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Mark Douglass  Date
CONTENTS

Page

Introduction 3

Executive Summary 4

Program 5

Main Body 7

Key Learnings 23

Plans for Implementation 28

Conclusion 29
INTRODUCTION

The purpose of my Churchill Fellowship was to explore new developments in the production of blown, cast and pressed glass for lighting and architectural applications. The project was undertaken by visiting a number of leading glass institutions, schools and studios throughout the USA, Czech Republic, Italy and China in order to observe and learn from their production processes. I was fortunate to meet and work with all the main contacts I had initially identified and have been invited back to work at a number of studios as a guest artist.

The project was essential to my professional and artistic development due to the limited nature of the Australian glass community. I have returned with a valuable understanding of a number of new and innovative glass making techniques and technologies that I intend to incorporate into my own work. In addition, the Fellowship allowed me to significantly expand my network of international glass professionals, galleries and patrons – an invaluable asset for the continued development of both my artistic and commercial practices.

I would like to thank the Churchill Trust for giving me this fantastic opportunity and feel very fortunate that I was able to complete all of the main tasks I had set myself. I now look forward to putting the skills and experience obtained as result of the Fellowship to good use.
EXECUTIVE SUMMARY

Mark Douglass: Artist/ Master Glass blower
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Contact: mark@markdouglassdesign.com / +61415940912

Project Description
The purpose of my Churchill Fellowship was to explore new developments in the production of blown, cast and pressed glass for lighting and architectural applications. The project was undertaken by visiting a number of leading glass institutions, schools and studios throughout the USA, Czech Republic, Italy and China in order to observe and learn from their production processes.

Highlights
1. **Shanghai Museum of Glass**: I was one of the first international artists to be invited to work with the master glass blowers in the SHMOG studio. The success of this has encouraged SHMOG to look at inviting other Australian glass artists to work as guest artists at the SHMOG studios.
2. **Dale Chihuly**: Dale is arguably the most famous glass artist in the world. I had the great fortune of meeting Dale at the Pilchuck Glass School (Seattle) where I was undertaking a 10-day advanced course as part of my fellowship. I had the opportunity of discussing my practice with Dale, as well as attending his lecture and demonstration. I was also fortunate to arrive in Seattle just a week after the new Chihuly Garden and Glass exhibition had opened. The exhibition, on permanent display in Seattle’s city center, spans the entire course of Dale’s career and includes some of his most important works. To see the work up close offered an invaluable insight into Dale’s techniques, particularly in relation to fixing and assembly of large format glass, which is of particular relevance to my own practice.
3. **Corning Museum of Glass**: Located in Corning, New York State, the CMOG is the world’s leading glass museum. I spent three days at Corning as a guest of Steve Gibb, the Museum’s Hot Glass Programs Manager. During this time I was able to tour the Museum at length, including a $65 million expansion encompassing a new state-of-the-art studio and production facility scheduled to open in 2013.
4. **Pilchuck Glass School**: I undertook a 10-day workshop with glass artist Martin Janecky who, at 34 is one of the world’s leading figurative hot glass sculptors. This opened doors to new techniques I can now incorporate in my new work.
5. **Adriano Berengo**: Adriano is the mastermind behind Glasstress- the highly acclaimed international exhibition combining contemporary art and glass. As a result of my meeting with Adriano, I have been invited to exhibit with Glassstreet at SOFA Chicago, as well as undertake a residency at the Berengo studio in Murano.

Dissemination
I intend to present my findings in a series of lectures at Canberra Glassworks, Jam Factory Adelaide, Monash University Caulfield and RMIT Melbourne. I also plan to conduct a few lectures for interested parties in my showroom in Richmond to provide an opportunity of like-minded individuals to share and explore ideas and tips. I believe this is a very useful method of learning from each other’s successes and mistakes whilst motivating individuals.
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A) CHINA

China was the first leg of the trip, arriving in Shanghai.

China has a long history of glass but its more recent history is more focused on mass production of everyday objects.

**Shanghai Museum of Glass - SHMOG**

Established in 2011, the Shanghai Museum of Glass (SHMOG) is a new state-of-the-art facility dedicated to the history and development of glass in both the artistic and commercial context.

SHMOG incorporates a glass hot shop, casting room and extensive cold working facilities (currently under construction) along with accommodation and pavilions for weddings and social functions, which are phase two of the whole development called GLASS PLUS.

