

Restoration of *The Conversion of Saul*: New techniques in the treatment of Flemish sixteenth century Antwerp tile panels

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Figure 1. MAS (Antwerp), Tile panel *The Conversion of Saul* (AV.1571) (Copyright Michel Wuyts and Bart Huysmans)

1. The origin of *The Conversion of Saul*

The tile panel *The Conversion of Saul* (Fig. 1) is considered to be the most refined example of sixteenth century Antwerp majolica on such a scale¹ and is today one of the highlights of the Museum aan de Stroom (MAS) in Antwerp. This piece of decorative art was produced in 1547 in the renowned Antwerp ceramic workshop Den Salm. The artistic quality of the painting and its identification and date (Fig. 2) mean that *The Conversion* sets the standard for any research into Antwerp ceramics around 1550.

The workshop Den Salm, where *The Conversion* almost certainly originated, was established by Guido di Savino. This Italian ceramist from Castel Durante in the Marches² settled in Antwerp around 1508 where he was soon known by the more Flemish sounding surname Andries³. Five of his sons learned the art of making earthenware products in the family workshop. Some of them later settled abroad, including Jasper



Figure 2. MAS (Antwerp), Detail of the tile panel *The Conversion of Saul* (AV.1571) (Copyright Michel Wuyts and Bart Huysmans)

who emigrated in 1567 to England and built a kiln in Norwich where pavement tiles and apothecary pots were produced⁴. By the time *The Conversion* was finished, the workshop was managed by Guido's successor Franchois Frans (1543–1560/61) who had married Guido's widow in 1543 and hence became the proprietor. Franchois also belonged to an Italian family, and was related to Jan Francisco da Brescia, one of the first Italian ceramists who emigrated to Antwerp, and to Peter Frans called *Van Venedig* – which can be translated as *From Venice* – who was the middleman between the abbess of the Herkenrode Abbey and Den Salm workshop⁵. Production date and family ties, whether or not by marriage, have therefore led to *The Conversion* being attributed to Franchois Frans.

The Italian mannerist style and the intense colours that are so characteristic in *The Conversion*, were therefore imported directly by Italian specialists. Furthermore, the ceramics produced by the workshop Den Salm around 1547 not only combined a strong Italian influence with local Antwerp characteristics, but the local painters were also influenced by the innovative French renaissance style decorative elements from the School of Fontainebleau⁶. Under the leadership of Franchois, Den Salm specialized in the production of larger scale tile panels showing narrative scenes⁷. Even in the absence of any archival

evidence, indications that the tile panel can be attributed to this workshop are convincing⁸. Not only the stylistic arguments and the scale of the panel, but also the site where it was discovered are characteristic of this renowned workshop. Oral tradition also claims that in the second half of the 19th century the tiles of this panel were found, piled up, in the garden of a house in the Kammenstraat, where Den Salm once was located⁹.

The Conversion is a rare example of an Antwerp majolica panel of such dimensions and age¹⁰: it contains no less than 98 tiles and measures 192 by 98 centimetres. The central picture shows a crucial moment in the life of the Apostle Paul, who before his conversion to Christianity was called Saul of Tarsus and was a persecutor of the early Christians. Saul is depicted at the moment he falls from his horse, having been blinded by a lightning bolt sent by Christ in the clouds above the scene. The soldiers accompanying Saul by foot or on horseback are shocked by the incident and are trying to protect themselves or seek cover. The whole range of colours used in 16th century Antwerp majolica painting was used in the panel: tin oxide for the white ground, then cobalt blue, copper green, orange, the characteristic yellow and even manganese purple. A transparent glaze sprinkled onto these colours gives a brilliant shine to the finished product. The background of

