At the beginning of September I will come to the end of a three-year research fellowship funded by the Arts and Humanities Research Council. The fellowship - *Innovation in Vitreous Enamel Surfaces for Jewellery*, is hosted by the enamel research unit at the University of the West of England, Bristol. In this presentation I intend to address the conference theme of ‘Crossings’ by exploring the intersection between personal studio practice and formal practice-led research.

To give a brief outline of my background, I graduated from the Central School of Art, as it was then, in 1988, and until 2007 when I gained my current research post, I had what might be described as a ‘portfolio career’, in which, like many jewellers, I balanced my own studio practice making one-off and small batch production work with regular part-time teaching.

As a student at Central I was fortunate enough to have excellent teaching in traditional enamel techniques from both Jane Short and Fred Rich and I found in enamel a material that allowed me to bring colour and pattern to my work. For a number of years after college my practice concentrated on traditional techniques such as cloisonné and champlevé.

As I’m sure many of you know I am the daughter of the enamel artist Elizabeth Turrell, and over the years she has played a significant part in shaping my approach to enamel. For more than 35 years she has been a passionate and influential champion of the material, teaching worldwide and facilitating and encouraging artist from many and varied backgrounds to undertake work in enamel. She has developed a personal practice that clearly demonstrates her sensitivity and her tacit knowledge of enamel to create work that carries great meaning and depth.

Over a number of years I became increasingly involved in the projects she was undertaking at the UWE where we both currently work and where she is senior research fellow.

The most important of these projects that Elizabeth got me involved in was a large public art commission from the Bristol Royal Hospital for Children to create all of the donor recognition plaques in enamel. This was a huge project and involved a sizable team of artists. My participation in this project exposed me to a very different set of approaches than were normally part of jewellery scale enamelling work and led me to reconsider how enamel might be used in my practice.

At this point I began to experiment with a number of non-traditional mark making processes, trying to move away from the more prescriptive and procedural traditional techniques.

This series of pieces developed out of that exploration. I was becoming increasingly interested in altering the metal surface under the enamel by etching it to create repetitive marks and patterns, building up layers of black and white enamel over this contoured surface and then rubbing the enamel surface back in a process that selectively and sensitively re-exposed the underlying marks. This technique allows me to achieve a sensuous surface that, without the glassiness and shine one might expect from enamel, gives the material an ambiguous, pebble or ceramic-like quality. I was starting to achieve the expressive surface I was after but I wasn’t all together happy with the flatness of the finished pieces and the visual constriction placed on the enamel by the framing device.
In 2004, looking for some new direction for my work I embarked on a part-time Research by Practice MA at UWE. Due to a number of unforeseen circumstances I had to transfer in my second year but was able to finish my project under the wing of the MA Multidisciplinary Printmaking course, which had a broad enough remit that would allowed me to specialize in enamel.

For my final show I created a body of work that explored memory and forgetting through a series of wall mounted panels entitled rememberings, this group of twelve panels featured photographic imagery created using etching and enamelling techniques, and each images was then overlaid and partially obscured with a delicate layer of enamelled text which represents the fragility and unreliability of memory.

I was advised at the start of my current research to keep my personal practice clearly defined from the more formal research until the project was complete, and with this in mind I have continued throughout the last three years to make and exhibit work that is a continuation of the text and mark-making work started during my MA.

In both my jewellery and my larger pieces I strive to create work that has a tactile delicacy and that rewards the wearers or viewers close attention with an intricate and detailed surface. I use etching techniques to create layers of handwritten text and repeated marks that reference handwriting practice. These etched pieces are often made of multiple layers with overlays of monochrome mark or text uppermost allowing for glimpses of underlying enamel in bright jewel-like colours. By being partially concealed and protected the underlying colour is imbued with a preciousness and intimacy that it might not have if more boldly displayed.

I have long believed that enamel has huge potential as an exciting, innovative and highly expressive material. Despite this it seems to me that it often suffers from its associations with a traditional practice that relies heavily on high levels of skill to produce work that, although beautiful, makes little or no reference to the themes and concerns of contemporary jewellery. These associations with tradition mean that enamel is often not considered to be a relevant material through which to address contemporary issues and concerns. Where enamel is used in contemporary practice it is often used in an experimental and rather crude way that conveys none of the surface qualities and subtleties of which the material is capable. I believe that somewhere between these two strands of practice lies an approach that is innovative and experimental but that handles enamel with skill and sensitivity, I would argue that there is little of this type of work currently being created in the UK.

