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# Back From The Brink

*The New Hands Reviving The Old Craft  
of Watch Dial Enamelling*



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The specialist art of enamelling watch dials, as with so many disciplines in our trade, is something that has gone from boom to the brink of extinction. During the eighteenth and nineteenth centuries, British workshops were creating enamel watch dials in huge quantities, and yet today the practice has been restricted to a tiny number of independent watchmakers making them for their own purposes on a miniscule scale.

One British company reviving dial enamelling has made it the cornerstone of their business. I first crossed paths with anOrdain around four years ago when they approached us looking to make contact with our local clipping tool maker in Birmingham's Jewellery Quarter. Clipping tools, used with a press, are a fantastic way to cut dial blanks quickly and accurately ready for printing or enamelling. However, toolmakers, like the enamellers themselves, are a rare breed indeed. We started sharing our contacts and details about the projects we were working on, and eventually ended up collaborating on the enamel dials my husband Craig and I are using for our first watch with an in-house movement.

It's a collaboration that has grown organically and, as much as I'm enamoured by the quality of anOrdain's work, it's their approach to making and the impact they're having on their craft that I find most impressive and feel should be commended.

Talented dial enamellers are hard to find, even in Switzerland. Swiss giants like Patek Philippe and Vacheron Constantin make a great deal of the dark art of dial enamelling, which the former describes as 'one of the most high-risk of the rare handcrafts'. Quotes on failure rates vary, with some claiming success rates of ten per cent or less.

Painted enamel dials in particular have become some of the most desirable vintage wristwatches on the market, reaching record prices at auction over the past few years. Just last year, a Patek Philippe World Time ref. 2123 with a cloisonné dial (a technique where cells of coloured enamel are created between floating sections of gold wire) depicting Eurasia fetched a staggering USD 7,819,051 (approximately £6,250,000) at Phillips auction house in Geneva.

## *An Ancient Love Affair*

Our love of vitreous enamel is a fascinating relationship that dates back over 3,000 years. At its core, it's the process of turning silicon, one of the most common elements on earth, into a rare and desirable work of art. It's easy to understand the appeal of enamel dials. Unlike paint, the richness of its colour is permanent. It will never fade, peel or discolour. Anyone who has restored watches with enamel dials that are several hundred years old can testify to the permanence of enamel compared to their later printed counterparts. Even earlier, silver or gold repoussé, chased and engraved champlévé

dials have a bit of an air of mystery. Years of tarnishing and cleaning means many have lost the fine detail they were originally embellished with.

It's true that enamel dials are susceptible to cracking if dropped or the dial feet are bent, at which point they become nearly impossible to restore seamlessly. This is a particularly worrying feature for anyone who has just spent several million pounds on a watch they know, if damaged, will be a total write-off, as we're lacking a sufficient number of enamellers and restorers who have the skills to perfectly replicate the original. Equally, when cared for, the depth of colour of antique enamel dials and the clarity of their numerals is exquisite – and it is no surprise their popularity has continued through the centuries.

## *The Process*

The process of vitreous enamelling requires the fusing of finely powdered glass on to metal using heat. Enamelling is one of those rare techniques that bridges nature and chemistry. The



Figure 1. Details of the finished 'blue' and 'plum' fumé dials housed in the Model 1 case.



Figure 2. anOrdain's Model 1 with a Parisian blue enamel dial.

process is scientific, but the outcome is so easily influenced by natural variations, it makes the process as much of a battle between human and the elements as it is the scientific process of heating powdered glass. It's regarded as a kind of alchemy.

Colours can change during the firing process and not all enamels get along with all base metals. Some prefer fusing to copper, some fine silver, others like gold. Imperfections can appear, apparently from nowhere, writing off hours, sometimes days, of work on a single piece. Experienced enamellers keep almanac-like notebooks recording firing timings and the temperatures of every enamel they use, which can number in their hundreds.

The process has evolved with health and safety regulations, which have, quite understandably, banned some of the ingredients historically used in dial enamelling, such as cadmium, barium, lead, arsenic and antimony. Lead was a particularly key ingredient for making the brilliant rich white dials synonymous with nineteenth century watchmaking. It's a similar situation across a range of different chemicals in horology, jewellery and silversmithing.

It's obviously a good thing that the materials we work with are being made safer – no-one wants to return to the days when fire gilding was practised in volume by unsuspecting craftspeople – but it creates a new range of challenges. For example, to create a depth of colour that could once have been achieved with just a few layers of enamel now takes several times as many layers, with each new firing creating an added moment of risk where the dial can fail.

Enamelling in itself is challenging, but enamelling for watch dials is challenging on a completely different level. Unlike fine jewellery enamellers, watch dials have to be made to precision standards. Thicknesses must be perfectly uniform and replicable to tolerances of one-tenth of a mm. They take a different mindset to fine art enamelling too. The output is more clinical.

From my own attempts to find enamellers willing to collaborate with us on watch dials, it's hard to find creative people willing to get excited about making perfectly flat plain discs to precision standards when they're used to making freely to their own aesthetic inspiration and without the restriction of precision tolerances. There's something very mathematical about making dials and it's hard to find people

who have both the eye for detail and the creative hand skills to make it happen. It's no wonder we've struggled in recent years to encourage more people to take up the craft.