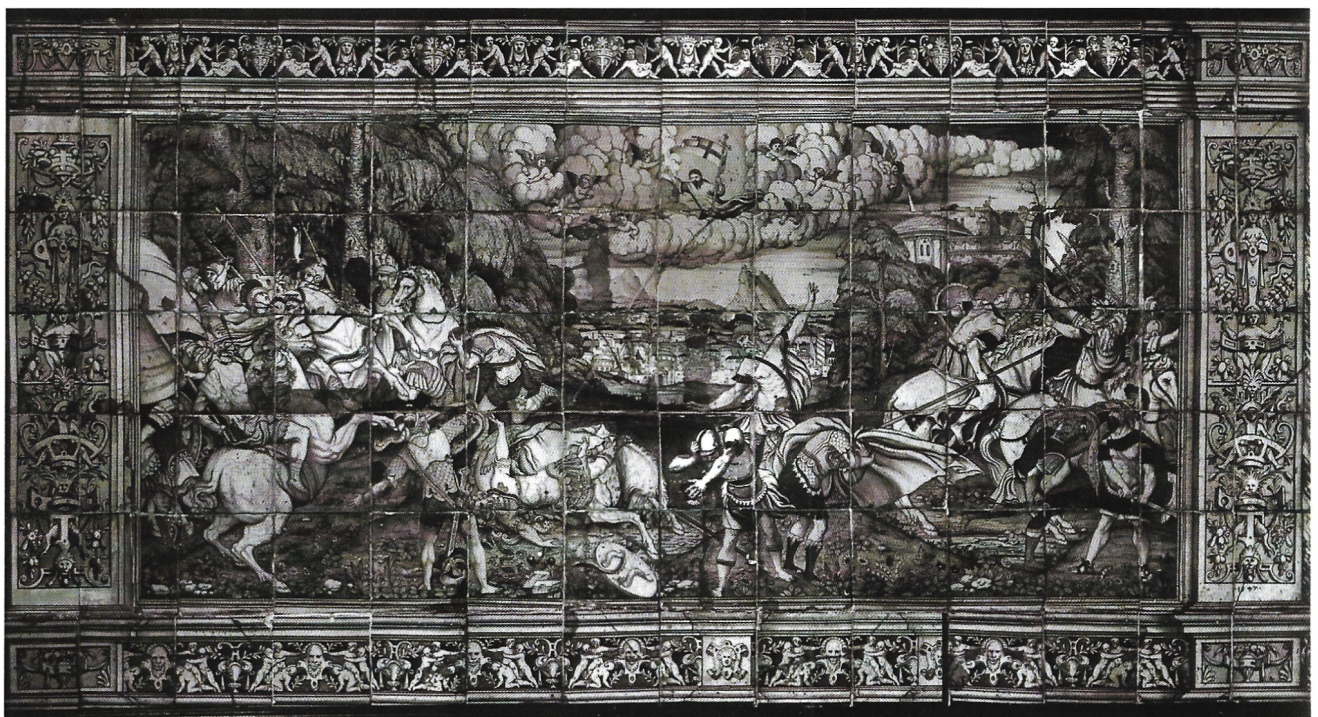


Figure 3. Tile panel *The Conversion of Saul* before treatment by the Royal Institute of Art in Brussels in 1960 (Copyright ACL Brussels, 6146D)

the scene is predominantly green, used for the grassy plain in the foreground, and for the two curtains of leafy trees behind the groups of soldiers. In the centre of the panel may be seen a distant village, inspired by classical antiquity. This stands at the foot of two mountains above which are widespread clouds. These help to create a sense of depth while the colour of the horses and the soldiers' clothing project the human characters to the fore. The tiles in the upper and lower parts of the frame carry repeating pairs of two or three *putti* supporting antique vases or grotesque masks depicted on a blue and brown background. They are painted as a continuous strip from tile to tile, each one showing a different composition. In the flanking pilasters, executed in yellow, grotesque masks, vases and semi human figures crammed into decorative ironwork design are linked together by swags of fruit and flowers.

Since the last decade of the 20th century, the panel has been displayed in international exhibitions¹¹ and has long since been considered as the ultimate example of 16th century Antwerp majolica production. The tile panel also serves as a reference to help in determining the origin of other painted tiles in national and international collections.

The importance of the tile panel to research into art history and other fields was the main reason for a carefully considered restoration, employing the most reliable of current practices. Throughout the restoration, a committee consisting of specialists from different scientific disciplines supervised and guided the entire process. In-depth scientific research was carried out using material and chemical analysis, modern restoration techniques and historical research on the panel's provenance and production¹². Thanks

to important financial support from the *Fonds Baillet Latour* (King Baudouin Foundation) the project was successfully completed in 2017.

2. Restoration

Restorations prior to 2015

Since its discovery, the tile panel has been subjected to several significant modifications. *The Conversion* consists of ninety-eight tiles, divided into 7 rows of 14 tiles each. There were eighty-eight and a half of the original tiles but nine and a half were missing, which is not unusual for 16th century tile panels discovered through archaeology. It is presumed that around 1890 the tiles were mounted for the first time. When in the 1960s the panel underwent restoration by the renowned Royal Institute of Art in Brussels (KIK-IRPA, Belgium), photographic records were made of the state of the panel before treatment (Fig. 3). These photographs give us an insight into 19th century methods and show some interesting features (Fig. 4). In the upper border and on the left hand lower side five and a half industrial replica tiles were inserted. These were made by Boch Frères of La Louvière¹³, using the over-glaze technique. The utilization of the enamel technique was not unusual in this period, and these *carreaux émaillés* were used to fill in the missing tiles in positions 7, 8, 9, 12, 71 and one half

1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23	24	25	26	27	28
29	30	31	32	33	34	35	36	37	38	39	40	41	42
43	44	45	46	47	48	49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94	95	96	97	98
Original tile						Original 16th century tile from other panel							
19th century replica						19th century ceramic tile with oil paint							

Figure 4. Schematic representation of the tile panel with indication of the original tiles and replica tiles (Copyright MASICollectie Vleeshuis)



Figure 5. Ceramic tile in the onglaze technique made by Boch Frères La Louvière ca. 1890 (Copyright Frans Caignie)



Figure 6. The 19th century tile 64 (Copyright Frans Caignie)

of 72. In the lower border three other peculiar tiles in positions 87, 90 and 91 stand out. These are original majolica tiles, but came from another 16th century panel. Filling gaps with tiles from the original period was not uncommon in the 19th century¹⁴. Finally, the gap in the middle of the panel, tile position 64, was filled with a ceramic tile in ‘terre cuite’ covered with a layer of oil paint in a 16th century design. The historical value attributed to the panel in the 19th century was clearly high, considering all the efforts made to complete it.

