

What Colour is

Metal?

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Foreword

Rosemary Steen
Chief Executive
Design & Crafts Council
Ireland

The opening of *What Colour is Metal?* as part of a celebration of the Design & Craft Council's 50th year is a cause of great joy to me. In a year when craft became ever more present in Irish life, this exhibition could not be more timely.

What Colour is Metal? celebrates the exceptional technical skill and creative innovation of master metalsmiths from around the world. These craftspeople are leading the way in colouration of metal. This exhibition captures a particular moment and brings together long-standing masters, who have expanded the possibilities of the discipline, with innovative emerging makers, ready to make their own mark on the global stage. Exhibitions of this calibre, showing the highest level of practice in a discipline, highlight innovation and inspire new generations of makers.

The international scope of the exhibition, as we recover from the challenges of the pandemic, highlights the importance of sharing skills and knowledge across borders. It also acknowledges craft as a universal language, both in making processes, and in how we experience craft objects.

Individually, pieces tell their own stories. They demonstrate creative applications of the various metal patination processes in which each individual maker specialises. These works communicate the ambition of craft to continue to challenge perceptions. They also speak to the journey of a community of makers, who have supported each other to expand the boundaries of their discipline.

After five years in development, we are delighted to see curators Sara Roberts and C oil n   Dubhghaill, realise this exceptional exhibition. Presented in partnership with the Office of Public Works, the State Apartments in Dublin Castle are a fitting opening venue for *What Colour is Metal?* We also acknowledge the support of National College of Art & Design, Sheffield Hallam University and Arts Council England research grant in the development and realisation of this exhibition. I want to thank our board at the Design & Crafts Council Ireland for their support in allowing this exhibition, our chairman, Mr Andrew Bradley, and our funding body, Enterprise Ireland, for their commitment to craft in Ireland.

Introduction Science, Curiosity and Craft

Susan Holland

Curator DCCI National
Design & Craft Gallery

This exhibition captures a vital time in studio metalsmithing and patination. Long-time leaders who have wholly altered the terrain continue to push boundaries of their materials, as the mid-career metalsmiths whom they trained forge new directions, and new generations of makers bring fresh approaches to the conversation.

Metal colouration techniques have been built on experimentation, in the meeting of science, curiosity and craft. Processes, developed in a time when chemicals could be accessed freely, have more recently been supplanted by non-toxic and natural applications – including, in this exhibition, the use of seaweed and bread. Early trailblazers and their generous sharing of knowledge in formal education, as well as peer support, have been crucial to the development of this lively discipline. Experimentation has continued unbounded, as evidenced here in complex forms, challenging techniques, innovative use of industrial processes and even the melding of media (such as the combination of metal and glass in the *Material Dialogues* collaboration).

What Colour is Metal? confronts us with a direct question: what do we understand of metal and its innate properties? In European culture the value of precious metal traditionally correlates with its fineness. While makers have long been experimental, innovating with patination and colour application, only since 2019 have changes in the Irish Hallmarking Act allowed the marking of mixed metals in Ireland. This has extended the creative possibilities for makers, allowing them to combine base and precious metals more freely. While this may be a divergence for European makers, in Japanese practice the combination of metals and the application of compounds to alter metal colour is a tradition spanning many centuries, as Cólín Ó Dubhghaill explores in his text.

In Ireland we have a long history of ambitious silversmithing and innovation in metal construction, from ancient torcs and brooches to ecclesiastical objects and chalices. Skilled work in precious metals continues, with Kilkenny as home to more fine jewellers per capita than anywhere else in Europe. Yet the processes of colouration of metals, while practised by a few to exceptional standards, is not

a wide phenomenon. This exhibition celebrates international best practice and simultaneously has the educational intention of sharing techniques, inspiring innovation and spurring on the next generation of experimental metalsmiths.

Curators Sara Roberts and Cólín Ó Dubhghaill: are both passionate advocates of innovative metal practice and craft education. They have committed years to the realisation of this project, which builds on Sara's 1993 exhibition *The Chemistry Set*, produced by Crafts Council UK and The Southern Arts Touring Exhibition Service. Nearly thirty years later this exhibition takes a fresh look at colouration in metal as it stands in the 2020s, bringing together exceptional works by master metalsmiths from ten countries and three continents, to demonstrate the vitality, diversity and complexity of this discipline.

What Colour is Metal?

Sara Roberts
Exhibition Curator

Despite the fixity of metallic colours in language – in describing coppery or silver hair, for instance – we readily comprehend that colour in metal is not fixed, that bronze sculpture may appear blackened, that the silvery coins in our pocket will tarnish, that the copper roof of the church has long been a strong verdigris green.

Changes in the colour of metal signify use, age, heritage; they also betray methods of construction, as metals frequently change colour when heated to be manipulated or bonded. In contemporary silversmithing and jewellery practice, artists working in metal use the full palette of these possibilities, and they exploit their cultural and narrative connotations. Colour is achieved through how metal reacts with other chemicals or heat, or a combination of the two; colour is revealed as a property of the metal itself; the surface of aluminium is infused with pure colour or image, and enamel glazes are applied to prepared textured metal surfaces, with varying degrees of transparency and opacity.

In the early 1990s I witnessed an edgy new practice within studio silversmithing by a generation of artists who confidently

used colour, rejecting the demands of the traditional market.¹ I also saw the creative uses of coloured metal in applications ranging from jewellery to architecture. In the exhibition *The Chemistry Set* (1993),² for Crafts Council and The Southern Arts Touring Exhibition Service, I identified this rich seam of innovative application as the effect on British studio practice of the 1982 publication *The Colouring, Bronzing and Patination of Metals* by Michael Rowe and Richard Hughes.³ Described by Martina Margetts as ‘a paradigm of the transformation of the aesthetics and creative possibilities in the last quarter of the twentieth century’,⁴ this ‘recipe book’ made technical information on colours in metal easily accessible at a time of reappraisal of ‘the precious’. It led to a surge in the application of colour in metal: in jewellery, vessels and interior design, and more widely in architectural practice and in mid-scale applications such as furniture and interior surfaces.

The earlier survey can now be consolidated and updated, as practitioners continue to research and expand the application of patination and a range of colour in metal across the creative arts, and across

continents. Some of the exhibitors from that exhibition have made further innovations, in combining digital processes with their hard-won techniques: like Rebecca de Quin, who has adopted drawing software to achieve her fluid three-dimensional forms from sheet metal; and Jane Adam, who pioneered the use of anodised dyed aluminium to decorative effect in her jewellery ranges, and has now developed large-scale public art commissions as well as jewellery through digital photo manipulation techniques and outsourced printing. We profile more recent innovators in approaches to colour in metal, such as C  il  n    Dubhghaill, silversmith and co-curator of this project, who has capitalised on his recent research into historic Japanese patination and industrial friction-stir welding to update traditional *mokume-gane* techniques and render them achievable at mass-production scale for the luxury market. Current practice affords the opportunity to expand the definition of ‘coloured metal’ beyond patination techniques achieved through chemical application and heat, to include specific approaches to enamel. Traditionally used as a glassy surface colouration treatment, enamel has been reinvented by Jessica Turrell, Kaori Juzu and Christine Graf

1 This was prevalent in the British tradition of hallmarking, which at the time favoured ‘clean’ unadulterated surfaces and did not permit the mixing of metals within the same works. The British Assay Office allowed the marking of mixed metals from 6 April 2007; previously the 1973 Hallmarking Act prevented the hallmarking of items made of a mixture of precious and base metals, and regulations for mixed precious-metal items were very restricting.

2 *The Chemistry Set: Coloured and Patinated Metals in Contemporary Craft* (1993), [exhibition] Crafts Council/The Southern Arts Touring Exhibition Service: Winchester, curated by Sara Roberts.

3 *The Colouring Bronzing and Patination of Metals* (1982), Richard Hughes and Michael Rowe, Thames and Hudson: London.

4 Martina Margetts, essay, ‘Metalwork and Metamorphosis’, in *The Chemistry Set: Coloured and Patinated Metals in Contemporary Craft* (1993), Crafts Council/The Southern Arts Touring Exhibition Service: Winchester.

to provide an integrated and powerful marriage of surface texture and colour. Alison Counsell combines enamel over mesh with commercial fixing product, Sugru,⁵ to achieve the colour combinations she desires. Ruth Laird juxtaposes planes of spray-painted metal with other planes subjected to oxidisation and heat treatments.

Developments in most of these approaches to colour in metal are underpinned by a lively international network of technical information exchange, through exhibition,⁶ travel and education. Michael Rowe, long at Royal College of Art (RCA), and Simone ten Hompel and Adi Toch at London Metropolitan University, have mentored 'third-gen' practitioners in patination such as Max Warren and 2020 RCA graduate Roxanne Simone. While the Rowe/Hughes research was distributed worldwide in the 1980s, and Thames & Hudson have reprinted the book several times, much of the 'deep' information around patination has been passed on by demonstration and via word of mouth. Grounded in the apprentice model, practitioners have traditionally shared recipes and techniques, alchemical mysteries passed on with a free generosity,

and the informality of the custom persists. Neither Adi Toch nor Simone ten Hompel, for example, writes formulae down: this is an intuitive and oral tradition which sits well with certain makers' approach to their work. Adi says, *'I enjoy the serendipity of the patinas and the colour. I don't want to reproduce the same effect again and again. I try different things each time and I want different results; I enjoy spontaneity and risk.'*⁷

Many of the chemical techniques, including those compiled by Rowe and Hughes in their comprehensive catalogue, are hazardous in terms of handling and the gases produced; the resources required are scarce and expensive; and the waste materials are highly toxic. Concerns about sustainability and environmental responsibility, and tightening health and safety precautions, have compromised or even removed opportunities for learning and practising chemical colouring techniques in most educational institutions. We might ask whether the boom in colouration techniques of the 1980s and 1990s represents a peak of freedoms in studio

and academic practice: was it the catalyst for an enduring movement in colour in metal, or was its real impact short-lived? Who are the key exponents of a reduced range of environmentally acceptable and reliable practices? Many of the practitioners here strongly advocate safer methods of achieving colour – through heat and relatively benign domestically available chemicals.