### *Reviving The Trade*

From what could have so easily become an extinct skill in the UK, the small Glaswegian firm anOrdain is reviving the trade. Founded by architect and product designer Lewis Heath in 2015, their current workshops occupy the light filled top-floor of the old Templeton Carpet Factory, a Victorian warehouse with views overlooking Glasgow's East End.

The inspiration to start creating enamel watch dials arrived after a chance encounter between Lewis

and an enamelled coin, made by the Birmingham mint, which was decorated with a bright red poppy. Although it later transpired that the poppy was in cold, not vitreous enamel, a spark had been ignited. Lewis began to explore the possibilities of creating vivid colours on metal to create watch dials, and whether this was something he could achieve locally in Scotland using the region's talented craftspeople.

As luck would have it, Scotland is home to two internationally renowned art and design schools, the Edinburgh College of Art (ECA) and Glasgow School of Art (GSA), both of which run highly regarded jewellery and silversmithing courses, graduates of which now make up anOrdain's enamelling team.

Launching a career as an independent jewellery designer is tough, as with many of the creative industries, so Lewis spotted an opportunity. There were high calibre artisans around with passion but limited opportunities, many having spent a few years freelancing but struggling to progress their careers, before ending up in jobs outside their industry to support their income. So, in anOrdain, he set out to create a business that gave people the opportunity to do something they enjoy doing and they'd trained to do in a supported environment.

From small beginnings, their jewellery and enamelling team has grown to five talented artisans: Sally Morrison, Cara Louise Walker, Morna Darling, Nicky Faill and Sarah Murdoch.

With the enamelling side of the production covered they found the greatest challenge was sourcing local watchmaking talent. It was such a struggle that, at one point, Lewis resorted to taking a kit of parts to a local branch of Timpsons to see if they could help build their watches. Timpsons were unable to help, but luckily Lewis found Chris Roussias through his local BHI chapter. Chris was a BHI Distance Learning Student who, until that point, had been making a living at an Amazon Warehouse to support his studies. Since then, the watchmaking team has expanded to include École Technique Le Locle graduate Carolina Sipriana, and British School of Watchmaking alumna Naïs Hamelin.

While the movements are currently Sellita SW-210-1 and LJP base calibres (Sellita being the main rival and accessible version of the ETA 2801-2), bringing watchmaking skills in-house, including those acquired by Naïs on the BSOW's





Figure 3. Enameller Morna Darling pad-printing a blank fumé enamelled watch dial.



Figure 4. Nicky Faill applying enamel to a dial ready for firing.



Figure 5. Sally Morrison in the process of firing a fumé watch dial.



Figure 6. BHI qualified watchmaker Chris Roussias at work.



Figure 7. Engineering graduate Euan Fairholm working on a watch movement.



Figure 8. Naïs Hamelin building a watch in an Ordain's watchmaking workshop.

3,000 Hour Programme, is allowing them to start exploring modifying these base calibres – an important stage in the journey towards creating a completely in-house movement. As is the addition of two talented young engineering graduates to their team, Euan Fairholm and Euan Macer-Law.

Their small multidisciplinary collective includes product designers and their in-house typographer, Imogen Ayres,

who has been with the company from its very beginnings and designs their dial numerals and layouts. At present, their cases are sourced and their custom designed hands, based on a compass needle, are supplied as blanks from a Swiss firm before finishing and fitting in house. The dials, from the blanking and fitting of their feet right up to the pad printing process, are completely made in their workshops.





Figure 9. A bank of kilns in anOrdain's enamelling workshop.

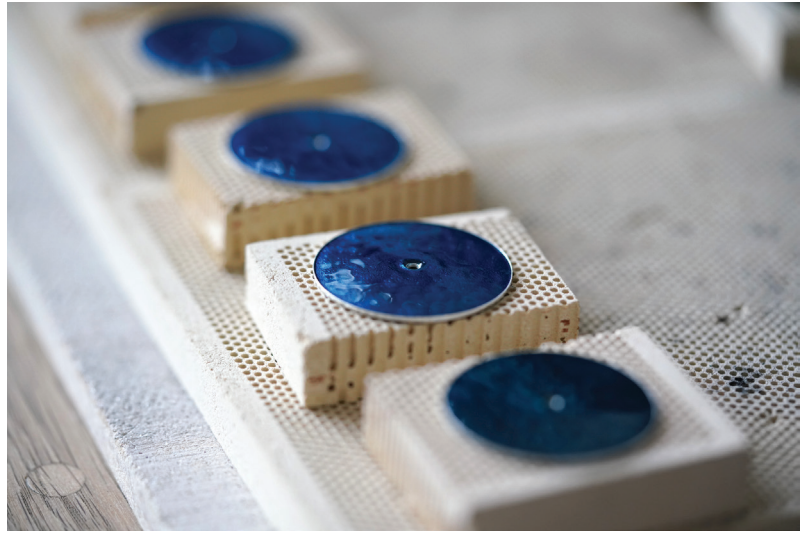


Figure 10. Fired blue fumé enamel dials ready for sanding back.



