



## UOA D32

ART AND DESIGN:  
HISTORY, THEORY AND PRACTICE



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**RESEARCHER**

Jennifer Gray

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**OUTPUT TITLE**

*Re-Created Pictish Drinking Horn Mount*

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**OUTPUT TYPE**

Artefact: Silversmithing Design

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**DATE**

January 2014 – April 2020

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FIG. 1  
Jennifer Gray, *Re-created Pictish Drinking Horn Mount*, silver on Auroch horn, 90cm x 30cm, 2014, Edinburgh, National Museum of Scotland. Photo Jennifer Gray.



## 01 / STATEMENT

The output, a re-created Pictish drinking horn mount, is a bespoke silver mount fitting, hand-made by Jennifer Gray.

The output is the result of Gray's research investigation into the re-creation of historical artefacts in order to bring new visibility to, and understanding of, material processes and techniques that are now forgotten or little-known.

The design was inspired by early medieval objects in the collection of the National Museum of Scotland (NMS). The work was commissioned by the National Museum of Scotland (NMS) and The Glenmorangie Company as part of The Glenmorangie Early Medieval Research Project, which set out to re-examine objects from the period c.300–900AD in collaboration with artists and designers.

The mount was presented at the exhibition *Creative Spirit*, at the National Museum of Scotland, Edinburgh, 5 January – 24 February 2014.

It was subsequently exhibited at the *All Makers Now?* conference at Trellissick House, Truro, England, 10 – 11 July 2014, and the *Journées Particulières*, at the Glenmorangie Distillery, Tain, Ross-shire organised by Louis Vuitton, Moët, Hennessy (LVMH) 20 – 22 May 2018.

## 02 / RESEARCH DIMENSIONS



**FIG. 2**  
Jennifer Gray, *Re-created Pictish Drinking Horn Mount*, silver mounted on Auroch horn, 90cm x 30cm, 2014, Edinburgh, National Museum of Scotland. Photo National Museum of Scotland.

The re-created Pictish drinking horn mount is a bespoke silver mount fitting.

The design is part of Gray's long-standing investigation into the re-creation and re-imagining of historical artefacts in order to bring visibility to material processes that are now forgotten or little-known. The mount is approximately 170mm x 40mm, made from 600mg of silver, and attached to the tip of an African Ankole horn (breed of cattle) measuring 582mm in length.

The unique design is inspired by early medieval objects such as the Ninian's Isle Chapes (c.750–825 AD), Norrie's Law Hoard (c. 800 AD), the Rogart Brooch (c. 900 AD), and the bird-head mounted on the end of the Bullion Man's Drinking Horn (c. 900–950 AD) (FIG. 8) all in the collection of the National Museum of Scotland (NMS).

The production of the mount used a combination of contemporary digital tools and traditional silversmithing skills. The research and methods underpinning the design and the use of silver were informed by archaeological evidence (artefacts, literature and stone carvings from periods between c. 750–900 AD) and expert input from Dr Martin Goldberg (Principal Curator of Medieval Archaeology and History, National Museum of Scotland) and Dr Mhairi Maxwell (Glenmorangie Research Officer).

## 03 / ORIGINALITY



**FIG. 3**  
Jennifer Gray, *Re-created Pictish Drinking Horn Mount*, silver, 2014, Edinburgh, National Museum of Scotland. Photo Jennifer Gray.

There are no surviving examples of drinking horns from the Pictish period. As such, Gray's re-created silver mount design for Pictish horn is a unique artefact.

The work was the first recreation to be commissioned and produced, and thus expands the scope of museum artefacts.

Gray approached the commission as a re-creation, rather than replication. That is, rather than attempting to replicate the making process using Pictish tools and materials, she enacted a contemporary re-creation, drawing upon contemporary techniques and technologies.