In 2006 it was suggested that I apply to the Arts and Humanities Research Council for a grant under the Fellowship in the Creative and Performing Arts Scheme. It seemed obvious, given my interests, that I should submit a proposal for a research project that would investigate the potential for enamel in contemporary jewellery. I was delighted when my proposal was accepted and in September 2007 I embarked, full time, on the three-year practice-led project.

The aim of the research fellowship has been to develop new and innovative technical approaches to contemporary enamelled jewellery that stem from my own practice and to contextualize this by identifying, championing and promoting innovative enamel practice nationally and internationally whilst also providing an important forum for professional networking and information exchange. The funded research project has given me a fantastic opportunity to develop strands of investigation far beyond what would be possible for a lone studio practitioner to achieve.
In order to provide some evidence in support of my assertion that there is a distinct lack of innovative enamel jewellery in Britain my initial task was to survey the field as widely as possible and to try and build up an accurate picture of contemporary practice. I spent a couple of months trawling websites and publications looking for examples, plus taking the opportunity to see as much enamel jewellery on show in exhibitions as I possibly could. I looked at and recorded the work of in excess of 150 jewellers from all over the world for whom enamel is their predominate material and I have continued to add to the list over the course of the project.

(image 25)

In the context of a research project, it is clearly not sufficient to make a subjective decision about what is ‘good’ and what is not. As a method of ensuring a level of objectivity I developed a number of category headings and then allocated each work to a particular group. These where:

- Fine or skilled enamel: which is broadly work that concentrates on traditional enamelling techniques to create work for a mainstream or commercial market.

- New enamel: where the work itself engages with contemporary ideas but where enamel is used simply to add a paint-like layer of colour to the surface of the piece using only basic techniques.

- Innovative enamel: where the two practices overlap and the artist is able to demonstrate both a knowledge and understanding of the material and a desire to use enamel to explore contemporary aesthetics and concerns.

The allocation process did not involve value judgements about the quality of the work and there proved to be good and bad work in each category.

This system was by no means perfect; using only three categories could never fully reflect the diverse nature of enamel practice. But the designation and grouping was a necessary starting point. Although a defined set of parameters were followed during this survey, my decisions were inevitably influenced by my knowledge of the field and by a necessarily subjective appraisal of individual pieces.

My research showed me that the majority of the British work surveyed fell into the first ‘fine’ category, whilst the second category contained a smaller number of enamellers, largely younger artist. The smallest grouping was British work that could be classified as innovative as defined by this project.

My reading and background research has led me to the conclusion that there are a number of cultural and historical factors that contribute to enamel’s status as an overlooked or dismissed material.

As was so eloquently illustrated by Sofia [Björkman] in her talk yesterday afternoon, contemporary jewellery is concerned with so much more the traditional status of the materials used or the evident skills employed in the making of a piece of work. Therefore it might be argued that the issues of beauty and decoration commonly associated with the traditional use of enamel might be considered as outdated.

The second issue is that enamelling is a difficult skill to acquire; to take it beyond a simple ‘sift and fire’ approach requires time, patience and perseverance. Firing the enamel at temperatures in excess of 800 degrees c, sometimes many times over, puts the piece at risk and this can be a risk many jewellers are unwilling to take.

If colour is required it is increasingly acceptable for this colour to come from a wide variety of materials such as paint, pigments and plastics, all materials that don’t carry the burdens of value and tradition.
There is a well rehearsed argument concerning craft practitioners who reject skill in a bid for fine art status which I don’t intend to go into here except to acknowledge that there is trend for deliberately ‘sloppy’ craftsmanship in contemporary jewellery that extends to the use of enamel where immediacy and freshness are sometimes valued over work that demonstrates the high levels of skill associated with traditional enamelling.

Undoubtedly the quality of teaching and technical instruction available to those studying jewellery is significant if complex skills are to be passed on in a way that encourages exploration and innovation. It would appear that there is a lack of specialist enamel teaching and poor or non-existent facilities within many higher education institutions. In general, where enamel does form part of the curriculum, a set of rather prescriptive traditional practices are passed on that can alienate all but the most determined. Alternatively students are introduced to the basics and then left to muddle along as best they can. This is not always the case and there is of course some excellent teaching in the field but much of the innovative work being made can be traced back to a handful of influential tutors who introduce enamel in a much more open and experimental way, calling on industrial and large-scale techniques that allow for more of a sense of personal expression.

I was disappointed to see how little enamel work was on display in the collections of this year’s crop of British jewellery graduates at New Designers earlier this month. With the exception of graduates from Edinburgh College of Art, where there seems to be a growing enamel culture, those who were working with the material told me that they had often had to go outside their department to find information. When we have examples of colleges worldwide such as Halle in Germany, RMIT in Australia and many of the American colleges including Kent State University, Cleveland Institute and East Carolina University, where enamel is a core part of the curriculum and where exciting and experimental work is being produced, it is discouraging that this enthusiasm about the potential of the material is not conveyed to the current generation of British students. It seems that in the present financial climate this situation will only get worse as department budgets are cut and visits from specialists and oversees tutors become an unaffordable luxury.