On the invitation of the Museum’s President, I spent a day working alongside the glass masters in the SHMOG studio. Although the different techniques and language barrier took some time to get used to, once trust was established and the first few pieces completed, the experience was very rewarding and resulted in the production of five works that I intend to exhibit in the future.
**Masier Crystal Casting**

Masier Crystal is a bronze-casting foundry that specializes in lost wax casting. They now have expanded into lost wax crystal casting.

Masier produces finished objects that are usually sandblasted then acid polished. They have individual departments including model making, mold making, wax production, casting and finishing. Their bronze works is capable of production of large-scale work. The type and scale of work undertaken at Masier is something not seen in Australia.

**Osage Art Consultancy**

Osage is a leading Asian gallery and art consultancy with galleries in Hong Kong, Shanghai, Beijing and Singapore.

During my time in Hong Kong I had the opportunity to visit Osage’s flagship gallery and meet the Osage team in person for the first time. The gallery, a large industrial space in the Kwun Tong district, is an inspiring place dedicated to progressive and alternative installation art from international and Chinese artists.

Over the past four years I have worked with Osage on a variety of projects and it was useful to meet the team of people face to face and discuss future opportunities on collaborative projects.

**B) UNITED STATES OF AMERICA**

Second leg of my trip, arrived in Seattle, which is the glass center of America.

America has more recently, built its reputation on studio glass rather than mass-manufacture.
Chihuly Garden and Glasshouse - Seattle

The Chihuly Garden and Glasshouse is a permanent exhibition located in Seattle’s city center dedicated to the art and career of Dale Chihuly.

I was fortunate enough to arrive in Seattle only two weeks after the Chihuly Garden and Glasshouse opened. The Glasshouse houses some of Chihuly’s most important works, including major installations combining large format blown glass components with innovative fixing techniques. Natural and artificial light sources are employed to maximum effect, giving the works a dynamic life of their own.

An outside garden area houses a spectacular installation comprising blown glass components of various sizes inserted into the ground using aluminum tubing with fiberglass webbing serving as a connecting interface between the hard surfaces. Once again, both natural and artificial light sources were used to great dramatic effect, with spotlights training the eye in a series of vignettes throughout the installation.

Chihuly Garden and Glasshouse is an inspirational place for any glass artist to visit, and demonstrates the vast possibilities of glass as an artistic medium. In particular, the installations give a valuable insight into a wide range of new and innovative fixing techniques for both artistic and architectural applications.
**Pilchuck Glass School - Seattle**

Pilchuck Glass School is an international center for glass art education based in Stanwood, Washington – approximately 45 minutes from Seattle’s city centre.

The School, founded in 1971 by Dale Chihuly and other leading glass artists Ann Gould Hauberg and John H. Hauberg, is widely respected within the international glass community and operates a residential summer-school program attracting over 100 artists and lecturers per session each year.

**Hot Glass Sculpting - Martin Jenecky**

As part of my Fellowship I undertook a ten-day advanced hot glass-sculpting program with master glass sculptor Martin Jenecky. The course focused on teaching a range of innovative techniques to enable life-like and life-scale forms to be rendered in hot glass. Through sketching, practicing and observing a range of demonstrations, I acquired a variety of new shaping techniques and tricks that I intend to incorporate into my own work.

The course commenced with a demonstration by Martin involving the creation of a life-size figurine with hands and arms. Each move was calculated and executed with confidence to create a sense of immediacy and freshness in the glass. Although Martin’s incredible dexterity was at first intimidating, I found my confidence growing as the course progressed, particularly after undertaking a number of practical sessions where my learning was put to the test. In particular, I found that by breaking down what at first seemed like one single and seamless technique into a series of distinct steps, I was able to gain a better understanding of Martin’s approach and how to apply it to my own work.

From a practical point of view, I found that balancing the left and right hand side of the face was the most difficult but necessary step in the creation of a successful work. I noticed that Martin would complete 80% of a facial feature on one side before moving on to the other side, and would then return to finish off both sides at the same time to create overall symmetry. The general structure would come first,
which was then followed by the evolution of the facial features. Finally, details such as creases and wrinkles would be added once the piece firmed up. With a small torch, the top surface of the glass would be worked with knives and needles, with drawings and photographs being referred to frequently to guide the process.

