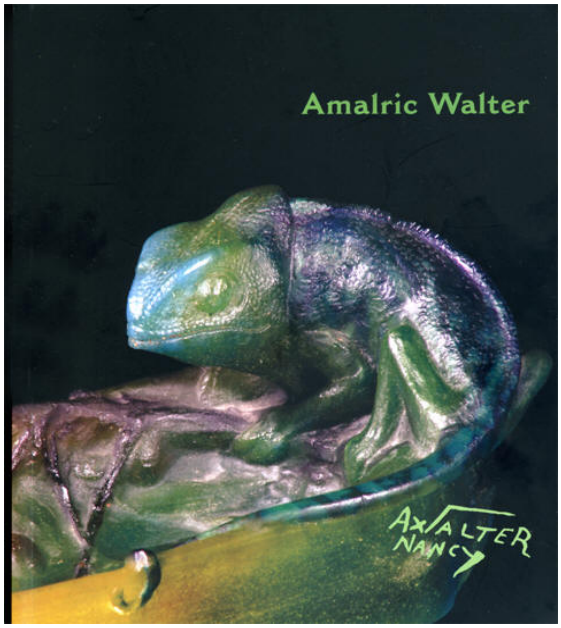
The Amalric Walter Research Project and subsequent development

Max STEWART[1]



In August 2006 Broadfield House Glass Museum in the UK held the first solo exhibition of the French pâte de verre artist Amalric Walter (1870-1959) anywhere in the world.

Part of the extraordinary nature of the exhibition was that it comprised almost in its entirety a single private collection of 161 pieces of Walter's glasswork, which had been donated for the purpose.

This unique collection is now held in trust by the museum and has been the basis of two investigations into his methodology and techniques. As a result we have a much greater understanding of the man and his work.

The first enquiry was a British Arts and Humanities Research Council funded project that ran alongside the Broadfield House exhibition. Professor Keith Cummings of the University of Wolverhampton led it and I was the assistant.

The second separate enquiry built on that previous one in the form of my own PhD at Edinburgh College of Art and Edinburgh University, and was an investigation that involved painstaking chemical analysis and reproductions of chemically made colour.

This article concentrates on the findings of that second investigation. In all the researches what was immediately clear was that at the height of his powers in 1925 Walter was hailed in France as the

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[1] This text is available in english on the friendly-website www.artericerca.com :
http://www.artericerca.com/Vetro%20francese/Walter%20Amalric/Amalric%20Walter%20-%20Max%20Stewart.htm
We sincerely thank Dr.Max STEWART to have allowed us to have it published on our website as well.

greatest glassmaker of his generation (Vallaires 1925), yet when he died he was almost forgotten, and his unique style of working in pâte de verre was lost for two generations.

Fig. 1

Part of the mystery surrounding Walter's work has been how Walter actual made his pieces. Since his death and loss of his notebooks it has even been doubted in some quarters whether his work was pâte de verre at all, but was instead enamelled glass. Certainly, as can be seen in Fig. 1, the main body of the crab has the appearance not of glass, but of something else, perhaps the matt glaze of ceramic.

My investigation with Keith Cummings at the University of Wolverhampton during 2005-7 proved this theory to be a false premise. In that investigation we showed the fine details of his dishes were made in the mould during the kiln forming process. The detailing – patterns, lines, flowers, leaves, body details - were all painted into the mould with paints made from finely ground coloured glass (in essence a glaze) and allowed to dry before being backfilled with larger particles of glass before the work was fired. Subsequently, my research has revealed that despite his use of glass as a medium of expression he was first and foremost a ceramist in his thought processes.