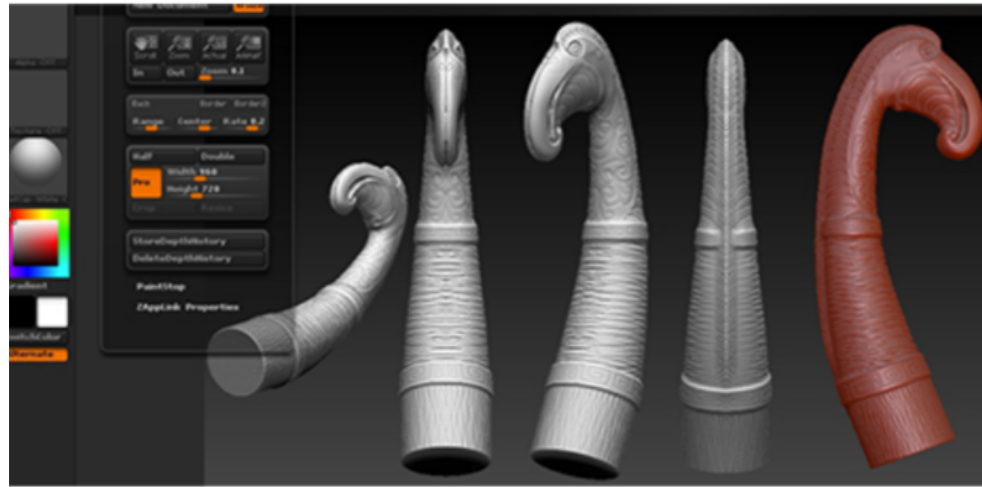
A Pictish maker would have used their tacit knowledge of pattern, materials and processes to realise their pieces. Gray applied the same freedom and knowledge of contemporary working materials and techniques to produce a 'creatively authentic' piece.

By embracing contemporary tools and processes whilst adhering to Pictish designs, the resulting design conjures both past and present.

Gray's methodology presented a new way for archaeologists, makers and museums to approach the idea of authenticity in the context of the re-creation of historical artefacts, expanding the parameters of what successful and meaningful re-creation can look like.

The output was the result of an extended and iterative collaboration between Gray, archaeologists and curators. Gray's extensive experience with precious metals enabled her to bring new insights to the collaborative process of designing and creating the mount. Her specialist technical skills and expert knowledge of materials and processes were brought together with her collaborators' expert archaeological and historical knowledge of the original functions of such objects, rendering the research project a holistic, multi-dimensional investigation into Pictish drinking horn.

Gray's method and process combined the use of contemporary digital tools and traditional methods of recreation such as moulding, hand carving into wax using steel tools and casting. Her focus on the materials involved in making, specifically lost-wax casting, produced new insights into surviving historical objects that are often not correctly recognised and evaluated, such as maquettes and casting moulds. These objects are crafted with great skill, but are typically catalogued as finished objects, rather than as offering valuable insight into process. As a result of Gray's research, objects such as maquettes and casting moulds are now being reassessed within the NMS collection, and are being used to help audiences understand Early Medieval objects and the skills required to make them.



FIGS. 4–5  
Jennifer Gray, work in progress  
screen grabs of digital carving  
from National Museum of  
Scotland website, 2014, Edinburgh,  
National Museum of Scotland  
blog.



FIG. 6  
Jennifer Gray, *Re-created Pictish  
Drinking Horn Mount*, silver on  
Auroch horn, 90cm x 30cm, 2014,  
Edinburgh, National Museum  
of Scotland. Photo Jennifer Gray.

FIG. 7

Dr Mhairi Maxwell holding *Recreated Pictish Drinking Horn* with 3D printed maquette mount, polylactic acid (PL) mounted on Auroch horn, 90cm x 30cm, 2014, Edinburgh, National Museum of Scotland. Photo Press for National Museum of Scotland.



FIG. 8  
Sculptured Stone, 'Bullion Man',  
Stone, c. 900 – 950, National  
Museum of Scotland, Scotland  
Galleries. Photo courtesy of NMS.



## 04 / RIGOUR

The re-created Pictish drinking horn mount was commissioned as part of the Glenmorangie Early Medieval Research Project, which re-examined objects from the period c.300-900AD in collaboration with artists, designers and makers.

