

Title of case study: Combining printmaking and waterjet cutting glass for the development of creative practice and the cultural sector

1. Short summary of the case study (Maximum 150 words)

Research at the Institute of International Research in Glass (IIRG), into the combination of water-jet cutting and print for glass has been influential in the offering of insights and new working methods for the international community of artists and designers within and beyond the creative glass community, which in turn has resulted in the production of innovative artworks, public commissions and exhibitions. Innovations in technique have influenced the commissioning and interpretation of artworks for the cultural sector.

2. Underpinning research (Maximum 500 words)

Prof. Kevin Petrie has been employed at Sunderland since 2000 and became Professor in 2008. Petrie's *Glass and Print* (2006) was the first book aimed at the studio based artist which considered the potential benefits of the blending of techniques and materials from two distinct strands of the creative sector: Glassmaking and Printmaking.

This allowed for the generation of both original research and presentation of existing knowledge in a new accessible format for studio based artists and designers. It provided an updated history of the development of glass and print methods c1755 to the present. In addition, it identified contemporary approaches that could be utilized by artists and designers from the areas of Hot Glass, Kiln Glass, Architectural Glass and Printmaking. *Glass and Print* has sold over 4600 copies. It has regularly featured in the top 10 bestselling printmaking books on www.amazon.com website and has been reviewed in the *Printmaking Today* journal. Petrie's second book *Ceramic Transfer Printing* (2011) is one of the first dedicated to the creative practice and research of ceramic transfers or decals with a focus on the creative potential for studio-based artists or designer-makers. It also up-dates aspects of *Glass and Print*. Kevin Petrie's research has led to invitations to teach glass and ceramics print methods in universities in China (Tsinghua) and Australia (Australian National University). He was awarded a National Teaching Fellowship by the Higher Education Academy in 2010. Nominations for this award must demonstrate evidence of: enhancing and transforming the student learning experience both within and beyond their own institution. Petrie's teaching of his research around the world was a key factor in this award.

Dr Vanessa Cutler (PhD student 2002-2006 then Research Councils Academic Fellow 2006-7) articulates her investigation into the creative uses of abrasive water jet glass from the perspective of an artist. Her doctoral research led to the University of Sunderland purchasing a large waterjet for creative cutting (funded by EU and regional development agency funding). Through 'informed play', she developed individual and intricate methods for cutting glass, based on her experience with stained glass for architecture. Such cutting redefined the rules for how a piece of glass can be cut and formed. Her work with artists and designers was used as a case study to suggest that bespoke work for creative practitioners could be a way of expanding on its use and possibilities.

Dr Jeffrey Sarmiento (Research Council UK Academic Fellow 2006-11, Reader since 2011) developed and combined the techniques of waterjet cutting and printing within studio practice, exposing new methods to embed imagery into glass. This technique of image transfer to glass had been predominantly used on the surfaces of cast and blown glass. Sarmiento's innovation was fusing multiple printed surfaces to create graphic images layers within the glass. His artworks then utilized traditional techniques of glass polishing and waterjet cutting, combining the image with the transparent glass form. Through international dissemination he has shared

his practical knowledge to studio-based artists and the glass industry.

3. References to the research

Provide references to key research outputs, any key research grants, and evidence of the quality of the research (Maximum of 10 references).

Cutler, V *17th International Conference on Water Jetting*. pp.245-256 Publisher: BHR Group Limited 2004. ISBN: 1 85598 059 2 Mainz, Germany 7-9 September 2004

Petrie, K (2006). *Glass and Print*. A&C Black, London and University of Pennsylvania Press (2004 HEFCE/University of Sunderland Research Development Fellowship awarded to K Petrie. in collaboration with the Royal College of Art to develop this research. c£28,000)

Petrie, K (2011). *Ceramic Transfer Printing*. Book. A&C Black Ltd and American Ceramic Circle.