Risks taken by pioneers inevitably pave the way for new techniques and a changed aesthetic, to be readily adopted into the range of possibilities by the next generation of practitioners. We can see here pioneers of a new aesthetic in metalwork: those pursuing experimental surface treatments at the same time as new forms, seeking that fine balance between form, colour and texture. And then there are those deploying patinated surfaces in conceptual pieces as a nod to history (Max Warren), natural processes (Stuart Cairns) or other more personal and political narratives (Roxanne Simone). Notions of value in metal artworks are largely relaxed, and the combination of the overtly precious with the colour-manipulated is charged and vibrant.

⁵ Sugru is a patented multipurpose brand of silicone rubber invented by Jane Ni Dhulchaointigh from Kilkenny.

⁶ The 2016 London Goldsmiths' Fair hosted an exhibition, *Silver: The Dark Side*, curated by Brian Kennedy, and in the same year the Holburne Museum, Bath, presented *Silver Light and Shade*, curated by Catrin Jones and Vanessa Brett. Both exhibitions examined the potential of British silver to take on different colour via patination and heat treatment, but this is the first exhibition since 1993 to profile the use of base metals with precious and focus primarily on the use of colour. It also takes a more international view.

⁷ Interview with Adi Toch and Simone ten Hompel, 2016.

A Workmanship of Risk

Cóilín Ó Dubhghaill
Exhibition Curator

The patination and colouring of metals is often a balance between risk and certainty. Subtle variations in your working parameters, such as chemical or alloy composition, surface cleanliness or finish, temperatures and timing, can lead to widely varying results. This can be a challenge when trying to produce at volume, but there is much potential to make interesting work at this edge of control or failure, where the craftsperson can exploit chance occurrence or push a process to the limits of possibility. David Pye described this potential for an aesthetic of *'richness, delicacy and subtlety,'*¹ that could be produced through a workmanship of risk in the production of craftwork.

As a metalwork student in Japan, I spent long hours in front of the *niiro*² pot, patinating copper and mixed-metal pieces, the workpiece carefully suspended in a cauldron of copper salts, solution bubbling at a slow rolling boil. Niiro is a unique Japanese approach to patination, a single solution that can simultaneously patinate a family of alloys into different colours. Many of these alloys look like copper before patination but are changed by the copper salts in the solution. The classic *shakudo*³

alloy becomes a deep blue-black colour, described as being like a wet crow's wing. This reference is echoed in alternate names for the alloy: *u-kin* which means 'crow gold', and *u-dou* which means 'cormorant copper'. The *shibuichi*⁴ alloy when patinated turns a speckled egg grey colour, revealing the microstructure of copper-rich and silver-rich areas. This alloy is also known as *Rougin* which translates as 'misty' or 'hazy' silver, describing the quality and colour of the surface patina.

In Japan, the niiro patination technique is considered to have evolved around the late Heian Period (794–1185), while the earliest technical text describing the niiro technique is in the *Soken Kisho* of 1781.⁵ Despite this long history, niiro is still a tricky process, easy to get wrong. After many careful hours of polishing and preparation, the colours produced can be dull and murky, streaked and marked with fingerprints. As a student I consulted texts and followed the guidance of professors and experienced craftspeople. I was struck by the variety of approaches and sometimes conflicting advice. What materials should you use to polish the metals – pumice, magnolia and paulownia charcoal, powdered burnt clay or calcined

deer horn? There was debate on adding a pickled *umeboshi* plum to the solution versus a dash of plum vinegar to produce the rich copper reds, and discussions on how exactly you should pre-treat the metal with grated daikon radish to keep the silver colours clean and bright.

In 2010 I visited Mr Saito, an expert in Japanese patination who carries out patination work for many leading Japanese craftspeople, including metalworkers with the designation of Living National Treasures. Mr Saito gave me valuable advice and also commiserated on the difficulties of the niiro process. Sometimes it didn't work for him: the multi-metal pieces in the patination solution would not develop the desired bright colours and he had to repeat the process to achieve the best results. He wasn't sure why, suggesting perhaps it was seasonal variations in the mineral content of the local water supply. However, the challenge and the exceptional beauty of his finished pieces were worth the long hours in the studio.

Historically, much of the transfer of knowledge on patination and colouring processes has happened in workshops, carefully guarded secrets passed between

1 *The Nature and Art of Workmanship* (1968), David Pye, University Press: Cambridge.

2 *Niiro* (霰色) translates as boiling colour. It is also referred to as *Niage* (霰上研).

3 Copper/gold alloy, usually around 1–5% gold.

4 The standard shibuichi alloy is 25% silver, 75% copper. Varying the proportion of copper to silver leads to the production of a range of grey colours.

5 *Soken Kisho* (1781), Tsuryu Inaba, Shisuishkan Zoban: Osaka.

master and apprentice, traditional family recipes and tacit craft skills shared through demonstration. Texts and documentation represent only a small part of this knowledge, but provide a key record and dissemination point. Although we might have the recipes, there can still be a major challenge in mastering the craft processes. This was captured well by Arthur Hiorns in 1892 in the preface to *Metal-Colouring and Bronzing*.⁶ *'It is possible that, in cases where we have failed to obtain a good effect from a given solution, the fault may have been in the manipulation rather than in the reagent, and as this work is intended to stimulate further inquiry, as well as to give the results of our experience to the public generally, some other workers may succeed where we have failed ...'*

The work in this exhibition is representative of this further inquiry – craftspeople pushing the limits of what is possible in their materials and processes. Some of the makers such as Koji Hatakeyama and Toru Kaneko are building on metalwork techniques with particularly strong local traditions and long heritage. Although their work is identifiable with the lineage of this heritage, they are taking new directions in

terms of aesthetic, pattern and form. In the UK, the hallmarking laws long prohibited the combination of precious and base metals in one piece, although this has recently been relaxed. Rebecca de Quin's work, combining hallmarked silver with patinated metals, pushes up against the laws and traditions of mono-colour silversmithing, combining the bright white of silver with her gestural patinated colour surfaces.

Makers approach the traditional expectations of craft heritage in various ways. Some experimentation is a result of challenging the status quo, changing the recipe, contradicting the rules or doing exactly what your teacher told you not to do. The coarse grain, almost furry surface of Christine Graf's elementary forms gives a new perspective on how enamel can be used. In metalwork much effort is expended to achieve perfect uniform surfaces. Jane Adam inverts this approach, shattering the uniform anodised aluminium surface layers through a rolling process that stretches, textures and forms her jewellery. In casting, Peter Bauhuis skilfully combines multiple molten metals in one mould, celebrating the chance inclusions and random surface textures as the metals combine and solidify.

The finishing of the surface of a piece can at times be an afterthought, an inconvenience at the end of making, a frustration to be rushed through. That last 10% of refinement in production is often hard-won and can take much longer than expected. For the makers in this exhibition, this finishing and surface work is central, a celebration of material and process, a crucial means for content and communication. In the words of Hiorns, *'We do not sufficiently realise how exceedingly beautiful a common metal can be made to appear with little expense as regards materials, if only tastefully and suitably coloured. An effect can be produced by bronzing on a metal peculiarly its own, and which cannot be produced on any other material as to give the same satisfaction, or to have anything near the same appearance. The suitable colouring of a metal then is not a matter of subordinate importance but of the highest significance if we are to get from it the utmost pleasure and profit it is capable of yielding.'*

6 *Metal-Colouring and Bronzing* (1907), Arthur H. Hiorns, Macmillan and Co: London.

