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Canteens or ampoules. A few words about the equipment of medieval pilgrims

Abstract. Collections of archaeological artefacts include items described as canteens or travel/pilgrim flasks. These are ceramic containers that have two basic forms. The first type is a container with a cylindrical belly and a funnel-like neck located in the centre of the top part of the container, with two handles at the sides. The other type has a round or oval belly that is slightly flattened, a tubular spout, and two handles at the sides in the upper or central part of the belly. Another group of artefacts includes ampoules for holy oils or water. They are usually made of lead alloys. This paper provides a comparative analysis that covers similar items depicted in medieval iconography and artefacts found in museums. So far, researchers have been mostly interested in the origins of such artefacts. In this paper, a size analysis has been conducted, indicating that a vast majority of such artefacts from the territory of Poland, previously interpreted as travel water bottles, are most probably ampoules. This means that items that can be described as travel canteens or flasks seem unique in the collections of archaeological artefacts from the territory of Poland. The question is whether this is the actual situation or a result of interpretive problems arising from the fragmentary preservation of ceramic containers.

Keywords: Middle Ages, archaeology, pilgrimage, pilgrim flask, water flask, canteen, costrel.

In the Middle Ages, a pilgrimage was a significant element of the spiritual life in Christian Europe. People travelled to sanctuaries and places famous for miraculous events, or visited renown hermits and frequently also false prophets. The reasons for pilgrimages differed. In most cases, the faithful went there to ask for grace: healing or forgiveness of sins and salvation. It was often a thank you for the happiness that they had found in life. At times, the reason for a pilgrimage was a court sentence. Criminals were sentenced to an expedition that was in some cases very long not only as an exemplary penance. The reason could be the desire to remove them from their home area for a while. The idea was that the emotions related to the reprehensible events in which they participated, such as murder, calmed down

a bit and did not wind up a spiral of revenge. There were probably also those who embarked on the journey out of curiosity, driven by the desire to get to know the world and people beyond their immediate surroundings – those individuals were brave, as travelling at that time was not easy.

There were many places in Europe that were considered sacred. Of course, the most famous and respected ones were Rome and Santiago de Compostela. Apart from the crusaders, few could afford a pilgrimage to the Holy Land. However, both in Poland and elsewhere in Europe, we can indicate many other more or less known local places of worship. Sanctuaries were most often built in areas where a miracle supposedly happened or where exceptionally valuable relics were stored. In this paper, we do not elaborate on the origin and history of individual sanctuaries or the history of pilgrimages. These issues have become very popular among historians in recent years, and a rich bibliography on the subject has been collected in a book by Henryk Paner (2016).

It is difficult for us to estimate the scale of the pilgrimage movement. Data on this subject are, unfortunately, fragmentary, although sometimes we come across very interesting records concerning, for example, attempts at calculating the number of travellers/pilgrims in individual places of worship. We can quote here the information that in 1392, about 60,000 pilgrims came to Munich in one week with as many as 40,000 people recorded in one day. They were counted using an ingenious method – each individual arriving at the city had to drop a pea into a jug. We do not know how the number of people who came to Aachen was estimated; however, according to sources, in 1496, as many as 142,000 pilgrims arrived there in a single day. In 1450, about 40,000 pilgrims were said to arrive in Rome every day (Paner 2016, p. 39). It is estimated that between 1330 and 1400, the number of pilgrimage sites in Europe was approximately 70, and in the 15th century, it reached about 180 (Wachowski 2005, p. 109).

The fact that pilgrimages were treated very seriously is evidenced, among other things, by the fact that there were guidebooks for those who were setting out on them. One of such works is *Der Pilger* by Johann Geiler von Kaiserberg published in Augsburg. In this guidebook, we find a tip that a servant should prepare an outfit for the journey consisting of a coat, 2 pairs of shoes, a hat to ensure protection against wind and rain, and a stick (Forstner 1990, p. 127; Knapiński 2002, pp. 241–267; Saczyńska 2012, pp. 115–117; 111–132).

