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JEWELLERY

Compound interest

Alloys, polymers, acrylics – for jewellers, man-made materials can be greater than the sum of their parts. Kassia St Clair does the maths

SYNTHESIS. FROM THE Greek for "together" and "place", the word is what it describes: different elements combining to make something new. Its connotations are mostly positive: a sense of excitement, novelty, a step forward. Once the noun begets an adjective, though, it gains a negative undertone – to be synthetic is to be unnatural, ersatz and less than sought after. Like, say, a nylon shirt, whose synthetic fibres are wound from man-made polyamides of carbon, hydrogen, nitrogen and oxygen.

Yet synthesising materials – fiddling about with nature's bounty to make something a little sturdier, brighter, bendier or more rust-resistant – is as human an activity as cooking dinner. When our forebears first melted together copper and tin to make a metal alloy that was stronger and more useful than either of its components, they ushered in the Bronze Age. A giant leap towards the civilised future was down to a synthetic material.

Jewellers work with synthetic materials for the same reasons as the Bronze Age toolmakers: they provide a more desirable set of physical attributes. And then there's the look of the thing. Chris Boland, a quietly spoken Yorkshireman whose ring is on page 67, works up his jewels out of a home-made alloy of palladium and silver. He synthesises it with the help of an oxy-propane torch and quite a lot of patience – "palladium has a very high melting point, so it's a pain". The aesthetic appeal of the result is what makes it worth his while. "I find it exciting," he says. "It's the darkest metal that I've ever seen, it makes tin and iron look white in comparison."

Since 1967 the Italian firm Pomellato has specialised in making sweetie-coloured jewellery with semi-precious stones, but in 2010 it began adding synthetic ruby, sapphire and quartz pieces to its collections. Though chemically identical to stones that are dug out of the ground, these come straight from the lab. Different manufacturers have different methods, but a synthetic ruby might start life as aluminium oxide and chromium dissolved in a flux. This is allowed to cool slowly over a period of months; meanwhile the molecules attach themselves to each other to form ruby crystals. Why bother? "There's more awareness of where natural materials originate from," says Joanna Hardy, a British independent jewellery consultant. "Ivory, coral and tortoiseshell are banned, and there's a growing squeamishness about blood diamonds." Add this to the problems of exhausted mines, pollution, appalling working conditions and civil unrest in some producing countries, and it's clear how the ability to grow your own raw materials might appeal. Plus it allows a jeweller to hook younger customers with lower prices.

New technologies, which disseminate increasingly rapidly through the colleges where jewellers train, have helped synthetics gain traction. Stones can now be set in virtually any material you care to name, in a way that wasn't possible ten years ago, so even the more established jewellers are experimenting. There's also a feed-in from the fashion industry – forward-thinking design houses such as Marni have been playing with unexpected juxtapositions of materials in their clothes and accessories (particularly shoes) for the past couple of decades, which has trained the rest of us to have an eye for the unusual.

Each of the pieces here has something to offer – whether colour, size or flexibility – that wouldn't have been achievable if its maker had chosen to use raw, unworked materials. But they still possess a traceable ancestry. "What's odd", says Chris Boland, "is how traditional my techniques are, once I've got the metal. I work the same way Bronze Age jewellers did, thousands of years ago." Then and now, synthesised. ■

PHOTOGRAPHS **DAVID NEWTON** STYLIST **MELANIE GRANT**

SYNTHETIC QUARTZ RING POMELLATO

"Why do we use synthetic stones?" Andrea Morante, the boss of Europe's fifth-largest jewellery brand, takes a sip of coffee before answering his own question. "Because we're creative. We take risks. We dare." But the firm is not such a risk-taker that it leapt headlong into chemical waters. Instead, Pomellato dipped a toe with its junior brand, Dodo, and only after that proved successful did it give synthetic stones a trial run in the main collection. It buys the gems from laboratories in Germany, which "guarantee a certain quality and exact colouring". So far the range includes pale-green and brown quartzes, rubies and a flame-orange sapphire, but more colours are on the way. And it's the colours that interest Morante the most – when asked how exactly the gems are grown, he didn't know. Aesthetics rule, OK?

