A Paper submitted in partial fulfilment of the requirements for the degree of Bachelor of Arts (Vis.) at the Canberra School of Art in the Glass Department.

November 1986.
Final Year Paper

First Title

Class Department

A thesis submitted in partial fulfilment of the requirements for the degree of Bachelor of Arts (Honours) at The Canberra School of Art to the Classics Department

November 1986
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FORWARD

This paper documents my fourth and final year as a degree student in the Glass Department, at the Canberra School of Art, 1986. Where relevant, information from the three previous years is also included.

Much consideration and thought has been put into the structure of this paper, especially to Part B, the technical section, as I wanted it to be a document that will be used and used with ease. I have tried to organise and write it in such a way that it will benefit people both new to glass and those already working with glass. To facilitate this I have divided the paper into three sections. Part A is a personal introduction and an explanation of my work, its origins and its developments. Part B is a step by step explanation of my working process, i.e. a technical section and Part C deals with the final part of my working process - the presentation, display and documentation of my work. I have given this matter a whole section to stress the importance of it.

Thanks go to my lecturers, fellow students and all others who helped me through the last four years and with this paper.
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PART A

INTRODUCTION

In this section I introduce myself and my situation. This is followed by a brief coverage of Years 1, 2 and 3 in the Glass Department. I offer an explanation of my work and how it came about. I have included photos and drawings of my work from all years to accompany the text.

In 1982 I undertook a non-award course at the Canberra School of Art called "Basic Design for the Craftsman" under the American artist, now living and teaching in Australia, Judy Silver. This enlightening course prompted me to continue studying, so late in 1982 I applied for the two year Associate Diploma course in the Glass Department under Klaus Moje; 1983 being the first intake of students for this workshop. During the interview it was suggested I change my application to the four year degree course as apart from the non-award design course I had nothing but high school art behind me. I agreed with this advice and was accepted into the course commencing in March 1983.

The first year, spent doing foundation studies, I found invaluable. It included 2D design, 3D design, life drawing and general drawing classes. In the second semester of this year I did two days in the Glass Department and as my work required, I was introduced to
CHAPTER I
A PERSONAL INTRODUCTION

The years immediately prior to my entering the Canberra School of Art were spent experimenting with flat glass techniques initially learnt, as most do, through a number of hobby courses.

In 1982 I undertook a non-award course at the Canberra School of Art called "Basic Design for the Craftsperson" under the American artist, now living and teaching in Australia, Judy Silver. This enlightening course prompted me to continue studying, so late in 1982 I applied for the two year Associate Diploma course in the Glass Department under Klaus Moje; 1983 being the first intake of students for this workshop. During the interview it was suggested I change my application to the four year degree course as apart from the non-award design course I had nothing but high school art behind me. I agreed with this advice and was accepted into the course commencing in March 1983.

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3 Exercises from Years 1, 2 & 3.

Life drawing, 5 minutes, 1985.
Sculpture, cardboard, from 3D class, 1983.
Repeat design, from 2D class, 1984.
Life drawing exercise, Graphics Department, 1985.
a variety of glass working techniques.

During Years 2 and 3, I successfully completed four units of Art History and four sub-major units comprising two points in Life Drawing and two points in Graphic Investigation. The course also requires you to do four units in Additional Studies which can be done in any department into which you are accepted. I chose to do mine in glass.

Thus, my final year consisted of five full days in the Glass Department.

This year I have tried to devote one day of the week to working on this paper and the other four to my practical work - towards the end of the semester it becomes the other six days.

Over the last four years my work in glass has been in a variety of techniques and styles from mere experimentation to the mastering of my technique of working with fused, crushed glass - known as Pâte de Verre.

Right from my first days in the Department, the importance of the idea of the work was stressed to us. Once we had the idea under control we then thought
of the 'how', i.e. the techniques required to realise the piece.

At this stage we were introduced to machinery and how to use, maintain and cherish it. The workshop contains a wide variety of excellent machinery, including a good range and number of kilns, a wide range of cutting, grinding and polishing machines, e.g. flatbeds, diamond saw, vibrolaps to name a few. So over the years we established contacts with most of these, some became our babies, others just acquaintances.

Over the last three years I have worked on several projects and ideas, using different techniques and machinery. By Year 4, I have settled in with one particular technique - Pâte de Verre. Pâte de Verre is defined as crushed glass fragments placed in a mould and fired. Thus, this year's work, although following several different ideas is based on this technique.

As a technique, Pâte de Verre was revived by French glass-makers around 1900. Some of the better known artists who used it were, Henri Cros (1849-1907), Albert Dammouse (1848-1926), Georges Despret (1862-1952) and Francois Decorchemont (1880-1971). The following quotation is attributed to another of these artists, Antonin Daum "... the greatest discovery of our time in art glass, never hinted at in glass-making of any
previous period, and a discovery France can be proud of". But it is known that the Egyptians knew of, and used, this technique as early as 1500 B.C.