The mount was developed over a period of 3 months. Gray worked closely with leading experts Dr Mhairi Maxwell (Glenmorangie Research Officer, National Museum of Scotland), and Dr Martin Goldberg (Principal Curator of Medieval Archaeology and History, National Museum of Scotland) on design and making processes. Maxwell and Goldberg provided Gray with relevant visual and material evidence from the NMS collections, and continued to consult with Gray until the final piece was publicly exhibited in 2014.

The piece evolved through Gray's iterative studio based making practice, drawing on her expertise in precious materials cultivated over 15 years.

Whilst there are no surviving drinking horns from the Pictish period, or records about the workshops in which their fittings were made, evidence of their use can be found on 2D relief stone carvings, such as The Bullion Man at NMS – (FIG. 8) and in literature.

In order to acquire a good historical and material understanding of the objects, Gray studied mounts from similar historical periods, but from different areas and cultures in the NMS collections and the British Museum, such as the Early Anglo-Saxon drinking Horn from Taplow, Buckinghamshire (600 AD). She undertook several handling sessions of collection items (such as pieces from Norries Law Hoard c. 800 AD, Ninians's Isle Treasure c.750–825 AD and the Rogart Brooch c.700 AD). Gray studied the material and design qualities of these artefacts, in particular their surface patterns (such as triskels) and hatching and their distinctive zoomorphic

depictions. She also reviewed surviving literature from the period, which provided descriptions of Pictish drinking horns and their usages.

Gray's design integrated this confluence of sources. The raptor-beaked zoomorphic form was directly informed by the beaked creatures in The Bullion Man stone carving and The Rogart Brooch.

Gray deployed a unique combination of innovative 3D technology and traditional silver-making methods. The main mount design was 'virtually' carved in 3D digital design programmes ZBrush and Rhino 3D, then 3D printed, moulded, cast into wax then carved into by hand. Surface carving was applied using hand using steel hand tools, which have barely changed since the Early Medieval period. This evoked the 'inconsistency' and 'hand-made' quality that Gray observed in the execution of the decoration on the St Ninian's Isle chapes.

The final wax mount was then cast in silver at Niagara Falls precious metals foundry in Birmingham. Gray worked closely with the foundry technical staff to create the complex wax model for the silver casting process. The final casting was cleaned and hollowed with steel abrasive tools, and fixed, by Gray within a makeshift studio within the NMS, to an African Ankole horn (breed of cattle) measuring 582mm in length, procured through professional horn-carver Johnny Ross.

The final mount design was displayed within the Grand Gallery, at NMS from 5 January 2014 – 24 February 2014. Information that tracked the making process was made publicly available on the NMS website.

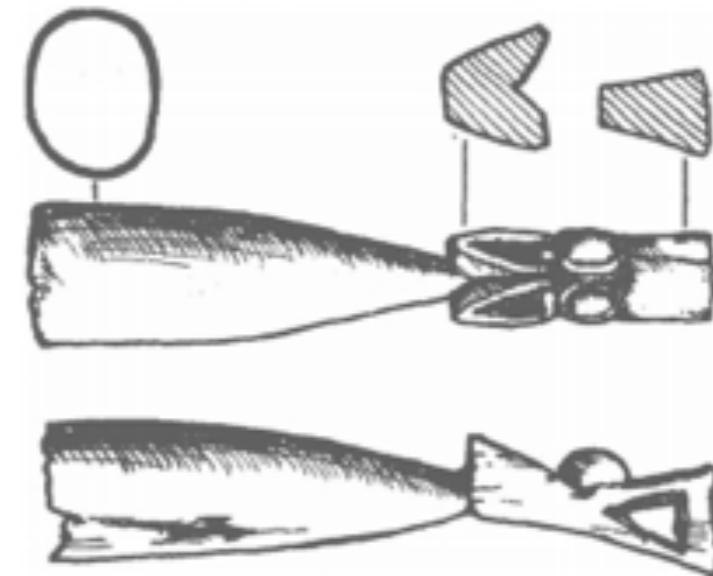
**FIG. 9**  
 St Ninian's Isle Chapes (front and back view), silver, 8.1cm in width, c.750–825 AD, Edinburgh, National Museum of Scotland Scottish History and Archaeology Collections. Photo courtesy of National Museum of Scotland.



