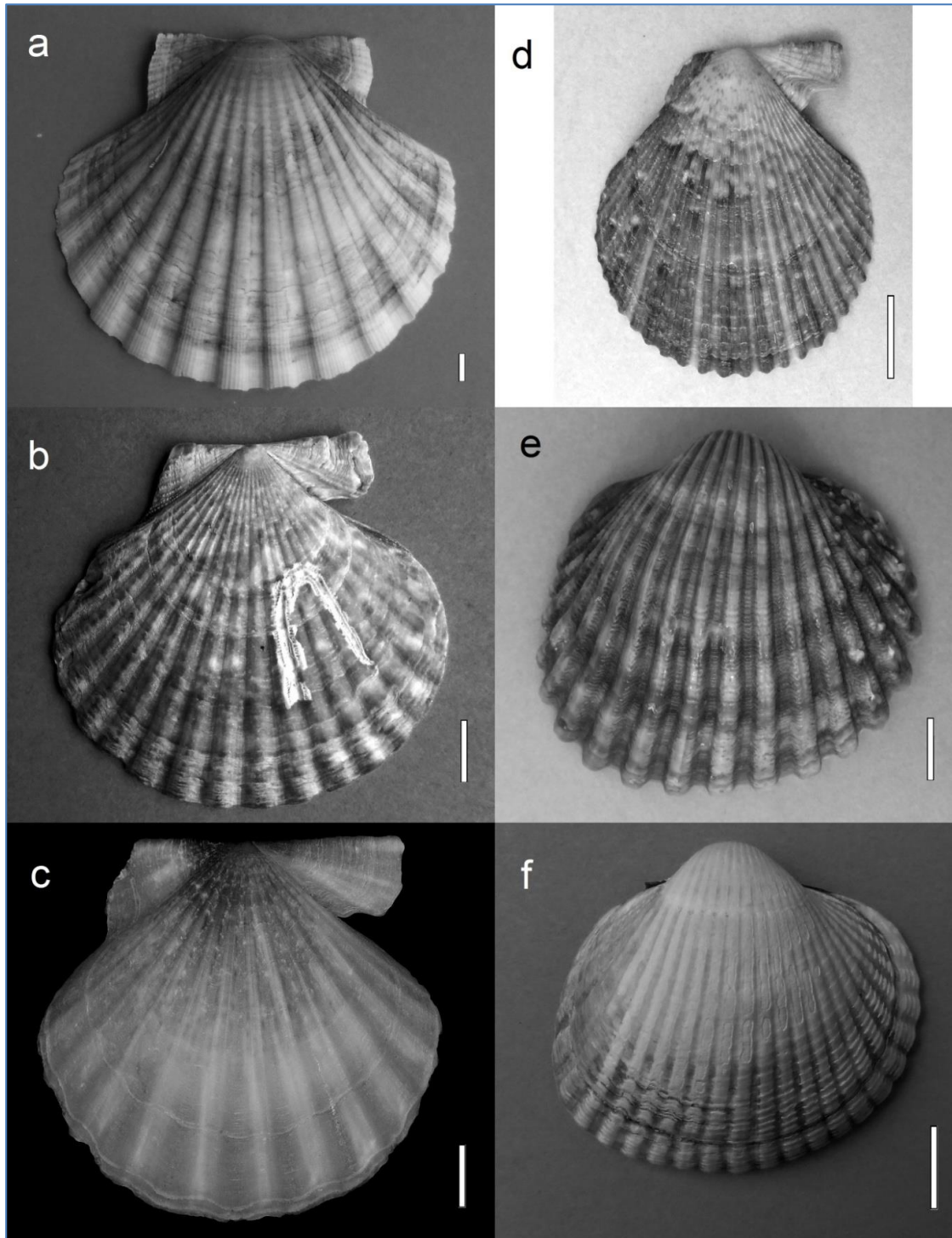
<sup>23</sup> The shell badges from cemeteries in Toulouse catalogued by Vallet (2008) remains the largest group.

<sup>24</sup> The renaming of this species to *Mimachlamys varia* on zoological grounds (Waller 1991, 31) is so recent that almost all literature uses this older Linnaean name.

<sup>25</sup> Locard (1888), 12-13; Cohen (1976); Köster (1985), 86; Vallet (2008), 244.

<sup>26</sup> e.g.: Lamy-Lassalle (1971); Bruna (1991).

<sup>27</sup> Nationalmuseet, Kobenhavn Catalogue No. D 6854 is catalogued as a potential Mt St Michel badge by Köster (1983), 133, No. M41f and Andersson (1989), 11, No. 85, but the museum photograph (Foto No. x 285-1) clearly shows a large, coarse-ribbed, two-eared great scallop.



**Figure 2** Examples of types of shell potentially portrayed on obverse-ribbed medieval lead-alloy ampullae. (a): St James shell (*Pecten maximus*); (b): queen scallop (*Aequipecten opercularis*); (c): smooth scallop (*Flexopecten glaber*); (d): variegated scallop (*Chlamys varia*); (e): example *Acanthocardia* (*A. tuberculata*); (f): example *Cerastoderma* (*C. edule*). Scale bars: 10mm. *F. glaber*: D. Descouens/Muséum de Toulouse / CC-BY-SA 3.0; others by author.

heraldry, and a 15<sup>th</sup>-century illumination in the Statutes of the Order of St. Michel portrays copious St. James scallops but no *C. varia*.<sup>28</sup> The association of *C. varia* with Mont Saint-Michel appears to be a misunderstanding emanating from a single late 19th century document.<sup>29</sup> A few pilgrims were interred with *Acanthocardia* cockles, and a very few with *Cerastoderma* cockles; some of the latter were also enclosed in openwork lead-alloy rattles which might have been votive.<sup>30</sup>

### "Escallop" charges on coats of arms

To understand what images were (and were not) representations of scallops on ampullae, it would be useful to have unambiguous representations of scallops in another medieval context. Unfortunately, the obvious source, lead-alloy badges, while numerous, share the same drawbacks to analysis as ampullae: almost all are un-stratified metal-detectorists' finds and therefore not closely dateable, and all are classified as "scallop-shaped" by modern researchers using the same criteria used for ampullae. Fortunately, contemporary representations of scallop-shells are preserved in medieval illuminated manuscripts as "escallops," heraldic charges on coats of arms in both rolls and ordinaries; these manuscripts can often be closely dated.<sup>31</sup> Several medieval

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<sup>28</sup> The abbey's arms are documented by Gout (1910), 215; the frontispiece to Jean Fouquet's *Statuts de l'Ordre de Saint-Michel* of 1470 (Bibliothèque nationale de France Manuscript 19819, fol.1 [<http://gallica.bnf.fr/ark:/12148/btv1b8427226q/f9.image>]) shows only great scallops. Medieval "escallop" heraldic charges are discussed by Bellew (1957), and further discussed below.

<sup>29</sup> All the recent assertions that *C. varia* acted as Mont St-Michel badges can be traced back to Germain *et al.* (1880), who illustrate (their fig. 21, p. 125) a *C. varia* with ribbing much reduced (a mere 19 ribs, instead of the typical 25-35 ribs of this shell: Tebble 1966, 59), beside a badge clearly portraying a St. James scallop with two equal "ears," but with its ribbing exaggerated (13 ribs are illustrated, but a later photograph of the same badge (No. 222 in Bruna 1996, 154) shows it in fact has nine ribs).

<sup>30</sup> The Worcester Pilgrim's is the most famous *Acanthocardia* badge, Lubin (1990), 15, but there are a few others (e.g.: Vallett 2008, 244). For an example *Cerastoderma* badge, see Köster (1983), 126; for *Cerastoderma* rattles, see Spencer (1998), No. 221.

<sup>31</sup> Bellew (1957) discusses the "escallop" heraldic charge, and Wagner (1950) catalogues British rolls (illuminated manuscripts recording noblemen present at major events) and ordinaries (pictorial style guides for heralds and heraldic illuminators), providing the dates of their production used here.



rolls and ordinaries were made between the 12th and 14th centuries, when ampullae flourished as souvenirs.<sup>32</sup> Therefore the surviving earlier medieval British rolls and ordinaries (those produced before 1400) had the number and nature of their escallops examined in detail (**Table 2**); three rolls from the 16th and 17th centuries were briefly assessed for comparison.

