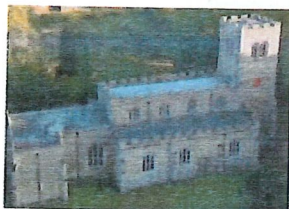




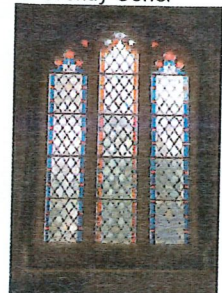
St. Peter and St. Paul's Church

Cranfield
Bedfordshire



Beauty from Brokenness The Stained Glass Story 2024

by
Wendy Usher



Introduction

During World War II, on the 26th September 1940 a parachute bomb fell on Cranfield causing significant damage to Court Road including blowing out many of the beautiful stained glass windows on the South side of the Church.

The Victorian and Medieval glass lay in fragments and the following day the school children were bought out to collect up the glass and put it into boxes. Some was used to create an edging around the replacement plain glass windows in the Chancery. The remainder placed into a cardboard boxes which were put into the priests room and lay almost forgotten for over 80 years.



During an annual Church clean, my husband Martin & I were washing down the existing stained glass windows and a chance remark about the broken fragments led to the re-discovery of the glass and an idea was born.

'Beauty from Brokenness'

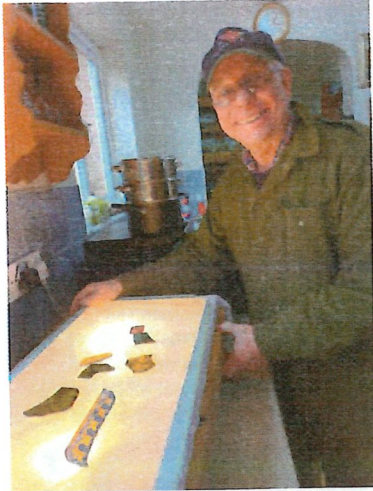
Sorting the glass

To say that the glass was filthy is an understatement! Apart from all the dust and dirt from the bomb damage, much of the glass was hundreds of years old. Light in the Church would have been from candles and oil lamps and the greasy soot created a thick layer so dense it was impossible to see the colours when holding the glass up to the light.



Additionally the glass had remnants of lime based cement around the edges, where it was originally cemented into the lead came. Before the glass could be sorted, over 2,000 individual pieces needed to be washed.

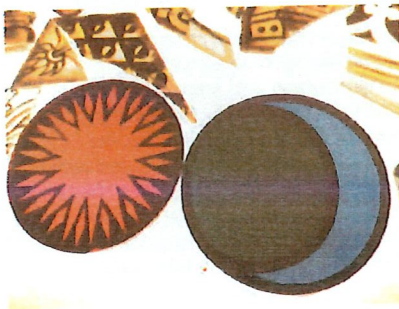
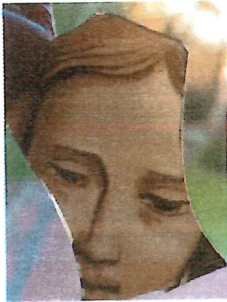
They were first soaked in a solution of Soda Ash, each piece scrubbed with a brush, washed in vinegar and lemon, before washing in detergent. Then each piece was cleaned with a cotton bud and alcohol. Pieces to be used were then cleaned with a specialised glass cleaning agent. That's 5 cleaning techniques per piece, totalling 10,000 washes! This process took nearly a month to enable sorting to take place.



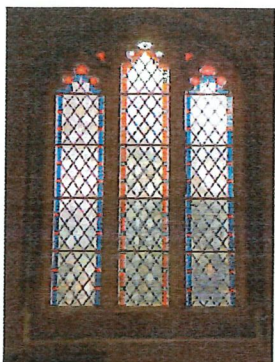
The next step was to sort the glass into categories. This was an exciting part of the process. New discoveries were made each time a piece of glass was held to the light. Martin made me a light box, to make the task easier.



It was a job to decide on categories, I was finding different colours, different patterns and pictures. I found faces and body parts, and words. Eventually there were over a dozen boxes and trays.



Planning



The next job was to start planning. How, out of all these fragments could a new window be created? It would have been impossible to re-create the original designs. Firstly, there was no pictorial colour photographs of the windows. The fragments were too small and broken and many had been re-used in a collage to edge the replacement windows.