The treatment of *The Conversion* had become urgent by the 1960s because of cracks, fractures, and faded unstable previous restorations. The three 16th century border tiles from a different panel and the 19th century ones were removed and replaced. However, the colours of the 19th century replica tiles are lighter than those of the original ones and the thickness differs too (Fig. 5). These high-quality ceramic tiles were of good quality but the condition of the central tile 64 was very poor (Fig. 6). In the long term, the ceramic base and oil paint top layer were incompatible, resulting in the top layer flaking off and discolouring. The three original majolica tiles from another similar 16th century panel reused in the border of *The Conversion* were also removed, probably because their decoration did not completely fit. The resulting gaps were subsequently filled by the restorer using new ceramic tiles with a polyester top layer. Retouching was also done using a polyester

resin. Little is known about the mounting method of the tiles but the technical notes from the restorer at the time and correspondence between the Royal Institute of Art and the Vleeshuis Museum reveal some information. The frame was made of metal (messing) and the back was sealed with fibreboard. The joints between the tiles were filled with a grey porous cement. Some documents in the file¹⁵ noted the use of a metal framework placed within the embedding material, which itself was made of Portland cement. It was only through the complete dismantling of the panel that more information on the mounting materials and techniques used in the 1960s could be obtained.



Figure 7. Scanning of the tile panel by the AXES Research Group in the MASiVisible Storage before restoration (2015) (Copyright Geert Van der Snickt, AXES Research Group, University of Antwerp)



Figure 8. Picture of the Sb-scan (Copyright Geert Van der Snickt, AXES Research Group, University of Antwerp)

Macro X-ray Fluorescence (MA-XRF) on Ceramics for a better understanding of the tile panel

In November 2015, in preparation for the new restoration of the tile panel, a chemical analytical study was carried out by the AXES Research Group of the Department of Chemistry at the University of Antwerp¹⁶ under the direction of Prof. Dr. Koen Janssens. Using Macro XRF (x-rays), four rows of tiles were scanned over the entire length of the panel (Fig. 7). The images obtained give a good idea of the type of metal oxides that had been used in painting the tiles. For example, the glossy top layer of lead (Pb element) and the white underlay of tin (Sn element) came out very clearly, and the yellow background (Sb-element) used in the flanking pilasters (Fig. 8) was very striking. Owing to this, it was easier to see what parts of the tableau were still original and which were not. This scan technique, normally used for the purpose of restoring paintings, was for the first time applied in researching majolica.

State of the tile panel at the start of the restoration in 2015

At the beginning of the restoration project in 2015 the state of *The Conversion* had again degenerated (Fig. 9). The old restoration materials were in a bad condition, especially the polyester used for the retouching of the replica tiles made in the 1960s. The retouching had turned yellow, had become brittle with age and the pictorial layer was coming away from the body (Fig. 10). Despite the archaeological condition the tiles were found in before the 1890s, the overall condition of the original 16th century majolica tiles was surprisingly good. This was confirmed by cross-section microscopic images of some fragments made by the macro XRF experiment which showed that the glaze and body adhesion were sound. The glaze layer did not show any sign of flaking off or loosening. Here and there pits and crawling were detected which is common in the tin glazing technique (Fig. 11). These phenomena are production errors rather than damage. However,



Figure 9. Tile panel *The Conversion of Saul* before treatment in 2015 (Copyright Bart Huysmans and Michel Wuyts)

the quality of the panel was adversely affected by the poor condition of the replica tiles and it did not properly display the beauty and richness of the 16th century majolica.

Ethical discussion of the restoration strategy

Since the discovery of the panel in the 1880s, the issue of the missing tiles had clearly been the main challenge. The intention had always been



Figure 10. Detail of delamination of the polyester top layer (Copyright Melissa Vandevijvere)



Figure 11. Detail of the glaze of the 16th century tiles (Copyright Melissa Vandevijvere)

to complete the tile panel to create a visual unity and improve the aesthetic impact. It was clearly agreed from the beginning of the new project to maintain and respect the historical identity of the panel. Nevertheless, owing to the unstable condition and visual incongruity of the old replica tiles, their degraded and yellowed varnishes and paints needed to be replaced. And thus, 125 years after the first assembly of *The Conversion* in 1890, nine and a half tiles were to be replaced with new ones.

Cesare Brandi offers two basic and important principles about restoration ethics. The first principle says: 'Only the matter of art may be restored'. The second principle emphasizes: 'Restoration must aim to re-establish the potential unity of the work of art, as long as this is possible without producing an artistic or historical incongruity and without erasing the passage of time'¹⁷.