Table 2: escallop charges on British pre-AD 1400 manuscript crests

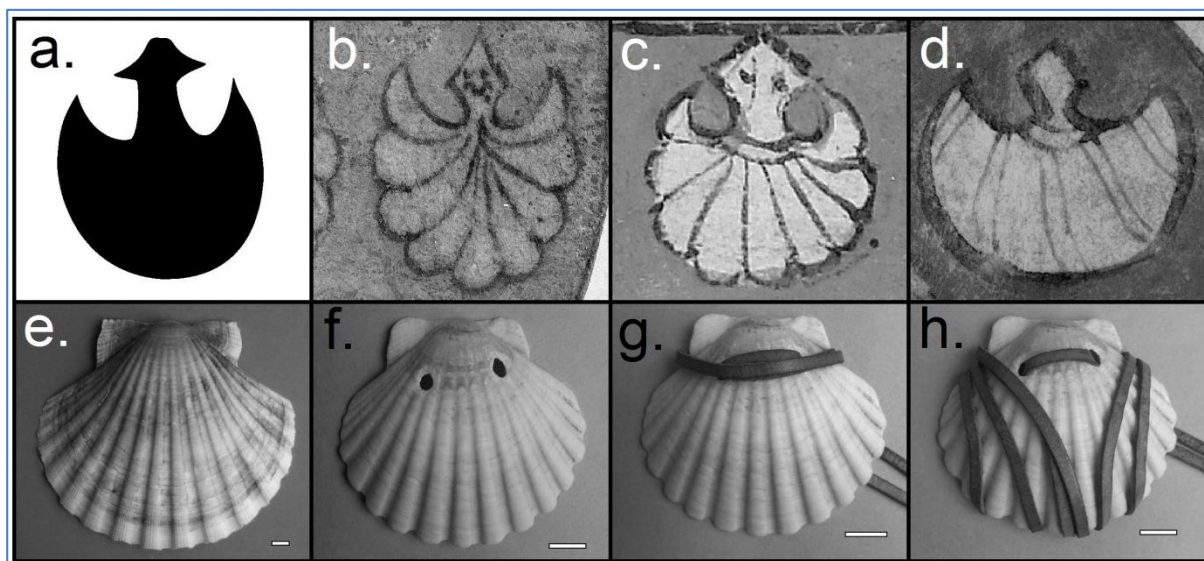
Date (A.D.)	manuscripts	No. of shields		No. of escallops				
		total	w/ escallops	total	w/ scalloped edge	w/ 'eyes'	w/ cords	w/ ribbing
1270 - 1280	Heralds', Dering, Camden	1291	9	36	9	~	~	3
1307 - 1327	Povey	82	1	3	3	3	~	3
c. 1340	Cooke's, Balliol	625	22	68	21	4	3	6
c. 1380	Jenyn's	1611	39	135	60	51	54	45

manuscript	full name
Heralds'	Heralds' Roll (College of Arms MS B29, pp. 20-27)
Dering	Dering Roll (Brit. Libr. Add Roll 77720)
Camden	Camden Roll (Brit. Libr. Cotton Ch XV, 8)
Povey	Povey's Roll (College of Arms MS B29, pp. 29-38)
Cooke	Cooke's Ordinary (Brit. Libr. Add Ch. 77242)
Balliol	Balliol Roll (Brit. Libr. Add Ch. 77242b)
Jenyn	William Jenyn's Ordinary (College of Arms RRG 73B)

<sup>32</sup> Spencer (1998), 3; Anderson (2010), 198 dates the simpler lentoid types principally from the mid-15th to the mid-16th century on stylistic grounds.

Escallops were not early charges: none are recorded prior to the last quarter of the 13th century (**Table 2**), not even on the mid-13th century Matthew Paris's Shields.<sup>33</sup> Escallops were also never common charges,<sup>34</sup> appearing on only 2.5% of pre-1400 coats of arms (**Table 2**). Like other armorial charges, which favored recognizability over accuracy,<sup>35</sup> early escallops were highly stylized, with narrow elongated necks, reduced "ears," acute or recurved shoulders, a smooth lower edge and no features on the disk (**Figure 3a**), resembling a saddler's knife or an



**Figure 3** Top row: 'escallop' heraldic charges from coats of arms on medieval English rolls and ordinaries. Bottom row: the objects being represented by the image above. (a.): typical plain form of escallop; (b.): with scalloped edge, rays and 'eyes,' from Povey's Roll (College of Arms MS B.29, p.36); (c.): with horizontal cords across neck, from Jenyn's Ordinary (College of Arms MS 'Jenyn's Ordinary' f 19r); (d.): rare form, with sinuous diagonal cords, also from Jenyn's Ordinary (f 26v); (e.): modern *Pecten* scallop-shell; (f.): author's reproduction of a medieval Santiago scallop-shell pilgrim badge; (g.): badge in (f.) with leather suspension cord, wound horizontally; (g.): badge in (f.) with cord wound vertically across disk. Scale bars: 10mm. (b.), (c.), (d.), reproduced by permission of the Kings, Heralds and Pursuivants of Arms, London.

<sup>33</sup> The collective vernacular term for the numerous heraldic marginalia he included in his *Liber Additamentorum* (British Museum Cotton Nero DI) of c. 1244, and his *Historia Anglorum* (British Museum Royal MS 14 CVII) of 1250-1259.

<sup>34</sup> Bellew (1957), 91.

<sup>35</sup> Bellew (1957), 92.

Inuit *ulu*<sup>36</sup> more than a scallop (**Figure 3b**). In late 13th-century manuscripts, only one shield showed escallops with scalloped lower edges, and only one showed escallops with ribbing. The one heraldic manuscript of the early-14th century (Povey's Roll) features a single escalloped shield; its escallops had scalloped edges, ribs, and "eyes" below the apex (**Figure 3b**), the earliest indication of the perforations for suspension-straps characteristic of Santiago scallop-shell pilgrim-badges (**Figure 3f**). The inclusion of "eyes," ribbing and especially scalloped edges was more common in the mid-14th century (**Table 2**), along with the first examples of horizontal cords at the narrowest part of the neck (**Figure 3c**), probably representing the suspension-strap wrapped around the neck of the scallop-badge (**Figure 3g**). The representation of "eyes", ribbing and cords was almost as common as scalloped edging on escallops in the late 14th century (**Table 2**); one shield (**Figure 3d**) shows escallops with sinuous cords across the disk, probably representing the suspension-strap wrapped around the disk of the scallop-badge (**Figure 3h**). Horizontal cords appeared on 23.6% of the escallops, despite cords being a later development. From the 16th century escallops tended to be more clearly naturalistic, along with other heraldic charges,<sup>37</sup> and cords and "eyes" became less common; perhaps the scallop itself had become enough of a symbol there was less need to include elements identifying it as a badge.

### **Features of obverse-ribbed ampullae**

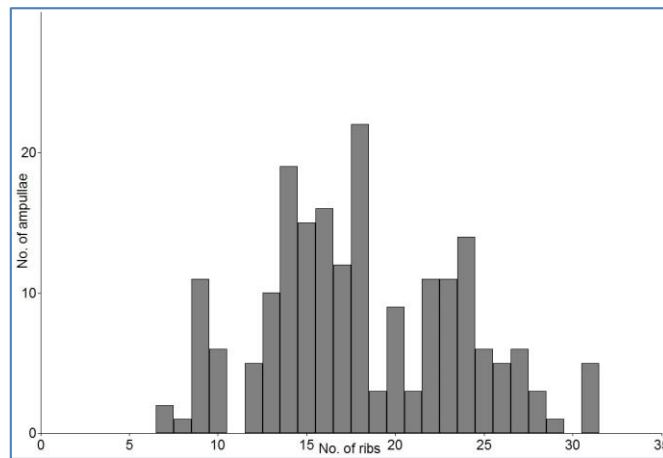
Thanks to the PAS, the reporting of artifacts by the public has grown at a startling rate. By April 2014, the number of medieval ampullae in the PAS database had nearly doubled in

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<sup>36</sup> Both kinds of knife are described by Mason (1892).

<sup>37</sup> Bellew (1957), 93.

seven years<sup>38</sup> to a total of 1,059, of which 409 were “shell-shaped.” Of these, 196 had digital photographic images and were preserved well enough to examine. The width of these ampullae were recorded and the digital images of their obverse faces were examined for the numbers of ribs, the form of the ribs, the spacing of those ribs, the shape of the shoulders, and the types of decoration at the base of the neck.



**Figure 4** Distribution of rib number in PAS obverse-ribbed ampullae.

### *Rib numbers*

These ampullae bore between seven and 32 ribs, with a mean of  $18 \pm 6$  ribs, but the distribution (**Figure 4**) was not Gaussian normal (the common, 'bell-shaped' distribution beloved of statisticians), so this mean and standard deviation (the usual statisticians' measure of the width of the normal 'bell-shape') was not very helpful for characterising the rib-numbers. There were four broad groups: those with few ribs (less than 11), those coarser ribbed (11-20 ribs), those finer ribbed (20-28 ribs), and the very finely-ribbed (all with 32 ribs). However, there were spikes in the rib-number distribution in the overlap between the coarsely-ribbed and finer-ribbed groups, at 18 and 20 ribs.

<sup>38</sup> According to Anderson (2010), 186, the PAS database contained 569 ampullae in late 2007.