**FIG. 10**  
 Taplow Drinking Horn, gilt metal, horn, length 44.5 x diameter 10cm, 6th Century, British Museum Britain, Europe and Prehistory Collections, London. Photo courtesy of the British Museum.



**FIG. 11**  
 Wooden drinking horn mount from Balinderry Crannog, carved wood, Ireland, 8th Century AD. (Newman, C. 1997. Ballinderry Crannóg No 2, Co Offaly: the Later Bronze Age. *The Journal of Irish Archaeology*, VIII, 91100.)



**FIG. 34.**—Wooden tip of drinking horn from outside Palisade (p. 170). (3.)





**FIG. 12**  
Silver mount for blast horn, silver,  
2.275 inches diameter, c.850-890  
AD, National Museum of Scotland,  
Photo courtesy of NMS.



**FIG. 13**  
Norries Law Hoard, silver,  
c. 500-600 AD, National Museum  
of Scotland. Photo courtesy  
of NMS.

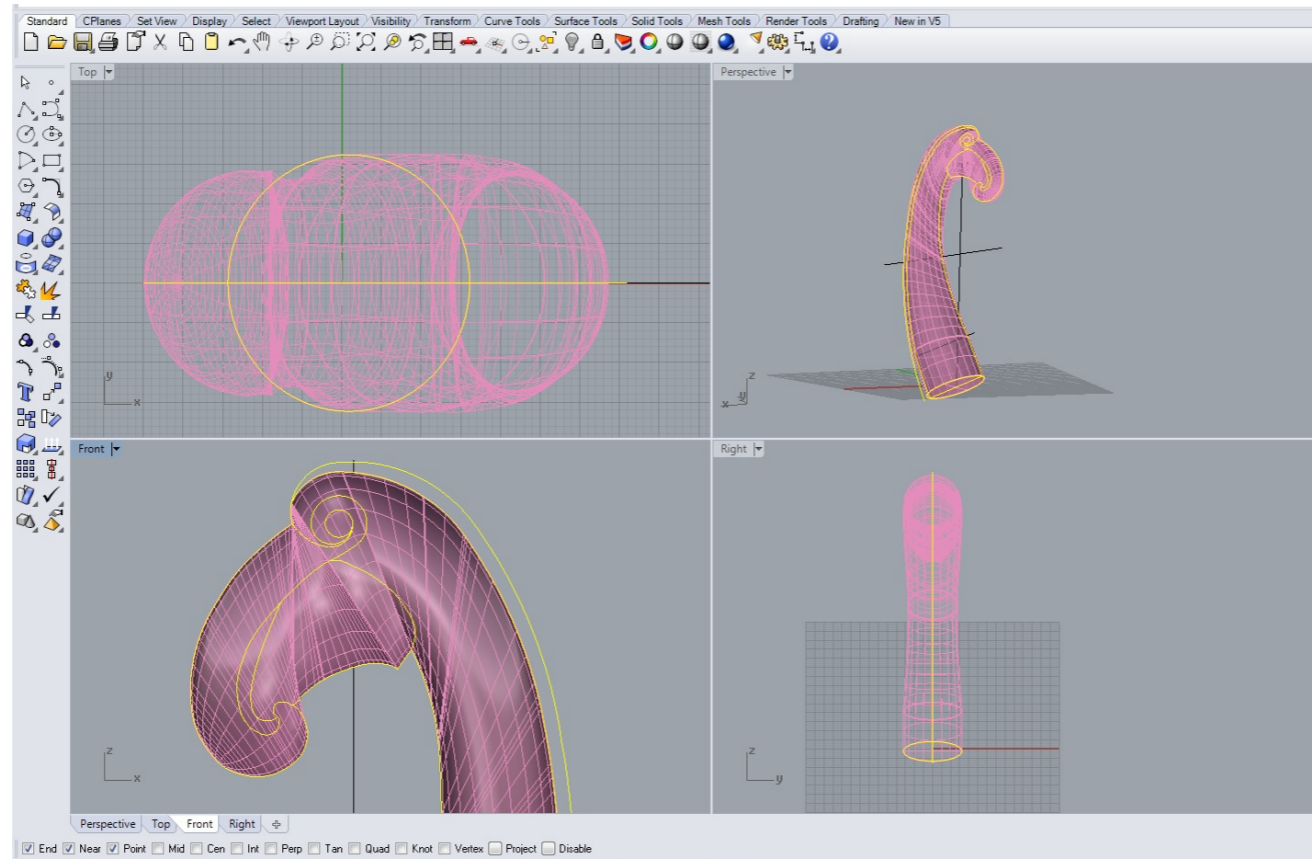


**FIG. 14**  
Rogart Brooch, gold plated silver,  
114.3mm diameter, c. 700-800AD,  
National Museum of Scotland.  
Photo courtesy of NMS.