Jane

Adam

Jane Adam has been a pioneer in the use of anodised aluminium since the 1980s, initially in jewellery and more recently also in larger public artworks which hang in buildings in the USA and UK. Historically her work has embraced dyed pattern, and more recently has deployed figurative images, flowing around compound curves of forms influenced by leaves, petals and other organic forms. Jane has moved on from her early hand-printing processes and now outsources digital printing onto sheet material (dyed anodised aluminium; the colour is fixed permanently into a surface layer of aluminium oxide) based on found photographic imagery which she has extensively manipulated in Photoshop. She seeks out pattern and rich blends of colour, embracing distortion and overlay to give her the expressive quality she desires. She then cuts, textures and repeatedly distorts the material through rollers and shaped formers, further removing image and colour from its photographic source, partially exposing the granular surface of the material beneath the oxide layer. The colour in her work is both on and of the material – it shimmers and refracts where it fractures under stress.

janeadam.com



Necklace of 45 Graduated Pods

Anodised aluminium, dyed cultured freshwater pearls, oxidised silver

18 x 18 x 2 cm, 2019

Photo: Joël Degen

Peter

Bauhuis

Peter Bauhuis has adopted an innovative approach in his metal-casting technique, resulting in vessels of distinctive colour and form. In standard casting work, the metal is melted and carefully mixed before it is poured into the mould, to ensure that the alloy components are fully blended. In Peter's work, multiple molten metals are cast into the same mould, producing a multicoloured surface as they cool and harden. The metals mix but are not homogenous. This requires great timing, speed and experience to successfully cast the refined forms. Visible traces of the casting process and mixing of metals can be seen on the surface through texture and colour. The casting sprues, which are used to pour metal into the mould, form legs for some pieces in a clever combination of form and function. Peter's vessels are a celebration of the materiality of the cast alloy, revealing the structure and composition of the metal through the surface colour and texture.

artfree.de



Policast Object

Silver800, fine silver, brass
18 x 18 x 2 cm, 2016

Stuart

Cairns

Stuart Cairns works as a silversmith, combining natural materials and found objects alongside precious metals to create artefacts in the tradition of tableware and domestic objects. Following a workshop with Adi Toch, who introduced him to new techniques for accelerating the patination of metal, he has developed a characteristic experimental practice using natural material sourced from the beach, primarily seaweeds, in prolonged contact with precious metal to imprint both colour and motif. *'I see patina as a living thing, as it alters, grows and deepens as it ages. Found materials act as a catalyst when combined with various vapours and substances. They leave relief marks, tidelines and traces of bindings. I'm always excited to see how the found materials, fabricated elements and catalyst substances combine; it is a very live process where you set the components together and then allow the process to take over. Control is around the length of time you allow before interrupting the interaction.'* The patinas will continue to grow and change unless fixed in place.

stuartcairns.com



Seaweed Wrap Patina, Landscape Series

Silver and gathered seaweed
5 x 4.5 cm, 2018

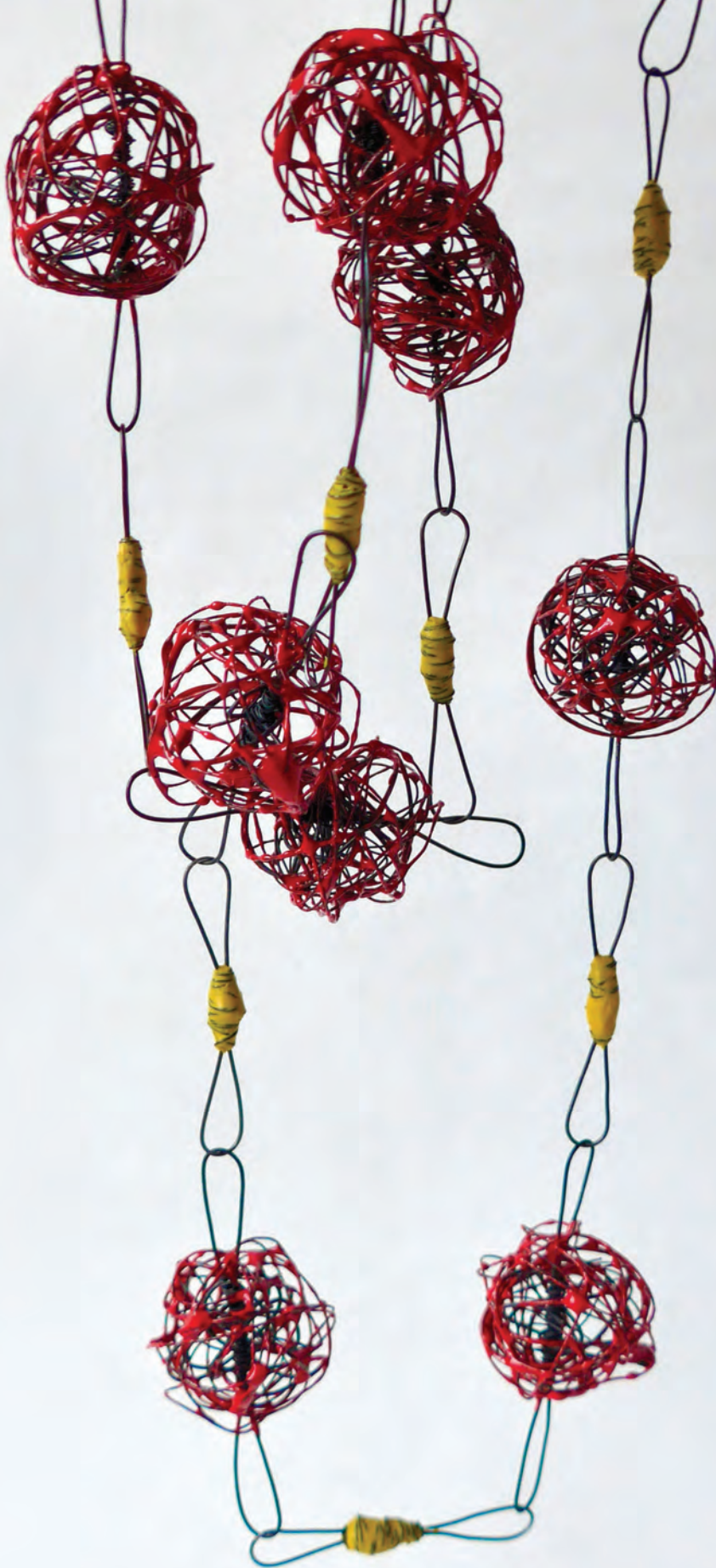
Alison

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Alison Counsell's work combines enamel, Sugru silicone, and iron wire to produce flowing colourful necklaces. Alison's use of materials is contrary to enamel craft traditions where the enamel is used for its bright and durable colours in techniques such as *cloisonné* and *champlevé*. She uses the enamel to glue or attach wire components together to make form. The enamel oozes through the iron wire, creating a solid shape. In her work for the exhibition she also makes use of Sugru, combining a modern DIY material with jewellery heritage techniques. Alison's use of Sugru came as a solution to the problem of linking an iron wire and enamel chain together without soldering, as the enamel would shatter if heated. The Sugru both joins the wire pieces and provides a burst of colour.

alisoncounsell.com

wapentac.com



Balls of Fire

Iron wire, enamel and silicone
57 cm, 2018

Rebecca

de
Quin

Rebecca de Quin combines silver and base metals in related groups of vessels inspired by the practical precedents of Modernist architecture and design. She works spatially, considering geometry, abstraction, function and surface finish, fabricating in sheet metal – sterling silver and gilding metal (a copper-zinc alloy) – through rolling, bending and soldering, occasionally imposing hand-punched texture. The works celebrate their methods of construction, however functional, including the still-visible solder line. She is fascinated with methods of constructing three-dimensional form from the two-dimensional, through simple techniques, such as scoring and folding, to create sinuous lines in rigid, hollow forms. She develops templates from technical drawings using drawing software which she transfers to the sheet material as guides. To introduce colour, she uses commercial products and heat techniques to darken and enrich the natural tones of copper alloys, and a small range of chemical patination techniques, such as lengthy exposure to ammonia vapour, or wetted sawdust, achieving a range of hues from bright blue-greens, to muted grey-blues, to black.

rebeccadequin.co.uk



Vase with Yellow Collar

Sterling silver, gilding metal (copper alloy), 18ct gold
20.5 x 19.5 cm, 2017

Photo: Nicola Tree

Christine

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Christine Graf creates her forms using hand-manipulated industrial copper mesh, working it like paper or light textile; she then applies and fires multiple layers of enamel to build up the coloured body, partly masking and destroying the mesh structure but retaining an open texture, 'holding' the colour in its surface. She says *'I use applied colouration; its subtlest nuances and the texture of the surfaces emphasise the fragility and ephemeral qualities of the work. As a result, it seems as if the metal body is reduced; covered by the enamel it loses its structural qualities and in turn takes on a new visual and metaphorical identity.'* She produces either 'bellied, round', open vessels, sometimes with interiors in vibrant contrasting colours, or closed forms redolent of pebbles, eccentric in shape, echoing neighbouring shapes. Relationships and dialogues arise, questions are posed, by juxtaposing two brooches of the same shape, the same size, the same materials and the same concept, only different in their colouration.