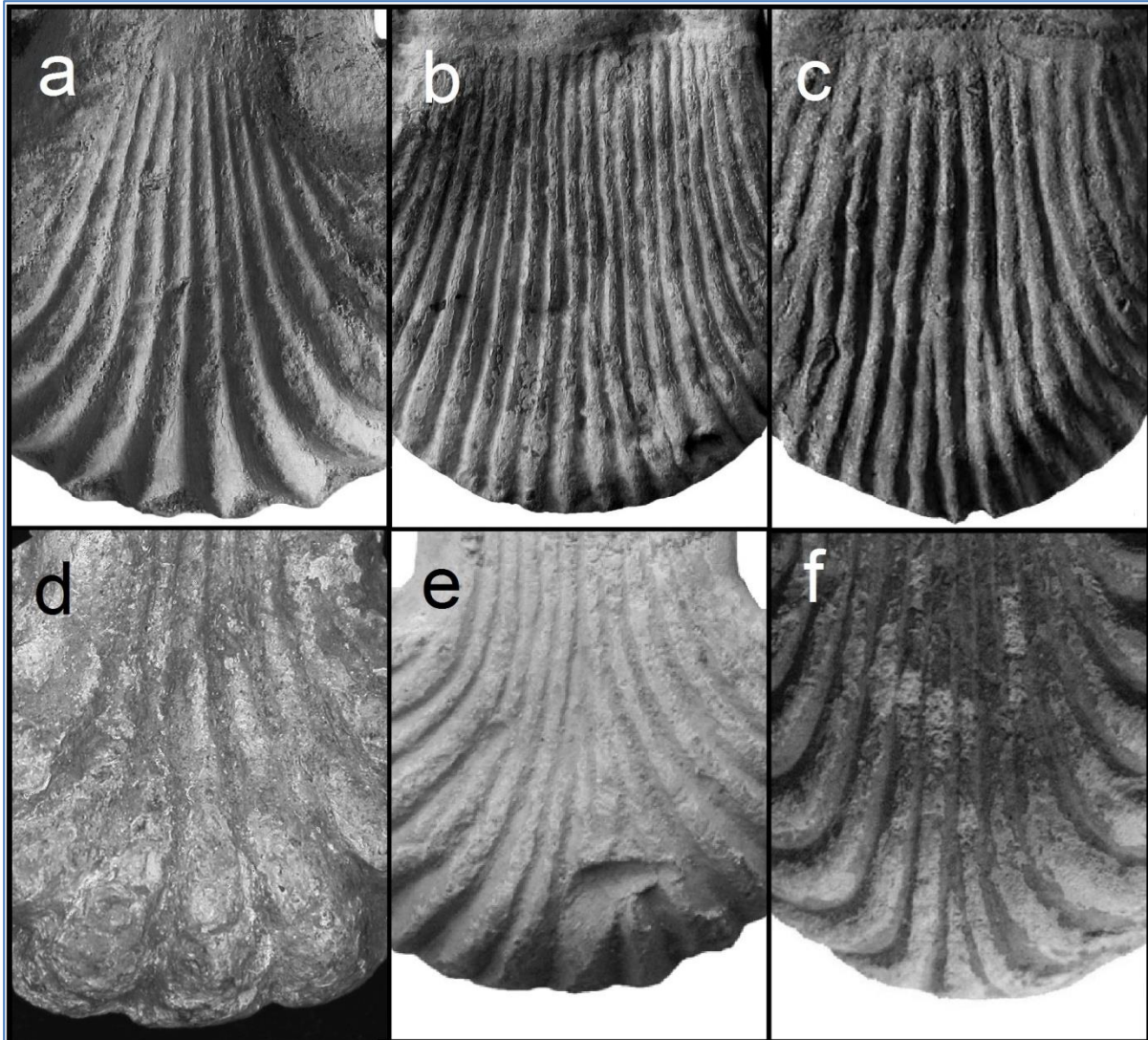
These ampullae are not large, ranging in width from 22-44mm and averaging  $33 \pm 5$ mm. Designers did not tend to widen the ampulla to accommodate more ribs: the tendency for rib number to decrease as ampulla width increased was weak but statistically significant (Pearson's  $r$ : -0.25;  $P$ (no correlation): 0.00046).

It is tempting to use rib number to assign an ampulla to one of the potential bivalves being represented (**Table 1**), but it is not clear to which group an ampulla of 18, 19 or 20 ribs belongs, and these make up a considerable proportion of the recorded ampullae. The few-ribbed and finely-ribbed ampullae are so uncommon that ribs may have been included simply because ampullae required ribs.

### *Rib Form*

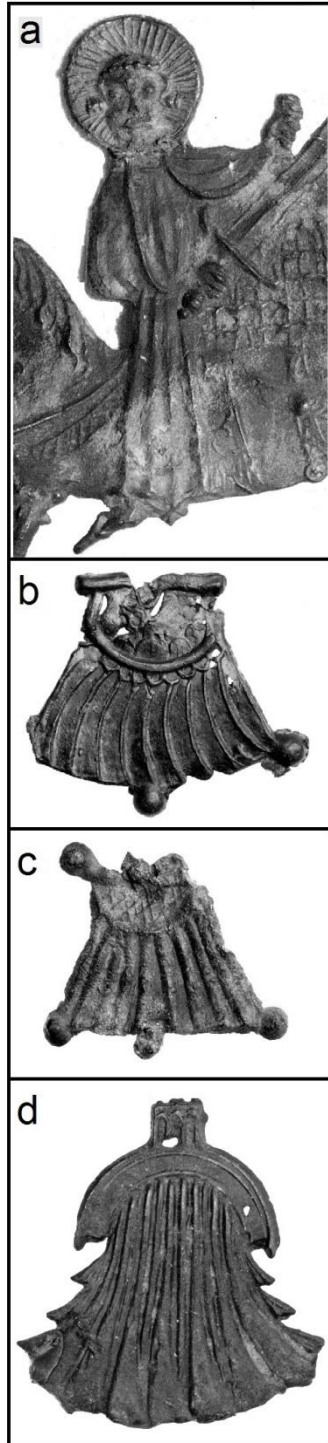
Ribs along the left and right margins of the body almost always appeared to radiate from a notional central point somewhere on the midline of the neck, or to curve outwards towards the edge of the ampulla (**Figure 1**). However, ribs in the central half of the body varied in form. Central ribs that clearly radiated towards the margins (**Figure 5a**) were found on only 35% of the ampullae (**Table 3**). This may be an attempt to represent scallops, especially St. James scallops (**Figure 2a**).

On most ampullae, the central ribs were parallel and vertical for most of their length, or only weakly radiate (**Figure 5b**). Weakly radiate ribbing might be an attempt to represent the ribbing on *Acanthocardia* and *Cerastoderma* cockles (**Figure 2e, 2f**), but no European bivalve species bears parallel ribbing. Also, it was not possible to reliably separate weakly radiate ribbing from parallel ribbing, especially if the ribs were numerous: both probably represent the same thing.



**Figure 5** Forms of central ribs on obverse-ribbed medieval ampullae. (a): radiate; (b): parallel / weakly radiate; (c): splitting or branching (d): bulbous; (e): emergent; (f): emergent and recurved. Amended from PAS (<[finds.org.uk](http://finds.org.uk)>): / CC-BY-SA 2.0.

The ribs were complex in 12% of the ampullae (**Table 3**). These complex central ribs could divide, or branch off from a rib which continued on its trajectory (**Figure 5c**); in two ampullae all the ribs on the left branch off a left-central rib. The ribs could have bulbous ends (**Figure 5d**), or could appear to emerge from beneath ribs (**Figure 5e**); in one ampulla, each central rib emerges from beneath the preceding rib, alternately curving to left and right, forming



**Figure 6** Examples of ribbing on medieval badges. (a): folds in clothing of St Martin, badge in Musée de Cluny; (b): roughly parallel ribbing on purse-badge (Museum of London No. 80.245/1); (c): radiate ribbing on purse-badge (Museum of London No. 22508); (d): complex ribbing on medieval purse-badge (von Beuningen Collection No. 1870). (a.) altered from S.H. Rosenberg/*Peregrinations* Photo-Bank (prg.56); (b), (c) reproduced with permission from Museum of London; (d) reproduced with

a "pleated herringbone." The most common complex form (on six ampullae) features recurving ribs with the center-most pair of ribs emergent (**Figure 5f**).

Complex ribbing also has no real parallels in European bivalves. None have principal ribs that form bulbous ends, divide, branch, recurve or emerge. Secondary ribs develop between the principal ribs on some of the region's bivalves, including some smaller or rarely-harvested scallop species,<sup>39</sup> but these do not resemble "emergent" ampulla ribs.

If parallel - weakly radiate and complex ribbing did not represent bivalve shell-sculpture, what were they intended to represent? Such ribbing on medieval badges usually represents folds or pleats in cloth, usually clothing.<sup>40</sup> (**Figure 6a**) Some badge fragments thought to represent scallops in fact represent pleated skirts.<sup>41</sup> Ribbing similar to that on ampullae is found on badges representing framed

<sup>39</sup> For the obscure scallops, see Wagner (1991).

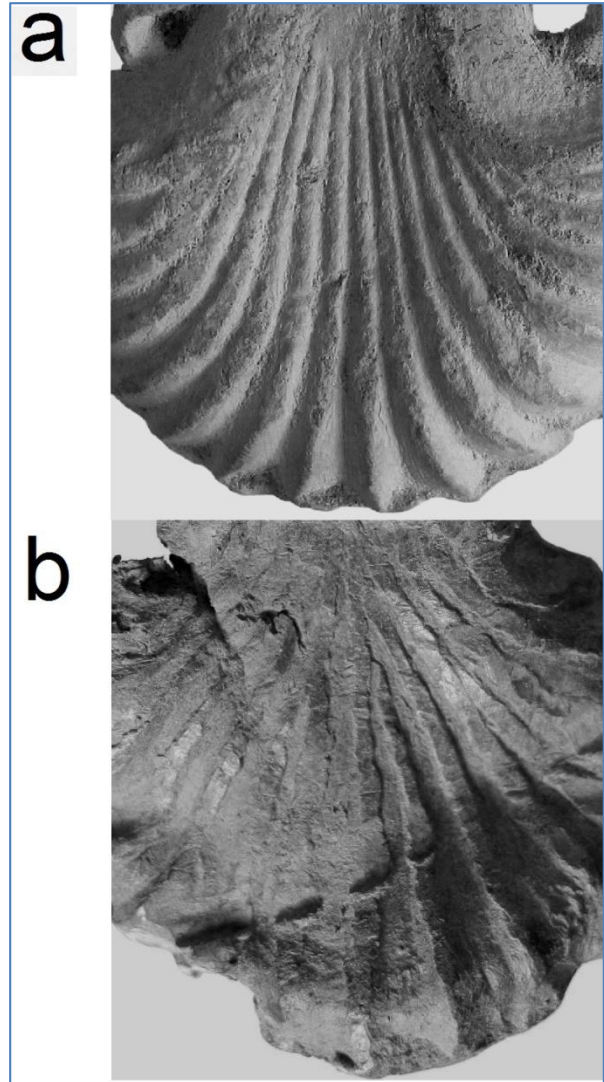
<sup>40</sup> E.g.: Nos. 143-148 in Spencer (1998), 141.