An example of Pate de Verre, "Circe", by Henri Cros. 1891.
CHAPTER II

BOTTLES BOXES AND BUTTONS

As I have said, although my work this year relies primarily on one technique I have followed several ideas through the year. I have worked on a series of pieces incorporating the bottle as the basis of the image, a series of functional boxes into the lids of which I have inlaid slivers of glass and a series of glass buttons.

The ideas behind these pieces are all important to me. The technique for the creation of the glass that I have used, i.e. Pâte de Verre, has basically remained the same because I am at a stage now where I feel very comfortable with it. Once mastered, the technique can be repeated and controlled so all other creative energies and individualities can flow into the idea and design, giving it an originality and a uniqueness that is so important and necessary for the success of the piece. My technique has become essential to the expression of the work. Only glass created this way can give me this expression.

Once I have my idea, my choice of elements such as colour, shape, pattern etc. all come from immediate responses. I use them because I like them, it feels right, I feel at ease with it. This combined with
the technique, I hope, makes my work my own.

Visual pleasure plays an important part and when it is pleasing visually it has a positiveness and that to me is a good and responsible way of communicating.

What is around me influences me. My time and place control my immediate responses. It is a recording of my feelings at that time and place.

My work is made up of many personal statements, their existence is justified by the joy and satisfaction of creation.

Images of Bottles:

The dictionary describes an image as an artificial imitation of the external form of an object, and the bottle as a narrow-necked vessel, usually glass, for storing liquid.

The major part of my work this year has been to produce a series of pieces using the bottle as the basis of the image.

This idea interested me for quite some time before I began working with it. By the beginning
of this year it had become quite an obsession.

The idea has emerged over a period of years spent observing vessels in many different materials, though mainly glass, as this is where my main interests lie. The majority of what I saw seemed to me to rely totally on the material, glass, and its first and most blatant quality of transparency. Rarely were any other formal considerations for aesthetic interest or success put forward for consideration. It wasn't the shape that concerned me too deeply, as I feel that like its fellow, the bowl, the basic shape of the bottle has been set, it has a history and tradition that is deeply rooted and entrenched and for me this doesn't need to be challenged or changed in any major way. The shape was solved centuries ago but it is what is done with or within the shape that interests me.

Things that come to mind here are factors such as design within the shape, colour, pattern, decoration and context. It is these things that I have attempted to tackle.

The majority of glass bottles are made through hot glass techniques, i.e. the process of shaping a molten mass of glass and blowing air into it through a blow pipe. This, compared to the techniques I am working with is very spontaneous and seemingly involuntary.
Here I realised I had an opportunity to grab and work with the things that concerned me.

With my technique I have near total control over shape, colour, pattern etc. This became my starting point.

My bottles started as graphic images, drawn, coloured and collaged. As I started to create them in glass they became more than just this and a series of works addressing different concerns has developed. As yet I have not approached them on their fundamental level, that of containing.

If the function of containing is a consideration then the bottle must have certain requirements and these help to determine the shape. Things such as necks, stoppers, bases etc. accompany my images, all they lack is internal space.

My interpretations of the bottle vary from piece to piece. My artistic intention is a silent dialogue with the viewer. Some pieces focus attention on shape, colour and pattern while others put forward conflicts of reality and illusion, being or appearance.

"Crocodile Rock" primarily functions on a level of initial impact. The piece is designed to be presented
as a quiet closed black box, on opening the impact is firstly loud and bold, then the bottles emerge as shapes, then as a set of shapes that work together and finally the box starts to operate on the level of containing which compensates the flattened bottle which now obviously lacks that internal space.

Works such as "Blue and Red Bottle on a Window Sill" and my "Large Yellow Bottle" introduce the shadow into the image. This is to address the issue that my bottles aren't just two dimensional graphic images as these cannot produce a shadow. Window sills are often used to display special bottles because of the light which enhances transparency and translucency so this context for these two pieces becomes relevant, but the fact that my bottles are opaque yet sit on a sill and have a shadow sets up a conflict, not enough to disrupt the image but just enough to add interest.

Images and thoughts are simple as often colour and pattern are loud and strong and at first seem to dominate. Hopefully though the initial image is enough to make the viewer stop and contemplate the work further and as Gertrude Stein once said "a rose, is a rose, is a rose".
The Boxes:

The boxes I have made this year are based on the Solander Box (see diagram) which is a box made in the form of a book, traditionally used for holding botanical specimens, papers, maps etc. I understand it to have been named after the Swedish botanist Solander (1736-1782), assistant to Joseph Banks on Cook's discovery of Australia voyage in 1770.

![Diagram of a Solander Box, the two halves ready for gluing onto the cover.](image)

My introduction to the construction of these boxes was through my submajor subject Graphic Investigation in 1985 where we were given a project to design and construct a Solander box to contain something specific. I chose a set of three glass bottles that I had just designed and the piece that eventuated from the combination of the box and bottles was "Crocodile Rock".

