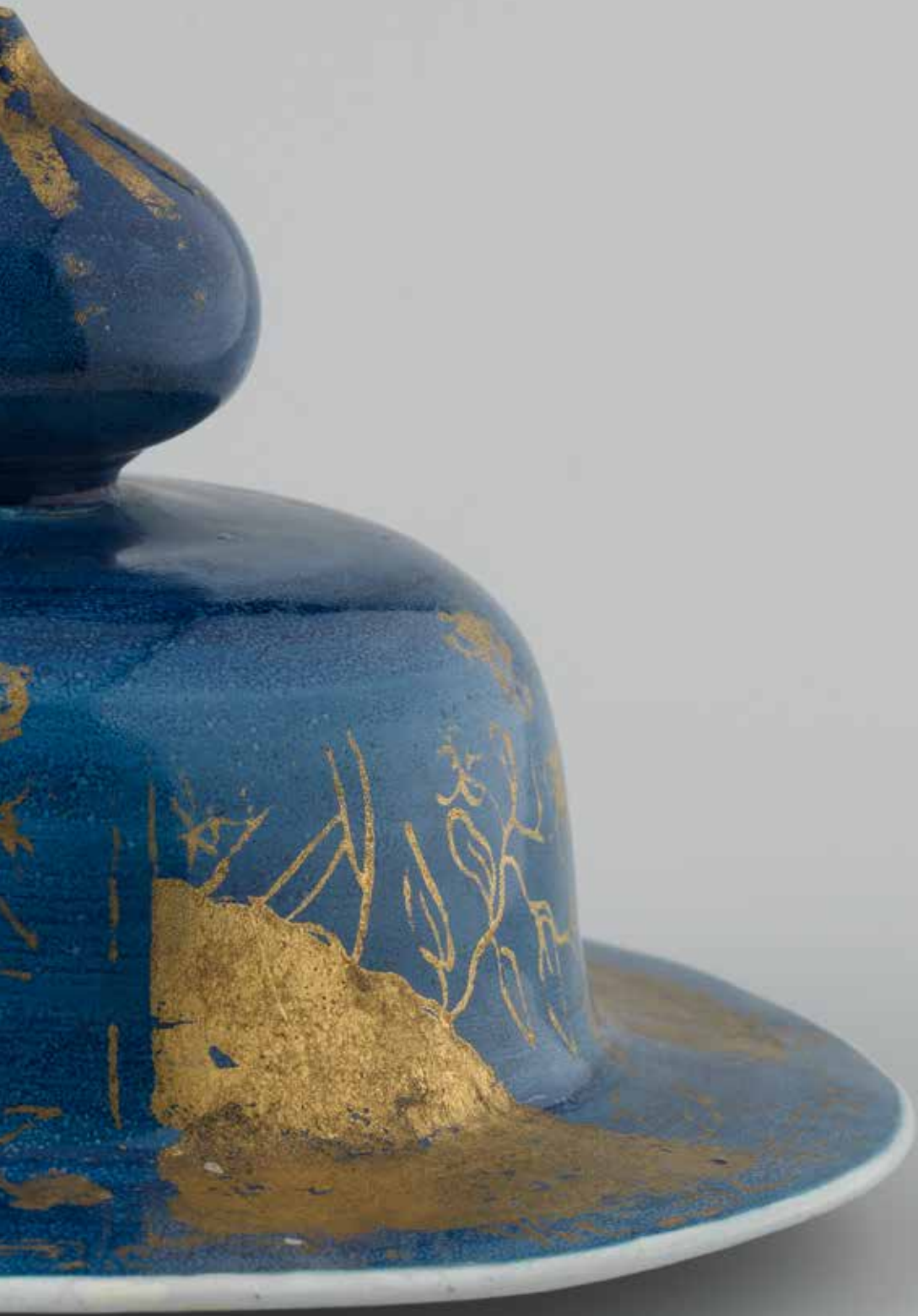

Fired Infills and Replacement Parts to Ceramics in the Rijksmuseum

• ISABELLE GARACHON* •

ABSTRACT

There are many objects in historic ceramics collections, like the Rijksmuseum's, that have replacement parts and infills. Strikingly, the materials and techniques employed to make these repairs in the past were rarely the same as those originally used in manufacturing the object. This was primarily because it is technically very complicated to make additions in ceramics – clay shrinks and expands with each new firing. It also, however, requires specialist knowledge and skills to get the shape, colour and feel of a reconstruction or infill to match the original. There is limited information about this special restoration practice in the literature. This article aims to prompt further research into the technical and historical aspects of ceramic infills and replacements, particularly since they are becoming increasingly accepted as part of the history of the object.

Many pieces in historic ceramics collections, like the Rijksmuseum's, have suffered damage during their existence as utensils, ornaments or museum objects and have subsequently been repaired or restored.[1] In all cases it is noteworthy that the materials and techniques employed are rarely the same as those originally used in making the object. It may seem obvious to make a missing part or a damaged fragment again in clay and glaze. But technically this is complicated, chiefly because of the chemical and physical changes that clay undergoes during the different stages of firing, accompanied by expansion and shrinkage.[2] The risks of breakage or distortion increase with each new firing.[3] What is more, making such reconstructions and infills requires specialist knowledge and skills to get the shape, colour and feel to match the original.

There are various examples of replacement parts and infills in ceramics in the Rijksmuseum's collection. They prompted this essay, which aims to chart what is known about technical and historical aspects of this special restoration practice. There is limited information in the literature, although for guardians of ceramics collections it is extremely important to make educated decisions about conserving such repairs and restorations during a conservation process.