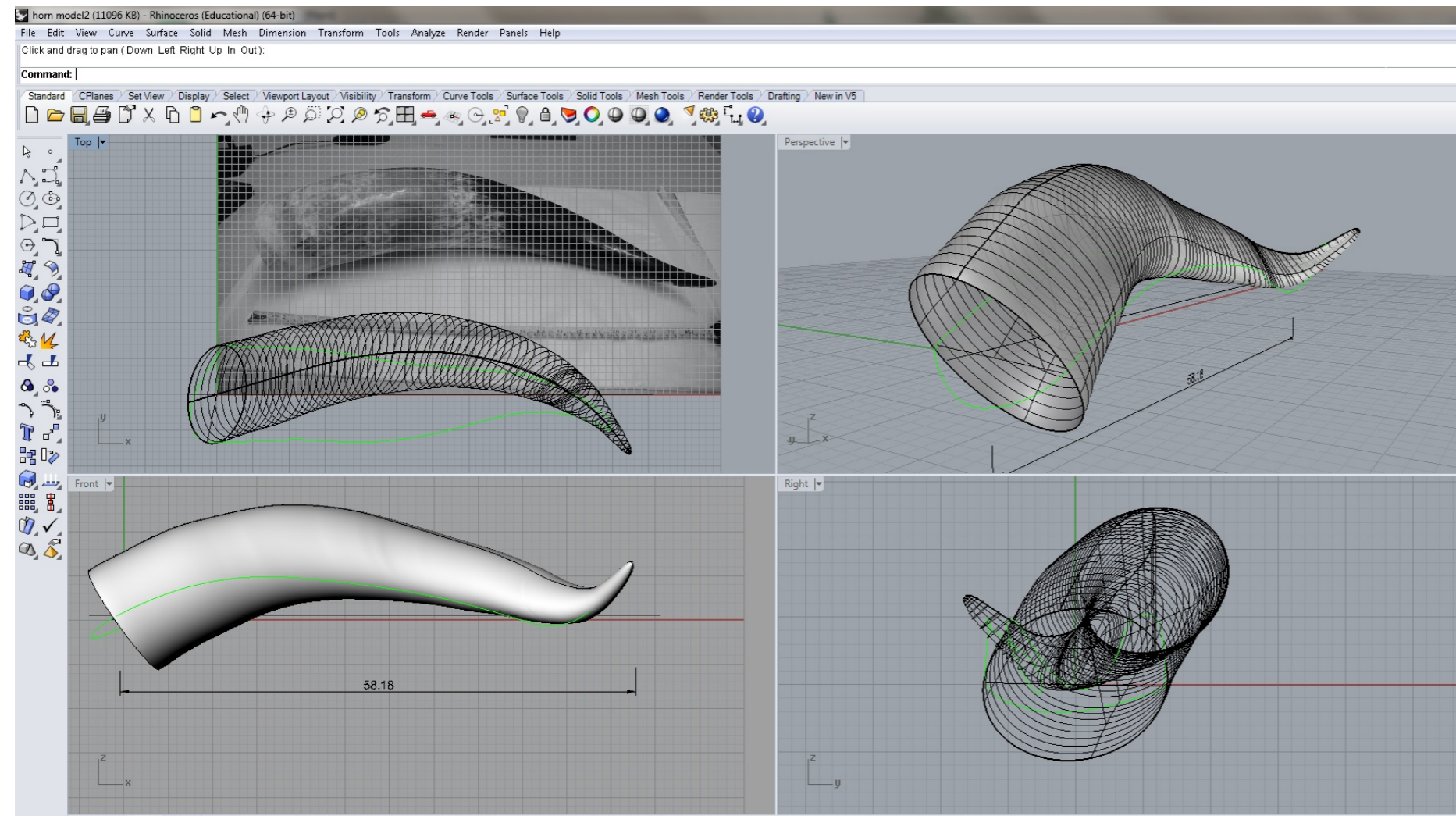


**FIG. 15**  
Pierowall drinking horn mount,  
gilt bronze; curiously ornamented,  
c. 850-950 AD, National Museum  
of Scotland. Photo courtesy  
of NMS.

**FIG. 16**  
Jennifer Gray, work in progress digital modelling of mount, 2014. Screen grab Jennifer Gray.



**FIG. 17**  
Jennifer Gray, work in progress, digital model of horn (a digital model was necessary as the original horn could not leave the museum), 2014. Screen grab Jennifer Gray.



**FIG. 18**  
Jennifer Gray, work in progress – moulding of ‘Objet’ high resolution 3D print, Objet resin, silicone, 2014, Edinburgh. Photo. Jennifer Gray.





**FIG. 19**  
Wax carving hand tools, wax,  
20cm x 4cm, 2014, Edinburgh,  
National Museum of Scotland.  
Photo Jennifer Gray.



**FIG. 20**  
Work in progress, wax carving,  
wax, 20cm, 2014, Edinburgh,  
National Museum of Scotland.  
Photo Jennifer Gray.



**FIG. 21**  
Jennifer Gray, wax carved mount,  
wax, 20cm x 4cm, 2014, Edinburgh,  
National Museum of Scotland.  
Photo Jennifer Gray.



**FIG. 22**  
Jennifer Gray, mount following  
lost wax casting process, silver,  
20cm, 2014, Edinburgh, National  
Museum of Scotland. Photo  
Jennifer Gray.

## 05 / SIGNIFICANCE



**FIG. 23**  
*Creative Spirit* opening Private View, January 2014, Edinburgh, National Museum of Scotland. Photo courtesy of NMS Press.