Following Brandi's philosophy and bearing in mind previous restoration history, the five and a half replica tiles from Boch Frères made in the 1890s were reintegrated in the panel. After all, their condition was reasonable and the decoration fitted the scene. Still, there were four gaps left to be filled: one in the centre of the panel (tile position 64) and three in the lower border, and it was agreed to design and make new tiles to fit these gaps. Owing to the repetitive nature of the pattern in the lower border,

new tiles could be created using digital images from a selection of the original lower border tiles. However, this could not be undertaken in tile position 64 as it was situated in the middle of the scene. On previous occasions, this tile had been designed by the restorer.

The tile panel depicting the conversion of Saul is based on an original but now lost painting of Francesco Salviati (1510-1563)¹⁸, known from a 1545 engraving by Enea Vico (1523-1567)¹⁹ (Fig. 12). At the time of the first restoration, the existence of this image may not have been known to the restorer, so his interpretation of tile position 64 is not identical as the different posture of torso and arms shows. Neither the 1890 nor the 1960s version of this tile were fit to be re-used because of their poor condition, unsuitable colours and questionable artistic interpretation, so a new tile was made based on Vico's engraving, adapted to the correct dimensions and the majolica style of the panel. Vico's print was also used as a reference when retouching the other replacement tiles later in the restoration process.

In addition to questions of artistic authenticity, the options for technical manufacture had to be considered. Using original majolica techniques in the production of the replica tiles was one of them. To create the exact colours and find the original recipes, using new and purer ingredients, would have been difficult. Furthermore, the skills and techniques



Figure 12. Enea Vico, *The Conversion of Saul*, 1545 (Copyright British Museum, 1871.0812.86)

of onglaze painting used in the 1890s are also no longer at hand. A satisfactory new solution was found in the photo-ceramic industry (i.e. ceramic transfer printing). The advantages of this new technique are clear. First of all, this type of material is very hard-wearing, even outdoors in all weather conditions. Secondly the biscuit tile or earthenware body can be made by hand, which allows the colour of the clay and its thickness and dimensions to be adapted easily. And finally, this technique allowed the decoration to be processed digitally. Craftsmanship and technology go hand in hand.

Dismantling of the panel

Before the dismantling of the panel began, little was known about old mounting methods and techniques. Step by step this stage revealed interesting information about the structure of the panel (Fig. 13). Prior to splitting it up, the panel was turned upside down on an adjustable table with a thin layer of polyethylene foam placed for protection between the panel and the table. First the wooden fibreboard was removed by drilling out the screws. It appeared to be glued onto the underlying structure, and so was removed with a wood chisel and a hammer. A thick and smelly black substance appeared: probably bitumen-based glue. Underneath, a fine metal plate was revealed consisting of ten compartments. The tiles were embedded in a mortar that was removed by a stone chisel and a hammer. This dry procedure was used in order to avoid the risk of circulating salts in the mortars when using the wet method. After removing all mortar by hand from the back of the tiles, almost all the tiles came off the plate. The edges of the individual tiles were then cleaned with a small diamond saw. Ten arbitrarily selected tiles underwent salt tests. Any contamination with salts could be hazardous in the future as salt efflorescence occurs in

unstable humidity and temperatures²⁰. The tiles were placed in demineralised water and left for 24 hours. The water was then tested with a conductivity meter to detect the quantity of salt present. The average value was 142 $\mu\text{S}/\text{cm}$, which is within in the safe range of 0–500 $\mu\text{S}/\text{cm}$ ²¹.

The dismantling of the panel offered Frans Caignie the opportunity to undertake technical research on the original tiles. Nowadays tiles are shaped mechanically into identical square forms and equal thickness. In the early 16th century, tiles were most likely cut by hand out of ropes of clay that were flattened between wooden or iron bars. This technique of shaping tiles is demonstrated by those of *The Conversion* panel. Almost none of the tiles are entirely square and identical sizes are exceptions. Their measurements vary from 134 to 142 mm. Nevertheless, a pinhole in two opposite corners proves that the final cutting of the edges had been done along a wooden board fitted with two tiny nails. The thickness was also measured and varied between 16.5 and 21.7 mm, even in the same tile.