In addition to establishing places of worship, the Church also developed a kind of rites related to the blessing received by pilgrims setting out on their journey. Rituals of this type could be more or less elaborate and differed depending on the diocese. The first mentions of such ceremonies appear as early as in the early Middle Ages. For example, for the area of Gaul, records of religious ceremonies taking place to bid farewell to pilgrims date back to the eighth century. In the surviving medieval pontificals where we can find descriptions of the rites in force,

the formula of blessing a pilgrim's staff and bag almost always appears. In those texts, much more attention is paid to the blessing of the staff. This comes as no surprise, as the staff was a very important object in Christian symbolism and we often find references to biblical stories (Forstner 1990, pp. 413–415; Saczyńska 2012, pp. 115–117, 111–132). Therefore, apart from its utilitarian function, the pilgrim's stick also had a symbolic function.

Nonetheless, surviving pilgrimage required, above all, ensuring safety and food. It is essential for every traveller to have drinking water with them on the road. Although in the Middle Ages, water in streams and rivers was potable, which may be hard to imagine today, the hydrographic network was not dense enough for one to easily find a source of water in an unknown area. Therefore, it was necessary to take a supply of water or some other drink with you. For this purpose, people have always used containers made of available plants or animal hide.

This was no different in the Middle Ages. For instance, gourd (*Lagenaria siceraria*) was used for making containers for liquids. In paintings from the era, we can often see containers (also called calabashes) made of the fruit of this plant. They are not very durable, which may be why we find them relatively rarely in archaeological materials. In Europe, such finds date back to the Roman period and are more numerous than those found at medieval sites (Schlumbaum, Vandorpe 2012, pp. 499–509). Since this plant requires a warm climate, fruits or ready-made containers had to be imported to our land. Illustrations from the *Tacuinum Sanitatis* manuscripts, however, convince us that gourd cultivation was probably successful in south European countries (Fig. 1). At present, the cultivation of this plant is possible even in Poland, but seedlings from greenhouses are used for this purpose, which was not possible in the Middle Ages. Gourd was used to make not only containers but also, for example, musical instruments (Wołoszyn 2019, pp. 537–564). Fruits of different varieties of this plant differ significantly in size, but in iconography, we find the sizes of calabashes to be quite uniform. Since they were very light, they were probably perfect for carrying with you on a journey.

In addition to containers made of gourd, those made of animal hide, ceramic, metal, and even glass were also used. Below, we offer an insight into the artefacts shown in medieval paintings and miniatures.

We can see representations of canteens, for example, in a painting by a Dutch painter called the Master of Alkmaar[1]. The work entitled *Seven Works of Mercy* was created in 1504 and presents the realities of Northern Europe (Fig. 2). It consists of seven panels, with the fifth entitled *Sheltering the Traveller*, depicting a genre scene with the participation of pilgrims. One of the portrayed people has a calabash slung over his shoulder, most likely tied with a leather strap. The characteristic shape leaves no doubt. Another figure visible in the portrait has two containers, probably

[1] He is sometimes identified with Cornelis Buys the Elder.

Fig. 1.
Tacuinum sanitatis in medicina – Codex Vindobonensis series nova 2644 (the Austrian National Library, Graz: Akademische Druck- und Verlagsanstalt 2004, fol. 22 verso; Wikimedia Commons: https://commons.wikimedia.org/wiki/File:Tacuin_Courge11.jpg)

Fig. 2. The Seven Works of Mercy, Master of Alkmaar, 1504 (Rijksmuseum; public domain: https://www.rijksmuseum.nl/en/collection/SK-A-2815)

ceramic, slung over his back. One of them is a small jug with a fairly wide spout, a handle, and several legs. The other container is a canteen, similar to the ones we often see in paintings of pilgrims. Most often they are round, flat and have a small tubular spout, which is corked. They often have a distinct rectangular foot-support, which allowed them to stand, and not only lie down. We can see a similar one in the illustration from the manuscript of *The Boussu Hours* illustrated at the end of the 15th century by Master of Antoine Rolin (Fig. 3). This canteen differs from the one shown in the painting discussed earlier in that it does not have a foot that would allow it to stand on its own.