Figure 11. Bluing the steel hands, inspired by the shape of a compass needle.



Figure 12. The Sellita SW200 movement, which powers anOrdain's watches.

Along with its people, anOrdain have invested a great deal in research and development. They spend approximately half of the company's working hours trialling and developing new techniques and testing hundreds of enamel types and colours to find their choice range. It's a hard process to master. Lewis has found that it typically takes an artisan a year of making enamel dials daily before craftsmen and women are confident with the basics. They are currently, to my knowledge, creating the only commercial fumé dials in the UK.

Fumé (from the French for smoked) is a technique that originated from an accident where the base metal of a dial domes very slightly by raising at its centre. When coated with translucent enamel and finished back to a flat surface, the graduating depth causes a lightening in the intensity of the colour toward the centre of the dial and darkening towards the edges. It's a bit like the appearance of a sandbank near the surface of a body of deep water.

### ***A One-Enameller-One-Dial Approach***

The enamellers at anOrdain see each dial they are working on through from start to finish. They start by applying thin coats of enamel powder to wafer thin shims of copper, which

are fired at over 800°C before being sanded down, layered and fired again up to eight times. Each dial can take up to 12 hours to make. The process is so painstaking their whole team can make as few, or as many as, 50 dials a month – 50 being a miniscule number in the grand scheme of watch production. At the same time, it is head and shoulders above the production of any other British watch company making enamel dials this century, and a phenomenal achievement for a company just seven years old.

One of the greatest benefits of their one-enameller-one-dial approach is the significant reduction in wastage. Larger manufacturers in Switzerland fire large trays of ten or 20 dials at a time, which are made oversize and cut back to select the best part. Although achieving quantity by scale, this is part of the reason failure rates by some producers are quoted at over 90 per cent. By having a dedicated enameller overseeing each dial from start to finish, firing one in the kiln at a time, anOrdain have managed to treble the industry success rate.

They're a craft watch brand with a difference, approaching making with the hook being their enamel dials. Although Lewis struggled to find local watchmakers when he first set out, the growing company is becoming a magnet for talented





Figure 13. The finished 'plum' fumé dial housed in the Model 1 case.



Figure 14. Rear view of the 'midnight green' Model 2.

artisans looking to hone their skills. They're the sort of company I look at and wish they'd been around when I was a graduate.

Small, new, and dynamic workshops offer an amazing place for recent graduates to feel like they're really making an impact, learning new skills and helping lay the foundations as the company grows. Unlike service centres, within months of starting they're playing an important part in developing new components and refining the Sellita and LJP base calibre. It wouldn't surprise me at all if we saw some of the next generation of independent master watchmakers emerging from workshops like anOrdain's. I think this is possibly the ingredient our industry has often been missing in inspiring the next generation. It's not just about providing jobs. It's providing exciting, challenging jobs with prospects for further training in an environment where young watchmakers can see the impact of their contributions.

It is perhaps, for this reason, that another exciting thing about anOrdain's business is that it's not just a young business – it is populated by young makers. Their 15 staff range from recent graduates to people in their early 30s and, at the time of writing, most have been at the workshop for at least four years and they haven't lost anyone yet. They certainly live up to their company motto of 'Old crafts – new hands'.

It's no secret that horology has struggled to attract the younger generation, and that young people taking up these skills is essential in the preservation of a whole range of heritage crafts. To have apprentices through to master craftspeople under the age of 35 and all under one roof is a phenomenal demonstration in how to both revive and maintain skills. Watch dial enamelling, along with the umbrella of traditional fine watchmaking, is currently categorised as a critically endangered skill under Heritage Crafts' Red List of Endangered Crafts, which ranks craft skills using a similar methodology to the Red List of Threatened Species.

Their team has recently expanded again, welcoming Ukrainian third generation enameller Martin Koval, who founder Lewis Heath recently supported, along with his wife and three children, in relocating to Glasgow. Martin initially studied economics and worked in an accountancy firm before changing careers 20 years ago to become his father's apprentice as an enameller. Together, they worked on objects including Fabergé eggs. He has brought both his skills and enamels with him allowing the firm to start experimenting with Russian Dulyovo (also called Duelvo) enamels alongside their current offering.

As much as it would be wonderful to save all heritage craft skills for the future, the reality is that there needs to be an economic demand for them to succeed and thrive long-term.

Fortunately, there has been an impressive demand to match their growing team of young artisans. anOrdain operates a waiting list that releases a set number of build slots around once every six months that, if taken up in full, would create an order book seven years long at a production capacity of 400–500 pieces a year.

For me, anOrdain is an example of just how much can be achieved in preserving heritage skills in a very short time when investment is made in people and production. They have succeeded in establishing a workshop that, in the space of just seven years, is supporting 15 people, some of whom are practising some of the most endangered craft skills in Britain, and all of whom are young enough to train apprentices for many years to come.

I'm delighted to be able to share a little of their story as I hope it is something we all, as members of the BHI, should be aware of and supporting.