I have used these boxes to contain and display several of my 'bottle' pieces and also as functional containers in their own right. Where I have done this
I have inlaid slivers of my Pâte de Verre glass into the lids of the boxes.

The boxes I have made vary from as small as 5cm x 5cm to a 30cm x 40cm writing case. The glass is made in the Pâte de Verre technique sometimes combined with mosaic glass or slumping. The average thickness of the glass slice is approximately 2 - 4mm. After firing, the glass is cut to shape then taken through several stages of grinding and polishing and finally fitted to the lid of the box that has been recessed to take the glass. Through colour, pattern and shape I have aimed at focusing attention on the glass. While the box compliments the glass it is primarily the carrier of the image.

Materials used are cloth covered millboard. Thickness of the board depending on the size of the box. The bigger the box, the heavier the board. Book cloth is imported, usually French or English.
The Buttons:

Another part of my work in Semester II this year has been to design and make several sets of glass buttons.

Set of 3 Pâte de Verre Buttons. Dimensions 4cm.

So far I have chosen to work with a couple of standard traditional button shapes and let the button function on other levels, such as colour, intricate pattern and relief decoration.

Here glass forming techniques for them becomes important as certain designs require certain techniques, e.g. when a straight line of colour or clear is required through a design, mosaic glass techniques are used in combination with Pâte de Verre.
3 Pate de Verre/Mosaic glass combination buttons. Dimensions 4cm x 4cm x 4cm.

Most of the button sets use this combination. Some others are purely Pâte de Verre.

In this set of six buttons, Pâte de Verre is used in conjunction with slumping. Each button had a tiny fibrefax paper mould made, into which the glass was slumped. This was done in one firing.

The finish on the buttons varies. Some are cut, ground and polished through all the different stages.
described in Part B, Chapter VI, while others use only some of these stages. The above set is finished by lightly sandblasting the surface while the edge and back are smoothed on the linisher.

These buttons are designed and made to be used so requirements such as holes for sewing on or an attachment at the back had to be considered.

Holes through the buttons are drilled using diamond burrs in a handpiece engraver.

The attachments on the back of the triangular buttons are cut on the diamond saw and glued with twenty four hour Araldite.

Display of the buttons was also an important consideration. This has been solved by making either individual portfolios for a set or by displaying them in a Solander box made to compliment the set of buttons.
PART B
INTRODUCTION

In this section I will describe in detail my working process, step by step. It is a technical section so I have included some information on machinery and materials. For information on their availability see the Business Guide at the back. I have included a chart of my working process followed by chapters on each stage. This is not a total technical statement but merely covers my work process. Additional information can be gained from an invaluable book - "Glass Fusing" Book 1 by B. Lunstrom and D. Schwoerer.
STAGE ONE
Selection of Glass

STAGE TWO
Glass Crushing

STAGE THREE
Preparation of the Glass for Fusing

STAGE FOUR
Preparing Moulds and Adding Glass for Firing

STAGE FIVE
Fusing

STAGE SIX
Cutting Grinding and Polishing

STAGE SEVEN
Final Presentation and Documentation
CHAPTER I

THE GLASS AND SELECTION OF IT

Over the past four years I have worked with several different types of glass. When firing glass together (fusing) in any way it must be "compatible" - this is defined in "Glass Fusing" Book 1 as "the characteristic of glasses that allows them to be fused together and, after proper cooling to room temperature, have no stresses that will lead to fracturing".

To overcome this problem I have chosen to work with "Bullseye" glass, a particular brand of American glass that is factory tested and labelled for compatibility and made especially for fusing.

Bullseye glass has a good range of colours, both transparent (Cathedral) and opaque, and is available throughout Australia through a number of commercial retail outlets or by directly importing it. Prices for it vary greatly but range between $20 - $60 per sheet. It comes in a sheet size of approximately 850mm x 450mm.
CHAPTER II
GLASS CRUSHING

The next stage in my working process is transforming the glass from sheet form to a size of crushed glass suitable to work with. I have experimented with a number of ways and machines with which this can be done.

First the glass needs to be cut from the sheet into a smaller size. Using an oil filled glass cutter and running pliers I cut the sheet into approximately one inch squares. This will suit most machines for crushing.

The first way requires a hammer, newspaper and patience. Place the glass in a thick wad of newspaper and hit with the hammer, until after sieving you have enough of the required size of crushed glass. After crushing the glass it will need to be cleaned. If crushing in newspaper you will find you have many different grades, lots of dust and newspaper through the glass. The dust is best sieved out first as it contains the most contamination. The newspaper particles can be cleaned out by spreading out the glass and blowing it away. If any is left in don't worry as it will burn away in the kiln leaving no trace.