Another type of container, also quite often found in illustrations, is barrel-shaped, sometimes with a small base at the bottom allowing it to stand, and a sleeve-shaped spout in the middle of the upper part, closed with a cork. There are two eyelets at the sides for hanging. Such a container appeared in an illustration made by the famous French miniaturist Jean Bourdichon, who worked in the second half of the 15th and early 16th centuries. It is part of the manuscript entitled *The Life and Miracles of Monsignor St. Louis* or *The Book of Facts of Monsignor St. Louis*, which was created in the years 1480–1488. Since the container has a support at the bottom, it can be assumed that it is ceramic. Similarly shaped leather canteens did not have such supports (Fig. 4).

Fig. 3.
Master Antoine Rolin, *The Boussu Hours* (manuscript from the National Library of France; public domain: https://gallica.bnf.fr/ark:/12148/btv1b55007801k/f236.item.zoom#)

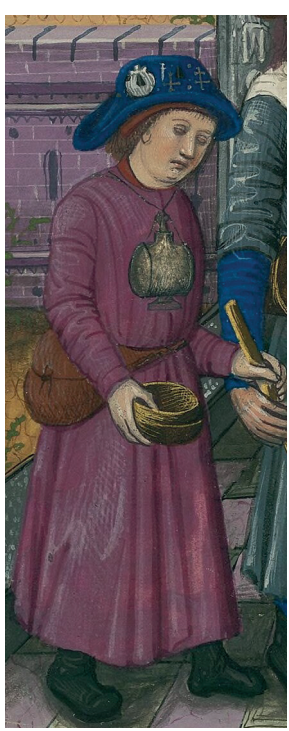

Fig. 4.
Jean Bourdichon (1457?–1521), an illustration from a manuscript *The Life and Miracles of Monsignor St. Louis* or *The Book of Facts of Monsignor St. Louis* 1480–1488 Folio 102 r. (manuscript from the National Library of France; public domain: https://gallica.bnf.fr/ark:/12148/btv1b6000784s/f207.item.zoom)

Medieval canteens made of various materials have been preserved in museum collections around the world. There are not many of them, but I managed to find a few typical examples. A canteen similar to the one seen in the illustrations is in the collection of the Metropolitan Museum. It is a round, slightly flattened stoneware container with two pairs of handles. In the upper part we see a funnel-shaped spout, while at the bottom there are four small protrusions/legs. Similar small protrusions placed on both sides of the container probably play a decorative role, otherwise the container is quite simple. The canteen was presumably made in France in the 15th century. Its size is 17.7 by 17.5 by 10.6 cm (Fig. 5).

Two other containers, also from the collection of the Metropolitan Museum, cannot be described as simple in any way, but both were described as pilgrim canteens. The first one is made of brass/copper and is enamelled, with some gilding (Fig. 6). It also has a separate lid, and a linen string with metal threads is pulled through its four eyelets at the sides. The container was made at the turn of the 16th century somewhere in Italy, perhaps in Venice. It measures 16.4 cm in height and 9 cm in diameter. Another container dated to a similar period and of similar provenance was made of transparent lead-free glass by blowing. It is decorated with

▲ Fig. 5.
A stoneware canteen dated to the 15th century (the collection of the Metropolitan Museum. Public; domain: https://www.metmuseum.org/art/collection/search/465877)

▶ Fig. 6.
A brass/copper canteen, enamelled and gilded in places, dated to the 15th/16th century (the collection of the Metropolitan Museum; public domain: https://www.metmuseum.org/search-results?q=Pilgrim+Bottle+and+Cover)

enamel and some gilding (Fig. 7). Its basic dimensions are 19.1 by 10.9 by 8.7 cm. When we see such beautiful and delicate containers, the question arises whether they were really objects people took along on rather uncomfortable and dangerous journeys. The answer seems quite simple – rich people who could afford such valuable equipment probably travelled in a much more comfortable way than on foot. Containers of this type were then stored in an additional container to protect them. In one of the paintings, I noticed a glass bottle hidden in a woven basket filled with straw or hay.