Restoration of the original tiles

The shards of the broken tiles were first separated by dissolving the old glue with 50/50 acetone. The removal of the old paints and polyester varnishes was not easy as they could not be dissolved with solvents. Consequently, a commercial stripper was applied to the surface of the glaze with a brush and the tile was then wrapped in plastic. This process was made possible because the glaze was in good condition which meant that all the restoration undertaken in the 1960s could be removed. After this, the underlying fillings were exposed. Three types had been employed: mortar/cement, resin, and polyester fillings. The resin and polyester were removed by the method described above. The mortar fillings were left untouched as the

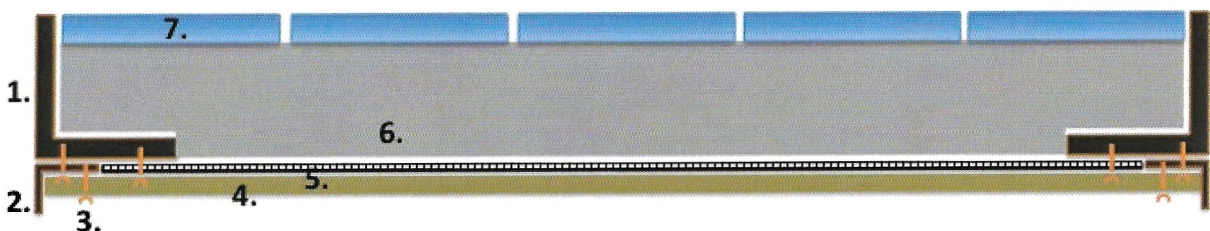


Figure 13. Schematic drawing from the old mounting structure : 1. Metal frame (brass), 2. Metal profile (brass), 3. Screws, 4. Fiberboard, 5. Metal wire plate, 6. Mortar 7. Tiles (Copyright Melissa Vandevijvere)

use of mechanical tools such as diamond saws and drills might lead to broken edges and the loss of original material. All shards were cleaned on the surface with a cotton swab and a water/detergent solution (Synperonic A7[®]). The fragments were glued with an acrylic resin, Paraloid-B72, after consolidating them with the same product (10% by weight in acetone/ethanol). The recipe of the glue contained 50% by weight in acetone/ethanol. To fill in the gaps and irregularities in the mortar, a gypsum-based substance called Modostuc[®] was used. After drying it was ground smooth. Retouching was done with a brush and water based acrylic paints (Heavy Body from Golden[®]). For the basic layer of larger areas, an airbrush was used. To achieve the same gloss as the glaze and to protect the retouching, a top varnish was applied with UVLS Golden Varnish gloss from Golden[®].

The creation of the new reproductions

Once the five and a half Boch Frères replica tiles from the 19th century had been replaced, the

problem of the three lower border tiles and the tile from position 64 had to be solved. Two different approaches had to be followed to complete the panel. First, the gaps in the lower border were made good by utilising a photographic technique. That is to say, by selecting parts of a photographic image from the original border tiles and assembling them together, it was possible to create new designs that fitted into the repetitive decoration of the lower border. For example, the image for the tile on position 90 was realised by joining cut-outs from tiles 95 and 93 (Fig. 14). The biggest challenge was to adapt the colours to achieve a perfectly matching design for the new tiles. However, this method was not applicable to tile 64. The new image, taken from Enea Vico's engraving, was first painted in acrylics on a gypsum tile. This painting was scanned, digitally edited and printed on a ceramic tile using the photo-ceramic technique, which offers a lifetime guarantee that the colours will not fade or change under atmospheric influence. All the images were printed on handmade tiles of a comparable thickness to the surrounding