Safety. Always wear a mask, preferably a respirator...
and eye protection when crushing glass. Inhalation of glass dust is lethal.

Another simple crusher consists of a piece of 4" pipe on a stand with a slightly smaller diameter plunger (see photo). This method is a bit slower and seems to create more glass dust than the hammer and newspaper.

The most successful way of crushing glass for me has been using a sink garbage disposal unit. This is set up in a 44 gallon drum with water connected to it as it would in a sink. The one inch pieces of glass are fed through this in small handfuls. It is quite quick and efficient but very noisy. Earmuffs are recommended plus eye protection.

There are a number of problems with this method though. The glass as it is crushed constantly erodes the insides of the unit. This contaminates the glass with metal filings which later, after drying, need to be cleaned out.

The sink garbage disposal unit I use is an ISE Disposer - Insinkerator 333/SS with high power motor, costing approximately $500. Over two years of crushing the motor is still in good order but the insides have been replaced twice at a cost of approximately $140.
Lastly I have experimented briefly using a ball mill from the Ceramic Department to crush glass. Again I put in one inch squares of glass and after two days grinding got a very fine sludge of glass powder and lots of 'rounded' one inch squares of glass which were of little use.
Three ways for glass crushing.

Pipe and Plunger.
Hammer and Newspaper.
Garbage disposal unit fitted into a 44 gallon drum.
CHAPTER III
PREPARATION OF THE GLASS FOR FUSING

After using the garbage disposal unit the crushed glass will need to be dried before it can be cleaned. The easiest way is to spread it out on newspaper in the sun.

When dry, using a very fine sieve, sieve out all the powder from the crushed glass. This can be used but remember it contains the most contamination. Now the glass can be sieved with several different sized sieves depending on what size grain you want. When fused different grain sizes give different finishes.

If the glass has been crushed in the garbage disposal unit or the metal pipe it will need to be cleaned of the metal filings. If these are not taken out they show up as black spots in the fused glass. For this I use a magnet, shuffling it through the glass a number of times until it appears free of metal. Most metal contamination will be in the powder.

And lastly, when the glass is crushed in the garbage unit it will also be contaminated by fragments of previous colours crushed in the machine. Despite thorough rinsing glass fragments always remain caught
in corners of the unit and contaminate the next batch put through, so if a pure colour is wanted use tweezers to individually pick out the odd coloured fragments of glass.  

Safety. Wear mask or respirator at all times when handling crushed glass, especially when sieving.

Sieve, magnet and two different grain sizes of crushed glass.
CHAPTER IV
PREPARING MOULDS AND ADDING GLASS FOR FIRING

When the glass is clean and sieved it is ready for fusing. While preparing the kiln shelf and mould cover the crushed glass to prevent any dust contamination.

If the glass is to be fused flat the kiln shelf needs to be prepared, each time it is used to prevent the glass from sticking to it during firing. It may be prepared with a good coat of shelf paint. This is made from a mixture of 50% Kaolin and 50% Alumina Hydrate mixed into solution with water. The shelf needs to be painted three times for a good covering and then dried. Another way to prepare the shelf is to cover it with Fibrefax sheeting. This is more expensive but less fuss and quicker than painting the shelf and it can be re-used a number of times. The fused glass does pick up the imprint of the Fibrefax sheet but this can be easily removed by grinding or sandblasting.

The other alternative is a plaster mould. If using one place directly on kiln shelf - no preparation is needed for the shelf.

If fusing crushed glass flat on a shelf either prepared with shelf paint or covered with Fibrefax you
will need to create sides to contain the glass. I use strips of Fibrefax board, the height depending on the thickness of the glass slab I am fusing.

Another advantage of using Fibrefax sheeting to line the shelf with is that it can be drawn on if the design you are using is very intricate. If the design is intricate the finer the powdered glass used the more accurate the design will be.

The next step is to place the powder or crushed glass fragments into the mould on the prepared shelf in a dry state. After placing glass in the mould, level it and pack down gently.

If a design is required, great control over it is possible. Paper, cardboard etc. can be used as a temporary dividing line if an accurate line is needed. Place the division down, pour in glass, gently pack down and then carefully remove the divider. If paper is used it can be left in as it will burn away during the firing. The line will stay very accurately on the shelf side of the firing.

By using strips or shapes of compatible glass, canes or shards you can also create design. If doing an intricate design this way a drop of Aquahere glue can be used to help small pieces of glass stand in position
while adding crushed glass. Aquahere burns away leaving no trace during the firing.

Also in the dry state the glass can be used in a very painterly way. It can be poured into the mould then mixed, or combed for varying effects.

Recipes for plaster moulds can be found in "Glass Fusing" Book 1 or most other glass fusing books.

Safety. A mask or respirator should always be worn when handling crushed glass, Fibrefax and plaster.
CHAPTER V

FUSING

Fusing of crushed glass involves several steps. Much is written elsewhere on fusing, again a very good reference is the Bullseye book "Glass Fusing" Book 1, so here I will just outline the major steps I go through.