Functional Repair versus Aesthetic Restoration

Ceramics have been repaired and restored for centuries. Archaeological finds of pottery in Europe and the Middle East show evidence of repairs that date back to thousands of years CE.[4]

In western countries, ceramics repair expanded enormously from the seventeenth century onwards, very probably because of the increasing availability and growing popularity

Detail of fig. 12

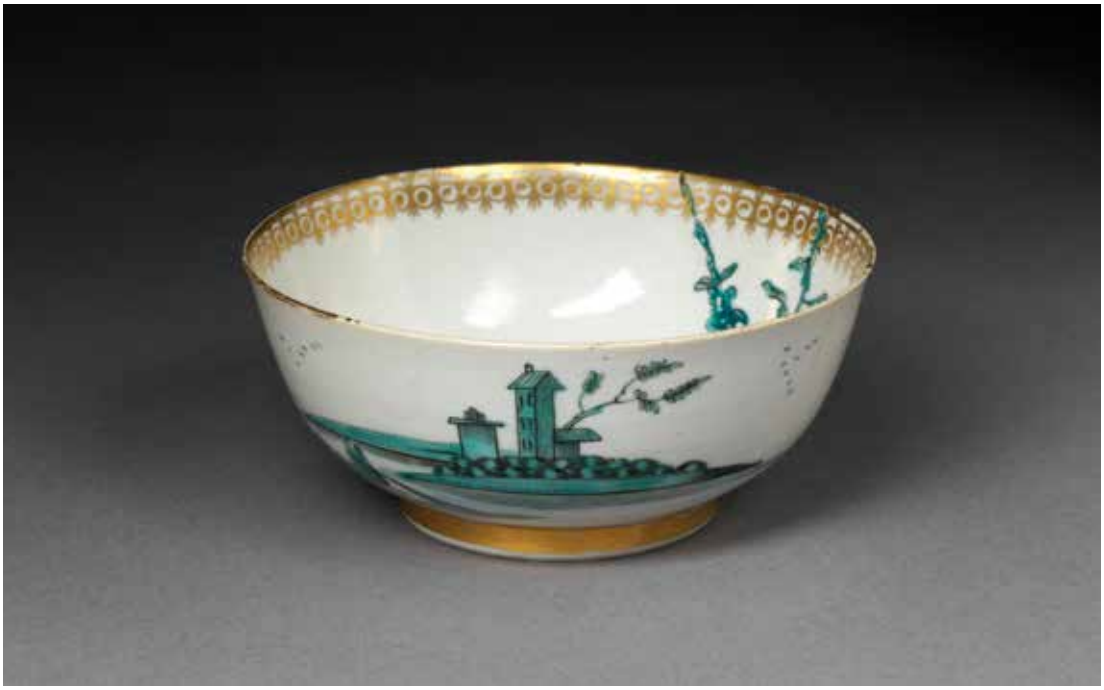

Fig. 1
Slop Bowl, China, 1760-70; decoration: London, 1765-70. Porcelain, painted in enamels and gilded, h. 7.2 cm. London, Victoria and Albert Museum, inv. no. C.13-2008. The bowl has a 'glass bonded' repair that was overpainted with a leafy branch, which continues the enamelled design.

of glazed earthenware and Asian and European porcelain.[5] Tin-glaze pottery and porcelain objects were found in more and more households. If there was a defect in a piece of ceramics it was repaired where possible. A piece was seldom fired again because heating entailed technical difficulties and risks. One exception to this was the method the 'China Burners' used in England at the end of the eighteenth century. These repairers, who were often enamellers by trade, had mastered the technique of using a mixture of ground glass and a binding agent to fuse together pieces of broken porcelain in the kiln (fig. 1).[6] As a rule other techniques and materials were used to repair and restore breaks, cracks and lacunas. To make an object as watertight and heat-resistant as possible, another method was to create a mechanical join with metal rivets and wire. This was a better alternative than the available natural glues often described in eighteenth-century recipe books: animal glues, garlic juice, cheese, milk and even the slime of snails.[7] If part of an object was missing altogether, for example a foot, handle or knob, it was often replaced with a non-ceramic material such as metal or wood.[8]

In the mid-nineteenth century, as a result of the growing interest in collecting ceramics, the accent shifted from recovering the function of a damaged object to improving its appearance. When objects in collections were restored, the principal aim was to increase their aesthetic value. Missing parts were replaced with plaster, wax, papier-maché or compound fillers, sometimes reinforced with a copper or brass armature.[9]

Until the mid-twentieth century, however, the line between the functional repair and the aesthetic restoration of ceramics was not as sharply defined as it is in this essay.

Replica Parts in Ceramics

In 2004 the Rijksmuseum added two exceptionally large seventeenth-century flower pyramids to its Delftware

collection (fig. 2). Each originally consisted of eleven separate parts. Five of them were missing and were completed in ceramics, in other words replaced with replica elements. The new pieces were made of tin-glaze earthenware by Koninklijke Tichelaar in Makkum. Comparable objects from another collection were used as examples and, in collaboration with an art historian, every effort was made to achieve a manufacturing method as close to the original as possible. Many technical obstacles had to be overcome to ensure that the new parts matched the original in shape. It took a great many test firings to approximate the feel of seventeenth-century Delftware using modern technology (fig. 3).[10] Although the shape, glaze and decoration of the pieces with spouts were imitated very successfully, it was trickier to achieve 'the sense' of that time in the modelling of the missing

