From Mender to Restorer: Some Aspects of the History of Ceramic Repair

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Abstract
In their daily practice, conservators of ceramics are often confronted with ancient repairs, and they are familiar with the ethical question of how to deal with these remains. This paper reviews some of the techniques and materials used for joining, filling, and retouching historical ceramics and glass. Based on historical and iconographic sources, the various types of professional repairers are described, ranging from the often anonymous china mender to the restorer of collection objects of the 19th century. The paper traces the development of the professional repair of ceramics in western Europe, particularly in the Netherlands, France, and the United Kingdom.

Keywords: ceramics, repair, rivets, mender

Introduction
In the past few decades, conservators have become increasingly interested in the history, changes in techniques, and ethics of their profession. This is most evident in the fields of painting, sculpture, and architecture, but there has also been more research on the history of ceramic restoration in recent years (Bergeon Langle 2008).

Conservators of ceramics and glass are often confronted with ancient repairs meant to prolong the life of objects or to improve their appearance before and after they enter historical collections. As a rule, there is little if any information about when, by whom, and for whom these repairs were made. Conservators are also familiar with the ethical question of how to deal with these remains, which make up part of the history of the objects and inform us about ancient forms of ceramics and glass repair.

In order to make responsible choices, it is important for the professionals caring for these collections to know more about the technical aspects of ancient repairs and restorations they can encounter on objects, and also to learn about the socio-historical background of ceramics and glass repair in past centuries. In this paper, the collection of the Rijksmuseum in Amsterdam will be the starting point to review some of the techniques and materials used for joining, filling, and retouching historical ceramics. Our goal is to better understand how the professional repair of ceramics developed in western Europe after the 18th century, especially in the Netherlands, France, and the United Kingdom.
Repairing Ceramics

Information about the development of repair techniques and the professional restoration of ceramics before the 18th century is scarce and fragmentary. Archaeological finds are the most important source of datable information. Excavations at sites in the Middle East and Europe dating from around 7000 B.C. have turned up earthenware objects that show traces of repairs with bitumen, animal glues, plaster, lead, and iron rivets (Wihr 1977; Williams 1988; Buys and Oakley 1996; Dooijes 2007; Dooijes and Nieuwenhuyse 2007; Nieuwenhuyse 2008–2009).

The chief aim of these early forms of repair was to make the object usable again. Because it was difficult to achieve a strong, durable bond with the natural glues that were available, people have, since antiquity, used mechanical repair techniques involving metal to make cracked or broken pottery watertight and heat-resistant.

In a collection of historical ceramics such as the one at the Rijksmuseum, which covers the period from about A.D. 1500 to the first half of the 20th century, old restorations with metal rivets are common. This mechanical joining technique was very widely used to repair china and porcelain from the 18th to 20th centuries, and it is still employed in China today (Fig. 1). The principle is simple: holes are drilled on either side of the break, and the two pieces are then pressed together and secured with metal links. Thanks to a number of 18th- and 19th-century publications, the technique of riveting is well documented (Ris-Paquot 1872, pp. 17–26; Hasluck 1899, pp. 106–112; Howorth 1900; Parsons and Curl 1963, pp. 27–169; Lammon 1969; Williams 1983, pp. 13–14).

Two riveting methods were commonly employed: the through-and-through rivet or lacing, and the U-shaped rivet. In the through-and-through method, a thin metal wire, often made of brass, is laced in and out through the holes, and finished off by twisting the ends together (Fig. 2). The use of U-shaped rivets also involves drilling into the object, but not all the way through. A rivet is inserted into the two holes on either side of the break. The rivets are made with D-shaped wire, usually brass or iron, but sometimes silver. The rivets and lacings can be made less conspicuous by countersinking them in a groove filed between the drilled holes or by touching them up with enamel paint.

Figure 1
Riveter at work in Chinese market. (Photo: courtesy of Allchinatours)

Figure 2
One of the earliest descriptions of repairing ceramics with metal wire comes from China. At the end of the 16th century, Matteo Ricci, a Portuguese Jesuit living in China, wrote about the extraordinary properties of porcelain: “This porcelain, too, will bear the heat of hot food without cracking and, what is more to be wondered at, if it is broken and sewed with a brass wire it will hold liquids without any leakage” (Gallagher 1953, p. 15). In 1666, another Jesuit missionary, Martin Martinius, described the occupation of porcelain mender and the sophisticated manner in which this artisan was able to make holes in thin, fragile porcelain with a diamond drill similar to the tools used in Europe to engrave glass and to decorate rock crystal (Thevenot 1666, p. 109).