1) Place prepared kiln shelf in kiln at a height where it can easily be seen when opening kiln at the fusing temperature.

2) Fill out a kiln schedule sheet (see diagram) as a guide to follow and also refer back to for future firings.

3) Raise kiln to fusing temperature, for Bullseye this is 840 degrees Celsius. In general the rate of heating up the kiln depends on the thickness of the glass - see other references for more detail - but when fusing crushed glass, unless contained by a thick mould, it can be raised at one hundred per cent, i.e. with the kiln on full.

4) At 840 degrees open the kiln and check to see if the piece looks properly fused. If not let kiln soak on 840 degrees, checking approximately every ten minutes.
# FIRING SCHEDULE

<table>
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<tr>
<th>KILN NO.:</th>
<th>DATE:</th>
<th>NAME:</th>
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<tbody>
<tr>
<td>TIME</td>
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</tr>
</tbody>
</table>

**NOTES:**

1. SKETCH OF WORK
2. INTENTION
3. RESULTS
4. COMMENTS
5) When fully fused, turn off the kiln and crack to 600 degrees Celsius. To crack, prop open lid and let kiln drop quickly to this temperature.

6) At 600 degrees Celsius close the lid and let the kiln fall to 500 degrees Celsius by itself.

7) At around 500 degrees Celsius the glass piece may need to be annealed - this depends on the thickness of the glass. Annealing is "the controlled cooling of glass to achieve the desired final distribution and amount of stress in the glass when it has reached room temperature".¹

8) The glass can be taken from the kiln when it is cool enough to handle easily. If it is too hot to touch comfortably leave longer to cool.

9) When cold if Fibrefax or traces of shelf paint are stuck to the glass clean under water with a scrubbing brush or a glass brush.

Some extra points to remember when firing crushed Bullseye glass are:

a) it always reduces by one third in depth.

b) Some colours devitrify - this is only surface deep and can be ground or sandblasted off. Devitrification is "crystallisation in glass, usually occurring as a scum on the surface of the glass. This crystallisation takes place when glasses are held at temperatures slightly below the liquidus temperature for each glass. This temperature is approximately 760 degrees Celsius for most glasses".  

Many of the glass has been fired and cleaned the phone and size can be cleared by cutting other with a glass cutter, on the diamond saw or sometimes by sandblasting. Use of the diamond saw enables intricate shapes to be cut.

The final step is the grinding and polishing of the glass. Finish depends on the machine used and the type of grinding grit or powder used. On my piece it varies from 80 grit carbideum to the sandblaster, through 120 grit belt on the belt sander, 270 and 400 grit on the steel flat bed wheel to cork polishing belt on belt sander. I have also used two vibrating machines that grind and polish.

This process of grinding and polishing is slow and painstaking. After any of these stages, a final finish can be obtained by using linseed oil or Armowax finish on the surface of the glass. Used at the different levels of grinding, they give varying effects.

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CHAPTER VI
CUTTING GRINDING AND POLISHING

This is the last stage in my work process for the glass before the final display stage.

Once the glass has been fired and cleaned the shape and size can be altered by cutting either with a glass cutter, on the diamond saw or sometimes by sandblasting. Use of the diamond saw enables intricate shapes to be cut.

The final step is the grinding and polishing of the glass. Finish depends on the machine used and the type of grinding grit or powder used. On my pieces it varies from 80 grit carborundum in the sandblaster, through 120 grit belt on the beltsander, 220 and 400 grit on the steel flat bed wheel to cork polishing belt on beltsander. I have also used two vibrolap machines that grind and polish.

This process of grinding and polishing is slow and painstaking. After any of these stages a final finish can be obtained by using linseed oil or Armourall car wax finish on the surface of the glass. Used at the different levels of grinding, they give varying effects. I use different combinations for different pieces as required.
Belt sander or linisher. Steel wheel, flat bed grinder.

Three of the machines in the workshop.

Diamond saw.
PART C
INTRODUCTION

I have included this section on final presentation, documentation and display as throughout my four years at the Canberra School of Art the importance of this part of working has been stressed to us. It is as important as any other decision that is made. It should be a decision made right from the start so that it can be solved both aesthetically and technically. Other points that also come into consideration here are requirements such as:— don't make a piece that is too fragile, it must be able to be handled, packaged, assembled and transported without breakage and with relative ease. There is nothing more frustrating than to have a work selected for an exhibition, only to have it arrive there cracked or broken. Consider this when you design and make. When packing do so with care— presume elephants are going to handle it so label it well.

