University of Glasgow researchers have utilised cutting-edge 3D imaging techniques to enlarge miniature 4th century Greek theatre masks into life sized objects, transforming how these masks are displayed as museums artefacts and used in performance. Full-size reconstructions of the masks are now on permanent display in the Kelvingrove Art Gallery and Museum, Glasgow – seen by more than 1 million visitors annually – and exhibitions featuring the reconstructions have toured across the UK and Ireland. These masks are also now incorporated into the work of theatre groups in the UK and Italy, highlighting the influence of a lost European masked theatre practice on the foundation of modern drama.

Elizabeth Moignard (Lecturer in Greek 1978-96, Senior Lecturer in Classics 1996-2000, Professor of Classical Art and Archaeology 2000-2011, Emeritus Professor 2011 to present) has researched the use of masks in the 4th century plays of Menander (342BC-291BC), one of the best-known practitioners of the Greek ‘New Comedy’, an influential foundation for modern drama, with its emphasis on human relationships rather than public affairs. With £277,000 in funding from the Arts and Humanities Research Board (AHRB), she was the principal investigator on the four-year Masks for Menander project (2001-2005), with Richard Williams RA (subsequently at University of Durham). The aim of the project was to research ancient Greek theatre masks – particularly those defined by association with stock characters used by Menander and versions of these appearing as ancient votive terracottas (or sacred offerings) in the Kelvingrove and other museum collections.

Combining experimental archaeology and practice-based research, Moignard and Williams investigated the performance qualities and style of the masks of Greek ‘New Comedy’. They used 3D imaging to scan around fifty New Comedy artefacts from UK and European museums, and conducted studio research with full-size reconstructions of the masks, scaled exactly from the three-dimensional coordinates.

Employing leading-edge 3D scanning technologies provided by the University of Strathclyde’s Rapid Design and Manufacture Centre, the project broke new ground in ancient theatre research. This was achieved by reverse-engineering and rapid prototyping of the artefacts, and by the objectivity of the mask construction and studio research. The researchers found the best of the miniatures conserved both the proportions of full-size originals and the ‘aspects’ – balance, flow of lines, asymmetries and other qualities of a performable mask. The artefacts therefore provided more significant evidence for ancient performance than had ever been previously recognised.
3. References to the research (indicative maximum of six references)

- AHRB grant (£277,000) for Masks for Menander 2001-2005 (PI E. Moignard; RA R. Williams) (link).

4. Details of the impact (indicative maximum 750 words)

By reconstructing full-sized versions of miniature terracotta masks from museum collections around the world, the Masks for Menander project gained significant insight on the tradition and practice of an ancient performance style. This insight simultaneously enabled theatre to recover the acting style and cultural significance of a lost European mask theatre tradition, and museums to develop access and information to a wider public audience. Therefore, the unique outcome of this project is how Masks for Menander linked curatorial and performance traditions, redefining the relationship between two distinctive cultural practices.

Rediscovering lost, ancient theatre traditions

The Masks for Menander project, led by Moignard, shed light on the traditions and practices of an era in theatre that heavily influenced subsequent Roman playwrights Terence and Plautus and is considered the source of a European comic tradition. Elements of Greek ‘New Comedy’ remain visible in modern drama, particularly the focus on relationships and personalities, which was a departure from the Old Comedy emphasis on politics and public affairs. Working in collaboration with the Scottish Mask and Puppet Centre and Italian theatre company VeneziaINscena, University of Glasgow researchers Moignard and Williams sought to recover the acting style and cultural significance of New Comedy. They highlighted the influence of this lost European mask theatre tradition by research in the studio with experienced mask professionals, training of drama students, public performances and other events.

Mask theatre is a unique combination of body movement and the visual stimuli of the masks, which are sculpted to appear to change with the facial expressions or movements of the actor wearing them. Scaling the masks up from miniature artefacts to life-sized models using rapid prototype techniques allowed theatre professionals, together with the researchers, to focus on and work with the theatrical properties of the masks.