<sup>41</sup> Spencer (1990, 42) corrects such a misunderstanding of a badge fragment by Michener (1986), 271.

**Figure 7** Spacing of ribs on obverse-ribbed medieval ampullae. (a): radiate, adjacent ribs; (b): radiate, separated ribs. Amended from PAS (<[finds.org.uk](http://finds.org.uk)>): / CC-BY-SA 2.0.

purses,<sup>42</sup> but here the ribbing also represents fabric pleats, in the purse-pouch: as in ampullae, purse ribbing could be roughly parallel (**Figure 6b**), radiate (**Figure 6c**), or complex (**Figure 6d**).

The designers did tend slightly to widen the ampullae to accommodate more complex ribbing, but even more so for strongly radiate ribs: while the width ranges were very similar between the forms, complex-ribbed forms tended to be wider on average ( $35.1 \pm 3.5\text{mm}$ ) than parallel-weakly radiate forms ( $30.0 \pm 3.5\text{mm}$ ), but smaller than the average strongly radiate forms ( $37.2 \pm 3.6\text{mm}$ ).



### *Rib Spacing*

The obverse ribs lay immediately adjacent to each other (**Figure 7a**) in the majority of ampullae (79%), but the ribs were separated by a distinct gap in a sizable minority (21%) (**Figure 7b**). All forms of ribs (parallel - weakly radiate, strongly radiate, and complex) had examples of both adjacent and separated ribs. The difference between the three rib-forms in their

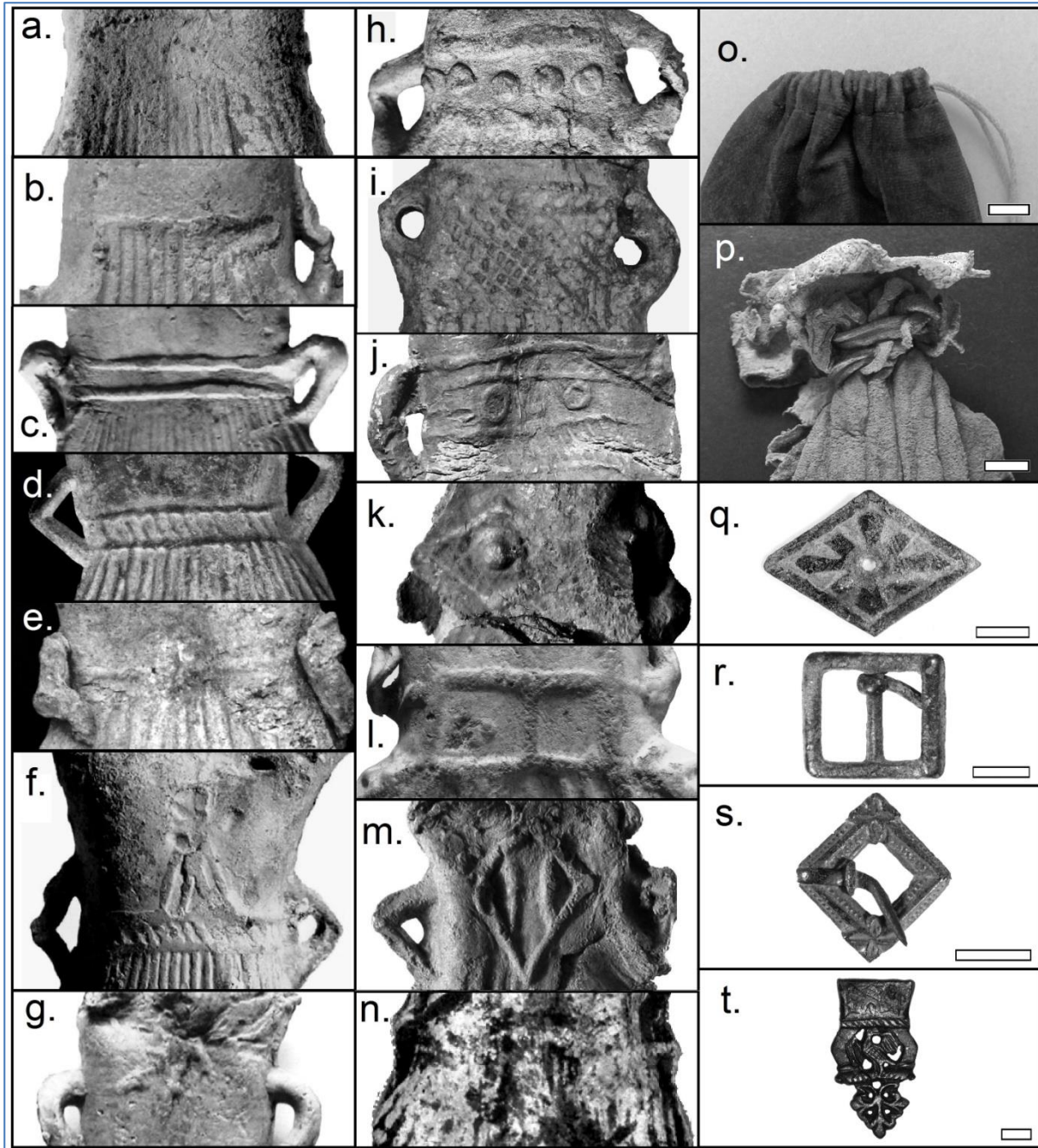
<sup>42</sup> These badges may have been either secular good-fortune charms Spencer (1998), 315 or religious alms-purses (Fr.: *aumônière*); Bruna (1996), 313.



proportions of adjacent to separated ribs was slight: ampullae with strongly-radiate ribbing had only 15% with separated ribs, while 33% of parallel-ribbed, weakly radiate-ribbed and complex-ribbed ampullae had separated ribs. This contrast in rib-spacing between rib-forms could easily be due to chance alone ( $\chi^2_{12}$ : 3.98;  $P$ (same proportions): 0.13). It is likely that separated ribs were employed to reduce the lead-alloy required for casting an ampulla, rather than for some other design purpose.

**Table 3:** Numbers of PAS obverse-ribbed medieval ampullae by shoulder form, neck decoration, and rib form

shoulders		neck dec'n		rib form			
cornered	59	absent	53	radiate	47		
				wkly rad.	3		
				complex	3		
		1 cord	2	radiate	1		
				complex	1		
				paired, riblets	1		
	elaborate	3	radiate	1			
			complex	2			
			rounded		137	absent	25
	1 cord	15	parallel/ wk rad.	16			
			complex	7			
			radiate	4			
paired, riblets	32	parallel/ wk rad.	32				
		paired, plain	37	parallel/ wk rad.	31		
				complex	6		
3 cords	1			parallel/ wk rad.	1		
		elaborate	27	radiate	7		
				parallel/ wk rad.	16		
complex	4						



**Figure 8** Decoration between lug-handles on medieval obverse-ribbed ampullae. (a.): absent; (b.): single cord; (c.): paired cords, plain between; (d.): paired cords, riblets between; (e.): single cord with knot-boss; (f.): knotted strings; (g.): toggled strings; (h.): pellet-rows; (i.): webbing; (j.): rings between paired cords with riblets ; (k.): lozenge mount/clasp; (l.): rectangular buckle; (m.): lozenge buckle; (n.): strap-end; (o.): drawstring opening of mid-20<sup>th</sup>-cent.charcoal-bar hand-warmer; (p.): drawstring opening of medieval purse (PAS No. NMGW-5DBD53); (q): medieval lozenge-shaped mount (PAS No. CORN-231947); (r.): medieval rectangular buckle (PAS No. NLM-25194); (s.): medieval lozenge-shaped brooch (PAS No. LIN-9547B2); (t.): medieval strap-end (PAS No. WMID-6479C3). Amended from PAS (<[finds.org.uk](http://finds.org.uk)>): / CC-BY-SA 2.0, except (o.): author's family collection. Scale bars: 10mm.

### *Neck decoration*

It was relatively uncommon for decorative features to be absent from the base of the neck between the lug-handles, occurring in only 40% of the ampullae (**Table 3**). The grooves between the obverse ribbing shallowed upwards until the ribs merged with the neck surface (**Figure 8a**), closely resembling bivalve shell ribbing (**Figure 2**).

Whenever the ampulla neck was decorated, the decorations had no resemblance to any feature on bivalve shells; it is very likely that other structures were being represented. Commonly the neck-decoration incorporated horizontal cords. The same style of corded decoration almost always continued from the obverse onto the reverse of the ampulla neck. A single cord (**Figure 8b**) was the only decoration in 11% of the ampullae. If the ampulla represents a St. James scallop-badge, the single horizontal cord could represent suspension-straps wound around the neck, as shown in some armorial "escallops" (**Figure 3c**). If the ribbing on some ampullae represents pleats in fabric rather than bivalve ribs, the single horizontal cord marks the fabric hem or an internal drawstring within a hem at the fabric edge (compare **Figures 8b, 8o**) used in some medieval pouches or purses.<sup>43</sup>

About one in three ampullae bore pairs of horizontal cords. It was slightly more common for the space between the pair of cords to be plain (**Figure 8c**), resembling a horizontal belt. The remainder had the space between the paired cords filled with top left – bottom right diagonal riblets (**Figure 8d**); none had riblets on the other diagonal, and only two had vertical riblets. The diagonal riblets between paired cords appear to represent the change in orientation in fabric pleats above and below an external drawstring (compare **Figures 8d, 8p**).

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<sup>43</sup> For example, No. 1700 in Egan and Pritchard (1991), 350.