[instagram.com/christine_graf_enamel](https://www.instagram.com/christine_graf_enamel)



Gegenüberstellung #2.2

Copper mesh, enamel, silver, steel pin
9.3 x 9.5 x 3 cm, 2018

Koji

Hatakeyama

Koji Hatakeyama creates refined vessels in cast bronze with a focus on lidded boxes. Koji uses the traditional *miso-yaki* patination technique to produce a complex surface patina with colours ranging from vermillion to black. In the *miso-yaki* process, a rice bran paste is combined with chemicals such as sulphur and baked on the surface of the metal at 700–800 °C to produce the surface patina. *'I create contained vessels, I try to convey the sense that something is concealed or hidden within. I try to provoke a sense of the spiritual world in my bronze boxes. The patterns and facets I create on the outside are a direct response to the landscape, real or imagined. I find that using gold or silver leaf within the interiors, there is sense of enlightenment when opening the lid, my intention is to enter a different world, a different place. This place has no darkness. My sense of beauty is veiled in bronze.'*

katiejonesjapan.com/artists/koji-hatakeyama



Six Faces

Patinated cast bronze, gold leaf
23.3 x 13 x 12 cm, 2017

Nicola

Heidemann

Nicola Heidemann has an enduring interest in geology and how tectonic plates, glaciers and volcanoes have shaped the planet. She relates her jewellery forms to evidence of geology on a much smaller scale: stones observed on the beach, with the staining of natural materials and algae. She achieves a strong tactility and differentiation of surface in her work through vivid colour. Strong families of colour are deployed within the same work, through heat treatment of titanium, and low-temperature enamels applied to silver, combined with glass components.

nicolaheidemann.de



Red-Green Pebbles Necklace

Silver 925, low temperature enamel, glass, pigments
26 x 21 x 1 cm, 2018

Kaori



Kaori Juzu's objects retain a sense of the provisional, in hand-hammered collections of related forms in enamel and glass over copper, 18ct gold, bi-colour metal, *shakudo* (an *irogane* alloy of gold and copper), and steel. Surfaces are textured and granular, reflecting their origins in ground coloured glass, heated to fusion point but not high enough to liquefy and pool in glassy panels. This body of work is comprised of 108 individual brooches, she explains, *'108 is a significant number in Buddhism: there are 108 defilements (sins). People can choose one piece to purify their defilement, since creating this number of pieces was already a purification rite; "Ambition" was my defilement in this case. As I normally create a unique piece, it's always a challenge for me to repeat similar forms – they will never be same. The repetitive construction process provided me with inspiration, a focus for meditation; finishing all 108 individual pieces within a given period allowed no space for my ego.'*

kaorijuzu.com



108 (detail; single object)

Enamel, glass, copper, 18ct gold, bi-colour metal, shakudo, silver
Various sizes, 2019-2020

Toru

Kaneko

Toru Kaneko's work is rooted in traditional Japanese metalworking and patination processes. However, he seeks to create new forms that reflect modern life, exploring the characteristics of the materials. Toru is a graduate of the Choukin or metal carving department at Tokyo Geidai, a programme that originated from artisans who produced sword furniture in the mid-nineteenth century. He makes use of the traditional textured hammers and chasing tools to texture and form the sheet metal of his pieces into 3D forms. Toru combines an unusual range of textures and coloured surfaces in his work – sulphur patination, tin plating, verdegris patination, lacquer with powdered gold. *'My heart sees through the seemingly harsh, cold surface of metal to reveal its hidden inner sensuality. Challenging perceptions of its nature and form, I wish my work to bring the fascination of metal to the widest possible audience.'*

katiejonesjapan.com/artists/toru-kaneko



Large Tall Squared Copper Sculpture

Copper, tin, brass powder, lacquer
47.5 x 17 x 9.3 cm, 2017

Ruth



Ruth Laird scores and folds precious metal to achieve her lively, compressed-perspective, angular silver jewellery forms. Some are articulated, with elements which slide and move. In this group, planes and arrested movement are further articulated and a hierarchy imposed with vivid sprayed gemstone colours (Lapis blue, Jasper red, Jade green), texture, dark oxidisation and textured *keum boo* (an ancient Korean gold-leaf technique). Front is distinguished from back, with its carefully designed fixing. They describe an eccentric space and defy the orthogonal; they corral chaos into a precise form through engineered joints and tracks for movement. She takes inspiration from architecture, and how this may be represented through geometry and measurement, art and mathematics.

ruthlaird.com



Distorted Blue Brooch

Silver, spray paint
10 x 7 x 4 cm, 2016

Photo: Richard Valencia (for Goldsmiths' Fair 2016)

José

Marín

José Marín specialises in the creation of jewellery using titanium. Titanium is a particularly hard and challenging material to work with but has lots of potential as a jewellery material. It is both hard and light, and can be anodised to a range of bright colours. José shapes the titanium with hammer-forming techniques: *'I pursue that anthesis of a hard and intractable material, and show it as something organic, soft and malleable.'* He is fascinated by colour and nature as inspirations for the creation of his work. Titanium is naturally a silver grey colour. By submerging the metal in liquid and passing high-voltage electricity through it, coloured oxide layers can be precisely produced on the titanium surface in the anodising process. The thickness of the oxide layer gives a vibrant colour palette of yellows, lilacs, blues and greens. Another method for colouring titanium is to use a torch, heating the metal to grow the coloured oxide layer and produce a more organic and painterly colour pattern.

josemarin.net



Arrecife
Titanium
3.8 x 5 x 2.9 cm, 2013

Material

Dialogues

Material Dialogues is a collaboration between glass artist Edmond Byrne and metal artist Adi Toch. Provoked by the history of their respective materials, a fusion of glassmaking and metalsmithing, the project explores the dialogue created when substances and forms merge, as well as the confluence between them as makers. They explain, *'Inspired by the historical marriage of metal and glass we are making a series of silver, copper and clear glass pieces that create different visual experiences.'* Their collection sits at the meeting point between metal and glass. It springs from the unique process and joint working method that they have developed. Through experimentation, they explore ways the materials react, fuse, stain or mirror, creating a new visual language of textures, colours and forms.

edmondbyrne.com
aditoch.com



Red Ripple Bowl

Copper, clear glass
20 x 10 cm, 2020

Photo: Sylvain Deleu

Cecilia

Moore

Cecilia Moore combines the ancient silversmithing hammering technique of raising with patination to form colourful, playful sculptural metal pieces. Her works are made from copper sheet by annealing the metal to red heat and then cooling to soften the metal. The ductile metal can then be hammered over steel anvil stakes, compressed and formed with metal with repeated hammer blows. Cecilia has developed her patination processes through study and experimentation – colours are built up on the surface of the metal form through the application of multiple layers of chemicals based on traditional patination recipes. *‘Raising is an ancient, almost obsolete silversmithing process that is central to my current work. It is slow and noisy, yet meditative and magical. Raising starts with a flat disc of metal that is hammered and rotated over a metal former called a stake. This contracts and pushes the metal up to form a hollow shape ... This in turn leaves planishing marks so the process is repeated for many rounds, with lighter hammer blows each time. Some silversmiths repeat this till no hammer marks are visible. I like to leave raising and planishing marks as part of the design and evidence of the long and extraordinary process.’*

ceciliamoore.ie



A Precarious Balance
Sheet bronze, copper
23 x 23 x 33 cm, 2020

John
Moore

John Moore blurs the lines between contemporary jewellery, fashion and performance. He is known for his sinuous, anodised aluminium constructions with a startling use of dyed colour in vanes and panels which move with the wearer. Edges move, revealing inner and outer coloured surfaces, arcing through space around the body. His largest works are powerful articulated statement collars which lie against neck and shoulder, in forms somewhere between skeleton and architecture. When moving, their assertive silhouette reveals a rainbow interior. He takes natural forms as inspiration: fish scales, insect carapaces and feathers, which he considers to be the greatest displays of colour in nature. He works with a variety of materials, combining hand skills and industrial processes in sleek, highly polished objects.

johnmoorestudio.com



Pagoda

Anodised aluminium, silicone, silver, steel
38 diameter x 5.5 cm, 2020

Cara

Murphy

Cara Murphy uses traditional silversmithing techniques to create innovative and sculptural tableware and objects. In her current work, she explores expressive enamel techniques, and has created numerous series of silver bowls, each bursting with colours and textures evoking those found in the Irish landscape. The bowls are created using the technique of *basse taille* enamelling and deep drawing pioneered by her father, Michael McCrory. The organic patterns created on the surface of the silver are highlighted by the refraction of light through the coloured enamel. In 2016, Cara won the *Rosy James Memorial Award* from the Arts Council of Northern Ireland, which enabled her to learn the process of vitreous enamelling from her mother, Deirdre McCrory, a renowned enameller and printmaker. *'Silversmithing by its nature is a traditional art practice with many of the techniques being the same for hundreds, if not thousands, of years. In my work I'm interested in challenging people's perception of contemporary silverware as being sculptural objects, which can be used on a daily basis.'*

caramurphy.com



Green Fields

Silver, enamel
8 cm, 5 cm + 3 cm, 2020
Photo: David Pauley

Thanh-Truc

Nguyen

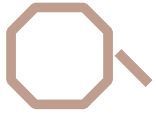
Thanh-Truc Nguyen uses steel mesh coated with acrylic lacquer and epoxy resin spray paint in the production of her jewellery objects. These are materials typically associated with industrial processes, but are used here with great refinement. *'An essential part of my work is to search for the potential beauty of a surface. Currently I use fine-meshed steel fabric that is particularly lightweight and translucent, yet at the same time surprisingly solid. Through the interference of the fine grid structures an interesting effect arises, called moiré effect; a fascinating flickering and sparkling that create an impression of a gleaming and precious stone, as if it wouldn't be merely steel. I use these properties to create voluminous and lightweight jewellery objects, with a seemingly delicate but solid surface.'*

thanhtrucnguyen.de



Moirée - Red Brooch
Steel, steel mesh, silver, colour, resin
8.5 x 7 x 1.5 cm, 2020