An important aspect of Martin’s technique was the use of customized tools such as rounded and pointed rods, spoons, knives and dental equipment. Many of these were not something I had ever seen used in a glass blowing before, but were all very helpful in informing smaller details and adding life to the work.

During my ten days at Pilchuck, I also had the opportunity of attending a range of lecturers and demonstrations with the following guest presenters.

**Glass and Interior Design – Jorge Prado**

Jorge Prado is a well-respected multi-disciplinary designer and artist with an international following. He is well known for his inspired interior products including tiles, custom-made light fittings and intricate fabric designs. As a lighting designer, Prado uses a technique of applying a number of different layers of color within the one light fitting, to give a unique effect when illuminated from within.

Jorge’s design process centers around his prototype workshop in Los Angeles which houses a range of high-tech equipment such as CNC machines and laser cutters. He also runs a small production factory in Mexico, where his limited edition designs are produced.
Jennifer Crescuillo

Jennifer Crescuillo is an American glass artist who works in cast glass and deep sandblasting. Jennifer is extremely knowledgeable about the state of affairs of contemporary glass and processes in the US. I spent several hours with her discussing her work and techniques.

In her work Jennifer employs a number of new casting and sandblasting techniques, as well as extensive use of ‘buttercup paper’ - a very thick and strong self-adhesive film that allows deep-etch sandblasting to be achieved.

The glass Jennifer uses is not typically found but salvaged façade glass from architectural sites, which gives it a very soft opacity in muted tones that is rarely achieved with typical art glass formulations.
Sally McCubbin
Sally McCubbin is a Canadian glass artist specializing in graphic design on glass for limited object production. Sally works closely with a collective of Toronto-based designers and artists, and is a co-founder of the Toronto studio complex VEST.

During her session, Sally discussed her philosophy as a ‘maker in an overcrowded world of objects’, which focuses on producing works of a high-quality and thought-provoking nature.

As part of her practice, Sally includes a range of devises to imbue her work with a sense of time and place – from the addition of hallmarks and date stamps, to presenting her work as a series of stories that unfold as the years go by.

Marcy Davis
Marcy Davis is the principal of Fire Lady Productions, a company that specializes in educational DVDs, webinars and podcasts on hot glass design and production.

Marcy has spent the last 10 years documenting glass art practice around the world, which she has now edited into a series of educational DVDs for both emerging and experienced glass artists.

During her session Marcy discussed the potential for artists and designers to harness new multimedia technologies to advance their practices and the hot glass industry generally, from the creation of online ‘in-studio’ experiences, to online galleries and trading initiatives.

In addition to this, Marcy provided introductions to a number of influential Murano artists whose studios I subsequently visited on the final leg of my fellowship.
**Toledo Glass Art Association (GAS) Glass Conference – Toledo, Ohio**

In mid-June I attended the Glass Art Association (GAS) Conference in Toledo, Ohio. With over 1400 glass artists and designers attending, the conference was an invaluable source of information about developments in the US and international glass and design community.

The conference left me in little doubt that there is something of a mini-Renaissance occurring in the glass art world, with the emergence of new glass collectives and collaborative schemes being seen in many areas of the USA and elsewhere.

Having been severely impacted by the 2008 Global Financial Crisis, the value of high-end glass art is now improving, with a renewed focus on limited edition design for the niche middle market. There is strong evidence to suggest a growing appreciation for handmade objects as a counterpoint to the increasing scale and environmental impact of mass production, and where the artist direct involvement is seen as an intrinsic part of the object’s attraction.

**Corning Museum of Glass – Corning, New York USA**

The Corning Museum of Glass (CMOG) is a state-of-the-art museum ‘dedicated to the preservation and exhibition of the art, history and science of glass’. Located in Corning, upstate New York, CMOG is owned and operated by Corning Incorporated, one of the world’s largest producers of glass, ceramics and related materials.

In addition to its permanent exhibits and galleries, CMOG operates a hot glass studio and workshop where public demonstrations, artistic residencies and accredited courses are undertaken. I was fortunate enough to be invited on a personalized two-day tour of the museum and studios by Steve Gibb, CMOG’s Hot Glass Program Manager. To my surprise (and delight) this included being flown from New York City to Corning on the Museum’s private jet, along with complimentary accommodation and ground transport. I was also very fortunate to be one of the first outsiders to view the Museum’s $64 million North Wing expansion, scheduled to open in mid 2013. This expansion, which includes a 200-seat hot glass ‘stadium’ and
The contemporary glass museum, has been designed to further the Museum's work in the field of contemporary glass education and training, and to facilitate a greater number of residencies by international glass artists and designers.