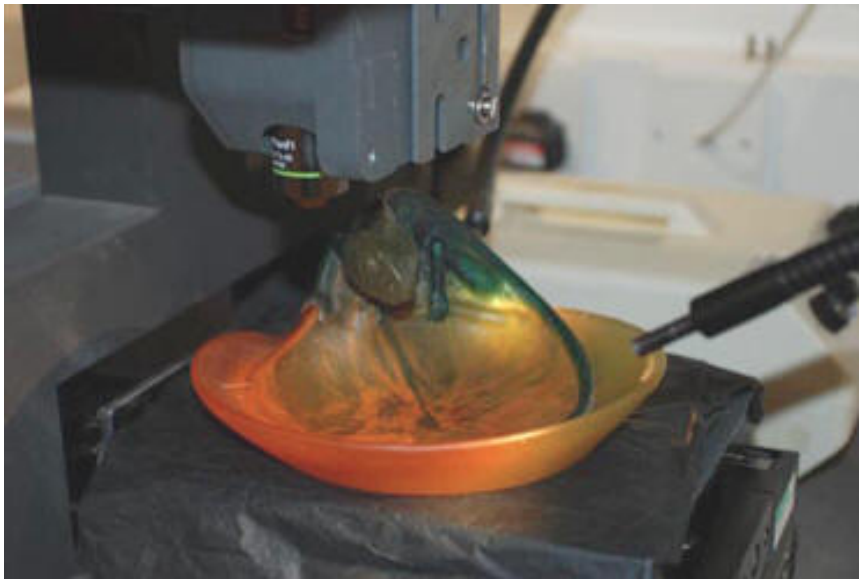

Fig. 2

Under the auspices of Dr Andrea Hamilton of Edinburgh University I was fortunate to be able to have examined in the laboratories of the National Museum of Scotland 5 of Walter's pieces from the collection using a Scanning Electron Microscope (SEM), an X-ray Fluorescence (XRF) machine and a Raman Spectroscope. Fig 2 shows one of the works being examined by the XRF machine. The results of these enquiries indicated three significant results.

The first was the presence of zinc in several of the opaque areas of his work, particularly in the red of his berries.

The second was the presence of uranium and its associated compounds within the yellow, orange and ochre areas of colour.

And, thirdly, the overall lead content of Walter's glass.

Zinc is not known as a colorant for glass and is not normally associated with its formation, although there were zinc based glasses made for a brief period in the 19th century (Weyl 1999). Zinc (in the form of an oxide) is normally associated with ceramic glazes especially with the fluxing of iron salts and their glazes (Hamer 1991).

Uranium on the other hand was used from 1840 through to 1942 both in ceramic glazes and for colouring glass (when its availability to the general public was halted), the most familiar being the Vaseline glass of our grandmothers' (Skelcher 2007).

However, its use has not been very much discussed in lead crystal of which Walter's work comprises. Under the Raman spectroscopy all 5 of the Walter pieces showed clearly that lead (PbO_2) content was around about 42%, not the 50% as had been previously suggested by Noël Daum (Daum 1984).

This explains why Walter's work is less scratched and damaged than it otherwise would be had it been made with the higher lead content. That produces a softer glass that can almost be scratched with the fingernail.

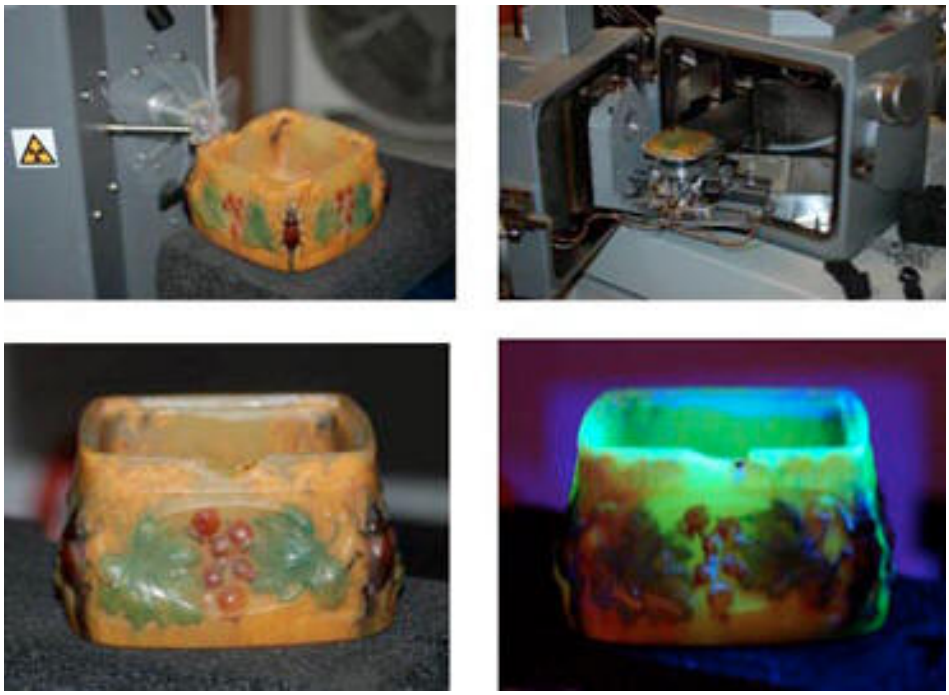

Fig. 3

The appearance of uranium in the examination results was unusual, as it has not been thought in Britain that any of the pâte de verre artists of the early 20thcentury utilised uranium compounds in their work to make colour.