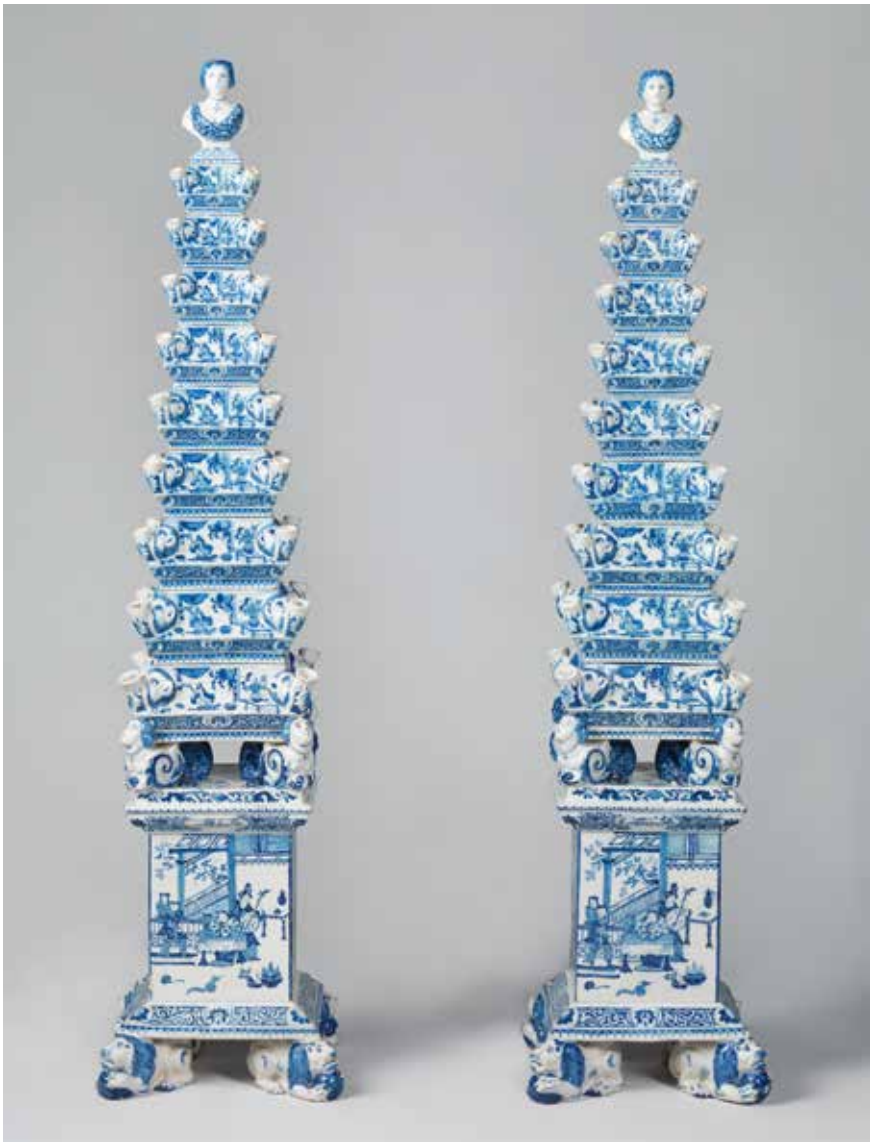

Fig. 2
Pair of Flower Pyramids, Delft (De Metaale Pot), 1692-1700. Faience, h. 156 cm. Amsterdam, Rijksmuseum, inv. nos. BK-2004-4-A, B; purchased with the support of the BankGiro Loterij, the Rembrandt Association, with additional funding from the Prins Bernhard Cultuurfonds and the Loudon Family through the Rijksmuseum Fonds, 2004.

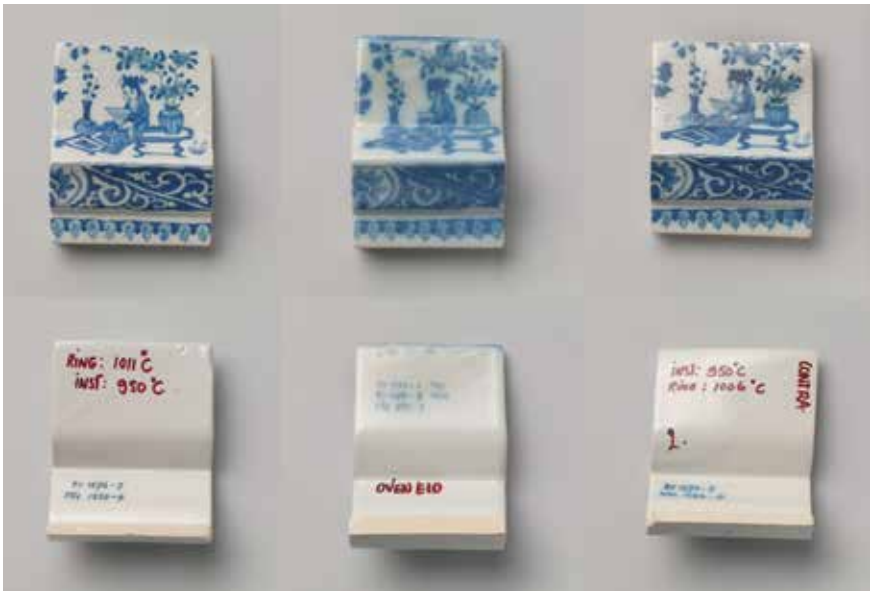

Fig. 3
Tests for the glaze and decoration of the replacement elements of the flower pyramids (fig. 2).

female figures on the upper parts of the pyramids. It required skills other than purely technical. The story of Nanne Ottema, a collector of ceramics and the founder of the Keramiekmuseum Princessehof in Leeuwarden, illustrates this. In 1929, he asked the potter Chris Lanooy to complete a Chinese porcelain figure of Guanyin.

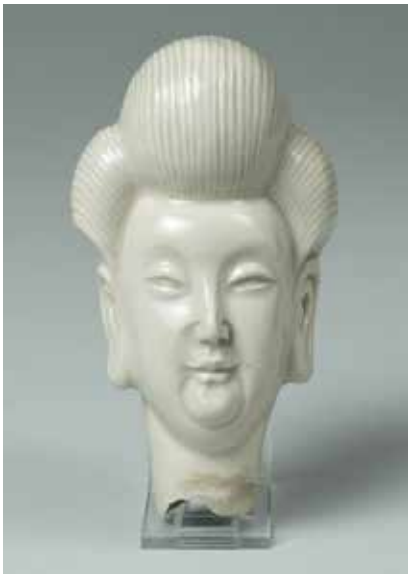

Fig. 4
CHRISTIAAN JOHANNES LANOOY, *Head of Guanyin*, Netherlands, 1950. Stoneware, h. 15.5 cm. Leeuwarden, Keramiekmuseum Princessehof; on loan from the Ottema-Kingma Foundation, inv. no. NO 04578.

He was astonished by the ease with which Lanooy succeeded in making the missing head with the right feel: 'as if he had been Chinese all his life' (fig. 4).[11]

In the Rijksmuseum's collection of European ceramics, which spans the period from the sixteenth century to the first half of the twentieth, there are various other examples of sets of porcelain and earthenware that had been made complete again by adding a new ceramic element. It may be assumed that their practical function at the time was the main reason for matching things like broken lids or damaged pieces of a service. Factories that were still able to produce the same kinds of ceramics were often approached.[12] A replica part was an expensive but more satisfactory solution than a riveted plate, for instance. There is a good example of such a substitute in the Meissen porcelain tea service originally owned by Catherine the Great (fig. 5). One of the plates was copied later in St Petersburg and bears a mark from the time of Nicholas I (figs. 6-8). The Rijksmuseum also has a 148-piece service made of Loosdrecht porcelain dating from the