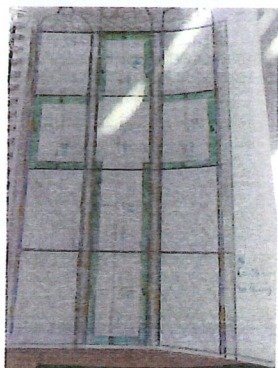
I knew which window I wanted to work on. I also knew that I could not create a 'whole window' image as the pieces were too small.



Unlike other people, I tend to work as I go rather than do lots of planning. Normally when creating a stained glass piece you have a drawn plan for each individual piece and cut the glass to fit, eventually creating a seamless pane. Here I needed to work with the glass I had, and the shapes that were available to me.

Research of other work using glass from bombed out church windows, showed that windows had been create in a mosaic format. The photo on the left shows an example from the Victoria and Albert Museum.

I felt that this was not telling a story, and wanted to create something that could be pictorial that people could interpret, rather than a collection of glass bits.



I had a rough idea that I wanted to create a 'cross' shape within the existing window, made up of 6 individual panels. Each panel needed to tell its own story.

To ensure the 'cross' would be seen I wanted to edge it in green glass. This is modern glass that would have strength, as much of the ancient glass is very brittle and the edging would add that strength.

Vision & Values of St. Peter and St. Paul's

We're an evangelical Anglican church made up of a truly international family who seek to:

1. Faithfully teach the **Bible**, as the Word of God.
2. Be deeply dependent upon God in **Prayer**.
3. Grow in **Holiness** both individually and as a community.
4. Boldly witness to the good news of Jesus Christ in **Evangelism**.

Before I could think of how to create panels to represent the 4 values. I felt very strongly that I also needed to create a centre cross within the cross and something representing creation.

Each of the windows has some new glass, so that I could blend new with old, to bring yesterday into today and forward into tomorrow.

Construction

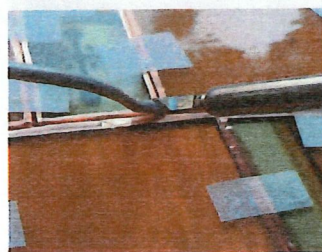


A little bit of history (simple version). Glass manufacture changed over the years. In medieval times the glass tended to be greenish, due to the iron impurities in the sand and pot ash used to create it. These two ingredients were heated to the point where they would liquefy and become glass when cooled.

To colour the glass, powdered metals and minerals were added into the molten mixture before it cooled.

This glass varies between 3 and 6mm thick. But interestingly glass is still liquid and over time 'flows'. If the glass has been up for many years, it can be thicker at the base than the top as the glass has 'flowed' downwards with gravity. This glass also has many air bubbles and is hard to cut a straight line without it veering off.

The Raven, Crow or Rook above was in the box of broken pieces. This is medieval glass. It is not completely flat and undulates. It is approx 3mm at the top and between 5-6mm at the bottom indicating its age as the glass has slumped.



Victorian glass is different. It is made in the same basic way, but also uses lime in the process. The key difference is that it is far thinner and also is 'painted' by mixing ground coloured glass, or minerals into a paste which was painted onto the glass and re-fired to adhere the imagery onto the base glass. After many years this glass becomes more fragile and brittle. It is easier to cut, but also easier to break! The Victorians did like intricate decoration and many of these pieces have been decorated using arsenic as a component of the colouring process and also to reduce the formation of bubbles.

To put the glass together using traditional methods of lead came would be difficult. Because of the fragility of the glass and also the varying thicknesses. Instead I decided to use a copper foiling technique. The windows did not need to be waterproof as they were to be installed in front of the existing glass windows and I could take up the different levels of thickness between glass pieces using molten solder.

Each piece of cut glass was ground around the edges to make it smooth. An adhesive copper foil was then placed around the outside of each piece and then rubbed on using a bone tool on both sides. The copper tape is heat conductive and allows lead solder to adhere when applied using a tallow candle as the flux. This means each glasspiece is then covered with the melted wax, which again requires cleaning with soft steel wool before a further polish is applied.

Traditional edging lead came was then added to each pane, giving it strength.

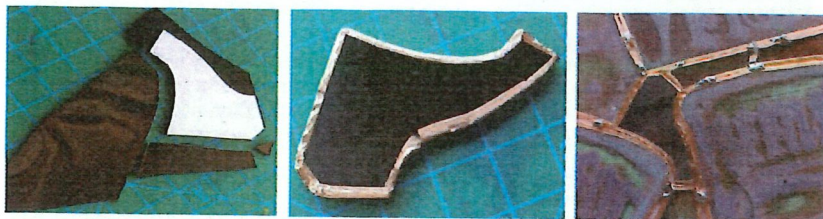
Cutting the glass was done with a hand glass cutter, and snapped by hand if the glass was fragile or by a tool similar to a pair of pliers when working with thicker glass. The glass shapes depended entirely upon what was available. Instead of working to a plan, the panes were 'jig sawed' together.