Many authors have noticed the remarkable similarity between the repair techniques and the trade of china mender in China in the 16th and 17th centuries and in Western countries a century later, and some believe that the technique of riveting ceramics originated in China (Parsons and Curl 1963, p. 20; Williams 1983, pp. 11 and 13). However, some historical sources attest that the technique of repairing by tying with metal wire was in use in Western countries long before the 16th century. Rivets and lacings were probably employed originally to repair wooden objects. An account of occupations in Paris in the 13th century describes traveling repairers who mended wooden bowls with brass and silver wire (Garachon 2010). The use of lacing with silver wire is also mentioned for the repair of broken glass in a German art treatise from the 16th century (Eggert and Straub 2009, p. 3).

**Mending China and Porcelain for a Living**

In western Europe, pottery menders were probably an everyday sight from the 15th century onward. Their occupation was often portrayed in songs and farces, such as this passage from a Dutch farce of 1405 in which one of the characters explains how he earns his living: “I can tie (mend) your stoneware jugs and your milk pails made of clay . . . ” (Komrij 1989, pp. 186–189). The term “tie” could refer to the through-and-through riveting method or to a technique consisting of binding a network of metal wire, mostly iron, around cracked earthenware (Fig. 3). This technique, often associated with traveling Slovakian tinkers, was commonly used in central Europe until the mid-20th century. In Germany, this profession was called “Rastelbinder,” in Slovakia “drotari,” and in Slovenia “piskrovezi.”

In the words of a 14th- or 15th-century Dutch song, we hear the street cries of hawkers advertising their wares. Among them are the man who repaired bowls and lamps,
and the china mender: “If you break a bowl, I’ll mend a bowl. . . . I mend lanterns, lanterns, lanterns; I rivet dishes and saucers” (De Meyer 1962, p. 541).

A set of 17th-century English prints of street trades in London features one of the earliest illustrations of a “mender of P[itchers or pots?] and glasses” (Fig. 4). A set of prints of street traders made by Casper Luyken in 1708 includes a drawing of a woman, with this inscription on the back: “Breekje wat, Breekje wat” (Broke something) (Fig. 5). The connection between this expression, the cry, and the name of a china mender is found in a 1721 tale in which an unfortunate “damsel” who has just broken a “porcelain” basin hears the cry of an itinerant mender who is ready to enter the house with her basket full of ingredients to mend broken delftware with a mixture of quicklime and the white of a fresh hen’s egg (Garachon 2010, p. 42). In 18th-century writings, there are many recipes for glues and fillers based on this mixture, and it is obvious that one of the great concerns at that time was to achieve a heat- and water-resistant glued join. Other recipes for glues and cements involve all kinds of natural materials, including animal glue, garlic juice, cheese, milk, and even the white slime of snails (Lanmon 1969, pp. 98–99; Koob 1998; Thornton 1998). The last vestiges of these old, natural glues have often disappeared from objects in collections, or they are very difficult to detect.
The China Mender

It is clear that, as the 18th century progressed, mending china became a trade in Western countries. By the end of that century, there were different types of repairers and a greater range of repair techniques. These developments were undoubtedly related to the growing supply and popularity of ceramic products—glazed earthenware, Oriental porcelain, and European bone china—that could be found in more and more homes. In English-speaking countries, these artisans were called “china menders” or “china riveters,” in France they were “recousseurs” or “raccommodeurs de faïence et de porcelaine,” in the Netherlands they were known as “porseleinkrammers,” and in Germany they were “Porzellanflicker” or “Porzellannieter” (Omnès 2002).

A French trades encyclopedia of 1773 gives a quite detailed description of the “raccommodeur de faïence et de porcelaine,” which was defined as “a person who can make broken china and faïence usable again.” This is followed by a technical explanation of how the “raccommodeur” employs the through-and-through method to rivet broken china and repairs the holes with a mixture of olive oil, egg white, ground glaze, and chalk. The author, Pierre Jaubert, asserts that the discovery of riveting dates from the early 18th century and can be attributed to one Delisle of Normandy. The occupation of china mender did not please the manufacturers of faience, who went to court in an attempt to have it banned. But the “raccommodeurs”—supported by the citizens, who recognized their usefulness—were granted the right to repair china and faïence usable again (Jaubert 1773, pp. 1–2). The attribution of the discovery of riveting to Delisle did not go uncontested. As early as 1877, it was described in a French history book as the rediscovery of an old technique. A few years later, Jaubert’s thesis was gently mocked in Leland’s A Manual of Mending and Repairing: “But the archaeologist will say of his claim, as the English judge did of a similar one, that the plaintiff might as well apply for the patent for having discovered the art of mixing brandy with water” (Leland 1896, p. 18).