Above, I describe examples of travel canteens made of ceramic, metal, and glass. The MET collection includes numerous examples of canteens from different parts of the world and chronological periods. It seems, however, that due to their average size, they could hold slightly more than 1 litre of liquid. Observing the canteens depicted in medieval paintings and judging by their proportions, they were also intended for a similar amount of liquid.

In Poland, artefacts defined as travel or pilgrim canteens are rare. A unique discovery was made in the Old Town in Trzebnica, where twenty-three barrel-shaped containers were discovered, with the context of this find indicating that it was probably a relic of a portable supply of a peddler who traded in them. However, as there was Sanctuary of St. Hedwige (Jadwiga) in Trzebnica, the containers were probably intended primarily for pilgrims visiting it. A container of a different shape was also found nearby – a typical flattened sphere with a funnel-shaped spout and two handles attached to it (Wachowski 1998, pp. 71–72; 2005, p. 114; Dunin-Wąsowicz 2002, pp. 153–154). A fragment of a container from the end of the 13th century, very similar to the one from Trzebnica, was also discovered in Wrocław (Śledzik-Kamińska 1999, pp. 119–120).

The second largest collection of artefacts defined as canteens comes from the excavations in the former Dominican monastery in Świdnica. Eight containers were discovered there, including four preserved in their entirety and four fragmentarily. All of them are barrel-shaped and larger than those discovered in Trzebnica. In addition, about a dozen of miniature containers were uncovered at the same site. The diameter of their spouts does not exceed 5 cm, and the height (judging from the photos) does not exceed 10 cm. Some of them had the form of slender pots with a strongly tilted spout. A smaller number of containers had the form of squat amphorae with two handles. They were interpreted as ampoules or containers for drugs that could be produced in the monastery (Karst 2009, pp. 272–274).

The collection of the Archaeological Museum in Gdańsk includes an artefact from rescue research described as a travel flask. It is a small round, flattened ceramic container, 7.3 cm high and 12.5 cm in diameter. It is probably a local product, as it was found among the waste from a potter's workshop. The artefact was dated to the beginning of the 15th century (Fig. 8) (*Archeologiczne świadectwa* 2013, p. 27). Another container from this collection, with a spherical belly and

◄ Fig. 7.
A glass canteen from the beginning of the 16th century, made in Venice (the collection of the Metropolitan Museum; public domain: https://www.metmuseum.org/art/collection/search/460738)

▼ Fig. 8.
A container from the collection of the Archaeological Museum in Gdańsk (inv. no. MAG/MM/GD/255/98/1/6279)

a diameter of only 4.8 cm (Fig. 9), is also small (A*rcheologiczne świadectwa* 2013, p. 26; Kościński 2013, pp. 26–27).

An interesting find comes from the archaeological research in Puck. In the area of the medieval town, a spherical ceramic container with two handles, the diameter of which was about 10 cm, was found in a cesspool (Starski 2017, p. 11).

Based on the illustrations, it can be estimated that both containers from Trzebnica (of both types) and the one whose fragment was found in Wrocław could hold less than 300 ml of liquid. The containers from the collection of the Archaeological Museum in Gdańsk and the one discovered in Puck have a similar capacity. The "canteens" from Świdnica have slightly larger dimensions. The best-preserved specimen has the following dimensions: height of 12 cm (including the neck), width of 12.5 cm, and the maximum diameter of the belly of 10 cm (Karst 2012, pp. 52–53). Since it is a ceramic container, considering the thickness of the walls, it can be estimated that it held no more than 0.5 litres of liquid.