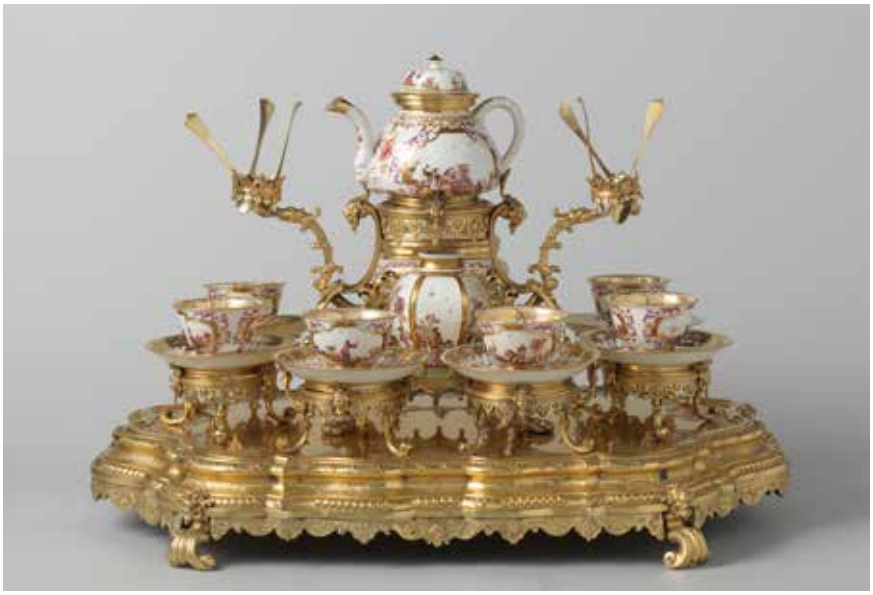

Fig. 5
Tea Set on a Stand, Meissen, 1725-30. Porcelain and silver gilt, h. 37.5 cm, w. 40 cm. Amsterdam, Rijksmuseum, inv. no. BK-17420.

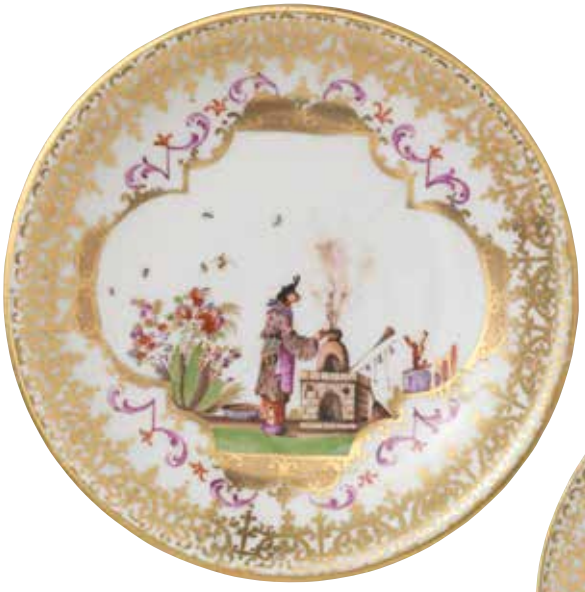

Fig. 6
Plate, Meissen, 1725-30. Porcelain, diam. 12.3 cm. Amsterdam, Rijksmuseum, inv. no. BK-17420-N. This is one of the original plates in the tea set (fig. 5).

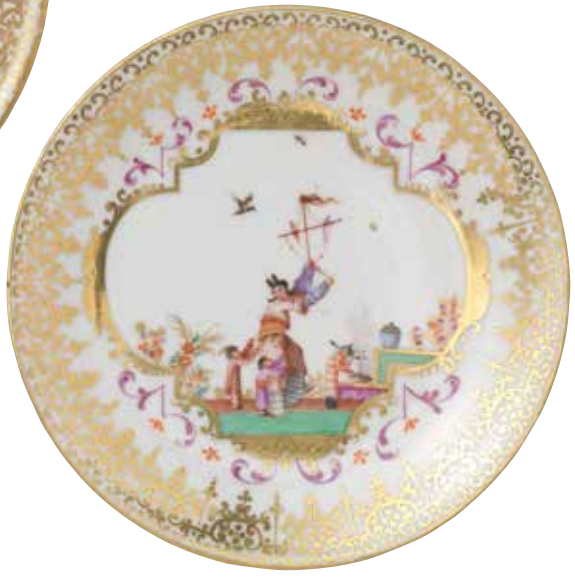

Fig. 7
Plate, St Petersburg, 1825-55. Porcelain, diam. 12.3 cm. Amsterdam, Rijksmuseum, inv. no. BK-17420-O. A replica plate made later for the tea set.

Fig. 8
Detail of the replica plate (fig. 7) with the mark of the Imperial Porcelain Factory St Petersburg on the back.

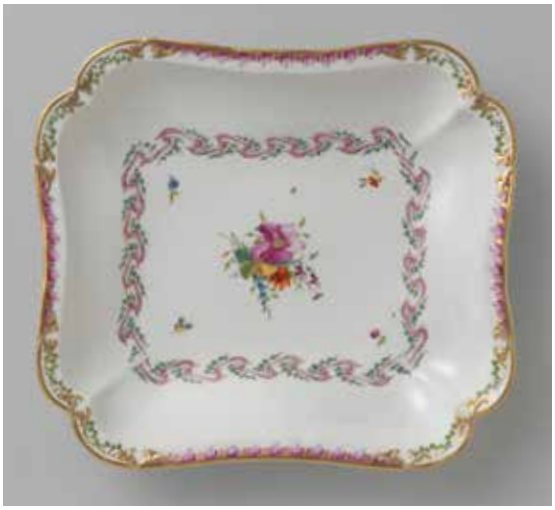

Fig. 9
Dish, Loosdrecht, c. 1780. Porcelain, w. 28.2 cm. Amsterdam, Rijksmuseum, inv. no. BK-15974-43. An original dish from an enlarged service.

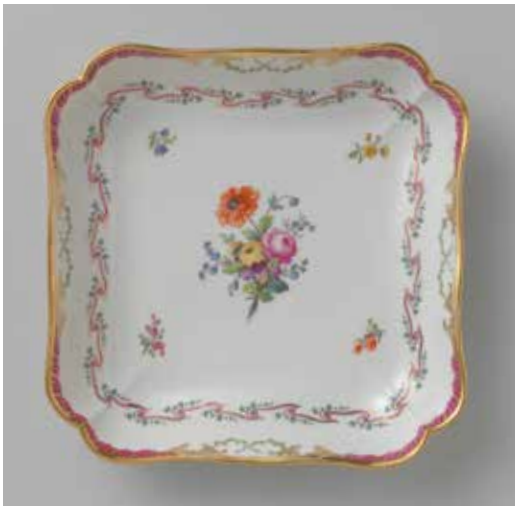

Fig. 10
Dish, Berlin, 1780-1820. Porcelain, w. 23.3 cm. Amsterdam, Rijksmuseum, inv. no. BK-15974-4. This dish is a replica piece added to the service.

fourth quarter of the eighteenth century which has additional porcelain dishes made in Paris and Berlin in the 1780-1820 period (figs. 9, 10).