One form of the trade that was common in several European countries was the itinerant china mender—a figure comparable to the traveling knife grinder and the tinker. Riveting was obviously an ideal way of repairing broken china on the spot, requiring little in the way of tools and materials. The trade was not difficult or expensive to learn, but it was not very lucrative or highly esteemed. The “china mender” was a popular hawker who was often portrayed in prints, figurines, and postcards in Western countries. This individual also appears frequently in stories and songs, and even in operas and films (Garachon 2010, p. 44). In ballads and comic prints, the skill of this picturesque tradesman was sometimes linked with mending broken hearts or patching up a failing marriage.

In the Low Countries, records of china menders are found in Dutch archives from the 18th century onward. In an analysis of the population of Rotterdam around 1830, the occupation of china mender is described as “typically Jewish.” The presence of china riveters in the Netherlands is also confirmed by finds of objects made of earthenware, china, and even glass repaired with brass wire in excavations of houses dating from 1760 to 1840 (Garachon 2010). Various 18th-century newspaper advertisements related to repairing ceramics bring to light other aspects of the china mender’s trade (Van der Brandt 2006, p. 206). They reveal that the wanderings of some itinerant menders were not confined to a single country, and that these artisans could combine various skills. A certain Rupano, who is also recorded in Paris, announces in 1771 that he will come to the fair in Den Bosch, where he will sell pens, cure corns, read ancient writings, and “mend broken china in a manner never before seen.” We also find china mending combined with other skills in the intriguing story of Timotheus and Jaques Pastres. Between 1724 and 1758, they published advertisements in both French and Dutch newspapers about a remarkable clock they had built, the technique they had perfected for making “paper porcelain” (from which they had reportedly made all sorts of items), and their skill in mending broken china and inserting new pieces invisibly (Van der Brandt 2006, p. 206; Garachon 2010, p. 46).

Itinerant china menders were also active in the United Kingdom from the 18th century onward. These traveling menders were certainly not highly reliable or skillful, but there were more qualified tradesmen, particularly in Britain and America. Howorth explains the difference between “the local china repairer, who is well known and who has through good workmanship proved his ability” and the “itinerant repairers . . . with their sham rivets, their bogus secret bolting or their alleged process of burning and fusing” (Howorth 1900, pp. 5–6). These English and
American menders are also known for their advertisements, which are an important source of information about their charges and methods (Lanmon 1969, pp. 96–97; Thornton 1998, p. 4). Here, for example, is a handbill dating from about 1770:

Edmund Morris at The China Jar in Gray’s Inn Passage . . . makes all sorts of china wares with a peculiar art which has never before been found out in this kingdom so as a riveted piece of china will do as much service as when new. As there are many imposters both in town and country that make false pretensions, I desire no other satisfaction than what workmanship merits. N.B.–if any of my work should come to pieces within 20 or 30 years I will repair it without any further expense (Heal 1925, pp. 42–43).

Missing pieces on ceramics were often replaced, in whole or in part, with non-ceramic materials such as metal and wood. Restorations of this kind were probably entrusted to other craftsmen—silversmiths, wood turners, and clockmakers (Lanmon 1969, p. 96). In the Rijksmuseum collection, for instance, there are some porcelain objects with ormolu handles or knobs (Fig. 6).

“The China Burner”
In the 18th and 19th centuries, china was sometimes repaired by firing it again. In England, this arcane and uncommon technique was the specialty of “china burners” such as Edward Coombes and Philip Daniel. They worked around Bristol and Plymouth between 1785 and 1801, and they were in the habit of marking their repairs. The process involved coating the edges of the broken pieces with a glaze that had a low melting point and then firing the object, probably supported in a clay form, in a muffle kiln (Pountney 1920, p. 239). Although the technique is described in some 19th-century books and is referred to in 17th-century Chinese manuscripts, there are few other examples of the use of this risky procedure for mending china (Leland 1896, p. 17; Lamboursain 1897, p. 67; Sayyer 1951, pp. 93–94). An advertisement placed in a Dutch newspaper by the chemist Ferdinand Kumpff in 1770 may well refer to this method. He invited readers to witness a series of tests so that they could see for themselves how “fine porcelain that is broken can be fused in the fire so that it is as good as new and usable straight away” (Van der Brandt 2006, p. 206).