At this stage the piece is ready to be fully documented. Documentation in the form of note books, drawings and photographic material should be kept while the piece is in progress and once a piece is finished you will need to do final photography of it for your records, and for promotion.
In 1986 a one semester unit was introduced to the Canberra School of Art called Professional Practices. This unit is aimed at making the artist aware of all aspects of professional development, i.e. things such as a curriculum vitae, presenting your work, dealing with the public, with galleries etc. etc. Even though I did not get time to do this I would thoroughly recommend it.
As outlined in the introduction to this section there are a number of very important considerations to be dealt with right from the conception of the work.

Have ideas and drawings of how you are going to display and present the piece prior to construction. This enables you to include small but often major design alterations or additions so that the piece can easily and safely be hung, suspended or fitted into a frame or some other structure.

For example, my two dimensional bottles are often only one centimetre in thickness and cannot safely stand by themselves. Where I have presented them in a box as an image this is overcome but in my piece "Red and Blue Bottle" where the bottle sits on a window sill, it needed to be attached safely and securely. I had not made allowances for this during its construction so once polished I had to very carefully drill the glass and insert a metal pin which was then inserted into the frame. Glass breaks, chips and scratches at any stage and there is always this risk.

With my glass slabs that are displayed in painted
metal frames I was at first tempted to glue or silicone them into place but was warned against this as glass and metal expand and contract at very different temperatures and there is always a chance of cracking when stuck together. To overcome this I had to make small changes to the design of the steel frames to hold the glass in place.

Another point with not gluing or using silicone to attach glass to a fixture is that if it can be relatively easily assembled and dismantled it is far easier and safer to pack the frame or stand and the glass separately. There is far less chance of breakage but you need to supply good instructions for assemblage.

When planning a piece that is to be displayed on a wall remember that if you just supply the piece for exhibition, all gallery walls are different so you may need to create a "wall" for the piece as part of the work.
CHAPTER II
PHOTOGRAPHING WORK

I have included this chapter as I have spent quite a bit of time being shown how and experimenting with photographing my work.

This chapter is not meant to be a thorough or professional statement but merely to provide certain relevant points that I have come across and feel are worth including.

You need high class documentation of your work (and of your working process) for promotion. Good quality slides of your work are always needed. You must have extra copies on hand at all times to send off or give away to those interested in your work. Nearly all selected exhibitions require slides for their selection process and they must be of professional quality.

If you have it done professionally it is expensive and it may take a long time to find someone who can do your work correctly, so have a go yourself.

35mm colour slides are the most popular form of documentation. If you require a piece to be printed, e.g. in a magazine, a better result will be achieved
from a 6 x 6 medium format transparency. This requires different photographic equipment from that used for 35mm slides.

Below is a basic list of what is needed for object photography and a short explanation why, followed by some general points I have come across when photographing.

**Camera**

- a SLR camera, which means that the image produced is exactly what you see through the lense.
- a steel body is preferable. It is heavier but hardier if accidentally dropped and mechanical parts last longer.

**Film**

- Tungsten film used for photographing with artificial light. The slower the film, e.g. 50ASA the finer the grain and the more intense the colour. I have used 50ASA and 160ASA Tungsten film with good results. Its approximate cost is $15.00 per roll, plus $10.50 for processing.

**Lenses**

- 50mm lense is the most common and useful lense
for the hobby photographer, e.g. good for landscapes, family portraits etc. but not for specific photography. A 35mm or wide angle lense is good for photographing two dimensional work, e.g. wall panel. 100mm macro lense is the best for object photography but they are expensive ($500 and up). A cheaper alternative is 35-100/90mm telephoto lense (approximately $100).

- Macros override the need for extra lenses and they can be used like a telephoto.
- Zoom lenses are good only over certain distances so not very good for object photography.

Polarising Filter

- Cuts out reflection and is essential for most glass photography (approximately $18.00).

Skylight Filter

- This absorbs UV light, reducing excessive blueness in colour films, removes some distance haze and protects lense (approximately $7.00).

Lighting

- Good artificial lighting is essential. Halogen lights are used along with umbrellas to diffuse the light. They enable complete control over the lighting.
whereas with natural light you don't have this control as it keeps changing. Also daylight creates reflections from every direction.

**Light Metering**

- Most cameras need more than the light measuring systems they offer. Kodak Grey Cards are good for measuring light around small objects. Place the card on the object to be taken and at the same angle and set the reading on the camera. Always take the light meter reading from the centre of the object as this is where it is most even. In cameras where this happens automatically it is called 'spot metering'. This is the best way and they are the most expensive cameras. Next best is where the light metering is centred in the frame and finally when it is metered from the whole frame.

**Flash**

- Not needed for photographing glass.

**Tripod**

- Essential for long exposures and the quality is of equal importance to all other gear.

**Shutter Release**

- Means less danger of disturbing the camera once it is set up (approximately $11.00).
Some general points that I have found useful are as follows.

- Always fill out the frame of the camera with the object.

- For all pieces consider separately things such as the background, the lighting and the angles of lighting. Does it require back lighting? Also consider the angles at which the shot is taken.