The picture above shows a piece that required the cut line to be 'knocked' with the steel ball of the end of the cutting tool. This fractures the glass, until it breaks by following the cut line.

Some cuts were more complicated than others and the following photos show a sequence of how a piece was cut from a paper template made from the gap that needed to be filled.



1. Creating the paper template 2. Finding a piece of glass 3. First Cut



4. This piece took 6 cuts 5. Finished piece coppered 6. Now in place

Interesting statistics:

- A total of 381 pieces of glass were used
- There is an average of 5 cuts per piece of glass totalling 1,905 individual cuts
- Each piece of glass was cleaned a minimum of 4 times totalling 1,524 washes
- Over 2,000 pieces of glass were washed altogether
- An estimated 400 hours were spent on this project
- 75% of glass used was from the bombed out windows
- 25% was new glass including all the green edging strips
- My husband said he has become a stained glass widower!

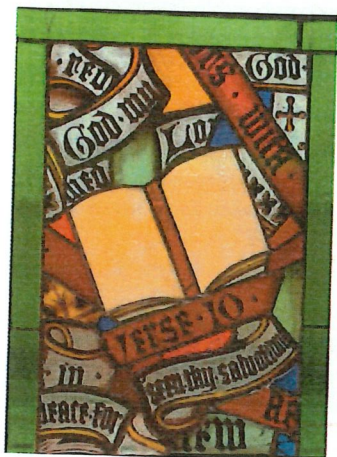


The Individual Panes Beauty from Brokenness

1. The Word of God

Glass used 36 old pieces, 9 new pieces

In the beginning was the Word, and the Word was with God,
and the Word was God John 1:1



When I first found the various pieces of fragmented glass with a number of words, and some pieces of words I tried to create sentences and phrases. It was impossible to do so as there were only individual words or parts of words available.

I did however have 2 pieces reading 'verse 10' and 'seen thy salvation'. After a prayer, I looked up and found the only verse 10 in the bible that has the word salvation reads **'The Lord has made bare His holy arm In the eyes of all the nations; And all the ends of the earth shall see The Salvation of our God'** Isaiah 52 verse 10. These two pieces had to be together!

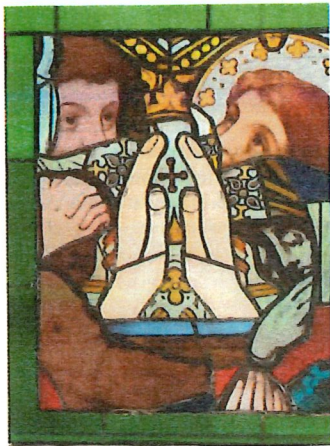
I found this piece comforting. To know that Gods word is always available to us. He wants to talk with us and in this pane his words are tumbling out of the bible ready to be read.



2. Prayer

Glass used 42 old pieces, 15 new pieces

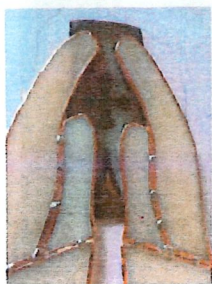
Do not be anxious about anything, but in every situation, by prayer and petition, with thanksgiving, present your requests to God
Philippians 4: 6-7



An appropriate pane as prayer led me through this whole process. For each pane I worked on I asked for God's hand to guide me and for me to find the right pieces of glass and the right design.

I wanted the praying hands to be central, with a cross to represent Christ. This pane can be used to aid meditation and prayer. It can also act as a reminder that we are one of the people of God, past present and future.

Lastly for me, I wanted to convey the message that if for any reason, we are finding it hard to pray, others are there praying for us, represented by the faces and praying hands.