Cóilín



Dubhghaill

Cóilín Ó Dubhghaill's research interests focus on the intersection between traditional craft processes and new technologies. He explores the appropriation of industrial technologies for craft production and the development of new ways of using traditional craft processes and materials in the production of studio work. In collaboration with a group of material scientists and engineers (Mikana Innovations – mikana.co.uk), he has co-developed a new form of *mokume-gane* type materials using modern welding techniques. In the production of mikana sheet, friction-stir welding is used to join the plasticised metal layers, producing unique patterns in the metal. Friction-stir welding is an industrial process often used for large-structure welding such as the production of fuel tanks for NASA rockets. Appropriating this welding technique opens up the possibility to manufacture novel patterns with unique material combinations in mixed-metal sheet.

coilin.com



Mikana Bowls

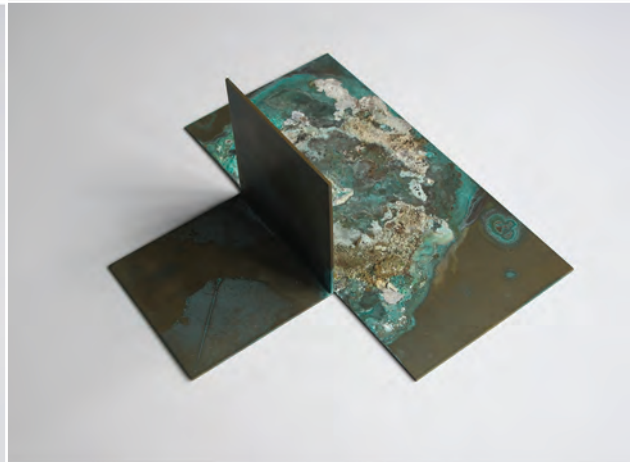
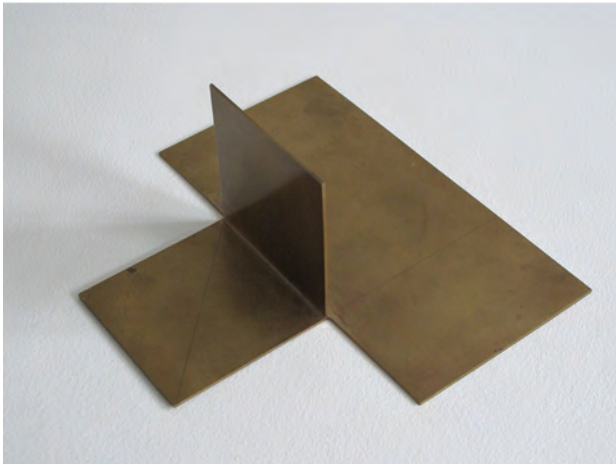
Copper, brass
12 x 12 x 11 cm, 2016

Michael

ROWE

Michael Rowe's contribution to understanding the behaviour of materials and their cultural associations cannot be underestimated; he has had a deep and long-standing influence over international metalworking. With Camberwell teaching colleague Richard Hughes in 1982, he published the seminal publication *The Colouring, Bronzing and Patination of Metals*. The book is a summation of comprehensive and systematic research into chemical treatments of different kinds, with some innovative proposals for applying patinas, such as the use of sawdust and organic matter, and extending the range of colours and textures using these chemical treatments. This demystification of age-long processes, into something resembling an illustrated recipe book, revolutionised the treatment of metal and made accessible a huge range of colours to studio practitioners and designers alike. It coincided with, and to some extent stimulated, a review of the notion of value in manmade objects and a steering away from the use of 'precious' metals in luxury objects. Reprinted multiple times, the book has been used all over the world. It has taught a couple of generations of practitioners, as has Michael in his teaching role as Professor of Metal Art & Design at The Royal College of Art, London.

→



Make/Bake

Brass, patina

8 x 20 x 18 cm, 2013-2015

Michael

ROWE

Michael has continued to forge an innovative path with his cool, angular and architectural forms. These are sculptural explorations of the relationship of vessels and containers to the viewer/ user, the things they contain, their relation to other objects and to the geometry of interior spaces. In his recent work, he demonstrates an ongoing drive for innovation and experimentation; his exhibited piece may be surprising to those who are familiar with the ultimate control and cool, even colouration of earlier works. Here, he has relinquished some of this restraint to chance and time: Make/Bake shows the transformative effect of the chemical breakdown and decay of the most basic of stuffs, bread, in prolonged contact with a brass object, opening up a number of narratives relating to metal and metalworking in material culture.

galleryso.com/artists/46-michael-rowe

MAKE / BAKE

I do not extract the copper mineral Chalcopyrite from the earth
I do not extract the zinc mineral Sphalerite from the earth
I do not smelt the copper ore to extract pure copper
I do not smelt the zinc ore to extract pure zinc
I do not combine the copper and zinc in a furnace to create brass
I do not cast the brass into an ingot
I do not roll the brass ingot into a sheet
I purchase a sheet of brass from a metal supplier
I mark out a square with a scribe
I cut the square with a piercing saw
I file the edges true
I mark out a 'T' shape – a square on a rectangle
I cut the 'T' shape with a piercing saw
I engrave stitches to locate the square plate for soldering
I clean the areas to be soldered
I set up the square plate upright on the 'T'-shaped plate
I apply flux to the joint
I heat the brass plates with a blowtorch
I melt the solder into the joint
I pickle in acid to remove the flux and oxide
I file excess solder off the joint
I hammer and flatten the plate twisted by the heating
I finish the surfaces with silicon carbide paper

I do not sow the wheat
I do not harvest the wheat
I do not grind the flour
I do not mine the salt or evaporate brine
I do not cultivate the yeast
I purchase wheat flour, salt and yeast at a store
I dissolve the yeast in a teaspoon of warm water
I sift the flour with the salt in a bowl and add the yeast
I mix together to form a thick batter
I cover and leave until bubbles break the surface
I add more flour to make a smooth dough
I knead the dough and leave it to rise
I pummel the dough to form a round ball



I place the ball of dough on the brass plate
I leave for 1 hour to rise
I place the brass plate and dough in the oven
I heat to 220 °C for 15 minutes
I lower the heat to 190 °C for 25 minutes
I take the brass plate and bread out of the oven
I leave the bread on the brass plate for a period of 2 years
I allow the bread to decay and chemically react with the brass plate
I allow the formation of green verdigris to remain on the surface

Ryuhei



Ryuhei Sako produces vessels using a seventeenth century Japanese metalwork technique called *mokume-gane*. Mokume-gane is a unique process where sheets of different metal alloys are bonded together into a laminated billet. This billet is then carved or milled to expose interior layers, before being hammered or rolled into a flat sheet. Getting the layers to bond together strongly without delamination, or overheating and melting, is a challenge. The patterned sheet is then formed into hollowware, using the raising process, slowly hammering the metal inwards and reducing the edge diameter to produce a vessel form. In Japanese, the raising process is known as *shibori* (to wring or squeeze) describing how the metalsmith compresses the metal during the forming process. Traditionally, the mokume-gane technique was used to make sheet metal with a pattern similar to wood grain. Ryuhei has developed a unique combination of pattern and form in a contemporary interpretation of this ancient technique.

katiejonesjapan.com/artists/Ryuhei-Sako



Mokume-gane Ribbed Vessel

Silver, copper, shakudo, shibuichi, kuromido

15.7 x 9.4 x 9.4 cm, 2015

Roxanne

Simone

Roxanne Simone sees hydroforming, the act of forcing water into a seamed flat form to produce contour, as '*an unleashing, arriving, an erupting*'. She says, '*There is something about the technique which spoke to me – water is pushed through the material and expands it to the point where it bursts – that spoke to me metaphorically about experiences of black bodies in time and in history.*'¹ Roxanne sees the subsequent patination of the surface, a process she conducts at home with recipes passed on by her (BA London Metropolitan University) tutor Adi Toch, as an intimate rather than an industrial process, whereby she addresses trauma and healing – the patination is nurturing and therapeutic. Roxanne writes as an adjunct to making. '*The patination is like a layering of time, providing a layer of protection on the surface of the object but which also documents the evidence of unwanted touching. The outcome is quite grand and bold and beautiful, and despite all these pressures we somehow emerge in greatness.*'²

roxannesimone.com

¹ Interview with fellow RCA graduate Finchittida Finch, June 2020.
<https://2020.rca.ac.uk/students/roxanne-simone>

² Ibid.



Traces: (detail) Love Letter

Copper, brass
12 x 9 x 30 cm + 14 x 7 x 23 cm, 2020

Simone

ten Hompel

Simone ten Hompel asserts the significance of her long-standing 'conversation' with metal. Raised in the German apprentice tradition, from an early age she gained a facility with tools and manipulation which allowed an experimental approach. For years she achieved a broad range of colours on her copper, silver: and bronze forms using chemical treatments. She realised in the late 1990s, however, the pollutant toll of deploying acids and the difficulty of responsible disposal. Since then, she has primarily concentrated upon modulated heat treatments to achieve inky blacks, rusts, yellows and vivid reds. Like a conversation, these can sometimes be a background exchange, sometimes an interruption, sometimes an exclamation against a background of quiet. Simone speaks of the 'soul' of the material, saying, *'I love the patina to demonstrate something about the metal. As with a person, who may look different under different circumstances: a person can blush; they can look pale; we bring back to the metal and we articulate that. We observe how it behaves when it is subjected to stress. It is thinking through making, it is practice-based research.'*¹

tenhompel.com

¹ Interview with Simone ten Hompel, 2016.