- Experiment with different exposure times. This is cheaper and more time saving than setting it all up again, so take more than you think is necessary when taking the photo. Take it on three different settings, one full stop either side of where it reads correctly for the particular film you are using, e.g. for a 50ASA film this covers the range of approximately 25ASA to 80ASA.

- The smaller the object the closer you need to be to obtain a 'correct' picture. If you don't have a macro lens you need at least a telephoto lense otherwise you get distortion of the object. When photographing for example a box, place the camera at a height just high enough to see the top of the box. This way you will get the most correct depth and proportion of the box. By looking down on the piece you get good depth but lose proportion.
- The longer the exposure time the better the colour.

- Use the depth of field button for definition of 3D.

- Depth of field is related to the opening of the aperture, i.e. the smaller the aperture, e.g. 16, the longer the depth of field, so if your camera aperture is set on 2 you will have a very narrow depth of field.

- Quality of the lense is all important so save your money for that. The body of the camera is not so important - a good second hand Minolta body costs around $100 - $150.

Set up for photography work.
CHAPTER III
OTHER DOCUMENTATION

At all times you should have available a current Curriculum Vitae, incorporating documentation of your working history plus slides of your work.

A Curriculum Vitae is an account or synopsis of your career. Documentation of your working history includes references from relevant jobs, awards, exhibitions, magazine articles etc. in which you or your work has appeared.

A wallet of current slides and an explanatory slide list is essential.

Put together it can be kept as a professional portfolio.

Another essential form of documentation when sending off work to an exhibition or on consignment if you don't have a contract with the gallery is a proforma invoice which is like a detailed packing list of what you are sending. This should include details in two sections.

The first is content in which each piece must be
identified. This can easily be done by a photocopy of a polaroid of each piece with the date manufacture, the title and the dimensions of the work. Also include details of how you have packed the works, e.g. the number of boxes and overall dimensions plus the weight (especially if posting overseas).

The next section of the proforma invoice is the agreement. This includes details such as the price of works,

- * prices are calculated 60% artist, 40% gallery,
- * payments arising from sale of pieces is thirty days from date of sale,
- * freight - artist to gallery is prepaid, gallery to artist paid by the gallery.

It is also a good idea to keep a file of all your work and where it is.

And lastly, remember to sign your work.
CURRICULUM VITAE

NAME: Kirstie Rea
ADDRESS: P.O. Box 52, Manuka, A.C.T. 2603
WORKSHOP ADDRESS: RMB 6, Narrabundah Lane, Fyshwick, A.C.T. 2609
TELEPHONE: 062-951303
BORN: 25 October 1955
CURRENT STUDIES: Bachelor of Arts (Visual), Canberra School of Art, Baldessin Crescent, Acton, A.C.T.
4th and final year of study.
Major study - Glass
Sub-major study - Graphic Investigation and Life Drawing.
Additional Studies - Art History.
EDUCATION: 1986 As above.
1985 Completed part-time Flameworking course at Bruce TAFE, Canberra.
Took part in the Jochem Poensgen design workshop held at the Canberra School of Art.
Attended the Neon & Photo Image on Glass workshops attached to the Ausglass Conference in Sydney.
Attended the Ausglass Conference, Sydney.
1983 Took part in a painting on glass workshop run by David Saunders of Sydney.
Commenced the 4 year degree course at the Canberra School of Art, majoring in glass.
1982 Attended a course 'Basic Design for the Craftsperson' run by Judy Silver at the Canberra School of Art.
1981 Attended the Adelaide workshop run by the German stained glass designer Ludwig Schafferth.
Travelled overseas for 3 months visiting glass exhibitions, collections, galleries and historical stained glass sites throughout the UK and in France.
Studied under Cedar Prest at the Canberra School of Art (part-time glass course).
1980 Attended a stained glass course run by Rob Clark of Melbourne at the Craft Council of the A.C.T.
1979 Attended a similar course as in 1980.
CURRICULUM VITAE

WORK HISTORY:


1982 Taught stained glass workshop for the Monaro Continuing Education Association.

Stained glass teacher for Phillip Craft Supplies, local craft shop.


EXHIBITIONS:

1986-1986 Venture Gallery, Michigan USA, "Glass Gems '86".

Dec.


Jun.-Jul.


Mar.-May.

1985 AME Art Exhibition, AME School, A.C.T. Group exhibition.

Nov.

1985 3rd National Glass Biennial Touring Exhibition, Wagga Wagga City Art Gallery.

Sep.

1985 Ausglass Members Exhibition, Sydney College of the Arts, Sydney.

Jan.

PUBLICATIONS:

Education Supplement 'Craft Australia', Autumn 85/1.

Nola Anderson, 3rd National Glass Biennial, 'Craft Australia', 1/86.

Craft Australia Year Book 1986.

Carl Andrew, National Glass Biennial Australia, 'Neues Glas', 1/86.