ISBN: 978-1-408-11328-8

Sarmiento, J (2007). *Encyclopaedia* solo exhibition, Robert Lehman Gallery, Brooklyn, New York

Testing, fabrication and exhibition of the works were funded by a California State University Research Grant and a University of Sunderland Research Fellowship £7000. Bullseye Glass Co. provided material sponsorship. The exhibition resulted from a three months 2005 Visiting Artist Fellowship at Urban Glass, the major international workshop for glass in New York.

Other Funding:

2003 Arts and Humanities Research Board. Small Grant in the Creative and Performing Arts. *The development of digital flexography as a method to integrate form and image in Glass*. Awarded to K Petrie. £4845. Graded A.

2005 European Regional Development Fund (ERDF). Grant of £415,000 for workshop and equipment (water-jet)

2005 AHRC/RCUK Fellowship in Glass – Vanessa Cutler

2006 AHRC/RCUK Fellowship in Glass – Jeffrey Sarmiento

4. The contribution, impact or benefit (Maximum 750 words)

The research of the IIRG has increased the range of methods available for creative industries and practitioners. It has also extended the awareness of historical precedents, available methods and current practice for the glass and printmaking constituencies, organisations supporting creative industries, and the creative glass manufacturing sector. It has benefited the creative industries by developing and disseminating methods of working that can be applied to studio contexts. Through the interface of artworks in museum contexts, the research has created the potential to make new forms of artwork that add to society, culture, the environment and quality of life.

The work extends into the field of international glass art practice and industry. This includes masterclasses for both enthusiasts and professional artists in art centres, public access glass studios, and major glass suppliers including: Anla Glas (Denmark), Espace Verre (Canada, funded by Quebec government to support creative industries), Bild Werk, Germany, Creative Glass (Switzerland), Bullseye Glass (USA) and the world-renowned Pilchuck Glass School. The methods developed by members of IIRG form the basis for printing techniques used and

taught by Bullseye Glass Company, a major manufacturer and supplier to the creative studio glass industry. Sarmiento went to Portland, Oregon to give a presentation to the 250 international attendees of BECon 2009, Bullseye's biannual conference on kiln-glass. At that time, he also led a post-conference workshop at Bullseye detailing methods that he has developed in print technologies in kiln-glass. Their 'Screenprinting for Kiln Glass' workshop formed part of their education and outreach offering. The impact of both his lecture and workshop continue to be felt in the glass community, and the curriculum of his workshop is largely the foundation for a workshop dealing with similar methods that taught at Bullseye. Since Sarmiento's class in 2009, Bullseye have taught the processes to 215 students in 25 classes at three Bullseye Resource Centers in Portland, Santa Fe, and the Bay Area.

Artists' work has been expanded greatly through waterjet cutting, and the art projects vary greatly in scope and scale. National Glass Centre has a commercial and special projects enterprise branch, which helps to produce design products and artworks. Staff use their research expertise to advise on and fabricate bespoke projects. These include supporting small businesses such as Rena Holford, whose sculpture of a glass horse is on permanent display at Bamburgh Castle (<http://www.hagghillglass.co.uk/>). Charlotte Hodes, winner of the Jerwood Drawing prize, had her drawings rendered in fused and waterjet cut glass for Kith and Kin II, an exhibition at National Glass Centre, in 2012 which featured artists who usually work in other areas, and who are exploring glass or ceramics as creative materials.

The creative industries have 'reached in' to use NGC facilities through various access schemes and to benefit from the practice based research of the academic team. Annually over 40 artists use the IIRG workshops and collaborate with staff, including in 2011 world leading artist Cerith Wyn Evans. Through collaboration with arts commissioning agencies Locus+ and Great North Run Culture, Wyn Evans created a large-scale artwork in collaboration with Sarmiento, using the water-jet and fused glass. Wyn Evans was then invited to exhibit the work, *Permit yourself...*, a large scale kinetic sculpture formed from double sided mirrors, with text intricately cut out of each panel and assembled as a huge mobile, at the Venice Biennale of 2011.