All At Sea

Steel, silver, brass
14 x 14 x 14 cm; 3 x 36 18 cm; 24 x 10 cm, 2019

Photo: David Hobson

Adi



Adi Toch addresses the skin-like surface of her hammered and raised vessels with innovative patination acid mixes, from the painterly to the highly reflective. Her colouring process is like jazz; she understands the harmonies of colour and articulations of components, and riffs on the possibilities. She is highly focused on the social and spiritual power of vessels and imbues them with a strongly mysterious presence through different methods of presentation and rich colour. Each raised and hammered bowl or vessel has been repeatedly treated: handled, scratched: and burnished with care. The surface of her works is often hand-textured through light spiralling sgraffito, holding light at points of overlap, giving the painted-on chemical treatment a purchase upon the surface. *'Silver is like a chameleon – it could be polished and transformed to reflect and capture its environment or patinated to create an ambiguous feel. It's an engaging and versatile material that communicates through many different expressions.'*

aditoch.com



Wide Open

Patinated Britannia silver
30 x 20 cm, 2014

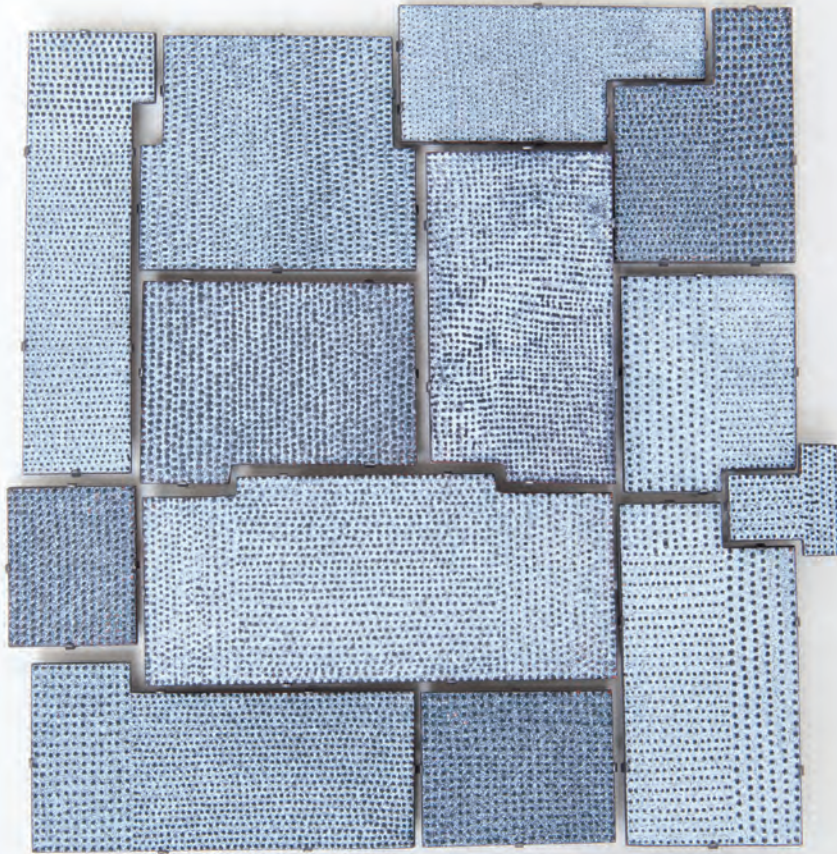
Kindly loaned by P&O Makower Trust,
Amgueddfa Cymru – National Museum of Wales

Jessica

Turrell

Jessica Turrell has developed a highly individual use of a traditional material, enamel, to achieve detailed expressive marks, textures and surfaces in a non-decorative, non-figurative way. She uses flat or hollow-form copper supports or 'fields' of interlocking or related forms, which work both as jewellery and independent object. She repeatedly sifts enamel colour on a shaped and textured metal surface, which she has achieved by acid-etching, and then fires it. She then mattes the enamel either chemically or with diamond abrasives to remove its natural shine, to integrate the surface with the texture beneath. *'Enamel has a unique tactile quality – it is unlike paint or ceramic. I want to sit on that boundary between predictability and chance and I'm trying to get that balance right for me. I do a lot of etching underneath the enamel surface, and observe the interaction of the enamel with the textured surface, not just in terms of relief, but the heated metal interacts chemically with the colour and qualities of the enamel.'*

jessicaturell.co.uk



Field Arrangement – Composition of 13 Brooches

Vitreous enamel on etched copper, oxidised sterling silver, stainless steel
dimensions variable, 2014 – present (ongoing)

Photo: Mark Ashbee

Max
Warren

Max Warren combines influences from history with the digital, image with object, chance with order. *Viewpoint 1* is a wall piece that takes the form of a picture frame, but its irregular geometric makeup is highly unusual, and its resonant colour differentials demonstrate how it is made. Sleek parallelogram tiles of various sizes cut from copper, brass and silver are soldered together in strips, in an order determined by chance rather than premeditation, before the strips are in turn soldered together to make sheet material. This is hammered, hydraulically pressed and scored, to form the plate-like depression and to cut out the overall form. When subjected to flame colouring, areas of differing metals responding to the applied heat develop a range of modulated and contrasting tones.

maxwarren.co.uk



Viewpoint I

Copper, brass, silver
27 x 18 x 2 cm, 2019

Artist Biographies

Jane Adam was born in London, England. She studied at Manchester Polytechnic and received an MA in Metalwork and Jewellery at the Royal College of Art. She has taught and lectured internationally and was Research Fellow at the School of Jewellery in Birmingham from 1997 to 2001. She was a founder of the Association for Contemporary Jewellery, and co-vice chair of the Crafts Council UK. More recently, she was a trustee of Cockpit Arts where she had her workshop until 2015. Her work is in collections including Victoria and Albert Museum; Crafts Council UK; the Goldsmiths' Company; Royal Museum of Scotland; MIMA; the Cooper Hewitt Museum; and the Carnegie Museum, Pittsburgh.

Peter Bauhuis was born in Friedrichshafen, Germany, and lives and works in Munich. He studied at the Staatliche Zeichenakademie Hanau, and the Academy of Fine Arts, Munich. He lectures internationally and has taught for ten years at Alchimia Contemporary Jewellery School in Florence. Since 2017 he has been a guest lecturer at Lucerne School of Art & Design, Switzerland. Peter has received numerous awards, most recently the

Schoonhoven Silver Award in 2018 and was finalist for the *Loewe Craft Prize 2020*. His work is held by collections including The Koch Collection at Swiss National Museum; Victoria and Albert Museum; National Gallery of Victoria; Fonds National d'Art Contemporain; Museum of New Zealand; Museum für Kunst und Gewerbe, Hamburg; Schmuckmuseum, Pforzheim; and National Museum, Oslo. Peter is represented by Gallery S O and Gallery Funaki.

Edmond Byrne was born in Dublin, Ireland, and is based in Surrey, England. He holds a BDes in Craft and a Higher Diploma in Art & Design Education from the National College of Art & Design, Dublin; an MA from the Royal College of Art in London; and a Postgraduate Certificate in Art & Design Education from the University of Creative Arts, Farnham, UK. Edmond has taught in Ireland and the UK and is Senior Lecturer in Design Crafts at De Montfort University, Leicester. He has exhibited internationally, and has received awards including the *RDS Irish Bursary* in 2018; *Dan Klein Memorial Bursary*, Contemporary Glass Society and the *Pilchuck Partnership Scholarship*. He has work in the collections of the Victoria and Albert Museum, Ulster

Museum and The National Collection, Ireland. He is represented by Flow Gallery, The Scottish Gallery and The New Craftsmen.

Stuart Cairns is based in Northern Ireland. He holds an MA in Silversmithing and Jewellery from the University of Ulster. He is a member of Contemporary British Silversmiths and is a part-time lecturer at the University of Ulster. Stuart has exhibited widely, including in *Setting the Scene* at Craft Study Centre, Farnham; *Collect International Fair*, London; Saatchi Gallery; Victoria and Albert Museum, London; *4th Biennale Internationale du Lin de Portneuf*, Quebec; and Hämeenlinna, Finland. His work is held in public and private collections including the Arts Council of Northern Ireland; University of Ulster; and The Ulster Museum.

Alison Counsell was born in Choma, Zambia, and lives and works in Sheffield, England. She trained in Silversmithing and Metalwork at Camberwell School of Art & Crafts and holds an MA in Metalwork and Jewellery from the Royal College of Art. She was a Senior Lecturer in Metalwork and Jewellery at Sheffield Hallam

Artist Biographies

University from 1989 to 2020. Alison has exhibited widely, including at the Centre for Innovative Material and Technology, Hong Kong; Saatchi Gallery, London; and the Onishi Gallery, New York. Alison has completed many commissions such as the *St Leger Stakes Trophy*, and has work in collections including the Victoria and Albert Museum; National Library of Australia; and the Contemporary Craft Collection, Bradford. Alison is the founder and designer of Wapentac, a company that produces map-based products.

Rebecca de Quin works from her London-based studio. She graduated from the Royal College of Art in 1990. She has combined her silversmithing practice with a career in teaching at a number of UK institutions; in 1998 she was appointed as a tutor in the Royal College of Art's Department of Goldsmithing, Silversmithing, Metalwork and Jewellery. Rebecca's work has been shown in major exhibitions in the UK and internationally. Forthcoming exhibitions include *Mastery, Women in Silver* at Ruthin Crafts Centre, Wales; and *Colloquy 2022* at the Mary E. Black Gallery, Halifax, Nova Scotia. She is represented in several major collections including the Crafts Council; Birmingham Museum; and the Goldsmiths' Company.