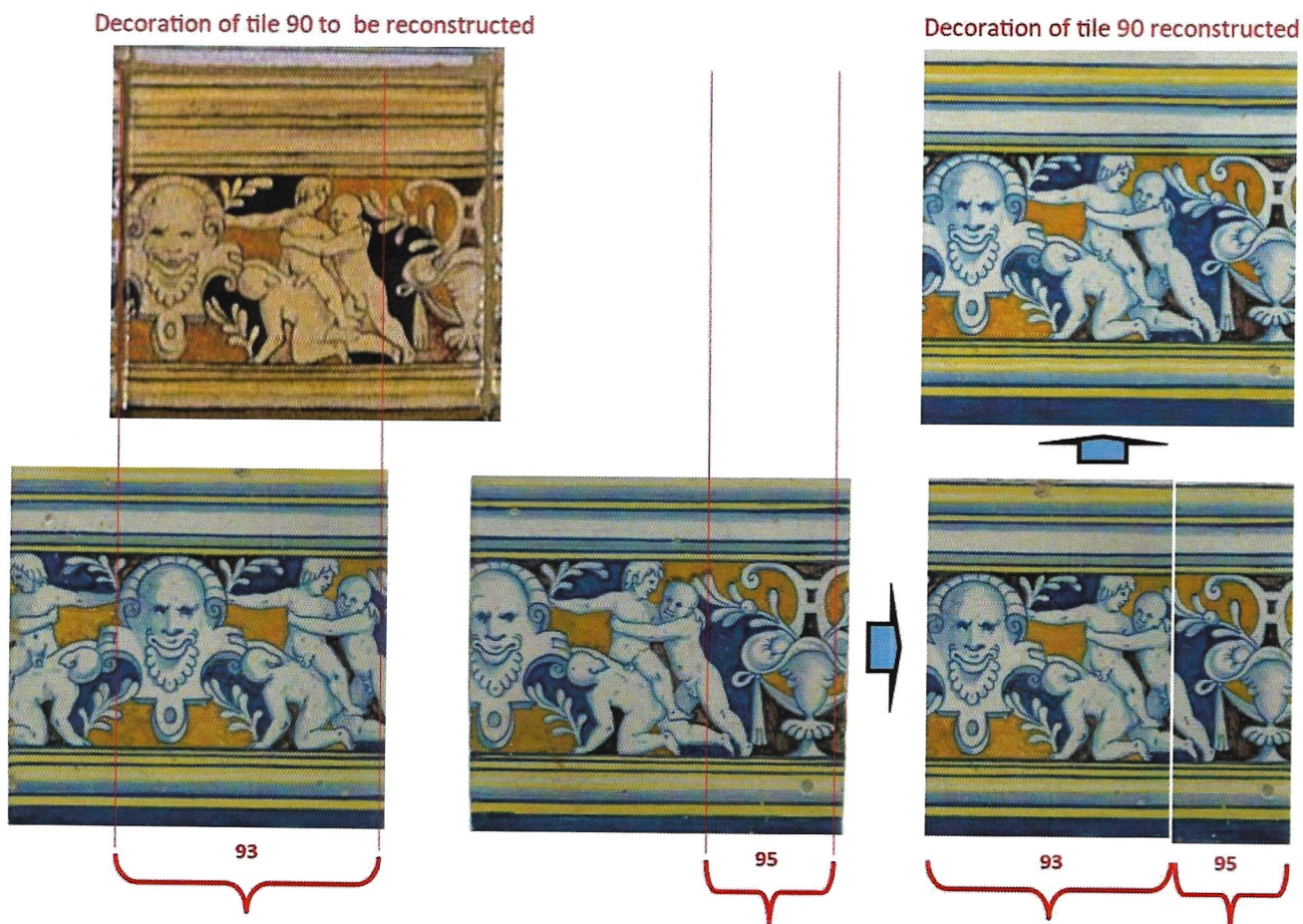


Figure 14. Schematic representation of the editing of the images of tile 95 and 93 in order to create tile 90 (Copyright Frans Caignie)

original ones. To give the new replica tiles an artisanal appearance, the wet clay on the surface was pressed by fingers before the 'biscuit' firing. The newly created images for the three border tiles and for tile 64 were digitally transferred using ceramic pigments/powders on a waterslide transfer paper. This decal paper was put over the flux/glaze layer by hand rubbing away the water and air underneath or in between. The tiles were then fired for ten hours at the maximum temperature reach of 900°C. At first sight, the new tiles look like the original ones but a professional eye can pick out the replicas and distinguish them from the 16th century originals (Fig. 15). In addition, the reverse side of the new tiles carry a mark denoting they are new products. Additionally, since their chemical composition is completely different, chemical spectroscopic analysis will also distinguish them.

Remounting

The support used for reassembling the tile panel had to meet certain requirements: it should be rigid, inert, lightweight and compatible with the mounting silicone that was used. Consequently, a honeycomb structure plate was chosen, often used for remounting modern tile panels²². The inner

structure of aluminium honeycomb offers a high carrying capacity. The supporting structure has a thickness of 28 mm. Lightweight as it is, it reduced the total weight of the tile panel from 114 to 76 kg. However, an additional reinforcement to the back can still be applied in the future if this should be useful or necessary. The outer layers are made of reinforced glass fibres in a black colour. To guarantee the adhesion of the silicones the supporting structure was impregnated with a primer (Primer 4518 SABA). Before mounting, all tiles backs were sealed on five places (corners and middle) applying Paraloid B72 (10%) with a brush. This action prevents the silicones penetrating the earthenware body and guarantees reversibility. Since 16th century tiles are thicker (varying from 16.5 to 21.7 mm), vary in size (from 134 to 142 mm) and have convex shapes caused by the too-rapid drying of the clay body, the mounting of such irregular shaped tiles together in a well-balanced and visually harmonious panel was a considerable challenge. The process of assembling started by aligning all tile corners to those of the surrounding tiles. Following this, small synthetic plates were placed under the tiles to meet the differences in thickness. According to national and international precedents, the spaces between the tiles are not filled²³, and a small gap was also left between the tiles to avoid any pressure.