The impact of research and innovations of the department have gone beyond the scope of the glass art field, reaching into other sectors including cultural tourism. The commissioning of new artworks in museum settings has impacted upon public collections and the interpretation of artworks. The Museums concerned have worked with IIRG to develop new ways to communicate historical, scientific or factual information from the adoption of this technique by creative artists. Sarmiento and colleague Inge Panneels created *Liverpool Map*, a monumental sculpture commissioned for the Museum of Liverpool, which incorporated the fusing of printed and water-jet cut glass to create a sculptural map of Liverpool. The work allows for different aspects of the city to be visualised and includes the voices of members of the general public in the work. Panneels' waterjet cut and fused artworks were commissioned for the visualisation of the work of historical cartographer Mercator at the Mercator Museum, Belgium.

Glass Senior Lecturer Colin Rennie's artwork *ATP Synthase* in waterjet cut glass visualizes the work of MRC scientist John Walker and has been exhibited in Sunderland, Nobel Museum in Stockholm and the Medical Museion in Copenhagen, Denmark.

5. References to corroborate the contribution, impact or benefit

Cutler, V: *New Technologies in Glass*. A&C Black 2012 (includes IIRG researchers Sarmiento, Panneels and Dickson, has sold over 2000 copies since its release in late 2012)

Cerith Wyn Evans in Interloqui exhibition <http://www.craftscouncil.org.uk/crafts-magazine/news/view/2011/interloqui?from=/crafts-magazine/news/list/2011/5>

Transcripts of papers for the 'Glass and Print' symposium at the Royal College of Art.
<http://glassandprint.info/index.html>

Wesselman, F. (2007). Book Reviews: Glass and Print. *Printmaking Today: Artists' prints, books and multiples*. Vol 16, no 1, p.34.

"Having experience in printmaking and stained glass I found this an exit citing book. Every new chapter had me thinking that I ought to experiment with whatever was under discussion. The author is well qualified as practitioner and academic and has enlisted others to describe particular areas of expertise. The result is a treasure trove of possibilities to marry ancient and modern printmaking techniques with glass..."

Phil Redmond said of the Liverpool Map, "If capital of culture year was a chance to invigorate the city physically, the Liverpool Map was a prime opportunity to investigate past emotions and future aspirations. We saw a wide variety of approaches and ideas, but Inge Panneels and Jeffrey Sarmiento's grand vision of Liverpool stood out, fusing as it does more than glass, entwining old and new, past glories and deep pain, our living breathing cultural icons, beloved buildings; language, literature and landscape. Together, through their research, and the contributions of Merseyside's public, they painstakingly built up the multi-layered persona that defines what it is to come not from the city, but the state of place and mind that Scourcers call, home". Davies, L and Shaw, F. (2013) *Layers of Liverpool – Mapping a sense of place*. Liverpool: Wordscapes

Jeremy Coote, Museum Ethnographers group: 'The theme of the conference built on the final discussion at 'Making Things' (MEG's 2010 conference at the University of Reading's Museum of English Rural Life), when there was an interesting but unresolved discussion about the point of analysing labels and catalogue entries. While some argued that the main point of such work was to throw light on original provenance and thus on indigenous purpose and meanings, others emphasized the value of a focus on old labels and texts for studying the lives of objects in museums. The 2011 conference was an attempt to continue and broaden this discussion.'
<http://www.museumethnographersgroup.org.uk/en/conference/333-2011-conference.html>

Sarmiento, J & Panneels, I (2010). Public Artwork, *The Liverpool Map*, commissioned by Museum of Liverpool 2008-11. (A total funding of £40000 received from Open Culture and National Museums Liverpool.)

Bullseye Glass Inc, USA. Link to online lessons adapted from Sarmiento's research:
<http://www.bullseyeglass.com/education/lessons/screen-printing-with-enamels-part-1-172.html>