In the Rijksmuseum's collection there are also examples of substitute elements made from a different kind of ceramic. Although the Dutch took great care of their porcelain, particularly where expensive Asian objects were concerned, if there was an accident, they would get one of the Delftware factories to replace the broken piece or pieces.[13] Delft potters were experts at imitating Oriental porcelain, and

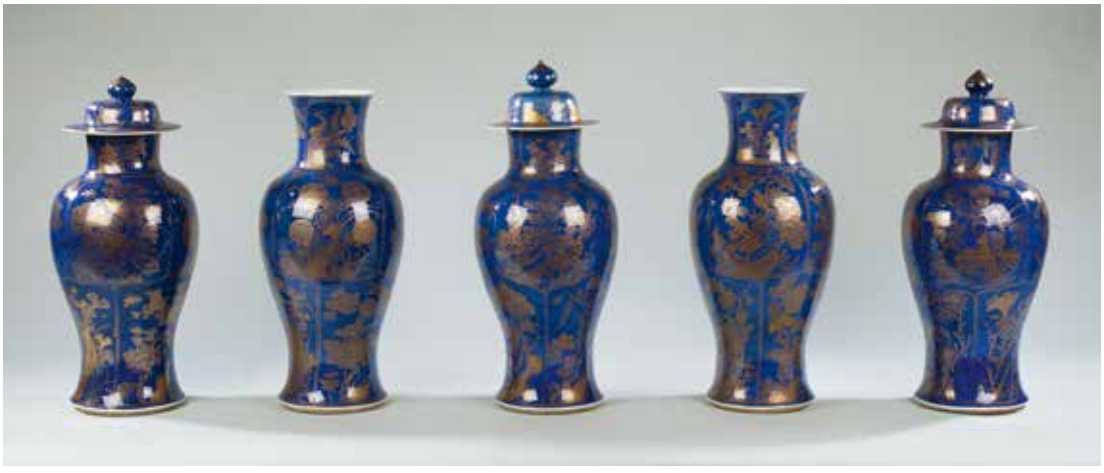

Fig. 11
Set of Five Cupboard Vases, China, 1700-20. Porcelain, h. 47 cm. Amsterdam, Rijksmuseum, inv. nos. AK-RBK-17519-A TO E. The middle vase has a lid made of Delft pottery.

to get them to make a replica element was a simpler and cheaper solution than ordering a new piece from Asia. One of the five Chinese porcelain vases in a set that would have graced the top of a Dutch cupboard, for example, has a Delftware lid (figs. 11, 12). A Chinese porcelain jar with *famille verte* decoration also has a replacement lid made of Delft pottery (fig. 13). We know of similar examples in other Dutch collections,[14] which suggests that this was not an unusual practice in the Netherlands in the eighteenth century. Time and again it seems that the parts were especially made to complete the objects in question.[15]

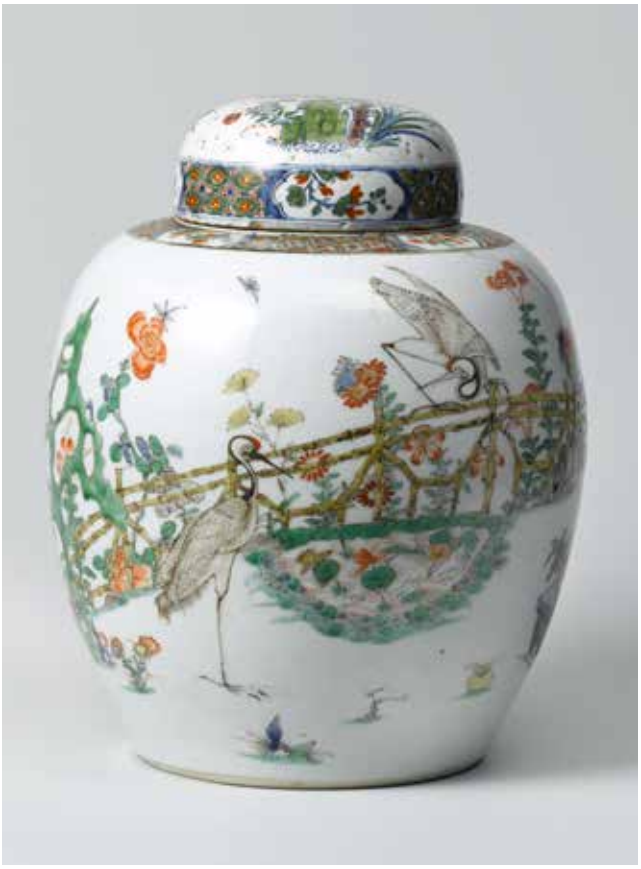

Fig. 13
Jar with Cover, China, 1700-20. Porcelain, h. 23 cm. Amsterdam, Rijksmuseum, inv. no. AK-MAK-554; on loan from the Asian Art Society in the Netherlands since 1972.