The *Re-created Pictish Drinking Horn* mount was co-commissioned by the National Museum of Scotland and The Glenmorangie Company as part of The Glenmorangie Early Medieval Research Project. Funding for developing and making was £3,592.00.

It has been exhibited at:

5 January – 24 February 2014  
*Creative Spirit*, the National Museum of Scotland, Edinburgh.

10 – 11 July 2014  
*All Makers Now?*, Trellisick House, Truro, England.

20 – 22 May 2018  
*Journées Particulières*, the Glenmorangie Distillery, Tain, Ross-shire organised by LVMH (Louis Vuitton, Moët, Hennessy).

‘Jennifer produced one of the outstanding intellectual and artistic outputs of the project. [She] recognised the impact of fusing traditional and innovative approaches.’

Dr Martin Goldberg,  
*Principal Curator of Medieval Archaeology and History, Scottish History and Archaeology, National Museums Scotland.*

The multi-disciplinary and collaborative nature of the work enabled it to reach a wide audience across multiple sectors from archaeology, design and the museum sector to the general public, students and children.

The work was purchased for the National Museum of Scotland’s permanent collection in 2014.



**FIG. 24**  
 National Museum of Scotland Symposium, panel discussion with Jennifer Gray, Dr Mhairi Maxwell, Mary Davis and Michael Eden, 5 April 2020. Photo courtesy of Sarah Rothwell.

## 06 / APPENDIX

**Appendix**

Glenmorangie Research Project.