Now one should consider the significant differences in the size of the described containers and ask whether the containers discovered by archaeologists and interpreted as canteens could actually serve as water bottles used during travel.

Fig. 9.
A container from the collection of the Archaeological Museum in Gdańsk (inv. no. MAG/MM/GD/255/98/2/115)

The custom of bringing souvenirs from a trip has a very old tradition. Medieval travellers also brought various items from their voyages. Since one of the most common types of travel was the pilgrimage, a significant part of such items were souvenirs that were brought from holy places and sanctuaries. In his book on pilgrimages, Diana Webb also draws attention to the fact that the most popular souvenirs were initially objects naturally occurring in nature. For example, palm leaves were brought from Jerusalem quite early and then were blessed and distributed during the Palm Sunday services (Webb 1999, p. 124). Therefore, pilgrims to the Holy Land were sometimes called *palmieri* (Paner 2016, p. 37). The same thing happened with the shell of Saint James. Initially, an ordinary mollusc shell, over time came to be considered a symbol and since then its image has been reproduced on all kinds of materials, decorating many objects as a kind of logo.

The most common souvenirs found during excavations are badges that pilgrims sewed on their robes or headgear. As for Polish sites, such badges are known from, among others, Ostrów Lednicki, Poznań, Lublin, Elbląg, Wrocław, Kołobrzeg, Szczecin, Cieszyn, Łowicz, and Kalisz (Rębkowski 2002, pp. 265–269; 2005; Wyrwa 2015a, pp. 153–161; 2015b). However, the largest collection of such items comes from the archaeological research in Gdańsk (Paner 2016). We can also mention several newer studies that deal with this topic (Whalen 2011; Locker 2015; Kühne, Ansorge 2018; Ansorge 2019; Wojciechowska 2019; Paner 2020).

The appearance of the most popular souvenirs characteristic of individual pilgrimage sites was mostly affected by the events that were believed to have taken place there as well as the type of relics stored in individual sanctuaries. In addition to palm trees from Jerusalem and shells from Santiago de Compostela, we can mention cast lead figures of Mary, which were brought from the sanctuary in Rocamadour, where one of the several figures of the "Black Madonna" were kept.

In the aftermath of the tragic death of Thomas Becket in front of the altar of Canterbury Cathedral in 1170, a vial/ampoule was made containing the saint's blood collected from the church floor after his death, which is a characteristic souvenir of this sanctuary. Of course, it was believed that it not only served as a *panaceum* for diseases of the body, but also helped to save souls and provided protection in life (Webb 1999, p. 124).

Ampoules were most often used for storing holy water or holy oils from sanctuaries, and sometimes contained earth from holy places. While a badge or other memorabilia only came into contact with a given place of pilgrimage, an ampoule actually contained matter from a sacred site. These substances were believed to have healing, preventive, and protective powers, and for these reasons, they were likely perceived as highly valuable. The fact of possessing such items was not necessarily related to one's partaking in a pilgrimage, e.g., plaques or many other souvenirs. They were possibly gifted or even sold. Such dealings are mentioned in written sources. An interesting account comes from 1373, claiming that Bernat Sacot brought, among others, four ampoules of Sardanaya oil, eight ampoules of balm from the Balsamic Garden in Egypt, a fragment of Moses' staff, and pieces of rock chipped from the stone on which the body of St. Catherine lay on Mount Sinai, from the Flagellation Column, from the Holy Sepulchre, from Calvary, and from the Golden Gate – all to be offered to Joan of Aragon (Mruk 2001, p. 37).