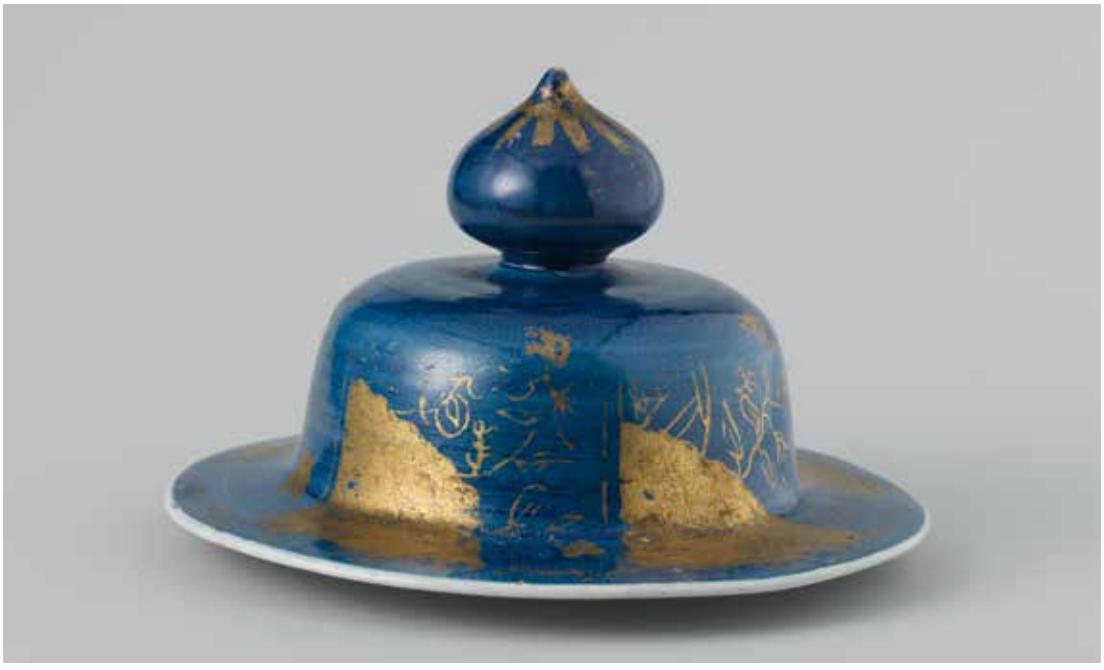

Fig. 12
The Delftware replacement lid for the middle vase of the set.

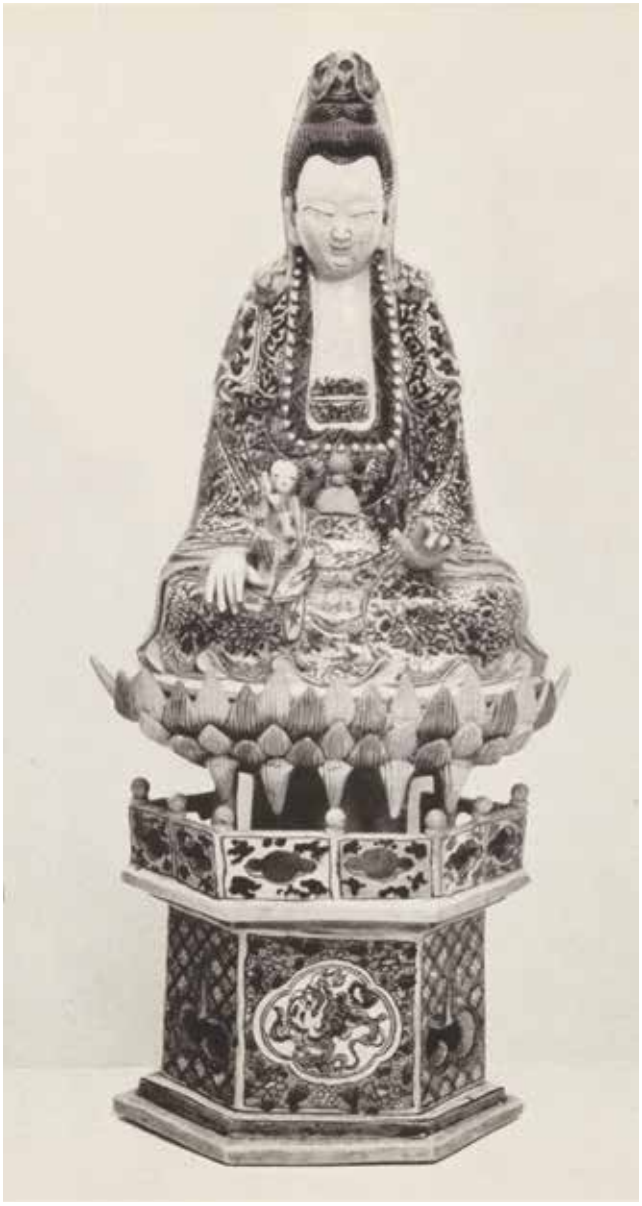

Fig. 14
The Guanyin from the Van Heukelom Collection with the replacement lotus petals. Photo: sale cat. Van Heukelom Collection, London (Sotheby's), 16-17 June 1937.

Restoring Infills in Ceramics

Restorers used various ceramics techniques to fill in missing fragments. This meant that objects were sometimes completed with 'odd' shards from similar objects.[16] In other cases shards were especially made from ceramics. On occasion, these were decorated and fired in order to replicate the original even better.[17]

A few publications tell us that the latter technique was used from at least the beginning of the nineteenth century.[18] One describes how an infill in a similar ceramic material was secured with a mechanical or glue join; the transition between original and the new fragment was then concealed with filler and retouched. The end result was often astoundingly good. In many cases fraud would have been the main reason for using this technique, which requires a great deal of skill, patience and knowledge of the original.[19] It was not always done with malicious intent, however, as the example of the eminent Dutch ceramics collector W.F. van Heukelom makes clear. In the handwritten inventory of his collection of Chinese porcelain he noted that he had found the missing lotus petals of a Guanyin disturbing, so had replacements made by the firm of Samson in Paris at the beginning of the twentieth century (fig. 14).[20] Unfortunately it is only seldom that a restoration is so well documented; in general, we can only guess what the maker's intention was and the background of the client.

It comes as no surprise that Van Heukelom chose the firm of Samson to supply the lotus petals: making a replacement fragment that looks like the original is very similar to producing a replica. From the mid-nineteenth century onwards, Samson prospered in this niche area, reflecting collectors' growing interest in old ceramics since the beginning of that century. Delftware, Italian majolica and German stoneware were very popular and it also became fashionable to own replicas of all kinds of ceramic items.[21] Samson had been successfully concentrating on reproducing works from Asia, Europe and Persia since 1845. Edmé Samson, the firm's founder, even began to make missing parts of a service for the Grand Duke of Russia.[22] The company remained in business until the nineteen-seventies.[23]

There were other firms that made reproductions, too. Ferruccio Mengaroni (1875-1925), for example, was a specialist in the imitation of Italian majolica from the Renaissance.[24] These replica makers were valued because of the high quality of their work, but were later also associated with the production of forgeries.[25] At the beginning of the twentieth century the manufacture of fake Italian majolica and the trade in it became an ever-increasing concern for museum curators.[26]

During a radical restoration, it often becomes clear that objects have been completed with technically high-quality gap-fills. In the Rijksmuseum's collection, for instance, there is an Italian majolica apothecary bottle (fig. 15), which on closer inspection proved to have later infills made of majolica. The top of the neck was made in such a way that the shape and the decoration match the original (fig. 16). The two handles were also reproduced in majolica and, as x-ray photographs revealed, were attached to the bottle with metal pins (fig. 17). Art historical research has shown that the shape of the neck and the handles is not quite correct, but the restoration has caught the colours and the feel of the original successfully. The work may well have been done by one of the above-mentioned replica makers.