<https://www.nms.ac.uk/collections-research/our-research/featured-projects/early-medieval-scotland/glenmorangie-research-project/>

Link to the re-creation of the Pictish Drinking Horn official page on National Museum of Scotland website.

[www.nms.ac.uk/collections-research/our-research/featured-projects/early-medieval-scotland/bringing-the-past-to-life/drinking-horns/](http://www.nms.ac.uk/collections-research/our-research/featured-projects/early-medieval-scotland/bringing-the-past-to-life/drinking-horns/)

**Testimonials and reviews**

'The Drinking Horn was an integral part of the *Creative Spirit* exhibition held at the Museum – and its subsequent display at Tain really helped bring our collaboration with NMS alive – it's an iconic piece of art, which, together with other recreations (including Bell, Chair and Leather Satchel) shows that modern craft skills are thriving in Scotland.'

Hamish Torrie,  
Director of Corporate Social Responsibility  
for Glenmorangie.

**Related dissemination**

'As part of this project, Mhairi [Maxwell] and Jennifer [Gray] worked together on the creation of a silver fitting for a drinking horn, inspired by a Pictish stone-carving of a warrior on horse-back drinking from a large drinking horn. With only a small drawing carved in stone as the starting point for their creative journey, Mhairi and Jennifer researched archeological evidence on drinking horns and Pictish silversmithing to find techniques, common motifs, and the potential designs that could have been used on a Pictish drinking horn. Their collaboration not only added to the museum's understanding of Early Medieval silversmithing, but it also interrogated both curator and maker on ideas of authenticity and creativity, past and present.'

Mayanne Soret,  
National Museum of Scotland Symposium,  
*Craft Scotland*, May 2020.  
<https://www.craftscotland.org/journal/article/museums-and-contemporary-craft-symposium-round-up>

**Related lectures and papers**

Jennifer Gray, *Design Archaeology: Bringing a Pictish Drinking Horn to Life*, 'All Makers Now', Falmouth University, England. 10–11 July 2014.

Jennifer Gray, *Design Archaeology: Bringing a Pictish Drinking Horn to Life*, IICA7 – 7th International Insular Art Conference, National University of Ireland, Galway, Ireland. 16–20 July 2014.

Jennifer Gray, *Design Archaeology Computer Applications and Quantitative Methods in Archaeology*, Annual Conference Siena, Italy. Gray, J, Maxwell, M. 30 March – 3 April 2015.

Jennifer Gray, *The Glenmorangie Project Recreations: Curator and maker, the impact of shared knowledge on practice and research*, 'Experiment, Experience and Enchant Knowledge Sharing Between Museums and Contemporary Craft', National Museum of Scotland, Edinburgh. 5 April 2020.

Jennifer Gray, Mhairi Maxwell 'Design Archaeology: Bringing a Pictish Drinking Horn to Life', in *All Makers Now? 'Craft Values in 21st Century Production: Conference Proceedings'*, Falmouth University, England. In K. Bunnell & J. Marshall (Eds.). ISBN 978-0-9544187-9-3.

Jennifer Gray, Mhairi Maxwell, 'The Interplay of Digital and Traditional Craft: Re-creating an Authentic Pictish Drinking Horn', in S. Campana, R. Scopigno, G. Carpentiero & M. Cirillo (Eds) *CAA 2015 Keep the Revolution Going: Proceedings of the 43rd Annual Conference on Computer Applications and Quantitative Methods in Archaeology*. 2 vols, pp. 1182. Oxford: Archaeopress. ISBN (Electronic). 9781784913380. ISBN (Print). 9781784913373.

Jennifer Gray, Mhairi Maxwell, 'Experiment, Experience and Enchant Knowledge Sharing between Museums and Contemporary Craft', Glenmorangie Research Symposium, National Museum of Scotland, April 2020.

**FIG. 25**

*Drinking Horn* Featured at LVMH *Journées Particulières*, public exhibition, Glenmorangie Distillery, Tain, Ross-shire. Photo courtesy of Glenmorangie Press.





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