Christine Graf was born in Munich, Germany. After working for many years as a goldsmith for jewellery designers, including Erico Nagai, and running her own studio, Christine studied at the School of Jewellery in Birmingham where she received an MA in 2007 with distinction. She has exhibited internationally, and is a tutor at West Dean College of Arts and Conservation, UK. Christine has been awarded numerous prizes and grants, including the *British Jewellers' Association MA Award*; the *Danner Honorary Award*; the *Bavarian State Prize*; and was shortlisted for the 2014 and 2018 *Förderpreis der Stadt München*.

Koji Hatakeyama was born in the Toyama Prefecture of Japan, a city with a long history of bronze casting. He studied at the Kanazawa College of Arts and Crafts, where he also has lectured since 2017, as well as throughout Japan and at the Royal College of Art, London. He has exhibited widely in Japan and abroad. Koji's work is held in many international public collections, including the National Museum of Modern Art in Tokyo; Musée Tomo, Tokyo; Victoria and Albert Museum; and Philadelphia Museum of Art. He has

received prestigious awards including the *MOA Museum Art Award*; the *Grand Prix Sano Renaissance Award*; and the *11th Art Award* from Takishimaya Cultural Foundation. Koji is represented by Katie Jones Gallery.

Nicola Heidemann was born in Munich, and is now based in Passau, Germany. Her jewellery and metalwork education has been self-directed, through research and technology experimentation. She combines her studio practice with a career as a lighting designer and technician. Nicola won the *VDW Jewellery Selection, Special Prizes of OMYBLUE Gallery* and *BINI Gallery* during Venice Design Week 2017, and was nominated for the *Danner Prize, Munich* and the *Friedrich Becker Prize Düsseldorf*, both also 2017. She was artist in residence in Reykjavik, Iceland in 2017. She showed in *SOFA Chicago 2016* with Charon Kransen Arts; in *LOOT, Museum of Art and Design, NY*; and *MIRABILIA, Galerie Par Mazlo, Paris*, both 2019.

Artist Biographies

Kaori Juzu was born in Fukuoka, Japan, and is now based in Denmark. Having studied at the Department of Hispanic Philology, Sophia University in Tokyo, she attended the Jewellery programme of the Art High School of Bornholm, Denmark. Kaori undertook an apprenticeship at the studio of Danish Jewellery artist Per Suntum. She features in international museum collections, including Designmuseum Denmark; Koldinghus Museum, Denmark; Bornholm Art Museum; The Danish Arts Foundation; and the Cominelli Foundation, Italy.

Toru Kaneko was born in Tokyo, Japan. He graduated from Tokyo National University of Fine Arts. He has been awarded numerous prizes in Japan including the *Japan Crafts Exhibition Prize* and the *Grand Prix* at the Takaoka Craft Competition. He has exhibited in Japan, Europe and Australia. His works have been included in public collections such as Aberdeen Art Gallery; the Ulster Museum; and the Victoria and Albert Museum. In 2014 he retired after twenty years as Professor of Metalwork at the Tohoku University of Art and Design in Yamagata. Toru is represented by Katie Jones Gallery.

Ruth Laird is based in Glasgow, Scotland. She graduated from Silversmithing and Jewellery at Glasgow School of Art in 2011. She was Artist in Residence 2012–13 at the School of Jewellery, Birmingham Institute of Art and Design. Ruth has exhibited across the UK including *Architectural Echoes* at Studio Vault, North Yorkshire; *In the Spotlight* at The Craft Centre and Design Gallery, Leeds; *Outpost* at New Brewery Arts, Gloucestershire; *Inception* at &Gallery, Edinburgh and *Chromatic* at the Sara Preisler Gallery, Birmingham. She has also exhibited at a range of international events such as *SIERAAD* Amsterdam and *JOYA* Barcelona.

José Marín was born in Valencia, Spain, the son of a goldsmith. He entered the School of the Guild of Jewellers of Valencia at the age of thirteen, studying jewellery making for five years, followed by four years of training in engraving and setting. He subsequently worked with leading goldsmiths in Valencia, setting up his own workshop in 2006. He graduated as Superior Artistic Jewellery Design Technician from the Valencia School of Art and Design and since 2014 he has taught at the school. José has been a finalist for the *National Spanish Craft Awards* and has

received numerous awards for his work, including *Valencia International Jewellery Awards* and selection for the Beijing International Biennial of Jewellery Art. He has work in collections including The Koch Collection at the Swiss National Museum and private collections internationally. He is represented by Mobilia Gallery.

Cecilia Moore is based in Dublin, Ireland, working at Fire Station Artists' Studios. She holds an MA and BA from the National College of Art & Design. She previously graduated in silversmithing from Birmingham School of Jewellery and studied *dinanderie* in Paris. Cecilia is a winner of the *Golden Fleece Award 2018*, *RDS Craft Award*, and is a member of the Design & Craft Council Ireland's *PORTFOLIO Critical Selection*. Cecilia has exhibited widely, with her 2021 exhibitions including *Crafting a Difference* and *Collect 2021* with Cavaliero Finn Gallery. She has completed several public art commissions. Her work is in private and public art collections including the National Museum of Ireland; the Irish State Art Collection held by the Office of Public Works; the Irish Management Institute; and the Axa Art Collection.

Artist Biographies

John Moore was born into a family of artists, and is based in Brighton, England. He holds a BA in 3D Design from Manchester Metropolitan University. He has exhibited at high-profile fairs and exhibitions in the UK, Europe and the USA, including *Masterpiece London*; *Design Miami*; *SOFA Chicago*; *MIART Milan*; *PAD Monaco*; and *PAD London*. John has received a number of awards, most notably *the Goldsmiths' Company Award* in 2016 and 2019. His works have been acquired by collections in the UK and the USA including The Mint Museum in Charlotte, North Carolina; Tuan Lee Collection; and The Nelson-Atkins Museum of Art in Kansas City. He is represented by Elisabetta Cipriani Gallery in London.

Cara Murphy is based in County Down, Northern Ireland, and is an associate lecturer in Ulster University. She trained at Glasgow School of Art and the Royal College of Art. Cara is a Freeman of the Worshipful Company of Goldsmiths, a selected member of the Contemporary British Silversmiths and is part of the Design & Craft Council Ireland's *PORTFOLIO Critical Selection*. She works mainly to commission. Public collections

include: Aberdeen Art Gallery; Arts Council of Ireland; Arts Council of Northern Ireland; National Museum of Ireland; The Silver Trust Collection at 10 Downing Street; Ulster Museum Belfast; The Pearson Silver Collection; and the Department of Foreign Affairs, Ireland. She is represented by Adrian Sassoon Gallery.

Thanh-Truc Nguyen was born in Oldenburg, Germany, and since 2010 has been based in Berlin. She graduated from the HAWK Hildesheim, University of Applied Sciences and Arts in 2009, and was twice finalist in the *BKV-Preis*. She was awarded the *ISSP Förderpreis* in 2014 and has work in collections including: the Helen Drutt Collection, Philadelphia, USA; Nelson Atkins Museum of Art, Kansas City, USA; Collection Karl & Heidi Bollmann, Vienna; Austriathe Schmuckmuseum, Pforzheim, and the Grassimuseum, Leipzig, Germany. She is represented by Galerie Slavik and Gallery Funaki.

Cóilín Ó Dubhghaill is based in Wicklow, Ireland. He trained at Grennan Mill Craft School, Kilkenny, and Edinburgh College of Art, Scotland, graduating in 1996. In 2005 he received a doctorate

from the metalwork department at the National University of Fine Arts, Tokyo Geidai, Japan. Cóilín was awarded the *Bavarian State Prize* in 2015 and is part of the Design & Craft Council Ireland's *PORTFOLIO Critical Selection*. He has work in collections including the Marzee Collection, Netherlands; The Goldsmiths' Company, London; Museums Sheffield; The Incorporation of Goldsmiths, Edinburgh; Galway City Museum; the Irish State Art Collection held by the Office of Public Works; and the National Museum of Ireland. Cóilín is represented by Galerie Marzee.

Michael Rowe was born in Buckinghamshire, England, and studied at High Wycombe College of Technology and Art and the Royal College of Art. He was a visiting lecturer at Camberwell College of Arts from 1976 to 1982 and at Buckinghamshire College of Higher Education from 1973 to 1984. He is the author, with Richard Hughes, of *The Colouring, Bronzing and Patination of Metals*, first published in 1982 and reprinted multiple times. Michael is Professor of Metal Art & Design and has been teaching at the Royal College of Art since 1978, and was made a Fellow in 1987. Rowe is the

Artist Biographies

recipient of two honorary doctorates: from Buckinghamshire New University, 2004 and Hasselt University, Limburg, Belgium, 2010. He presented a major retrospective at the Birmingham Museum and Art Gallery in 2003–2004, touring to Manchester Art Gallery; City Gallery, Leicester; and Aberdeen Art Gallery. Michael is represented by Gallery S O.