PROFESSIONAL INTERESTS:

Membership to the following organisations:

Ausglass
A.C.T. Arts Council
Craft Council of the A.C.T.

COLLECTIONS:

Latrobe Valley Arts Centre Collection.

*******
BUSINESS GUIDE

Alumina Hydrate (ingredient for shelf paint)
Phillip Craft Supplies
53 Colbee Court,
PHILLIP, A.C.T. 2606.

Amor-all (wax finish)
BBC Hardware stores

Binding (of thesis)
Capital Bookbinders
68 Wollongong Street,
FYSHWICK, A.C.T. 2609.

Book cloth (for boxes)
- Helen Wadlington, Bookbinder,
  Old Canberra Brickworks,
  YARRALUMLA, A.C.T. 2600.
- Capital Bookbinders,
  68 Wollongong Street,
  FYSHWICK, A.C.T. 2609.
- S. & M. Supply Co. Pty. Ltd.
  18 Barrier Street,
  FYSHWICK, A.C.T. 2609.

Box board
Edwards Dunlop & B.J. Ball,
Lysaght Street,
MITCHELL, A.C.T. 2911.
Ph. 411144

Calcined Alumina (polishing powder)
Phillip Craft Supplies
53 Colbee Court,
PHILLIP, A.C.T. 2606.

Carborundum Grinding Grits
Carborundum P/L
Settlement Road,
THOMASTOWN, VIC., 3074.
Ph. 03 4630211

Cork Polishing Belts
Hogans Wholesale
3 Clarke Street,
GUILFORD, N.S.W. 2161.
Ph. 02 6324380
   02 6284287

Dust Masks
BBC Hardware stores

Engraving Bits (diamond and carborundum)
Harcourt Neil Pty. Ltd. Dental Suppliers,
Lonsdale Street,
BRADDON, A.C.T. 2601.

Fibrefax sheet and board
Morganite Ceramic Fibres
65 Bourke Road,
ALEXANDRIA, N.S.W.
Ph. 02 6671305

Glass - Bullseye
T. & K. Glass Co. (N.S.W.)
Stained Glass Division, Sydney.
Ph. 02 5501688
<table>
<thead>
<tr>
<th>Item</th>
<th>Supplier</th>
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<tbody>
<tr>
<td>Glass Brush</td>
<td>Tool Traders, Manchester Unity Building, Little Collins Street, MELBOURNE, VIC.</td>
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<tr>
<td>Glass Crusher</td>
<td>Kitchens Ink P/L Cnr. Giles &amp; Kennedy Streets, KINGSTON, A.C.T. 2604.</td>
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<tr>
<td>(garbage disposal unit)</td>
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<tr>
<td>Glass Tools</td>
<td>Hogans Wholesale 3 Clarke Street, GUILFORD, N.S.W. 2161.</td>
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<td>Glues</td>
<td>BBC Hardware Stores</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Grinding Belts</td>
<td>see Cork Belts</td>
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<tr>
<td>Grog</td>
<td>make your own by crushing fired moulds</td>
</tr>
<tr>
<td>Kaolin</td>
<td>Phillip Craft Supplies, 53 Colbee Court, PHILLIP, A.C.T. 2606.</td>
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<tr>
<td>(ingredient for shelf paint)</td>
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<tr>
<td>Kilns</td>
<td>Ceramic Engineering CANBERRA, A.C.T.</td>
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<td>Kiln Hardware</td>
<td>Phillip Craft Supplies, 53 Colbee Court, PHILLIP, A.C.T. 2606.</td>
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<tr>
<td>Molochite 200</td>
<td>Phillip Craft Supplies, 53 Colbee Court, PHILLIP, A.C.T. 2606.</td>
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<tr>
<td>(ingredient for moulds)</td>
<td></td>
</tr>
<tr>
<td>Plaster</td>
<td>Australian Gypsum Ltd. 7 Barrier Street, FYSHWICK, A.C.T. 2609.</td>
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<tr>
<td>Polishing Belts</td>
<td>see Cork Belts</td>
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<tr>
<td>Respirators</td>
<td>BBC Hardware stores</td>
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<tr>
<td>Safety Glasses</td>
<td>BBC Hardware stores</td>
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<tr>
<td>Safety Gloves</td>
<td>BBC Hardware stores</td>
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<tr>
<td>(heat proof)</td>
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<tr>
<td>Silica 200</td>
<td>Phillip Craft Supplies, 53 Colbee Court, PHILLIP, A.C.T. 2606.</td>
</tr>
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</table>
Slide Film Processing

Whiting
(for kiln shelf protection)

Capital Colour,
47 Northbourne Avenue,
CANBERRA CITY, A.C.T. 2601.

Phillip Craft Supplies,
53 Colbee Court,
PHILLIP, A.C.T. 2606.
BIBLIOGRAPHY


International Directions in Glass, Australian Consolidated Industries. 1982.