Other ampullae also bore features of drawstrings. The center of a horizontal cord could bear an irregular boss resembling a knot (**Figure 8e**). An inverted V-shape of parallel pairs of ribs could rise from the upper cord and end in an irregular boss, resembling a knotted pair of strings (**Figure 8f**). Loosely downward-pointing ribs could descend from a horizontal cord (or a knot-boss), resembling ends of strings. On one, the descending ribs bore complicated structures near and at their lower ends, resembling toggles (**Figure 8g**).<sup>44</sup>

Some other elaborate decorations probably represent belts or straps, which were often elaborately decorated whether owned by rich or poor.<sup>45</sup> The space between paired cords could also be decorated with rows of pellets (**Figure 8h**). In the most elaborate decoration, the space on the neck between the lug-ears was demarcated at top and bottom by cord-pairs with diagonal riblets between; the riblets in the upper cord-pair were always on the opposite diagonal to the riblets in the lower. The wide space between the cord-pairs was decorated. On one ampulla this wide space was filled by fine cross-hatch ribbing (**Figure 8i**) resembling webbing: such cross-hatching was used to represent the encircling garter on Black Prince funerary badges.<sup>46</sup> On three ampullae the wide space bore a row of pellets; on the reverse, the wide space between the cord-pairs bore a pair of open rings with a faint irregular boss between (**Figure 8j**) which may represent drawstring-holes reinforced by buttonhole-stitching or by metal eyelets.<sup>47</sup>

Other elaborate decoration included finely-cross-hatched lozenges with an en-ringed central boss (**Figure 8k**) resembling a strap-mount (**Figure 8q**) or jewelled rectangular brooch; horizontal rectangles with a central vertical rib (**Figure 8l**), resembling a rectangular buckle

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<sup>44</sup> These were not representations of arrows occasionally observed on the reverse (Anderson 2010, 187), because they lacked fletched shafts.

<sup>45</sup> Egan and Pritchard (1991) discuss English medieval belt decoration; Willemsen (2012) discusses the social stratification revealed by medieval belt decoration in the Netherlands.

<sup>46</sup> Spencer (1990), 273 briefly discusses these badges.

<sup>47</sup> Egan and Pritchard (1991), 227-228.

(**Figure 8r**); lozenges enclosing a pair of vertical ribs (**Figure 8m**), resembling a lozenge-shaped brooch (**Figure 8s**); and short broad descending tongues (**Figure 8n**), resembling strap-ends (**Figure 8t**); descending strap-ends also featured on Black Prince funerary badges.<sup>48</sup>

Other decoration on the obverse of the neck was very rare. Two ampullae had the Walsingham "W" regularly found on the reverse, and the ampulla with the strap-end (**Figure 8n**) bore an "S," also sometimes seen on the reverse; no ampulla in this sample bore a mitred head (probably St. Thomas Becket), despite these being found elsewhere.<sup>49</sup>

Designers did not widen these ampullae to accommodate more elaborate neck decoration: those with decoration absent were the widest on average ( $35.6 \pm 4.5\text{mm}$ ), while those with elaborate decoration were effectively the same average size ( $32.4 \pm 4.6\text{mm}$ ) as those with a single cord ( $32.8 \pm 4.9\text{mm}$ ), larger than those with paired cords: paired-cord forms with plain space between ( $30.3 \pm 3.9\text{mm}$ ) were effectively the same average size as those with diagonal riblets ( $30.2 \pm 3.3\text{mm}$ ).

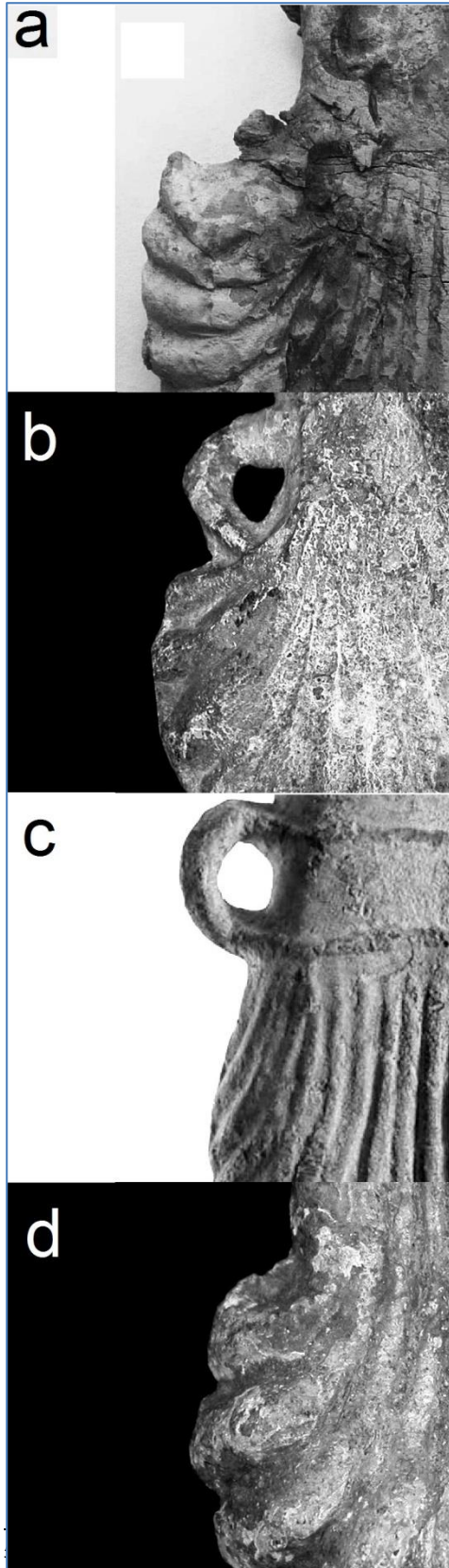
### *Shoulder Shape*

A sizable minority of the ampullae (30%) had shoulders ("S" in **Figure 1**) with distinct obtuse- or acute-angled corners (**Figures 9a, 9b**). Coarsely-ribbed or complex-ribbed ampullae could easily give the false impression of distinct corners at the shoulder, when the underlying shape of the shoulder was rounded (e.g.: **Figure 9d**). A cornered shoulder, rather than the angle of the shoulder, appeared the important design factor, since a wide range of angles were employed, and some ampullae had one acute and one obtuse corner. Therefore, all cornered

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<sup>48</sup> Spencer (1990), 273.

<sup>49</sup> For the "W" and "S" on ampullae reverses, see Anderson (2010, 192-193); for Becket's head, see Spencer (1998), 41.



**Figure 9** Examples of shoulder forms in PAS obverse-ribbed medieval ampullae. (a): acute corner; (b): obtuse corner; (c): rounded corner; (d): rounded corner, with complex (bulbous-ended) ribbing. Amended from PAS (<finds.org.uk>): / CC-BY-SA 2.0.

ampullae were considered a single group. Spencer<sup>50</sup> classified these ampullae with "bold, radiating ribs, notched edges and well-defined shoulders" as his Type I, and recognized they closely resembled the Santiago scallop. They are similar in outline to the medieval armorial "escallops" discussed above (**Figure 3**).

Most ampullae had shoulders with a rounded profile without distinct corners (**Figure 9c**). Spencer<sup>51</sup> classified these ampullae "with fine grooves, and smooth edges" as his Type II, which he thought "resembles the common cockle." However, round-shouldered ampullae are generally described as "pouch-shaped."<sup>52</sup>

#### *Relationship of shoulder shape with other features*

Ampullae which differed in shoulder shape also tended to differ in other respects (**Table 3**). Cornered ampullae overwhelmingly had neck decoration absent, while round-shouldered ampullae had considerable

<sup>51</sup> Spencer (1990), 59; he allowed intermediates between the two types (e.g.: No. 136 in Spencer 1990, 60).

<sup>52</sup> The term is used by Boertjes (2005), 454 and Lee (2005), 366.

numbers with each type of neck decoration; paired cords with plain space between were somewhat more frequent than other decorations.

Cornered ampullae usually had strongly-radiate ribbing (85% of the cornered ampullae), while rounded ampullae usually had parallel or weakly radiate ribbing (74%). Most of the few remaining cornered ampullae had complex ribbing; re-examining these showed they did not resemble any candidate bivalve (**Figure 2**). No cornered ampullae had parallel ribbing, and only three cornered ampullae had weakly-radiate ribbing; these did resemble the ribbing on cockles (either *Acanthocardia* or *Cerastoderma*). The few rounded ampullae not parallel or weakly-radiate ribbed were almost equally divided between strongly-radiate and complex ribbing.

Since strongly-radiate ribbing resembled the ribbing on scallops, the few rounded ampullae with strongly-radiate ribbing were re-examined to determine whether these were portraying candidate bivalves. The two with absent neck decoration had few ribs (12 or 14), and could be representations of St. James scallops. The four with single cords had sparse ribbing (7 - 15 ribs) which could represent either scallops or pleats. No rounded ampullae with the common neck decorations (both forms of paired cords) had radiate ribbing (**Table 3**). Of the seven with elaborate neck decoration, almost all showed decorations portraying fabric closures (drawstrings, brooches or clasps); only one portrayed a belt-like feature, but was distinctly "pouch-shaped"<sup>53</sup> with a neck too broad relative to the body to represent a bivalve.