While the initial performances fall outside the eligible timeframe for impact, they were an important element of practice-based research and served to enhance the researchers’ and practitioners’ awareness of the proficiency of acting in antiquity, paving the way for subsequent impact. Since 2008, the exploration and demonstration of masks in ancient and contemporary theatre, including in collaborative projects with mask theatre professionals, has continued. VeneziaINscena established the International Centre for the Study and Use of Masks (Centro Internazionale della
Maschera) in 2005 (after collaborating with the Masks for Menander project). Since then, they have continued to incorporate the mask reproductions in their work, offering workshops in Greek drama to train actors in the use of masks in the theatre, which draw on the research findings of the project. The Centre collaborated with the Accademia Teatrale Veneta to hold an intensive month-long workshop in July 2008 on the Greek masks.

The Director of the Scottish Mask and Puppet Centre describes the impact of this collaboration:

For the first time since the 4th century AD, the project has uncovered the relationship between the terracotta miniatures and the actual theatre masks. The reconstruction process using 3D imaging and scanning has enabled life-sized reconstructions to be made with sub-millimetre accuracy of the originals. The small helmeted miniatures were the key to unlocking the lost theatre masks of Menander. The New Comedy Masks of Menander Project under the direction of Professor Moignard brought together art historian, Dr Richard Williams, mask-maker Malcolm Knight [Scottish Mask and Puppet Centre] and theatre director Adriano Iurissevich [VeneziaINscena] in a unique collaboration. The repercussions of this collaboration are still ongoing in the lives of all whom took part.

In 2013, the mask reproductions were included in the BBC 2 programme *Who Were The Greeks?* (first broadcast 27 June 2013) and the original shells and moulds now adorn the external facade of the Scottish Mask and Puppet Centre in Glasgow, recast in stone.

**Improving study and management of objects in museum collections & exhibitions**

A tangible legacy of the Masks for Menander project lies in the evolution of the work at the University of Glasgow on the masks themselves as antiquities. This work is providing insight into ancient theatre to a wider public audience. More than 2,000 mask artefacts survive in collections across Europe. Using rapid prototyping technology, Moignard and Williams 3D-scanned around fifty of the ancient masks preserved in the Kelvingrove, Ashmolean and Fitzwilliam Museums, the Shefton Museum, Newcastle, and the Museo Aeoliano Lipari, Italy. Using 3D printing, they then successfully created both artefact-size replicas and enlarged matrices for life-size wearable masks which reproduced the original forms without the mediation of a modern sculptor. The project made a significant contribution to the major ‘Expressions’ display in the Kelvingrove Art Gallery and Museum on its reopening in 2006 after a three-year refurbishment closure. The exhibit – a permanent display to date – uses both a selection of the original terracottas and the masks derived from them. Moignard and Williams worked closely with the museum curators to help develop informative and current labelling for the display which refers to the findings of the Masks project. As part of the Expressions display, which is centrally located in Kelvingrove (2nd most visited UK museum outside of London in 2012), the exhibit is seen by more than 1.03 million visitors each year.

Between October 2007 and February 2008, some of the mask reproductions were featured in *In Scaena* (On Stage), an exhibition at the Coliseum in Rome, with the exhibition catalogue containing photographs of three masks. In the UK, *Behind the Mask*, an exhibition using the Masks for Menander alongside masks from other cultures, curated by Williams in collaboration with Malcolm Knight of the Scottish Mask and Puppet Centre, toured The Ark (Dublin, 2008), Tunbridge...
Impact case study (REF3b)

Wells Museum (2009), Hackney Museum (2010), Summerlee Museum (Glasgow, 2010) and Cannon Hall (Barnsley, 2011). 3D-printed replicas were displayed together with full-size masks and a video installation of performance.

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<th>5. Sources to corroborate the impact (indicative maximum of 10 references)</th>
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- Contribution to the rediscovery and incorporation of ancient mask theatre traditions in UK and Italy:
  - Contact details and statement from the Director of the Scottish Mask and Puppet Centre – available from HEI
  - Contact details for Director of VeneziaINscena, Italy, available from HEI
  - Information leaflet for VeneziaINscena workshop in July 2008 – available from HEI
  - BBC Two – Who Were the Greeks? (link)

- Contribution to management and exhibition of artefacts in museums
  - *In Scaena* Exhibition Catalogue – link and available from HEI