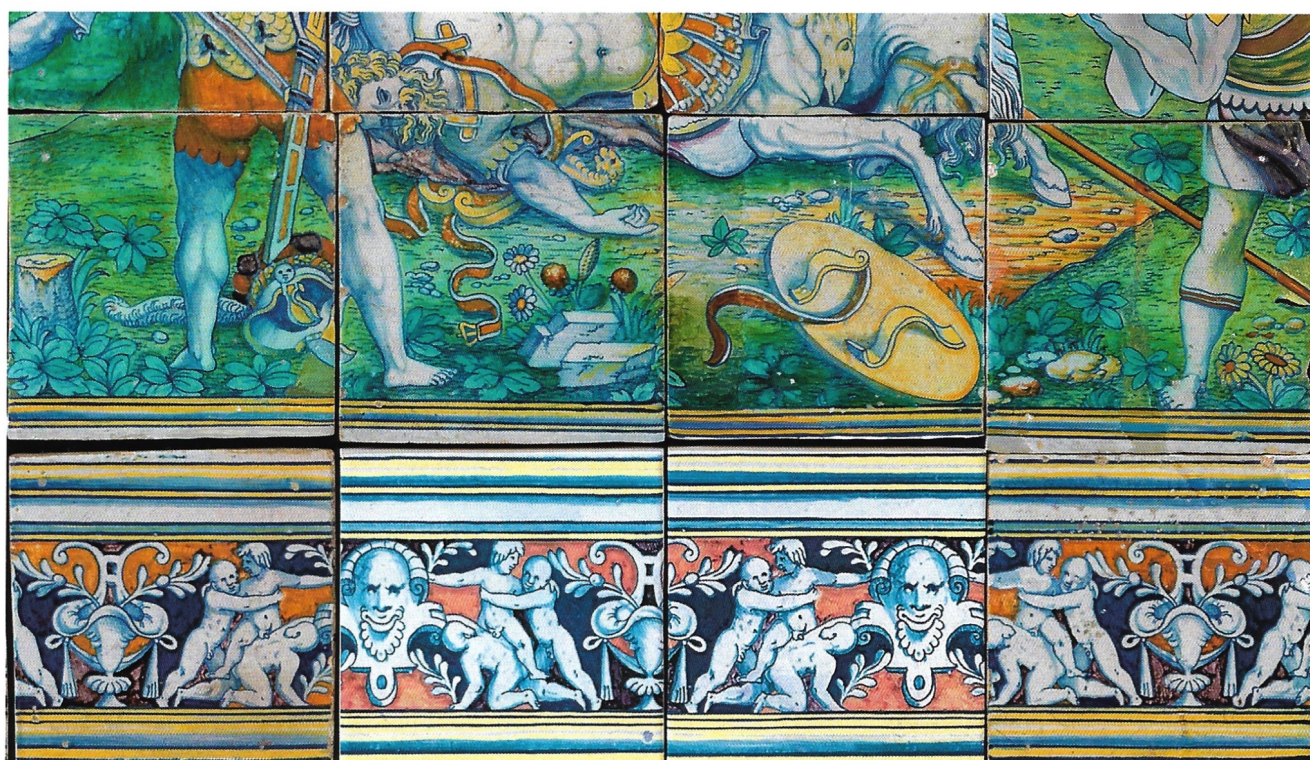


Figure 15. New replica tiles besides the original ones (Copyright Bart Huysmans and Michel Wuyts)

3. Conclusion

The painstaking treatment of *The Conversion* restored the tile panel to its original grandeur. The masterpiece's qualities can now be fully appreciated and enjoyed by the public without old and incongruous restorations and foxed replica tiles. The new approach showed respect for the original material because the retouching as well as the mounting method is reversible. Historic restorations have been treated with respect and the 19th century replica tiles, which had been replaced in the early 1960s by polyester copies, were reintegrated. Moreover, a more faithful approach to the original composition has been provided by the new central replica tile, based on 16th century historical sources.

The general condition and security of the tile panel was much improved by in-depth cleaning and retouching. Careful assembly on a honeycomb structure base with silica glue resulted in considerable weight reduction, which is advantageous for transport and display purposes. The project encourages further multidisciplinary research into 16th century Antwerp majolica, putting emphasis on research into provenance and past restorations. Additionally, technical research into materials and chemical analysis provided data for specialised databases. Since *The Conversion* has been dated and identified, the importance of the panel as a reference resource has increased. As the restoration successfully applied the non-traditional technique of photo-ceramics on a 16th century tile panel, the project sets an example for future restorations of similar tile panels in the municipal collections of Antwerp and beyond.

Acknowledgements

The restoration project was supervised by Annemie De Vos, curator of the MAS collection Vleeshuis (MAS Antwerp Belgium). The commission which guided the restoration process consisted of specialists in different scientific disciplines. Dr. Claire Dumortier, honorary curator of the ceramics collection of the Royal Museum of History and Art in Brussels Belgium; Dr. Mario Baeck, independent researcher into the Belgian ceramic and tile industry; Frans Caignie independent researcher into Antwerp majolica tiles; Johan Veeckman, director of Archaeology and Conservation of Monuments, City of Antwerp (Belgium); Professor Dr. Koen Janssens

and Dr. Geert Van der Snickt (AXES Research Group University of Antwerp, Belgium); and Dirk Aerts, former director of Collections Policy Conservation and Management of Museums and Heritage City of Antwerp (Belgium).

The execution of the restoration was supervised by Melissa Vandevijvere (Cerafine, Kasterlee Belgium). Robin Mariën applied his expertise in photo-ceramic technique (My Tile and Vitae Memoriam, Schilde Belgium) to create the replica tiles.