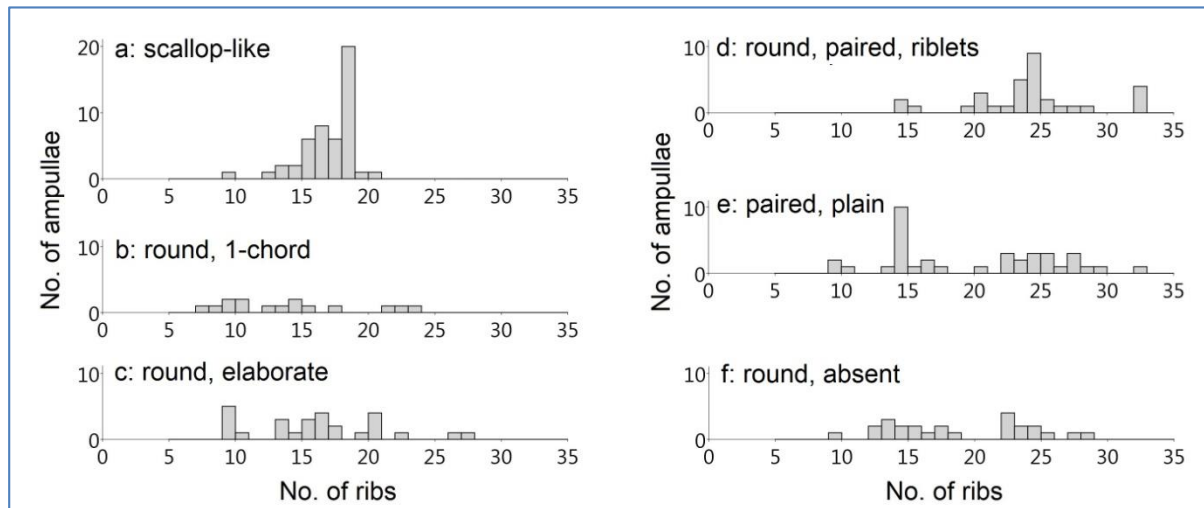
Since the cornered ampullae with weakly-radiate ribbing did resemble cockles, the round-shouldered ampullae with weakly-radiate ribbing were also re-examined to determine whether these were portraying candidate bivalves. Almost all of these were distinctly pouch-shaped and

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<sup>53</sup> In the sense used by Boertjes (2005), 454 and Lee (2005), 366.

wide-necked, or (if elaborately decorated) bore decorations portraying fabric closures: only eight potentially portrayed cockles.

Cornered ampullae typically had relatively few ribs (7-26 ribs, averaging  $17 \pm 3$  ribs). Only three had more than 21 ribs. These three were the cornered ampullae with weakly radiate ribbing, potentially portraying cockles; they had 22, 23 and 26 ribs, also consistent with cockles (**Table 3**). The cornered ampullae most similar to scallops or "escallops," with radiate ribbing and absent or single-cord neck decoration, all had 21 or fewer ribs (**Figure 10a**). Only five cornered ampullae had less than 12 ribs, potentially representing smooth scallops (**Table 3**). No cornered ampullae had the copious ribbing expected for variegated scallops. All of these had two lug-handles in the positions expected for representations of *Pecten* scallops, rather than the single lug-handle expected for representations of other scallop genera (**Table 3**): this agrees with the burial evidence that only the scallop of Santiago was a Christian symbol.



**Figure 10** Distribution of rib number in PAS obverse-ribbed ampullae with (a.): cornered shoulders, radiate ribbing, and neck decoration absent or one cord; (b.): rounded shoulders, single cord at neck; (c.): rounded shoulders, elaborate neck decoration; (d.): rounded shoulders, paired cords with diagonal riblets between; (e.): rounded shoulders, paired cords with space between plain; (f.): rounded shoulders, neck decoration absent.



Rounded ampullae tended to have more ribs than cornered ampullae (7-32 ribs, averaging  $19 \pm 6$  ribs). Ampullae with different neck decoration tended to have different numbers of ribs (**Figure 10**). Rounded ampullae with single cords or with elaborate decoration at the neck primarily had 21 ribs or less, like cornered ampullae; in contrast, almost all those with paired cords with diagonal riblets (probably representing drawstrings) had more than 21 ribs. Both those with paired cords with plain space between (possibly representing belts), and those with absent neck decoration, were evenly divided into those with more than 21 ribs and those with less.

Cornered ampullae were considerably larger ( $37.6 \pm 3.2$ mm average width) than rounded ampullae (averaging  $30.9 \pm 3.8$ mm), a greater contrast than between forms of ribbing or neck decoration. Designers tended to widen these ampullae not so much to accommodate more ribs or more elaborate neck decoration, but to accommodate more complex ribbing, and especially for cornered shoulders with radiate ribbing.

## **Discussion**

### *Two kinds of ampulla, not two sub-types*

Spencer's separation<sup>54</sup> of medieval obverse-ribbed lead-alloy ampullae into two broad types based on shoulder shape remains basically sound. Ampullae with distinct corners at the shoulders (Spencer's Type I) tend to be wider, and to have narrow necks relative to the body, less than 21 ribs, generally of radiate pattern, and neck decoration usually absent or a single cord. Round-shouldered ampullae (Spencer's Type II) tend to be narrower, and to have wider necks,

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<sup>54</sup> Spencer (1990), 59.

parallel-weakly radiate or complex ribs, and a wide range of neck decoration, with somewhat more numerous ribs with differing distributions depending on the neck decoration.

However, Spencer's assumption that both types are representations of shells does not hold. Cornered ampullae do seem to portray shells: their radiate ribbing resembles ribbing on shells; their typical rib numbers are similar those on shells, especially St. James scallops; and their shoulders and often narrow necks are similar to those on armorial "escallops." Rounded ampullae are so different that they probably portrayed something other than shells. Their parallel-weakly radiate and especially complex ribbing is more consistent with folds in fabric; their neck decorations appear to represent closing mechanisms for fabric objects (hems, drawstrings, buckles, clasps, and belts); and their round shoulders and broad necks appear to represent drawstring-purses. The simplest reason that Type II ampullae appear "pouch-shaped"<sup>55</sup> is that they are representations of such pouches/purses.

While seldom preserved archaeologically, pouches were a near-universal personal item of medieval dress, and came in a wide array of designs.<sup>56</sup> The drawstring-purse is a well-known type of medieval reliquary, with its own development, symbolism and contemporary liturgical function.<sup>57</sup> Drawstring purses were known in the West from at least the Carolingian era, surviving in cathedral treasuries, and occasionally archaeologically.<sup>58</sup> Like ampullae, reliquary purses often bear small lug-handles for suspension, making it "conceivable that miniature purses functioned appropriately as reliquary pendants";<sup>59</sup> from the 7th century, the term *bursa* expanded from the fabric purse to also apply to the metal-clad wooden reliquaries with suspension-rings.<sup>60</sup>

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<sup>55</sup> Boertjes (2005), 454; Lee (2005), 366.

<sup>56</sup> E.g.: de Linas (1862); Goubitz (2009).

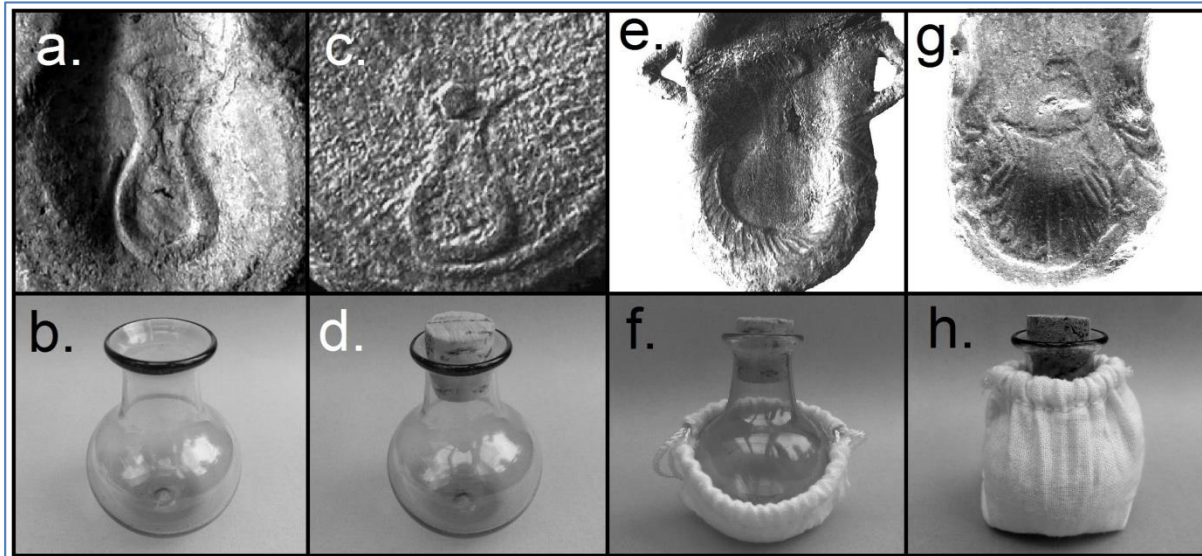
<sup>57</sup> de Linas (1892), 23 provides some examples, and Hahn (2012), 103-116 outlines their development and function.

<sup>58</sup> Hahn (2011), 12 discusses some in treasuries; Walton (1989, 369) describes the best-known example from British archaeology.

<sup>59</sup> Spencer (1998), 315.

<sup>60</sup> Hahn (2005).

The elaborate decoration of some purses can include representations of closures, such as knots, bands, and jeweled clasps,<sup>61</sup> like those represented in ampulla neck-decoration.