Ampoules appeared as early as in Late Antiquity. Researchers are inclined to look for their origin in the sanctuary of St. Menas in Egypt, where the oldest finds come from. Early Christians were buried with glass ampoules in Roman catacombs (Campbel 2015, pp. 97–134). Ampoules were also used in various medieval sanctuaries, for example in Rome, Compostela, Boulogne, and Mont Saint-Michel (Majewski *et al.* 2016, p. 134).

In recent years, interesting discoveries of late medieval ampoules have been made in the British Isles. These are small objects the height of which rarely exceeds 10 cm, as they are mostly 4–6 cm high. Usually made of lead, they have a lenticular body with a slightly flared neck. In the connection area there are small handles or protrusions, often in the form of semi-circular or triangular loops. More than half of the ampoules obtained bear a motif usually interpreted as a scallop shell; however, in this case, we should not associate this fact with the sanctuary of St. James in Santiago de Compostela, because in the late Middle Ages this shell became a symbol of many holy places in Europe and a synonym of pilgrimage. A few years ago, a new extremely interesting hypothesis was developed, according to which this type of form does not necessarily imitate the shape of a shell, but may refer to the appearance of a small, textile bag protecting a glass ampoule. We know such items from ancient times. Shaped as a pouch, it had a string tied at the base of the neck of the container/ampoule. The argumentation presented by Greg Campbel is very convincing (Campbel 2015, pp. 97–134). An ampoule whose form is more

similar to that of a bag is known from the German city of Stade (*Heilig en Profaan* 2001, p. 428).

The vast majority of the discussed lead artefacts were discovered on the borders of farmlands with a considerable part found also on the shores of water reservoirs. Many of them were probably intentionally damaged (crushed), which is difficult to prove, though. Having analysed their distribution, the researchers concluded that they may have been used in religious/magic ceremonies to ensure a good harvest. However, hypothesis requires further investigation, as most finds of this type were obtained as a result of metal detector searches, hence their cultural context is unclear, while the dating results are based on typology only (Anderson 2010, pp. 184–206).

An extremely interesting find comes from the sanctuary of St. Thomas Becket in Canterbury. Here, as if at the very source, a 13th-century lead ampoule was discovered, intended for holy water, and perhaps for the blood of Saint Thomas (Fig. 10). What is particularly important is the fact that its shape differs from the most common containers shaped as a flattened sphere with a flared neck and two handles. It is a small container measuring 5.1 by 4.9 by 1.3 cm. It is rectangular with one wall flat and the other one slightly bulging, resembling typical canteens made in the form of barrels. However, due to the place where it was found and its small size, it can be stated with all certainty that it is an ampoule, and not a canteen. This proves that ampoules likely came in various shapes. A beautiful collection of medieval ampoules of a similar form can be found in the British Museum. The MET collection includes an ampoule of a very sophisticated shape, whose body resembles a medieval church building.

Fig. 10.
An ampoule from the sanctuary of St. Thomas Becket, dated to the 13th century (the collection of the Walters Art Museum; Wikimedia Commons https://art.thewalters.org/detail/26999/pilgrimage-flask-from-the-shrine-of-thomas-becket-in-canterbury/-)

The sanctuary of St. Thomas Becket has a different characteristic type of ampoules. It is a small cup in a round frame made of openwork tracery. There are inscriptions on the edges of some of the frames. Figural scenes are sometimes embossed on the ampoules, most often depicting the martyrdom of St. Thomas. Finds of ampoules in Western Europe are not unique, albeit not very common, either. At the moment, most of the information that we have pertains to the finds from Great Britain, where metal ampoules are quite diverse in formal terms, often bearing inscriptions, dated to before 1220. Most of the ampoules in question were made of an alloy of lead and tin. The lack of metallurgical research does not allow to determine the material more precisely[2].

In Central Europe, finds of medieval ampoules are quite rare. Moreover, the vast majority of such artefacts are ceramic. A few such items come from the Czech territory. They are presented in a study by Krzysztof Wachowski (2005, pp. 116–117). In the Czech part of Silesia, in the Rychleb castle, a clay ampoule depicting St. Menas was found (Kouřil *et al.* 2000, p. 323, Figs. 230–231). In turn, a fragment of a glazed clay ampoule 7.2 cm high comes from Most in the Czech Republic (Klápště 2002, p. 22, Fig. 173: 6).