Ryuhei Sako was born in Okayama Prefecture, Japan. He graduated from Hiroshima City University in the Department of Design and Applied Arts in 1999, and earned his master's degree in 2002 from the same institution. Ryuhei has work in the collections of the Hasegawa Machiko Memorial Museum of Art, Tokyo, and the Victoria & Albert Museum, London. In 2004 he became a member of the Nihon Kogeikai (Japanese Handcrafts Association). He has received many awards for his work at the prestigious annual Japan Traditional Art Crafts Exhibitions. Ryuhei is represented by Katie Jones Gallery.

Roxanne Simone is based in London, England. She completed her BA degree in Jewellery and Silversmithing from The School of Art, Architecture and Design in

2015. Simone was a recipient of the *Griffin Scholarship* for her MA studies at the Royal College of Art, from where she graduated in 2020; her MA project *Visibility* earned her the *16th Annual Theo Fennell Best Metal Award*. She was also awarded the *Goldsmiths' Precious Metal Grant Award 2020/21*; the *British Jewellers' Association Commendation for Jewellery Design and Making 2015*; *Resin 8 Commendation for Jewellery Techniques 2015*; and *The School of Art, Architecture and Design Designer of the People Award 2015*. Simone has exhibited extensively in the UK as well as in China, Egypt and Israel.

Simone ten Hompel was born in Bocholt, Germany. She received an MA in Metalwork from the Royal College of Art before setting up her own workshop in London in 1990. She has lectured at UK universities and is currently a Reader at London Metropolitan University. Simone has exhibited in the UK, Korea, Germany, Switzerland and the Netherlands. She has received a *Bavarian State Prize* in 2012 and was the winner of the *2005 Jerwood Applied Arts Prize in Metal*. Simone's work also features in the public collections of the Victoria and Albert Museum; Goldsmiths' Hall, London; Crafts

Council UK; Birmingham Museum and Art Gallery; and National Museums of Scotland. She is represented by Gallery S O.

Adi Toch was born in Israel, and is based in London. She graduated with an MA in Art, Design & Visual Culture from The School of Art, Architecture and Design, London Metropolitan University, where she is a Senior Lecturer in 3D, as well as a visiting lecturer at the Royal College of Art and at Bezalel Art Academy in Jerusalem. Her work is exhibited internationally, and has won awards including a *Gold Award* from The Goldsmiths' Craft and Design Council UK, and the *European Prize for Applied Arts*. In 2017 she was shortlisted for The *Loewe Craft Prize* and won a *Wallpaper* Design Award*. Her work is included in the collections of the Victoria & Albert Museum; Crafts Council UK; Goldsmiths' Company; National Museums Scotland; National Museum Wales; and The Jewish Museum, New York.

Artist Biographies

Jessica Turrell was born in Bristol, England, and studied Jewellery Design at the Central School of Art and Design, London. She holds an MA in Multidisciplinary Printmaking from the University of the West of England, Bristol. She has taught at multiple educational institutions throughout the UK. Jessica has exhibited internationally including at *Schmuck* in Munich; *JOYA Contemporary Jewellery Fair*, Barcelona; and *Premio Fondazione Cominelli* exhibition, Italy, where she was Second Prize winner. Other awards include the *Devon Guild of Craftsmen Award for Excellence in Enamel* and an *AHRC Fellowship in the Creative and Performing Arts*. Jessica features in the Crafts Council UK and Fondazione Cominelli permanent collections.

Max Warren lives and works in London, England. He holds a BA in Wood, Metal, Ceramics & Plastics from the University of Brighton and an MA in Goldsmithing, Silversmithing, Metalwork & Jewellery from the Royal College of Art. Max is a senior lecturer at Central Saint Martins, a tutor and researcher at the Royal College of Art and has taught in Brazil, South Korea and Germany. He has exhibited widely in the UK

and Europe, including shows at Sir John Soane's Museum; Saatchi Gallery; Gallery S O London; Pinakothek der Modern Munich; Design Museum, Ghent; Dovecot Studios, Edinburgh; and Galerie Marzee, Nijmegen. His work has also been acquired by several major private and public collections, including the Goldsmiths' Company; the Victoria and Albert Museum; and The Fitzwilliam in Cambridge.

Curator Biographies

Cóilín Ó Dubhghaill combines studio silversmithing with an academic career in teaching and materials development. Following his doctorate for research into traditional patination techniques in 2005 from Tokyo National University of Fine Arts, in 2007 he was appointed Senior Research Fellow at Sheffield Hallam University, and since 2019 has been a Lecturer at the National College of Art & Design, Dublin. He has worked on a range of projects in collaboration with the Materials and Engineering Research Institute at SHU including research into Japanese niiro patination (Arts and Humanities Research Council Fellowship) and research into friction-stir patterned metals (Innovate UK funding). These projects have been disseminated through the publication of research at the Santa Fe Symposium, USA, international lectures and exhibitions of his work. The friction-stir research has led to the formation of a spinout company (Mikana Innovations Ltd) to exploit new-found techniques and upscale them for industry. He was a co-curator for the *Keypiece* exhibition and research event at Sheffield Institute of Arts Gallery in 2009.

coilin.com

Sara Roberts is an independent exhibition curator and Programme Leader for MA Contemporary Curation at Winchester School of Art, with a track record of projects which reveal the processes of craft: *Hand to Eye* for The Winchester Gallery which documented, long-term, six artists' creative processes through film; *Setting the Scene: New Landscapes in Craft* for Crafts Study Centre, 2013, and a vast immersive installation, *Inundation* by Laura Ellen Bacon, for Ruthin Craft Centre 2014. She has worked for the Imperial War Museum, London; Mostyn, Llandudno; The Winchester Gallery; and toured exhibitions internationally for The British Council, including to the São Paulo Bienal and Istanbul Biennial. She was curator-in-residence for Projeto Maria Lucia Cattani in Porto Alegre, Brazil, in April 2019. She was consultant curator for the Arts Council of Wales/National Trust Artists' Residencies at NT Penrhyn Castle, 2015–2017. In 1993 she curated the *Chemistry Set* exhibition, examining the impact of ready access to information about the patination of metals on studio crafts, architecture and wider culture, for the Crafts Council UK and The Southern Arts Touring Exhibition Service.

sara-roberts.com

What Colour is

Metal?

ISBN: 978-1-906691-77-6

This publication has been produced by DCCI National Design & Craft Gallery for the touring exhibition *What Colour is Metal?* © National Design & Craft Gallery and Design & Crafts Council Ireland 2021.

Design & Crafts Council Ireland

(DCCI) is the national agency for the commercial development of Irish designers and makers, stimulating innovation, championing design thinking and informing government policy on design and craft. DCCI's activities are funded by the Department of Business, Enterprise and Innovation via Enterprise Ireland.

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DCCI National Design & Craft Gallery

(NDCG), established by Design & Crafts Council Ireland in 2000, is Ireland's leading centre for contemporary craft and design. It exhibits Irish and international designers, artists and makers who push boundaries in their practice. NDCG's mission is to inspire appreciation, creativity and innovation.

ndcg.ie



Exhibition Curators

Cóilín Ó Dubhghaill and Sara Roberts

Catalogue Design

www.wemakevisual.ie

Words

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Rosemary Steen, Susan Holland

Images

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otherwise credited

Works

Loaned courtesy of the artists, P&O
Makower Trust, Amgueddfa Cymru —
National Museum Wales and Katie Jones
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What Colour is Metal?

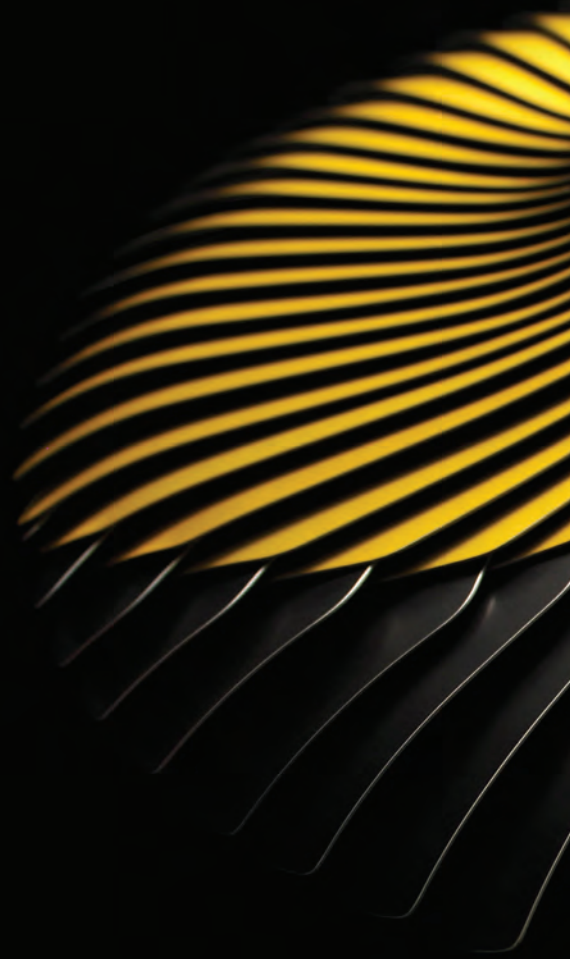
What Colour is

Metal?

John Moore

Pagoda

Anodised aluminium, silicone, silver, steel
38 diameter x 5.5 cm, 2020



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