**Figure 11** Top row: representations of vessels on reverse of medieval obverse-ribbed ampullae. Bottom row: the object being represented by the image above. (a.): small vessel with wide, open mouth (Anderson 2010 Type II.9); (b.): a modern glass replica of the vessel in (a.), 6.7 x 5.1 cm; (c.): vessel like that in (a.), flat circular boss in centre of mouth; (d.): vessel (b.), stoppered; (e.): vessel like that in (a.), body surrounded by ribbed crescent (Anderson 2010 Type II.25); (f.): vessel (b.) in partially-opened drawstring-pouch; (g.): variant of 'shell' motif of Anderson (2010) below short vertical bar topped with truncated cone (note the change of direction in ribbing above and below neck of the 'shell'); (h.): vessel (b.) in same pouch as in (f.), fully closed. (a.), (c.), (e.), (g.) amended from PAS (<[finds.org.uk](http://finds.org.uk)>): / CC-BY-SA 2.0.

### *The contents of the pouches*

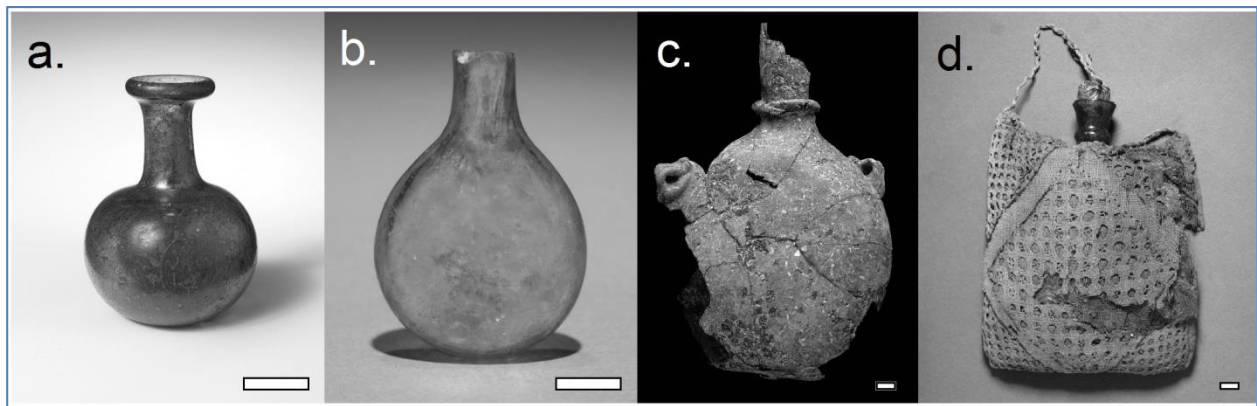
What these pouches might have contained are probably represented in the images, on the reverse of some of the ampullae, of vessels.<sup>62</sup> Such vessel images are present on 18% of the round-shouldered ampullae, but are absent from the cornered forms. A few show a long-necked *orcel* found as grave-goods in the medieval West, termed "ampoyle" since the 13th century.<sup>63</sup>

<sup>61</sup> See, for example, Walton (1989), 369; Hahn (2012), 107.

<sup>62</sup> The term used by Anderson (2010), 187.

<sup>63</sup> Foy & Sennequier (1989), 151-159.

Most show bulbous short-necked phials, either open (**Figure 11a, 11b**), stoppered (**Figure 11c, 11d**), partially revealed with the pouch partially opened (**Figure 11e, 11f**), and with the pouch completely closed (**Figure 11g, 11h**).<sup>64</sup>



**Figure 12** (a.): Glass reliquary bottle engraved with Christian motifs; probably Frankish, c. 7th-8th century (Metropolitan Museum of Art No. 81.10.268), photo: Metropolitan Museum of Art, New York. (b.): Pilgrim's flask; Byzantium, Syria-Palestine, 6th-7th century (Cleveland Museum of Art No. 1995.235), photo: Cleveland Museum of Art. (c.): Pilgrim's flask cached near sacked church; Tell Tuneinir, Syria, 11th century, photo: Professor Michael Fuller, St. Louis Community College. (d.): Pilgrim's flask in embroidered linen bag; Egypt, 14th-15th century (Ashmolean Museum No. EA 1994.113), photo: Ashmolean Museum, University of Oxford. All images reproduced with permission (a.: MMA OASC). Scale bar: 10mm.

*The rarities being imitated: medieval glass ampullae*

Glass ampullae could easily have been used as receptacles for holy water or oil in medieval times, even though few survive. Some early Christians were buried in Rome with glass ampullae: a few catacombs are literally plastered with them.<sup>65</sup> The early 7th-century Monza-Bobbio ampullae in lead-alloy are well-researched, but those in glass are more numerous, and

<sup>64</sup> The example in Figure 11g would be assigned to 'shell' in the typology of Anderson (2010), but the ribs alter direction either side of the horizontal cord, like those in fabric but never in scallops.

<sup>65</sup> Decoration of Roman catacombs with glass ampullae is discussed by de Santis (2000).

come in a wide range of forms: globular, lentoid, conical and square-sectioned.<sup>66</sup> While rare, similarly early glass ampullae are known from elsewhere in Western Europe (**Figure 12a**).

Some small medieval glass reliquary ampullae are lentoid.<sup>67</sup> Their use is potentially rooted in early pilgrimage to the Holy Land: some, made in 6th-7th century Byzantine Palestine were used as grave-goods;<sup>68</sup> others, probably for medicines, were made in Palestine in the Umayyid and Fatamid periods (8th-11th centuries);<sup>69</sup> a few of the slightly larger (**Figure 12b**) were clearly made to European tastes.<sup>70</sup>

It is also possible that small lentoid glass vessels are reduced versions of larger lentoid vessels recognised as the proper containers for ceremonial liquids. The Monza-Bobbio lead ampullae are thought to be reduced versions of Holy Land *eulogiai*, such as St. Menas ceramic "pilgrim flasks."<sup>71</sup> Some Byzantine Holy Land lead-alloy ampullae (small, lug-handled, and oval-sectioned like the typical obverse-ribbed ampullae) are reduced versions of slightly larger contemporary round-bodied ceramic *eulogiai*.<sup>72</sup> Also, small glass pilgrim souvenirs, imitations of larger ewers and jugs, were made in Palestine and distributed across the Empire in the 3rd - late 4th centuries, and were used as grave-goods until the early 7th century.<sup>73</sup> Large lentoid glass vessels were used in Palestine throughout the Roman occupation,<sup>74</sup> and occasionally served as grave goods in later Roman Palestine;<sup>75</sup> a few were very like St. Menas flasks, with two lug-

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<sup>66</sup> The Monza-Bobbio ampullae in lead-alloy are discussed by Grabar (1958), Barag and Wilkinson (1974), Vikan (2010), 33-36, and Hunter-Crawley (2012); those in glass are noted by Trout (2005), and illustrated by Testini (1958), 30, Fig. 2.

<sup>67</sup> E.g.: the San Gennaro relic at Naples, described by Garlaschelli *et al.* (1994)

<sup>68</sup> Stern (2001), 316 lists some examples.

<sup>69</sup> Hadad (2008), 168 includes a brief discussion; Lester (2004), 192 describes the medicinal examples from Tiberias.

<sup>70</sup> Ferber (1975) describes Corning Museum No. 69.1.2.

<sup>71</sup> Anderson (2007).

<sup>72</sup> Israeli and Mevorah (2000), 207.

<sup>73</sup> Stern (2001), 271-272.

<sup>74</sup> Stern (2001), 271-272.

<sup>75</sup> E.g.: 3rd century Kafr Kama: Gorin-Rosen (2007).

handles and richly-decorated faces.<sup>76</sup> Simpler forms, sometimes with lug-handles, were used in Palestine during the Byzantine era (occasionally as grave-goods), and later by Crusader-era Christian communities, such as Tell Tuneinir (**Figure 12c**) and Akko (Acre).<sup>77</sup> Medieval-era Islamic lentoid vessels could also be very elaborately decorated.<sup>78</sup> The occasional examples used as medieval reliquaries in the West<sup>79</sup> were probably Holy Land *eulogiai*, like some lead-alloy ampullae from either the Byzantine or Crusader era.<sup>80</sup>

*The imitations survived, the rarities lost...*

Whether imitations in lead of pouches holding bulbous glass ampullae, small lentoid glass ampullae, or reduced versions of large glass flasks, obverse-ribbed lead-alloy ampullae of Spencer's type II are far more commonly known than the original glass vessels they represent. This is to be expected. Firstly, lead-alloy ampullae in general were cheaper, more numerous mass-produced representations of rarer objects, so the glass ampulla was probably never common. Secondly, ampulla and pouch would easily become separated over time, changing them from a pilgrimage artifact to just another glass phial and another empty pouch, although medieval-age glass lentoid flasks in pouches have been recovered (e.g.: **Figure 12d**). Finally, glass is fragile, and drawstring bags are textile: neither material survives well in archaeological deposits, or can be spotted with metal-detectors. If most glass ampullae were discarded into the fields once empty, as most lead-alloy ampullae were,<sup>81</sup> almost none would survive.

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<sup>76</sup> Stern (2001), 52.

<sup>77</sup> For the Byzantine grave-goods, see Stern (2001), 272 & 275; examples from Tell Tuneinir were excavated by Michael Fuller (pers. comm); those from Akko are being analyzed by Yael Gorin-Rosen (pers. comm.).

<sup>78</sup> E.g.: Corning Museum No. 55.1.125: Whitehouse 2010, 231-2; Corning Museum No. 66.1.3.

<sup>79</sup> E.g.: Arad (2007), 61.

<sup>80</sup> These are discussed by Boertjes (2014), 171-175.

<sup>81</sup> Anderson (2010) discusses the discard patterns of these ampullae.