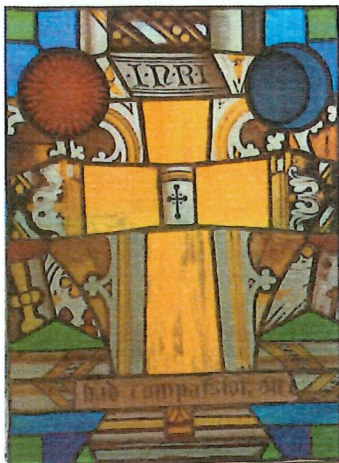


3. The Cross

Glass used 25 old pieces, 25 new pieces

His love was on full display as He hung on the cross. His sacrifice is a compassionate response to our need. Truly, "When he saw the crowds, he had compassion for them, because they were harassed and helpless, like sheep without a shepherd"

Matthew 9:36



This was the first panel I made. I needed to ground myself in creating something for Christ and therefore needed to start with a cross.

I found the two wonderful round pieces, complete and unbroken. A sun and a moon. To me they represent the Alpha and Omega, the Beginning and the End

The piece over the cross is Latin for 'Jesus the Nazarene, King of the Jews'. This had to go above the cross, where a sign was hung all those years ago. John 19:20 states that this was written in three languages Hebrew, Latin and Greek.

The centre of the cross has a piece of glass that is transparent apart from the cross and a rainbow. This is to represent that the cross is empty, Christ has risen and he has made us promises never to leave us. Either side of the cross are 2 green hills, both with small crosses to one side. These represent the other 2 crosses at Golgotha.

Lastly the words 'had compassion on' represent Christ's compassion upon humanity. That he cares for each one of us and knows us by name.



4. Holiness

Glass used 38 old pieces, 28 new pieces

But the Helper, the Holy Spirit, whom the Father will send in my name,
he will teach you all things and bring to your remembrance
all that I had said to you.

John 14:26



The Holy Spirit has been represented in the bible by Doves and Flames. I wanted to combine the two, but also wanted to show that the Holy Spirit is a gift, hence the hand holding the flames and the Dove rising from them.

The gifts of the Spirit are referred to as 'Fruit of the Spirit' and include love, joy, peace, patience, kindness, goodness, faithfulness, gentleness and self control. Galatians 5:22-23

After Christ had been killed, the disciples sat upstairs in a locked room petrified. They were in terrible danger and at a loss of what to do next and how to continue with Christ's message. The Holy Spirit was given to them, settling on each person in the form of flame. From that point on they were bursting with the Glory of God and their desire to share the message of hope and salvation.



5. Go Forth and Tell (Evangelism)

Glass used 26 old pieces, 42 new pieces

And he said to them, "Go into all the world and proclaim
the gospel to the whole creation"

Mark 16:15



After the Holy Spirit was given to the disciples
they needed to get on their feet and continue
the work of the Lord.

For this they needed to travel, to walk the road
and follow the cross sharing Christ with all they
met.

The feet were two pieces of glass I found that
were representative of the road we travel
today, as well as that travelled 2 thousand
years ago. The words that I found were
'preach' and 'world', they again had to go
together.

My small play on humour came in here as I
added 2 stained glass panels in the doors of
the stained glass window. God has given us
an amazing breadth of emotion and I am sure
he laughed at my effort here!



6. The Oak Tree and Creation

Glass used 54 old pieces, 36 new pieces

that they may be called Oaks of righteousness, the planting of the Lord,
that he may be glorified.
Isaiah 61:3



The Oak Tree is my favourite tree and I am sure that God would have grown some in the Garden of Eden.

A pane around creation was important to me as I feel creation is the foundation of our human relationship with God. It is around us in everything we see. Even things that we deem to be manmade, if you break down the components then we see God's hand.

When I was a child in Sunday School some 55 years ago I was handed an oak leaf. I held it in my hand and was asked the question 'Could you, or anyone replicate that leaf?' Of course the answer was no, and the teacher said 'that is because only God is the Creator'. That simple lesson became the foundation of my faith, and has never been forgotten.

Imagine trying to make an appointment to see one of the world leaders. The hoops that you would need to jump through, the processes you would need to undertake and the likelihood of it happening would be very slim. Yet, we have the ability of freely talking to the Creator King of the Universe. Not only does he welcome us, he knows us by name.

To me this is the foundation of my faith, the beginning and ultimately the end.





I pray that these windows will offer an insight into the world of being a Christian and through them offer an invitation to find out more. Made for the Glory of God, Beauty from Brokenness. The window was installed on the 6th April 2024. Wendy Usher.

**All are welcome to come and visit
St. Peter and St. Paul's Church Cranfield**

Sunday Services are at 10.30am

**The Church is open during daylight hours, please feel free to come
and see the windows. We have lots of events and activities
take a look at www.cranfieldchurch.org
for more information**