I consider that enamel’s association with amateurism is also a big problem that prevents the material being taken seriously by professional jewellers. Whilst I would acknowledge that amateur associations have a big part to play in creating a forum where like-minded individuals can come together to discuss and share their passion such groups have a tendency to be rather inward looking and technically orientated, focusing on the procedural aspects of enamelling rather that engaging with ideas and critical debate.

It is my belief that all of these issues contribute to the current state of enamel practice. These are clearly my personal opinions on which I am happy to be challenged. I think any level of debate helps to raise the profile of enamel as a subject worthy of engagement. While I might seem to be painting a rather negative picture, as you will see from the images I will show you at the end of this presentation, there are a number of artist who are clearly taking an innovative and open approach to enamel. Rather than a rant I intend this to be a bid for a wider recognition of what an exciting, vibrant and contemporary material enamel can be if approached with sensitivity and an open and enquiring mind.

Technical research

I will now move on from the theoretical aspects of the project to the practical research. I believe that for those jewellers who do choose to use enamel one of the factors that can hinder experimentation is the need to avoid risk. When a piece has been painstakingly constructed the maker might not, understandable, be willing to push the boundaries of what is possible and maybe risk failure.

Enamel doesn’t like solder and solder joints don’t stand up well to repeated high firings. One commonly used methods of avoiding this problem has been to make the enamelled section as a separate flat or slightly domed piece and then set it as one might a stone, and this is a
method I have used myself on many occasions (image 26). The advantage of this approach is that because of the short time it takes to prepare the blank very little is at risk, if the piece is unsuccessful then it can be set aside and another attempt made. The disadvantage is that on the whole the work remains fairly flat and the setting can give the finished piece a distinctive and rather generic aesthetic.

My proposition was that if a three-dimensional piece could be created relatively easily, with no solder joints that might be harmed by the high temperature firings, and that had the potential to be replicated any number of times, this might allow the enamelling process to be approached with a greater sense of freedom and playfulness, and thus encourage a more experimental approach.

(image 27)
With this in mind the stated technical aims of the project are as follows:

- To develop new ways of working that are less prescriptive and more open to experimentation than traditional enamel techniques allow
- To adapted methods and approaches more usually associated with large-scale and panel enamelling and industrial processes for use in wearable pieces
- To develop a range of techniques including electroforming, 3D printing and rapid prototyping, which will allow for the creation of volumetric forms that can be successfully enamelled in the round
- To resolve some of the problems associated with the application and firing of enamel onto three-dimensional forms

In an attempt to create an enamellable three-dimensional form the project investigated fusion and laser welding, electroforming and trials of the interaction between enamel and a variety of different types of solders. It became obvious quite early on that a detailed investigation into the technique of electroforming was going to be the most productive strand of research. This technique would offer the opportunity to create seam-free three-dimensional forms in a large enough quantity that would give me the freedom to experiment with the enamel and make mistakes, be playful and perhaps risk failure. One must remember that research allows for failure in a way that a commercial studio practice often doesn’t.

As a simple explanation of electroforming it can be defined as the process by which metal particles are deposited onto a base form through the process of electro-deposition in a layer that is thick enough to be self-supporting. It is possible to electroform on a metallic base or to use electro-conductive coatings to make many other non-conductive materials suitable for electroforming. Generally if the form is to be enamelled it must be possible to remove the base material thus leaving a hollow form.

(image 28-30)
Electroforming has been used in conjunction with enamel by a number of artists, particularly in the USA where the most notable exponents are Jamie Bennett, Maria Phillips, and June Schwartz, who has been making vessels that use a combination of electroforming and enamel techniques since the 1960s.

While I was aware of the work of these and other artist I was unable to discover any formal published research regarding the combination of enamel and electroforming. I would make no claims that my work with electroforming is original research; instead what I have done is to reinvestigate the technique and adapt it to suit my personal aesthetic. To this end I have tried to avoid the organic looking over-growth so common in much electroforming. What is also significant about this research is that all technical data will be accessible to the wider jewellery and enamel community.

(image 31-35)
With help and advice from Les Curtis who is responsible for establishing the electro-deposition laboratory at the Jewellery School of Birmingham City University, I set up a hundred liter copper electroforming tank in the enamel studio at UWE, and proceeded to carry out numerous carefully recorded experiments with the process, looking at the base form materials, electro-conductive coatings, mould making, problems of de-lamination, variations in time, temperature and power.