'67' silver, jade and synthetic-quartz ring, £735; pomellato.com

NANOCERAMIC EARRINGS DE GRISOGONO
The de Grisogono house style is built around strong, circular, folding shapes, often salted with pavé settings, and plays on the tension between bright colours and black – an early success was the range of black diamond jewellery it launched in 1996. Here the role of black is played by a synthetic: nanoceramic. Essentially a kind of varnish consisting of 98% water, 1% butanol and 1% methoxypropanol, it's applied to a metal base – in this case, white gold – in minute layers using electrolysis. Fawaz Gruosi, de Grisogono's Italian-Lebanese founder, tells me he came across nanoceramic a little over a year ago. "Our idea is always to find something new that's never been used in jewellery before." But the result is more than just novel: the tough, scratch-resistant surface adds a dark drama – without it, the emeralds here would look simply gaudy.
"Stile" emerald, white-gold and nanoceramic earrings, £29,800; degrisogono.com

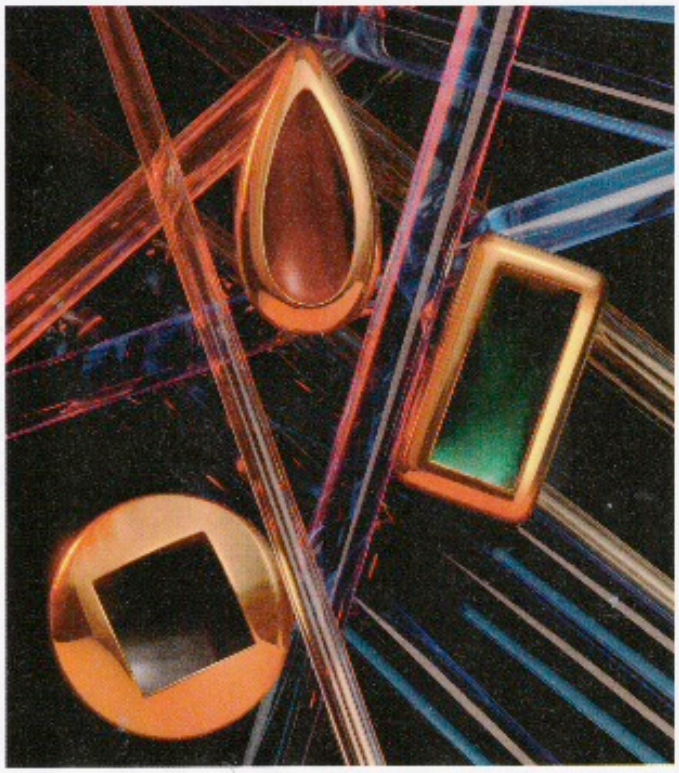
PALLADIUM ALLOY RING CHRIS BOLAND

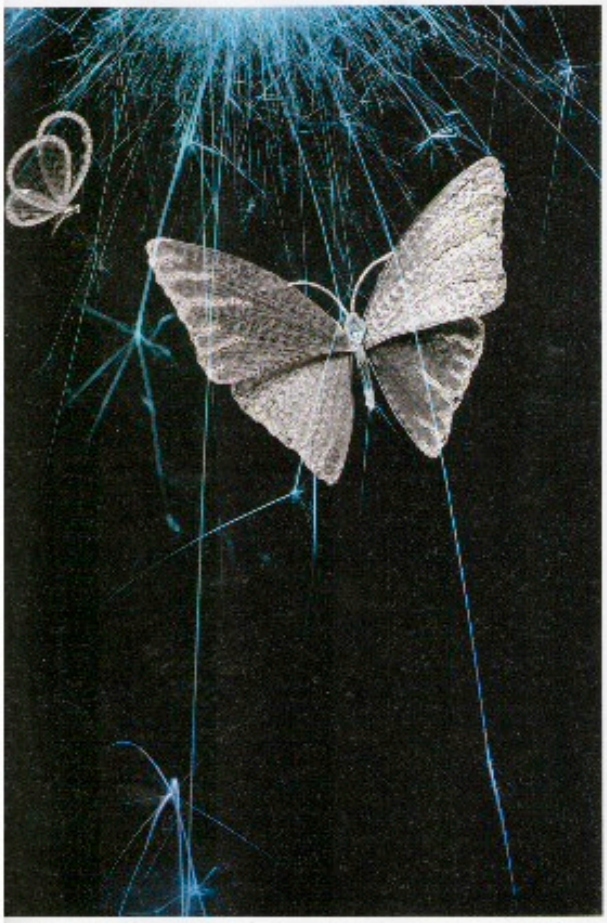
As elements go, palladium is a relative newbie. It was discovered by a British chemist in 1803 and has only been hallmarked since 2010. Like its close relative platinum, it has an other-worldly, whitish lustre and is often used in alloys – here by the Yorkshire jeweller Chris Boland, who describes himself as "in love with metal. I like that if you mess it up you can bend it the other way, knock it back into place, even reattach it." Though it would be perhaps cheaper, and certainly easier, to work with gold, Boland prefers his own formula of palladium darkened with silver. He uses the end result to make squared-off rings that evoke modern geometry as well as something older and more rough-hewn.