Corning Portable Glass Studio

C) CZECH REPUBLIC

The third leg of my Fellowship trip was to the Czech Republic, a country with a long and proud glass making tradition.

Sadly, a significant amount of the country’s industry has fallen victim to the rise of Chinese manufacturing, with only a handful of the larger-scale glass producers remaining. However, there remains a strong core of highly skilled artists, workshops and artisan factories catering for the niche, international glass market and it was these that I was most interested in visiting during my time in the country.

Ivana Sramkova

Based in Prague, Ivana Sramkova is a glass sculptor specialising in cast glass. I initially met Ivana at Pilchuck where she was also undertaking a residential program. Ivana is one of the few Czech artists known for extremely large castings and is represented by highly respected galleries in both the US and Czech Republic.

Ivana was refreshingly open about her work and techniques, and more than happy to share her knowledge and experience where she could. Unlike most cast glass artists who prefer to work with rigid molds, Ivana’s approach in casting is very loose and relies on the use of malleable materials such as masking tape and organic
mattered to create the structure of her forms.

My time spent with Ivana was invaluable education in the art of casting glass – an area in which I had previously only a vague understanding. Her introduction to other Czech Glass studios was also greatly appreciated given their general reluctance to share information with outsiders.

**Lhotsky Studio – Zeleny Brod**

Lhotsky Studio isa well-known crystal-casting workshop based in Zeleny Brod – an industrial town, approximately 90 minutes drive from Prague.

Lhotsky produces CNC patterns and molds as well as the final casting and finishing. Some of the most impressive casting I saw was a life size chaise lounge in solid clear cast crystal.

On my arrival at Lhotsky, I was given a tour of the architectural casting studio and gallery. I learned that the studio has developed a number of glass formulations that have been specifically adapted for large-format casting – something that traditional formulations have been to brittle to allow. In addition, Lhotsky has developed a low expansion range of glass, which, because of its high tolerance of temperature variation, is especially suited to outdoor situations. The studio has also developed an extensive and very high quality color range that allows them to achieve high-density and uniform color in any size of cast object.
D) ITALY

Venice, and in particular the island of Murano, was the fourth and final leg of my fellowship trip.

As anyone who has visited Venice would know, glass is a major theme of the city, and Murano the Holy Grail for every glass-loving tourist. However, the popularity of Murano as a tourist destination masks the decline of the island’s serious glass-making industry, which has largely decamped to the mainland to take advantage of better transport facilities and infrastructure. Murano is now largely populated by small-scale ‘show’ studios dedicated to the entertainment of tourists and the sale of souvenirs of questionable artistic merit. Nevertheless, Murano remains the home of some important studios, as well as an interesting and eclectic array of glass elders, gallerists and entrepreneurs.

**Venini**

Established in 1925, Venini is the largest commercial glass studio remaining on Murano. Venini glass is highly prized by glass collectors and produces an array of art-glass products including vases, sculptures, decorative objects and lighting.

At Venini I met with Roberto Gasparotto, the company’s Art Director since 1993. With Roberto I had the opportunity of touring the Venini studios and design office, and to view the company’s collection of Venini designs throughout the decades.

Of particular interest to me was the company’s *Light and Glass Art* initiative whereby designers and artists are commissioned to design capsule ranges for the company, and which are then marketed under a co-branding arrangement.
Nason Moretti

Established in 1923, Nason Moretti is a Murano-based glass company specialising in high-end tableware and lighting.

Nason Moretti is one of the few Murano-based companies that has a distinct contemporary edge and which utilizes new technologies to produce highly appealing products for the modern interior. In fact, the contrast with Venini and other more traditional studios was so stark that it served to highlight just how outdated the prevailing Murano aesthetic had become.