(image 36-38)

As part of this research I undertook a small collaborative project with one of my colleagues Dr Peter Walters to explore the use of 3D printing and rapid prototyping techniques as a method for the production of the underlying forms. This involved three-dimensional scanning, data generation and three-dimensional printing, using a Z-Corp machine.

(image 39-41)

Once I was able to control all the variable of electroforming to the point where I could create a smooth form of an appropriate thickness for enamelling I set myself a further brief. This was to take the non-traditional approaches and techniques for mark making in enamel I had developed over the years prior to the start of the fellowship and apply them to the three-dimensional electroform. To this end I trailed a number of methods for applying enamel to a three-dimensional etched surface, undertook adhesive trails to test the enamel holding agents, plus methods for supporting and stilting these objects in the kiln.

Because of the need to systematical consider and test all the variable of a technique and to keep accurate records the process of making these objects has been very different from the way I would have approached experimentation and technical development within my own practice. If I had been making for myself I would be working towards the best technical resolution of a particular concept or idea, only undertaking the experiments as were necessary for me to achieve the result I desired, and my skill and knowledge of the process would have developed over time as I learned from my successes and failures. As it was I had to be unnaturally methodical and not let myself be seduced by all the possibilities the process had to offer?

Finished work

(image 42-49)

Finally once all the investigations into this strand of the research were complete I was committed to producing a small collection of finished pieces. In many ways this was more difficult than anything else. The forms I was using for sampling had been developed in order to trail various elements of the technical process and to try and factor out obvious technical problems. For instance the organic rounded forms are governed to a certain extent by the fact that rounded surfaces are easier to electroform than objects with corners. Of course some decisions were made for aesthetic reasons, I wanted the forms to be pleasing and to sit comfortably in the hand.

When it came time to make final work, rather than developing a whole new set of forms and moulds I decided to take what I had and try to develop these into a coherent group of wearable pieces. I find it interesting that I don’t feel connected to these pieces in the way I would normally be with a new body of work, and I find it difficult to discuss them in any terms other than their technical development.

Whilst I am very happy with them, they are great to hold and have a beautiful surface texture; I suspect that I don’t have the usual emotional investment because they are so much a product of the research process.

My plan now is to disseminate all aspects of the technical research and information will be publicly available on the project website in the autumn.
Running in parallel to the practical research throughout the period of the project has been the broader task to both identify artist who represent best practice in innovative enamel jewellery and to publicize the theoretical aspects of the project. To this end I have written about enamel for the Klimt02 jewellery community convened an online discussion forum, put together a number of case studies, and organized the symposium that took place in Bristol last week. My writing has included a report for the ACJ newsletter, Findings, and the production of academic papers as is required of any researcher. This writing not only serves to disseminate my research but to clarify my thinking about the subject in a way that I don’t think would have happened if I was simply undertaking my own practice.

I am now planning a major touring exhibition due to start in 2011. This international show will feature some of the finest examples of contemporary enamelled jewellery and will expose the general public and the jewellery community to the potential of enamel as an exciting and innovative material.

The images on screen represent artist identified for inclusion in the projects online database, which will be going live towards the end of the summer and will serve as an excellent resource for practitioners, curators and students. The database will compliment the International Contemporary Vitreous Enamel Archive that was established by Elizabeth Turrell and contains work in enamel on all scales.

Conclusion

What this research project has allowed me to do is to take a much narrower focus than is natural for me and consider every piece I see and every jewellery event I attend from the point of view of how it fits into the framework of the project. I was slightly shocked to hear myself described by an Italian artist with whom I had been corresponding as being ‘the woman who is obsessed with enamel’. This description makes me more than a little uncomfortable because I see myself as someone who is interested in so many more aspects of contemporary jewellery than what it is made from and what techniques are used. But clearly the project has turned me, all be it temporarily, into an enamel obsessive, and even though this materials based approach does not sit comfortably, I believe that such narrowly focused and specialized research posts are important as they add to the community pool of knowledge and understanding.

I feel incredibly privileged to have been given the opportunity to undertake this project. Under no other circumstances would I have been able to investigate the subject of my practice in such detail, build up my technical knowledge and form contacts with such an interesting group of makers. I hope my research will prove to be a valuable resource for all members of the jewellery community. Once the documentation of the project is complete, I will return full time to my studio practice where I will have time to evaluate, absorb and reflect on what has been a really stimulating and challenging three years.

More detailed information about the project can be found at the web address on screen, or if you would like to discuss the work with me either come and talk to me during the next few days or contact me by email.

Thank you