Sapphire and palladium-alloy ring, £1,000, chris-boland.co.uk

SILICONE NECKLACE JENNY LLEWELLYN
Silicone, or polymerised siloxane to give it its proper title, is most commonly used in special-effects prosthetics. But Jenny Llewellyn, a young jeweller based in east London, came across it at university, where it used to make moulds. She soon began employing it in her work, buying it wholesale as a translucent goop – "it acts as a blank canvas" – and then mixing in pure powder pigments to create different colours. "People tend to think my pieces are made of glass or ceramic," she says. "It isn't until they touch them that they realise they're soft, not as fragile as they appear, and also very light."
'Chromylinka' silicone and gold necklace, £650; jennyllewellyn.com

BRONZE CUFF CLAUDE LALANNE
Claude Lalanne, now 87, has worked with bronze since meeting her husband, fellow artist François-Xavier, in Paris in the early 1950s. Les Lalannes, as they were known, partied with Picasso and Max Ernst, made mirrors and stools for Yves Saint Laurent's library, and designed album covers for Serge Gainsbourg. Most of Claude's jewellery is made in her cluttered studio in Ury, just outside Fontainebleau. Real flowers are disassembled and the component parts electroplated with bronze, then soldered back together. Louisa Guinness, her dealer, tells me people are initially horrified to discover Lalanne's pieces aren't gold. "But then they realise that if it were, it would cost £20,000."
"Hortense" bronze bracelet £8,000;
louiseguinnessgallery.com





LUCITE BRACELETS ALEXIS BITTAR
It's nearly 23 years since Alexis Bittar, a bouncy native New Yorker who began his career selling antique jewellery on market stalls, moved on to working with Lucite. The trademark name of a type of acrylic from the American manufacturer DuPont, Lucite was developed in 1928 as a shatterproof alternative to glass (one of its many aliases is Plexiglass), and was originally used in aeroplane-cockpit windows during the second world war. Bittar buys it in clear blocks, which are then sculpted, "like wood", into flowing, soft-edged bangles and earrings. Having worked with the same material for more than two decades he's clear-eyed about its limitations: it shatters if you make it too thin, and it's heavy. But that hasn't put him off. "It reflects light and colour in a way I haven't seen before," he says. "I love it."
Selection of Lucite, rhodium and Swarovski crystal bracelets, from $295; alexisbittar.com

COLD ENAMEL RINGS ANISH KAPOOR
Cold enamel is a colloquial name for a type of epoxy resin, a group of man-made materials first synthesised by chemists in the mid-1930s, and soon adopted by jewellers as a no-heating-required alternative to traditional, glass enamels. For the artist Anish Kapoor – known for creating huge, architectural sculptures such as The Bean in Chicago, or the twisty red tower in the middle of the London Olympics site – cold enamel's value lies in its high-gloss, almost liquid finish and its ability to take on any colour. Just as with his larger work, Kapoor can use these qualities to trick the eye with curves and polished surfaces – here, what look at first glance like fairly traditional settings of cabouchon gemstones are actually concave surfaces coated with coloured cold enamel.
"Water" gold and cold-enamel rings, from £16,500; kaiyuartwestgalley.com

TITANIUM FIBRE BROOCH AND EARRINGS BOGH-ART
Founded in Geneva in 2008 by brothers Ralph and Roberto Boghossian, Bogh-Art specialises in precious stones. "Gems are rare and unique," Ralph says, "so their mounting had both to match that and to add something." To that end they developed titanium fibre: micro-particles of titanium sandwiched between layers of fibreglass, which is in turn a mixture of glass fibres and thermoplastic. The result is lightweight, semi-transparent and mouldable – ideal for creating the airy shapes of insect wings.
Diamond earrings (one shown, far left), £6,230, and brooch, £40,000; bogh-art.com