Ivan Mora

Ivan Mora is a glass artist originally from San Francisco, but who now resides in New York. I met Ivan briefly at Toledo GAS Conference, where he was part of a group exhibition showcasing his wearable glass corsets.
Whilst I was in Murano, I met up with Ivan again, who at the time was undertaking a residency at Berengo Studio. His project was to complete a series of chandeliers based on the lotus leaf motif. I spent three days with Ivan and was able to discuss the pros and cons of working with a Venetian studio compared to a US or Australian studio layout. I was surprised to learn that Venetian studios do not commonly use glory holes (i.e., reheating furnaces) but instead use their principle furnaces for all processes.

Through my discussions with Ivan, it also became apparent that understanding the internal hierarchy and personality dynamics of a tradition Venetian glass studio was paramount to a successful residency in Venice. Most studios are very traditional in their attitudes and approach to their work, and can be resistant to new ideas and techniques, particularly those from outside. In addition, the Venetian glass industry is very much a man’s world and rarely are women employed or invited as residents. In fact, Ivan’s assistance Katine Niebrugge was only the second woman permitted to work in the Berengo Studio in its thirty years of operation.
**Pino Singoretto**

Pino Singoretto is arguably the world’s most accomplished glass maestro. His specialty is solid glass sculpting as well as highly detailed figurative glass blowing. Pino is highly regarded around the world and produces all of Dale Chihuly’s solid glass sculptures.

Having first met Pino in the 1980’s, it was an honor to visit him again in his studio where he assembles the components into life size figures and sculptures. It was enlightening to observe the various assembling techniques used for his life-size horses and figures. These large pieces where meticulously cold worked then laminated to produce a seamless complete object.

I visited several galleries in Murano exhibiting Pino’s work, and which highlighted the broad scope of his practice – from cubist stylized black horse head to a full-colored caricature of a life size clown, to a pop-art inspired glass t-shirt. Pino’s work demonstrates an amazing technical ability possessed by only a few glass masters.

![Glass Clown Head, Glass T-Shirt, Glass Car objects in his studio.](image)

**Adriano Berengo**

Adriano Berengo is a well-known Murano identity and owner of the Berengo contemporary hot glass studio. He is an enthusiastic supporter of international glass artists and regularly invites them to work on projects at his studio under the supervision of acclaimed glass-master Silvano Signoretto.
Adriano is also the mastermind behind the very influential GLASSTRESS exhibition, which was launched during the 2011 Venice Biennale, and has now gone on to travel the world to widespread acclaim. Influential collectors and museums around the world have purchased Works from GLASSTRESS and the exhibition is now considered to be a watershed moment in the contemporary glass art movement.

During my time in Murano, I was lucky enough to meet Adriano who was highly enthusiastic about my work, to the extent that he has offered me a month's residency at his studio as well as representation in the next GLASSTRESS exhibition which will take place later this year in Chicago.
KEY LEARNINGS

General

The Rise of Chinese Niche Manufacturing

Although small and removed from the major glass centers of the world, Australia remains relevant and up-to date with global glass trends, techniques and tastes. It is essential however for the Australian glass community to be better organized and resourced to meet future challenges, particularly those posed by the rise of Chinese niche manufacturing.

There has been much talk lately of the threat China poses to the glass industries and practices of the first world. This threat is far more pronounced in high-volume, low cost manufacturing but less so at the niche design-based end of market where USA and European makers dominate. There is no doubt however that this is changing as the cost of Chinese manufacturing increases and manufacturers turn their attention to higher quality, lower volume production. This is reflected in the proliferation of design residencies being offered to international designers and artists by Chinese manufacturers and organizations, such as the Shanghai Museum of Glass. Such initiatives are strengthened by a concerted effort at government level to stimulate a stronger Chinese design sector through numerous funding and policy initiatives.

It was also interesting to discover that a recent Chinese government policy has required glass factories to phase out their use of oil and coal furnaces in favor of more efficient electric furnaces, belying the general attitude that Chinese manufacturing is unconcerned about environmental issues.

Growing Awareness and Appreciation of Glass Making

There is renewed interest in glass making as an art form as well as growing appreciation and value of handmade, niche glass items. This trend was particularly evident in the USA, where recent years has seen the emergence of many new glass making initiatives, from small collaborative studios in cities such as Toledo, to major
and highly resourced undertakings such as the expansion of the Corning Museum of Glass.

The CMOG in particular has been particularly instrumental in furthering the public’s understanding and appreciation of glass art and is a salient reminder of what can be achieved when industry takes an active role in supporting the creative arts. Unfortunately Australian industry compares poorly in this area and there are many important lessons to be learned from the Corning experience.