From Repair to Restoration
Around 1850, a different sort of repairers began to emerge in Western countries. We know about their working methods and ethics from contemporaneous literature for china collectors and amateur repairers. In 1865, for instance, P. Thiaucourt, himself a “peintre-sculpteur, réparateur d’objets d’art,” published his Essai sur l’art de restaurer les faïences, porcelaines, . . . etc., which rapidly sold out and was reprinted in 1868 (Thiaucourt 1865 and 1868). Thiaucourt described the different products and techniques that
can be used to glue, fill, and retouch ceramics. This publication was followed, in the second half of the 19th century, by other books and articles written by repairers for ceramics collectors (Ris-Paquot 1872; Barthelet 1884; Garnier 1888; Leland 1896; Lamboursain 1897; Hasluck 1899; Howorth 1900). The authors described themselves as an “artist-repairer of fine decorative wares” or as a “céramiste reparateur.” It is evident from these publications that the means and methods of repair had developed and diversified. From this time on, the aim was to restore the appearance of objects that were intended solely for decoration and as part of a collection. Rivets were still being used, but some authors—Thiaucourt among them—were at pains to distance themselves from the riveters and other “raccommodeurs.” When it came to drilling the holes that were sometimes necessary, Thiaucourt advised the amateur repairer to have this “coarse and thankless work” done by a china riveter or, better yet, by a firm that specialized in mechanical drilling (Thiaucourt 1868, p. 19).

The steps required to make an object complete and beautiful again were described, with particular emphasis on re-creating missing pieces and retouching damaged areas. Shellac and animal glue were commonly used to join broken pieces, often reinforced with dowels. Missing parts—such as handles, knobs, and parts of rims—were often replaced with a piece made of plaster that was frequently formed on an armature of metal wire (Ris-Paquot 1872, pp. 31–33). A German stoneware jug in the Rijksmuseum collection is a good example of a collector’s item that has been completed in such a manner. The handle and part of the top were painstakingly reconstructed, probably in the second half of the 19th century, when the object was in the collection of Jan Pieter Six, one of the leading stoneware collectors in the Netherlands. Although the shape of the handle and the lion’s head are not entirely correct, when the piece was restored in 1996, this old addition was retained in view of its historical value (Fig. 7).

In some cases, missing parts of objects were completed with replacements made of baked ceramic material. The production of these pieces must have been entrusted to ceramic makers. The inventory of the Asiatic ceramics of the Dutch collector W. F. van Heukelom mentions that some missing lotus leaves from a Kwan Yin statue were made by the Samson firm in Paris at the beginning of the 20th century (Van Campen 2010).

During the 19th century, the dividing line between repairing and restoring ceramics was often rather vague, and the two approaches existed alongside each other—and sometimes even together. Both forms of ceramic repair continued to be employed until the 1960s, and a clear distinction was still made between repairing china and pottery for everyday use and restoring decorative and historical objects (Parsons and Curl 1963). In 1983, Nigel Williams of The British Museum consigned riveting, with a few qualifications, to the chapter “History of Porcelain Repair” in his Porcelain: Repair and Restoration (Williams 1983).

The first articles suggesting that rivets in museum pieces should be regarded as part of the history of the objects appeared at the end of the 1980s. In 1988, Nigel Williams concluded that “old repairs are part of the piece’s history and the methods used are of historical interest” (Williams...
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1988, p. 149). In that same year, two French authors proposed removing rivets with care, treating them against corrosion, and replacing them in the object (Lacoudre and Dubus 1988).

Conclusion

Although there has been a great deal of thinking and writing about philosophical and ethical issues in conservation during the past 50 years, the question about how to deal with previous repairs is rarely addressed specifically in ethical discussions. The idea that early repairs belong to the history of the objects and embody elements of the history of ceramics conservation is well accepted today, but it is not always simple to put into practice. Most of the time, the historical value of previous repairs cannot be based on documented information, and one can only guess when they were made by the usually anonymous repairers or restorers. A better knowledge of the history of repair techniques and of professional ceramic repair is clearly necessary.

One could paraphrase Cesare Brandi’s statement about additions by arguing that, in historical terms, the conservation of a previous repair is unconditionally legitimate, but its removal always requires justification, or should at least be carried out in a manner that will leave a trace in the record. This underscores the importance of recording and making accessible all information about previous repairs and repairers that is found during a treatment.

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