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Notes and References

- 1 Pleguezuelo, A., Coll, J., et al. (2013), *The splendour of Cities. The Route of the tile*, Lissabon, Calouste Gulbenkian Foundation, p. 277, cat. 118.
- 2 Casteldurante was renamed Urbania by Pope Urbanus VIII in 1623.
- 3 The first production attributed to Guido Andries and Den Salm is the majolica floor (over 500 tiles and fragments) ordered by Lord Sandys circa 1520 – at that time Treasurer of Calais – for the private chapel of his house *The Vyne*, Hampshire. See: Blanchett, C. (2000), 'The floor tiles at *The Vyne*, Hampshire, England', *Glazed Expressions*, no. 41, Tiles & Architectural Ceramics Society.
- 4 Dumortier, C. (2002), *Céramique de la Renaissance, De Venise à Delft*, Editions Racine, Bruxelles, p. 228.
- 5 Ibid (2002), pp. 238-241. Peter Frans was involved in the ordering of the renowned choir pavement for the church of the Herkenrode Abbey in Hasselt (Belgium).
- 6 Dumortier (2002): pp. 131-132; Gerbier, A. "La Conversion de saint Paul", in: Crépin-Leblond, T., et al. (2016) *Masséot Abaquesne. L'éclat de la faïence à la Renaissance*, Réunion des musées nationaux, Paris, p.110.
- 7 Dumortier (2002), pp. 30-31.

- 8 Pleguezuelo, A., Coll J., et al. (2013) 277, cat. 118.
- 9 Laurent, M. (December 1922) Guido di Savino and the earthenware of Antwerp, *The Burlington Magazine*, Volume 41, Number CCXXXVII (237), p. 294.
- 10 Isolated border tiles in the MAS|collection Vleeshuis are witnesses of probably 18 different tile panels, see: Caignie, F. (2015) *Majolicatetegels in de MAS|collectie Vleeshuis, Studierapport*, (Online, cited 10th October 2017). <<http://www.tegels-uit-antwerpen.be>>.
- 11 *The Splendour of Cities. The Route of the Tile*, Museum Calouste Gulbenkian Lissabon (24/10/2013-26/01/2014); *Masséot Abaquesne. L'éclat de la faïence à la Renaissance*, Musée nationale de la Renaissance écouen (11/05/2016-03/10-2015).
- 12 An in-depth publication on the Saul tile panel set in the context of the entire collection of majolica tile panels made in Antwerp, is planned for 2019-2020.
- 13 Thanks to Mario Baeck for identifying these tiles.
- 14 Two missing tiles of the tile panel of *The bombardement of Algiers* (Nederlands Tegelmuseum Otterlo) for instance were filled up with two contemporaneous copies; see: <<http://www.collectiegelderland.nl/organisaties/nederlandstegelmuseum/voorwerp-02411>>
- 15 Antwerp, Museum Vleeshuis, Huisarchief (VHA): Objectdossier AV.1571.
- 16 <https://www.uantwerpen.be/en/rg/axes/research/research-topics/in-situ-ma-xrf-scanning-paintings/>. The results of the scanning will be published in *Microchemical Journal of Applied Spectroscopy* in 2018 by Dr Geert Van der Snickt and Melissa Vandevijvere and in the lecture *Macro X-ray Fluorescence (MA-XRF) imaging on a 16th C Antwerp Majolica Tile Panel* by Dr Van der Snickt at the *3rd International Conference on*
- 17 J.M. Mimoso (2009) *Cesare Brandi's Theory of Restoration and azulejos*, International Seminar Conservation of Glazed Ceramic Tiles, Research and Practice, Lisbon, April 15-16, http://www-ext.lnec.pt/AzTek/download/Azul_Brandi_fin03a.pdf
- 18 The painting *The Conversion of Saul* by Francesco Salviati also known as Francesco de' Rossi belonged to the Galleria Doria Pam-
philj in Rome, see: Dumortier (2002), 122 and 172. See also: <http://www.britishmuseum.org/research/collection_online/collection_object_details.aspx?objectId=1344845&partId=1&searchText=enea+vico&page=5>
- 19 Sharon Gregory, Sharon, (2012) *Vasari and the Renaissance Print*, Ashgate Publishing Limited Surrey (UK) and Ashgate Publishing Company Burlington (USA), pp. 29 and 293.
- 20 Buys S. and Oakley V., (2011) *Conservation and Restoration of Ceramics*, Routledge, New York, 23-4.
- 21 Van Leeuwenstijn H., Levelt F. en van Rooden M., (1997) *Vocht en zouten in metselwerk*, Hoonte Bosch en Keuning, Utrecht, 6.
- 22 Jordan F., (1999), *The Remounting of a Victorian Tile Panel*, Conservation Journal, October Issue 33. (<http://www.vam.ac.uk/content/journals/conservation-journal/issue-33/the-remounting-of-a-victorian-tile-panel/>).
- 23 Mimoso (2009), http://www-ext.lnec.pt/AzTek/download/Azul_Brandi_fin03a.pdf.