Fig 3 shows the uranium content of a small square powder box by Walter glowing under UV light during examination.

With this discovery it is clear they did and there are two historic recipes contained with the respective notebooks of Gabriel Argy Rousseau (1885-1953) and François Décorchemont (1880-1971) (Leperlier 1982). Both artists were contemporaries of Walter and they list respectively ammonium uranate $(NH_4)_2U_2O_7$ for a yellow-gold colour, and uranium oxide (UO_2) for an emerald green.

Fig. 4a

Fig. 4b

These two colours can be seen in the Walter's famous Chameleon dish (Fig 4a and b) as well as in other pieces of his work.

How Walter came to use uranium can be only surmised, but it is my belief he was introduced to it when at Sèvres, and its use was reinforced when he was at Daum Frères. Baccarat, Lalique, Daum and other glassmaking houses in the Metz region of France are all known to have used uranium as a colourant in their blown and cast work (Strahan 2001).

That Walter uses the same colour palette throughout his career, especially maintaining it after Bergé died and his new collaborators changed his style to the more fashionable style of Art Deco, would indicate Walter made his own colours in glass.

It can be supposed therefore he used uranium, too, as it was readily available to producers and makers of glass.

The process of introducing it into glass is quite simple, as all that is involved is the mixing of the compounds into the glass's raw ingredients and heating it to founding temperature of around 1270oC.

The discovery of uranium compounds in Walter's glass led me to examine the whole of Broadfield House's 161 piece collection of Walter with a radiation monitor/Geiger counter.

The startling results were that amongst the 161 pieces all that contained the palette of yellow, orange or ochre - as well as some pieces that were dark red (sang de beouf) or brown - were radioactive, sometimes 25 times the normal background reading of 2-4 Counts Per Second. None of the blue or green colours registered on the radiation monitor as having a background reading of more than 2, sometimes less.

Fig. 5

Some pieces in the Broadfield House Collection of Walter that contain the blues, yellows and greens together registered mainly in the yellow areas and not in the blue or green areas. Fig 5 shows an indication as to where radiation is emitted in the colour spectrum on nine of the Broadfield House collection of Walter.

Alongside this study of uranium in Walter's work I was fortunate to procure some uranium oxide, and under the guidance of my supervisor, Dr Andrea Hamilton, some of it was synthesised to ammonium uranate. Following Argy-Rousseau's and Décorchemont's recipes (quoted above) it and the uranium oxide were placed into Gaffer Glass crystal frit in ceramic crucibles and heated to founding temperature.

Fig. 6

Fig. 7

At 1270°C the contents of crucibles were poured into buckets of cold water (Fig 6) to achieve the colours seen in Fig 7. The colours match exactly the two colours used by Walter in his work Dish with Lizard from the Broadfield house collection shown in Fig 8 – a golden yellow and a dark green.

Fig. 8

The fact that he used uranium in his work (as well as zinc) may provide experts in the future with a test as what is an authentic Walter and what is not. Uranium oxide and its compounds are strictly controlled by licence throughout Europe and America, and hard to come by, as I found in my work. The use of zinc is complex, too, in Walter's methodology and has proved hard to replicate exactly.

In the meantime a general cataloguing of Walter's known work would ascertain what he made and when, as would the discovery of his moulds which are still somewhere in existence.

Fig. 9 and 10

Since 2006 it is with certainty that we can now say how Walter made his pâte de verre. I have occasionally been asked 'why bother to revive a lost technique?' and it is true that Walter's work lies in the glittering past. But discovering the past has enormous implications for the future.

The findings in my PhD and ultimately in my own pâte de verre work have shown that Walter's methodology is also readily applicable to a modern studio artist - as may be seen in Fig 9 and 10. These are two life-sized heads/masks I have made solely using Walter's techniques.

Over the past 4 years it has been encouraging to see how some students in the glass departments at the universities of Wolverhampton and Edinburgh are using elements of his technique to influence their own work.

There is, of course, the danger that by disseminating his methodology forgers will have an extra tool for deception, and reproductions will continue to evade detection.

The counter argument is that by understanding how Walter's methods can be used and expanded upon, a new history for the collectors of the future can be achieved. And that in the final analysis is the point of reviving lost techniques. Not just for academic interest, but as one poet said: to craft new shapes to entrance the world.

Max STEWART

Bibiography:

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