There are other examples in the Rijksmuseum's important Meissen collection, which contains a number

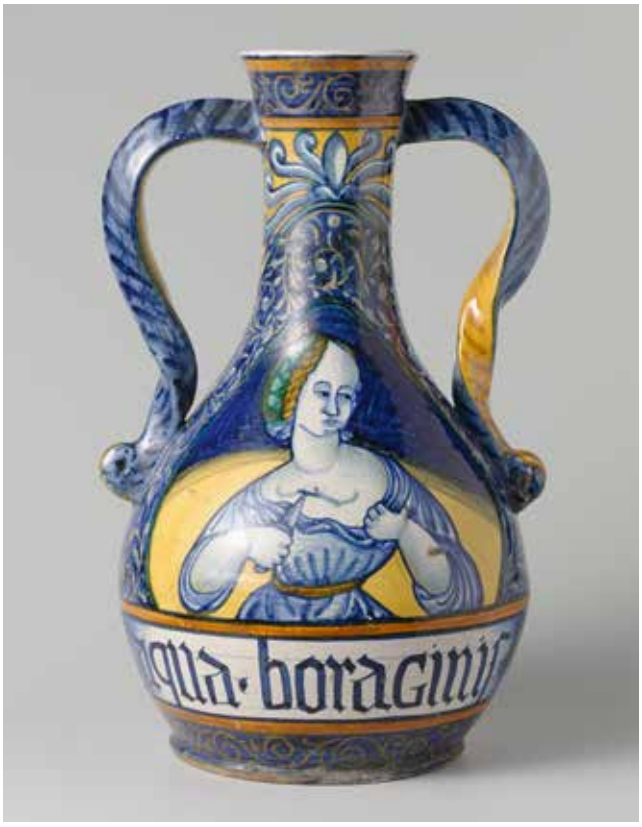

Fig. 15
Apothecary Bottle, Castelli, 1530-60. Majolica, h. 38.3 cm. Amsterdam, Rijksmuseum, inv. no. BK-17305.

Fig. 16
Detail of the apothecary bottle with the joints between the original and the replacement parts of the neck and handles. Photo during restoration.

Fig. 17
x-radiograph of the replaced right handle of the bottle, showing one of the metal pins used to attach the handle.

Fig. 18
Figure of a Pheasant,
Meissen, 1735.
Porcelain, h. 76.5 cm.
Amsterdam,
Rijksmuseum,
inv. no. BK-17495.

of life-sized animals that were once part of the porcelain menagerie assembled by Augustus II the Strong, Elector of Saxony (1694-1733) and King of Poland. While they were being treated, it became clear that porcelain infills had been added in some places. In terms of shape, colour and material they are very convincing. A large part of a pheasant's tail, for example, was made to match and affixed to the original with glue, and the joint between the addition and the original was concealed with filler and paint (fig. 18). The colours of the added fragment differ slightly from the rest (figs. 19, 20). Material analysis revealed that the compositions of the porcelain and the glaze are also different. The low calcium content in the porcelain and the presence of zinc in the glaze indicate that the added pieces were made after 1830.[27] Unfortunately we do not know where the porcelain additions to the Meissen animals in the Rijksmuseum were made. The restorations were carried out before the pieces came into the collection in 1952. The new porcelain infills are so similar in shape and appearance, however, that it is likely that they were actually made by Meissen. We know that the factory – founded near Dresden in 1710 and famous for the quality of its porcelain services and figures – can make missing parts of porcelain figures because they still have many of the moulds of the animals and human figurines they made.[28] This restoration service is still offered on the Meissen factory's website.[29]

Should Ceramic Replacement Parts and Infills Be Retained?

When ceramics conservators and curators are confronted with the sort of additions described above, the fundamental question that arises is whether they should be retained. Opinions have changed in recent decades. In the past, earlier restor-

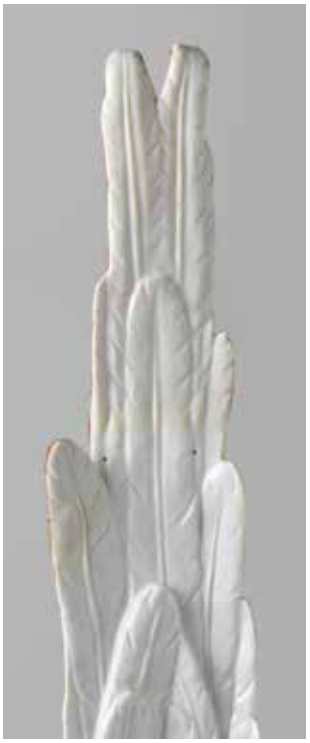

Fig. 19
Detail of the top part of the tail of the pheasant with the porcelain infill.

Fig. 20
The difference in colour on the back of the tail indicates that the top part is not original.

ations were often seen as violating the integrity of an object, now they are gradually being accepted as part of the object's history.[30] Although we usually know nothing about the client, the maker and the date of matching ceramic replica elements and infills, nowadays a historic value is ascribed to additions like these. In the first place because they are evidence that the owner was prepared to put energy and money into it. The special care and effort needed to make a replacement part or infill from ceramics make them 'more valuable' than other additions made of lower quality materials such as plaster and paint. Over and above this, ceramic replica parts and substitute fragments are an illustration of restoration practices whose use has been known about since the eighteenth century.

These arguments are often the major reasons for retaining separate replacement parts such as the lids of jars. Nowadays most of the ceramic fragments that were added during restoration are kept for the same reason. An assessment is always made for each object and the level of the addition plays a decisive role. The accuracy of the shape, the decoration and the quality of the workmanship, for example, were all-important in the decision to retain the porcelain infills to the pheasant and the other Meissen animals. During the restoration of the Italian majolica apothecary bottle, these arguments were certainly also significant in choosing to keep the replacement handles, even though they were not correct from an art historical viewpoint. The historical importance – the story of the object, the documentation of a restoration practice and attitude in the past – weighs more heavily. A further consideration was that without these substantial additions the object would have become very fragmentary. For ethical reasons, the neck and the handles would probably not be made nowadays because we are not absolutely sure of the correctness of their shape and decoration.

The flower pyramids we discussed earlier show that completing an ensemble with ceramic pieces is still current practice. A similar reconstruction of a large table fountain made of Meissen porcelain was recently undertaken at the Victoria and Albert Museum, using the innovative possibilities of 3D scanning and printing.[31]

Now that earlier restorations and replicas are more and more often preserved, it is of vital importance that further research is carried out into historical restoration techniques – particularly since these earlier interventions, in their turn, are themselves the subject of restoration.