Ampoules made of metal are also rare. In the Czech Republic, in Kepkov, Moravia, a bronze two-handle amphora, 5 cm high, was unearthed (Bláha 1998, pp. 48–49), and in the village of Zalužany in Spiš, a similar amphora was found, 5.5 cm high, with an image of a shield and an inscription L+A (Polla 1962, p. 145, Fig. 112: 17).

There are only a few finds of this type from Poland. A tin ampoule was found in Elbląg. It is a small container with a belly diameter of only 4.8 cm (Nawrolska 2004, p. 522, Fig. 6). Two ampoules made of tin-lead alloy and one, slightly larger, made of copper alloy, were discovered in Nowy Targ Square in Wrocław (Sawicki, Wachowski 2018, pp. 738, 740).

We know that a clay ampoule was also found in Trzebnica near containers described as canteens. However, the drawing of this object has not been preserved and hence, we do not know what it looked like or what its capacity was (Wachowski 2005, p. 114). It can be assumed that since it was considered an ampoule, it must have been small in comparison to the "canteens".

By far, the largest collection of ampoules comes from the excavations in Gdańsk. Most of them were found on Granary Island (6 pieces), two on Lastadia, one in the Main Town, and Young Town districts respectively (Paner 2016, p. 278). All of them are made of a tin-lead alloy and are of a similar shape: a round, flattened belly, with a funnel-shaped neck, at the base of which there are two small handles. The exception here is the artefact from Szeroka Street, which is a container formed as a box reinforced with vertical ribs (4.14 by 2.84 cm) (Paner 2016, p. 280). Its form

[2] https://www.britishmuseum.org/collection/term/x5160.

resembles that characteristic of the sanctuary of St. Thomas Becket. The finds from Poland are dated more or less precisely to the 14th and 15th centuries.

The most comprehensive information on the ampoules, their significance, and the way in which they were used by medieval Christians can be found in the book by H. Paner (Paner 2016, p. 274 *ff.*); for this reason, such information is not included here, and more recent data about these finds are provided instead.

The information about a significant proportion of the discovered ampoules can be found on www.kunera.nl. Created as a result of a scientific project conducted by researchers at Radboud University, the database offers access to over 26,000 artefacts (mainly badges and ampoules), 1,576 of which are ampoules (as of 17 February, 2023). Most of the finds come from the Netherlands – 536, the United Kingdom – 427, Belgium – 117, France – 96, Germany – 24, and Poland – 20. In addition, several specimens were recorded in Bulgaria, Denmark, Spain, Greece, Finland, Ireland, Israel, Norway, Sweden, Italy, and Tunisia. Unfortunately, the data from this database can be misleading. The general data provides the number of documentary photographs, and not the number of artefacts. The search engine listed twenty ampoules from Poland, but it turns out that the first two photographs show just two sides of the ampoule from Elbląg, and three other show artefacts from Gdańsk. After analysing records from this database, the following quantities have been obtained: twelve ampoules from Gdańsk, one from Elbląg, and one from Kołobrzeg. Drawings of two types of "canteens" from Trzebnica were taken from the publication of K. Wachowski, recognising them as ampoules, but not mentioning that there were many more of them at the site.

Archaeologists pay little attention to medieval ampoules. Perhaps this is due to the small number of such finds. Most authors focus on their typology (Spencer 2010, pp. 37–78) or attempt to assign ampoules to specific sanctuaries. However, since, as is clear from the comments presented above, their correct recognition in archaeological materials is not easy, let us subject the known artefacts to a size analysis.