*New names for the two kinds*

Inevitably for a type of object manufactured at several shrines by many craftsmen over several centuries, some of these obverse-ribbed ampullae are intermediate between the two types, as Spencer himself recognized.<sup>82</sup> A handful of cornered-shouldered ampullae bear features more common in round-shouldered forms, and some round-shouldered forms with absent or single-cord neck decoration could be representations of shells, especially cockles. Therefore it would not be productive to sub-divide the two Types defined by Spencer, seeking too closely for representations of specific genera of bivalve shell; that would confound attempts to define more meaningful sub-types associated with specific time-periods or shrines based on the images on the reverse.<sup>83</sup> It would be an aid to clarity if only Type I ampullae were referred to as "shell-shaped," with Type II and those few cornered but with complex ribbing or neck decoration as "purse-shaped," and as "intermediate" those few round-shouldered without features of pouches. This restriction of the term "purse-shaped" to obverse-ribbed ampullae prevents confusion with the existing use of the term "pouch-shaped" for the general form of many medieval lead-alloy ampullae.<sup>84</sup>

*Implications of there being two kinds*

This realization that these ampullae come in not one but two types has some serious implications for their future interpretation. There may have been considerable differences in how the two types were employed by medieval people, which will be reflected in differing geographical distribution, association with saints or shrines displayed on the reverse, and time-

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<sup>82</sup> Spencer (1990), 60.

<sup>83</sup> These will rely on the work of Anderson (2010), 187.

<sup>84</sup> The term "pouch-shaped" has been used in this general way by Boertjes (2005), 454 and Lee (2005), 366.

period of use.<sup>85</sup> The pan-European database (<[www.kunera.nl](http://www.kunera.nl)>) uses the same chronology, probably for the same reasons; all their obverse-ribbed ampullae are also distinguished into Spencer's Types. Shell-shaped ampullae are much less numerous and much less diverse in overall appearance than purse-shaped ampullae; perhaps more complex purse-shaped forms (with complex ribbing or elaborate neck decoration) were more common in periods in which purses (such as *aumônières*) or costume generally was more elaborate, or more diverse between social strata.

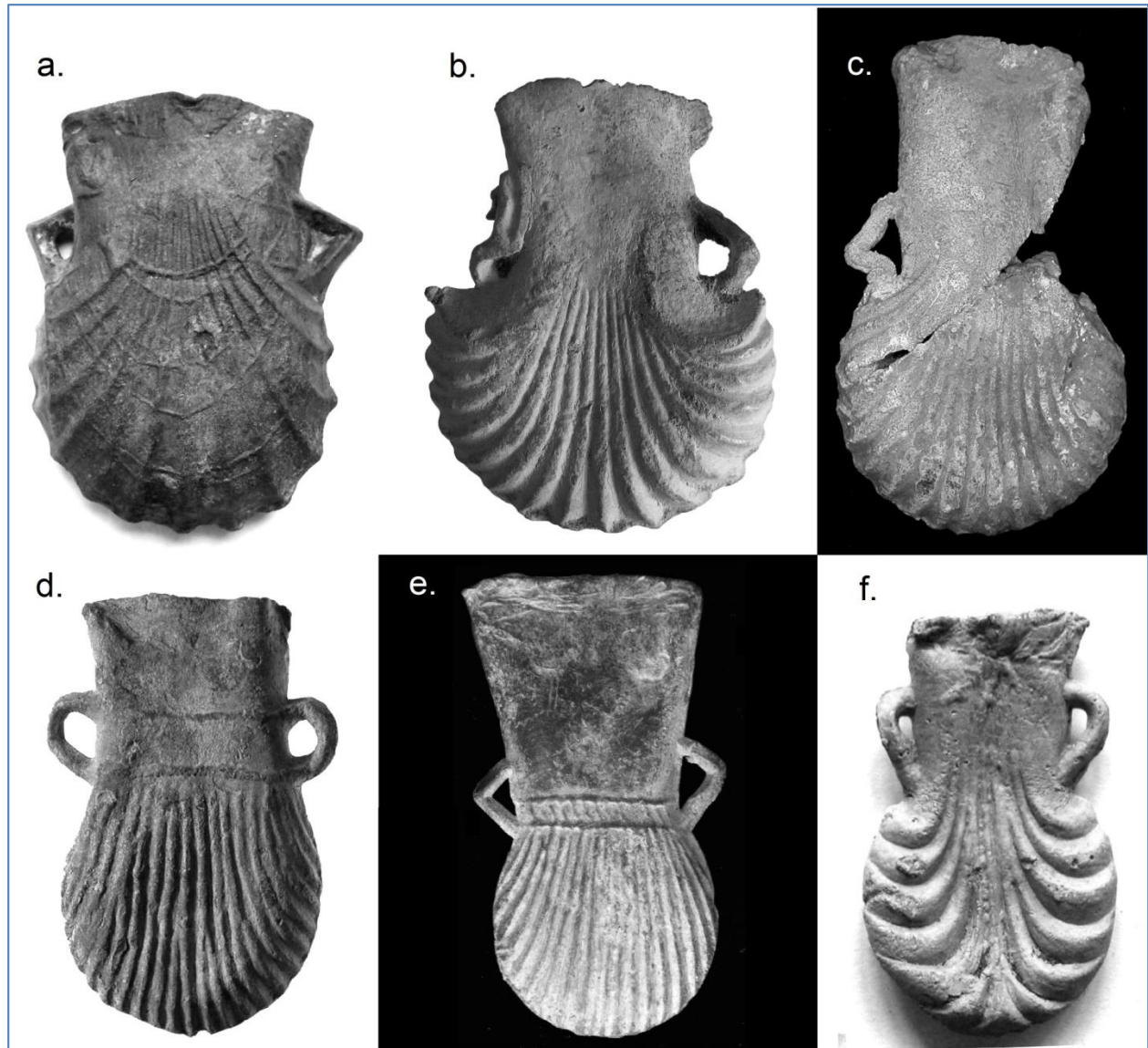
Perhaps the most interesting implication is about the role imagery played in authenticating eulogic or apotropaic power, in this case how the shape of a vessel assured its medieval observers that the vessel contained holy, and not ordinary, water, oil or dust. Medieval lead-alloy ampullae imitated containers whose form had an established and widely-comprehended reputation in the medieval period for authenticating their contents,<sup>86</sup> so obverse-ribbed ampullae must also have done so. Those that imitated more or less elaborate pouches containing small vessels, probably of glass, show this type of pilgrimage souvenir also had such an established reputation during those times, even though this type of souvenir is now effectively invisible. These purse-shaped ampullae are more numerous than shell-shaped ampullae, so the small pouched container, properly labelled, was probably more widely recognized as a eulogic authenticator than the classic symbol of pilgrimage, the scallop-shell.

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<sup>85</sup>The most recent review of these ampullae distribution in England, by Anderson (2010), concentrated on reverse imagery and employed Spencer (1998) as the most up-to-date chronology and typology; there is no more recent chronology incorporating well-dated examples from recent archaeological excavations (at least in English).

<sup>86</sup> Spencer (1998), 38-39.





**Figure 13** The range of forms in medieval obverse-ribbed ampullae. (a.): Aardenburg, the Netherlands (Kunera No. 16895; <[www.kunera.nl](http://www.kunera.nl)>), showing both radiate and concentric surface sculpture of *Pecten* scallop (private collection M. Bil, the Netherlands); (b.): Nettleton, Lincs. (PAS No. LIN-13E791), Spencer Type I, imitating the 'escallop' charge; (c.): Lowick, Northants. (PAS No. LEIC-F08BA1), intermediate between Spencer Types I and II, resembling *Cerastoderma* cockle; (d.): Fressingfield, Suffolk (PAS SF-A37D38), typical Spencer Type II; (e.): Waveney, Suffolk (PAS NMS-62E398), diagonal ribbing between horizontal bands representing drawstring purse; (f.): Revesby, Lincs. (PAS NCL-AB3421), representing drawstring purse with recurved pleats, central vertical row of studs/jewels, toggled drawstrings at neck. All images reproduced with permission: Amended from PAS (<[finds.org.uk](http://finds.org.uk)>): / CC-BY-SA 2.0, except (a.): © M. Bil.

## Conclusions

Obverse-ribbed lead-alloy ampullae literally representing shells of St. James scallops are very rare; there were none in the PAS catalogue, and only one (**Figure 13a**) in the 1150 ampullae in the Kunera database. Many are representations of "escallop" charges (**Figure 13b**); the heraldic symbol for the scallop superseded its accurate representation in general use in medieval Europe, rather like the *fleur de lis* supplanted accurately-rendered lilies. A very few could be representations of cockles (**Figure 13c**); none are convincing as other species of scallop. Most ribbed ampullae have ribbing that represents pleats in cloth rather than ribs on shells (**Figure 13d**), and many of these have features that strongly suggest drawstring purses (**Figure 13e**); some could represent nothing else but purses (**Figure 13f**). Almost all of the scallop-like ampullae were of Spencer's Type I, although a few of these bore features of drawstring pouches. Most of the purse-like ampullae were of Spencer's Type II, although a few could represent cockles. Imagery of glass vessels on the reverse of the purse-like ampullae suggest these ampullae were meant to represent real glass ampullae in drawstring pouches, a type of artifact that would be almost invisible in the archaeological record. Spencer's Type I ampullae could generally be regarded as "shell-shaped," while Type II should be regarded as not shell-shaped, but "purse-shaped." The notion that the Santiago scallop was a widespread symbol of pilgrimage in general is no longer so strongly supported by these lead ampullae; the more general symbol of pilgrimage in the medieval mind was the glass flask of holy oil or water, safe in its drawstring purse. 🐚

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