NOTES

* With many thanks to Margot van Schinkel, Lucienne van Valen and Christiaan Jörg.

1 In this article, 'repair' relates to the recovery of the function or usefulness of an object, while 'restoration' refers to improving the appearance of an object.

2 During firing clay shrinks by 7 to 10%. Porcelain can actually contract by as much as 15 to 17%.

3 Lindsey Bogle, 'The Conservation of a Collection of Fire-Damaged Ceramics', in Norman H. Tennent, *The Conservation of Glass and Ceramics: Research, Practice and Training*, London 1999, pp. 150-55; Susan Buys and Victoria Oakley, *The Conservation and Restoration of Ceramics*, Oxford 1999, p. 9.

4 Renske Dooijes and Olivier Nieuwenhuyse, 'Ancient Repairs in Archaeological Research: A Near Eastern Perspective', in Janet Ambers et al. (eds.), *Holding it All Together: Ancient and Modern Approaches to Joining, Repair and Consolidation*, London 2009, pp. 8-13; Nigel Williams, 'Ancient Methods of Repairing Pottery and Porcelain', in Vincent Daniels, *Early Advances in Conservation* (*Occasional Paper* series, no. 65), London 1988, pp. 147-48; Buys and Oakley 1999 (note 3), pp. 63-73; Renske Dooijes and Olivier Nieuwenhuyse, 'Ancient Repairs: Techniques and Social Meaning', in Martin Bentz and Ursula Kästner, *Konservieren oder restaurieren. Restaurierung griechischer Vasen von der Antike bis heute* (*Corpus Vasorum Antiquorum* series, vol. 3), Munich 2007, pp. 15-20.

5 Isabelle Garachon, 'Old Repairs of China and Glass', *The Rijksmuseum Bulletin* 58 (2010), no. 1, pp. 42-46.

6 Tomoko Suda, 'Eighteenth-Century Glass Bonding Repairs to Porcelain', *English Ceramic Circle: Transactions* 19 (2007), pp. 424-27.

7 Nigel Williams, *Porcelain Repair and Restoration*, London 1983, pp. 11-12.

8 Stephen Koob, 'Obsolete Fill Materials Found on Ceramics', *Journal of the American Institute of Conservation* 37 (1998), no. 1, pp. 55, 59; Buys and Oakley 1999 (note 3), p. 67.

9 Koob 1998 (note 8), p. 55.

10 Jan Daniël van Dam, 'Technische problemen bij de reconstructie van enkele delen van een bloempiramide', *Bulletin van het Rijksmuseum* (56) 2008, no. 1/2, pp. 58-65.

11 Eric Ebbinge, *C.J. Lanooy, kunstpottenbakker*, Leeuwarden 1977, pp. 14, 43.

12 See below, under the heading 'Restoring Infills in Ceramics', p. 380.

13 Christiaan Jörg, *Chinese Ceramics in the Collection of the Rijksmuseum, Amsterdam: The Ming and Qing Dynasties*, London 1997, p. 178.

14 In Gemeentemuseum Den Haag there is a Chinese porcelain jar with a replacement lid made of Delft pottery (inv. no. OC (VO) 14-1992) and a replacement Delftware jar with a Chinese porcelain lid (inv. no. OC (D) 8-1904); see Titus Eliëns (ed.), *Delfts aardewerk. Geschiedenis van een nationaal product*, vol. 1, Zwolle 1999, p. 103.

In the Groninger Museum there is a jar made of Chinese *kraak* porcelain with a replacement lid made of Delft pottery (inv. no. 1996-1237), and in Museum Arnhem there is a Chinese porcelain jar with an added Delftware lid (inv. no. AB 7482), a jar made of Japanese *Imari* porcelain with a replacement lid of Delft pottery (inv. no. AB 8100-A, B) and a substitute Delftware jar with a Chinese porcelain lid (inv. no. AB 8936); see Christiaan Jörg, *Oosters porselein. Delfts aardewerk. Wisselwerkingen*, Groningen 1983, p. 167.

In the Fries Museum in Leeuwarden there is a five-part set and a seven-part set of Chinese porcelain cupboard-top vases with a replacement Delftware lid; see *Gids Fries Museum Leeuwarden*, Leeuwarden 1921, pp. 51-52.

15 Two Japanese water jars (*mizusahi*) from the collections of the Groninger Museum (inv. no. 1983-7) and the Keramiekmuseum Princessehof in Leeuwarden (inv. no. GMP 1968-046) are particularly interesting. They each have a Delftware lid that was especially made for them. In Japan these jars, rare in the Netherlands, had no lids or at the very most lacquered or metal flat lids. Here, therefore, there is no question of replacing a broken part; it is a matter of adapting the jars to Dutch taste. Personal communication Christiaan Jörg; see also Jörg 1983 (note 14), p. 110.

16 Koob 1998 (note 8), p. 55.

17 Ibid., pp. 59-61.

18 Ibid., pp. 60-61; Buys and Oakley 1999 (note 3), p. 67; Rainer Geschke, 'Ceramic Gap-Fills for Ceramic Restoration', *The Conservator* 28 (2004), no. 1, pp. 74-83; Loretta Hogan et al., 'Reconstructing Major Missing Areas of Ceramics Vessels Using Clay', *Proceedings ICOM Committee for Conservation, 11th Triennial Meeting, September 1-6, 1996, Edinburgh, Scotland*, Paris 1996, pp. 833-38.

19 Koob 1998 (note 8), p. 60.

20 Jan van Campen, 'De porseleinverzameling van W.F. van Heukelom', *Vormen uit Vuur* 208 (2010), no. 1, pp. 2-12. Samson's letterhead states that among other things the firm carried out *réparations en nature* for porcelain, faience and enamel; Florence Slitine, *Samson, génie de l'imitation*, Paris 2002 (flyleaf).

21 Hubert Vreeken, *'Bij wijze van museum'. Oorsprong, geschiedenis en toekomst van Museum Willet-Holthuysen, 1853-2010*, Amsterdam 2010 (unpub. PhD thesis, Instituut voor Cultuur en Geschiedenis, p. 116); https://pure.uva.nl/ws/files/995288/73959_thesis_zonder_afbeeldingen.pdf.

22 Gordon Elliott, 'Restoration, Reproduction and Fakes', *Aspects of Ceramics History*, vol. 2, Staffordshire 2006, p. 112.

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