The only set of artefacts that is more numerous and can be subjected to such an analysis comes from Gdańsk. The dimensions of these items are as follows: the largest is 4.1 by 6.9 cm, and the smallest is 2.15 by 3.00 cm, with wall thickness of 0.8 cm. The dimensions of the others are (33.0 by 34.0 cm, thickness: 1.1 cm; 3.0 by 4.0 cm; 2.4 by 3.2 cm, thickness: 0.8 cm; 3.1 by 3.9 cm; 3.8 by 5.7 cm; 2.8 by 4.1 cm; 2.2 by 3.5 cm; 2.3 by 3.5 cm).

The containers discovered in Trzebnica and Wrocław are slightly larger. However, this may be due to the different material they are made of. They are ceramic, and thus have much thicker walls. Moreover, making even smaller containers would probably be much more difficult for the potter. Unfortunately, I could only estimate their size based on drawings. The barrel-shaped specimen had a cylindrical belly 11 cm wide, with a diameter of 8 cm. Those in the shape of a flattened sphere have

a belly diameter of 10–11 cm, with a width of about 7.5 cm. The artefacts from the Archaeological Museum in Gdańsk, described as a canteen (8.0 cm high, 4.5 cm in diameter) and a flask (7.3 cm high, 12.5 cm in diameter) are similar in size. It is worth reminding that a similarly shaped canteen from the collection of the Metropolitan Museum has a size of 17.7 by 17.5 by 10.6 cm.

To sum up the presented analysis, I would like to propose a hypothesis that the containers found in Poland during the previous excavations, known as canteens, bottles, or travel flasks, are actually ampoules. This is indicated by their form, but above all, by their small size. They were too small to hold enough liquid to make it reasonable to take them on a journey.

The distinction between canteens and ampoules has been a concern not only to Polish archaeologists. In his work, Jiří Fröhlich describes containers – canteens from Western Bohemia. Most of them could hold about 1 litre of liquid, and the largest one discovered in Bozetice near Milevsko could hold as much as 1.9 litres of liquid (Fröhlich 2012, pp. 393–399). However, they also included a container found in the Klatovsk region, which could hold less than 0.29 litres (Fröhlich 2012, p. 397). A doubt arises whether it was not an ampoule, after all. However, in Kuner's database, among ceramic containers, there are those that are described as ampoules despite their considerable size, although they were probably canteens.

In Poland, finds of containers whose form is typical of a canteen, which would hold a larger amount of liquid, are extremely rare. Fragments of four (?) such containers come from Nowy Targ Square in Wrocław. However, due to their small size, I am inclined to consider the vast majority of the artefacts discussed above as ampoules. Therefore, a question arises whether in our land, apart from Silesia, ceramic containers in the form of characteristic canteens were not used, or whether they remain unrecognised in the archaeological material. Were other containers used on the way? A waterskin made of leather found during research in Nowy Targ Square in Wrocław can be treated as a completely unique find (Sawicki 2018, pp. 34, 37). I have not come upon any other references to canteens made of hide, even though they can be found among artefacts from European museums. For example, in this paper, I present a leather canteen from the Museum of London. It is dated to the 14th century and measures 18.0 by 19.5 by 8.0 cm (Fig. 11).

Searching for artefacts of this type in museum inventories outside Poland is difficult due to lack of unified nomenclature. Ampoules are often described in the same way as flasks, for example as: pilgrim flasks, water flasks, bottles, canteens, or costrels.

In conclusion, we can say that the finds interpreted as travel flasks are unique in Poland, while the artefacts discovered so far and described as flasks or canteens were probably ampoules used for storing holy oils or holy water from sanctuaries. A question should be asked whether we can identify containers that pilgrims and travellers took with them on their way among the archaeological artefacts found

Fig. 11.
A leather canteen (the collection of the Museum of London. Public domain: https://collections.museumoflondon.org.uk/online/object/309508.html)

in Poland. We know that there were many of them, and we know that they must have had water with them on the journey, so the question remains what they used for carrying it.

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