The success of GLASSTRESS further highlights the growing important of glass on the international art scene.

**Technical**

**Ergonomics**
A studio layout that is well designed from an ergonomic perspective can greatly enhance efficiency and creativity.

In the more efficient factory situations it was usual for the production of mold blown glass to be undertaken by teams of five workers, rather than 2-3, which is more commonly found in studio situations. The addition of two more workers greatly enhances workflow as it allows the glass to be kept at an optimum temperature while reducing unnecessary movements and the chance of missteps and consequential breakages.

The optimal team structure was typically arranged as follows:

1. A junior workerto clean and supply blowpipes and carry finished work to the annealer (cooling kiln).
2. One or two more experienced workers to do the initial gather, block and blow.
3. A senior craftsman to do the final gather and mold blow.
4. A junior worker to open, close and cool the mold.
Fixing Techniques
Most of the recent advancements in glass fixing techniques involve the use of new generation laminating adhesives such as those mentioned below, and there has been very little in the way of mechanical fixing breakthroughs of late. Nevertheless, my enquiries led me to the conclusion that these traditional mechanical fixing techniques, typically involving a range of screw, clamp, spring and wire configurations, remain the more secure and reliable option due to their adjustability and versatility.

Customized tools
Custom-designed tools, molds and jigs greatly assist the production process, leading to a higher quality and lower cost end product. It is almost always worthwhile spending the time to develop custom tools for new projects.

Lamination
New glass lamination technologies have greatly enhanced the possibilities of architectural glass, as well as glass used in large-format artistic settings.

- **HXTAL NYL-1** is an ultra pure resin that stays perfectly clear for the lifetime of the glass piece. It is a two-part epoxy and can fill gaps up to 1mm thick. There is also another version, which has thinner viscosity for use in cracks. Hxtal is used in applications where a strong clear join is needed between two glass surfaces. The finished item can be reground and polished.

- **Flex-Tec** is a UV resistant anti-shatter coating that can be applied in single or multiple layers depending on the application. Flex-Tec is relatively new to the market and enables a safety component to be added to larger architectural glass installations. At the time of writing Flex-Tec is only available through HISGlassworks in the USA (www.hisglassworks.com). New advancements in this area have been particularly instrumental in allowing large-scale works to be made in sections and then assembled to form what appears
to be a single, seamless work. This is a particularly important development for large-scale glass sculpture.

**Molds**

At Pilchuck, I observed the production of wood-framed plaster molds involving the casting of an inner layer of 10% graphite/90% plaster mix, with a backup layer of 33% sand, 33% plaster and 33% shredded paper. This is a relatively inexpensive alternative to the high-cost cast iron or wooden molds traditionally used in glass studios and factory settings.

**Glass Sculpting**

Hot glass sculpting is highly reliant on custom-made tools, particularly those made from 6mm steel rod handles with 10/12/16mm balls welded to the ends of the rods which were then fed in through the opening of the glass and pushed from the inside to create the form desired on the outside.

![Custom made tools used for glass sculpting](image)

Below are some sketches of the processes of forming a head in glass and the production of a hand and arm in glass. I have also included some sketches of making different punties for a variety of applications.
Production of glass hand and arm

Production of glass head
PLANS FOR IMPLEMENTATION

I have documented my findings in four ways:

1. Interviews
2. Videos
3. Photos
4. Drawings/ Sketches

Glass artists typically learn through observation and practice (rather than theory) and therefore the visual documentation I have compiled will be particularly critical to the series of lectures I plan to undertake.

In terms of putting learned skills into practice, I have already implemented these new techniques and trained my colleagues and assistants from the knowledge I’ve gathered.
CONCLUSION

I think the trip was extremely successful to allow me to identify the key trends that where evolving over the number of different countries, as well as to acquire new skills that can be incorporated into my own work.

The Glass Museums and other global glass communities have closer relationships with each other allowing cross-pollination of ideas. Previously, glass communities have been more isolated and more protective of their ideas. These barriers have been broken down with better communication and ease of traveling we now enjoy.

I feel I could help the Australian communities by pointing out the strengths and weaknesses in all glass practices I visited and bringing back that knowledge and sharing it with them. Australia needs to engage a broader spectrum of creative minds in our glass programs to promote and reach out to a larger audience.