

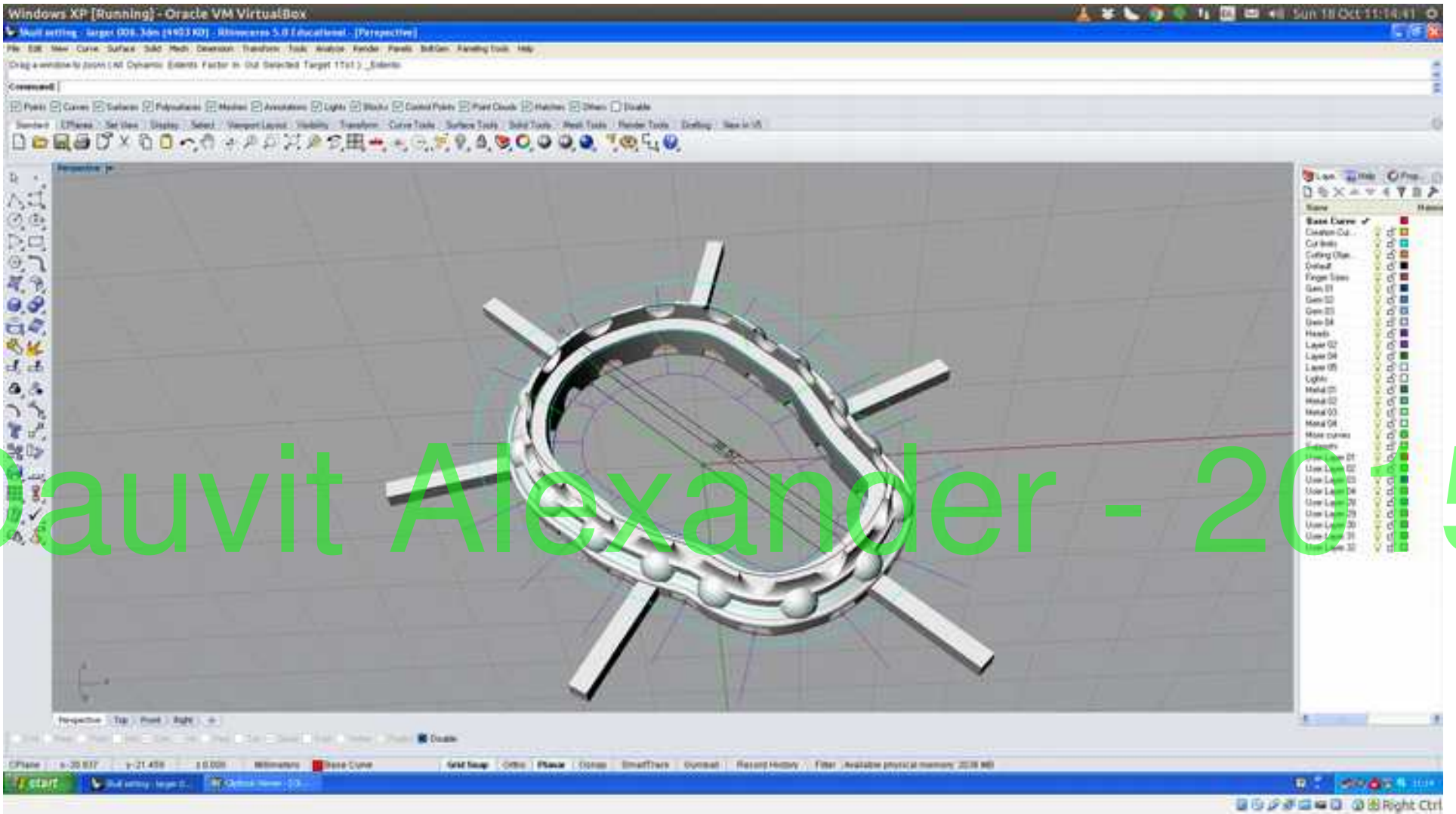
**Digital Tools and New Technologies  
In Contemporary Jewellery**

**Dauvit Alexander - 2015**

Dauvit Alexander



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# Dauvit Alexander - 2015



“The past is history, the future mystery...”

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~~“The past is history, the future mystery...”~~

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<p>22. 9 ct. Gold Earrings in the Form of a Rose. Fittings for pierced ears. Cat. No. 20711823 Comp. Retail £35.50 Argos Price £5.95</p> <p>23. 9 ct. Gold Pierced Earrings. Fittings for pierced ears. Cat. No. 20711832 Comp. Retail £13.95 Argos Price £8.45</p> <p>24. Cultural Pearl Stud Earrings. 9 ct. Gold fittings for pierced ears. Cat. No. 20711840 Comp. Retail £8.95 Argos Price £8.25</p> <p>25. 9 ct. Gold 4 Leaf Clover Earrings. Cultural pearl in the center. Fittings for pierced ears. Cat. No. 20711847 Comp. Retail £11.25 Argos Price £8.25</p> <p>27. 4 ct. Gold Drop Earrings. With a cultured pearl and a tubular "Tiger Eye" bead. Fittings for pierced ears. Matched with no. 11. Cat. No. 20711817 Comp. Retail £18.45 Argos Price £7.25</p> <p>28. 9 ct. Gold Drop Earrings. Set with matching diamonds. Royal pattern border. Fittings for pierced ears. Matched with no. 11 and set no. 11. Cat. No. 20720871 Comp. Retail £27.50 Argos Price £15.25</p> <p>29. 9 ct. Gold Earrings. Diamond and pearl. Fittings for pierced ears. Cat. No. 20711844 Comp. Retail £30.00 Argos Price £14.85</p> <p>30. 9 ct. Gold Drop Earrings in the Form of a Cross. Diamond cut front. Fittings for pierced ears. Cat. No. 20711849 Comp. Retail £5.25 Argos Price £4.95</p> <p>31. 9 ct. Gold Pearly Drop Earrings. Pearl and fittings for pierced ears. Cat. No. 20720900 Comp. Retail £5.00 Argos Price £5.95</p> <p>32. 9 ct. Gold Hoop Earrings. Fittings for pierced ears. Cat. No. 20711846 Comp. Retail £19.45 Argos Price £3.95</p> <p>33. 9 ct. Gold Pierced Stud Earrings. Fittings for pierced ears. Cat. No. 20711845 Comp. Retail £1.75 Argos Price £4.90</p> <p>34. 9 ct. Gold Hoop Earrings. Fittings for pierced ears. Cat. No. 20711822 Comp. Retail £10.75 Argos Price £7.95</p> <p>35. 9 ct. Gold Pearly Drop Earrings. Pearl and fittings for pierced ears. Cat. No. 20711890 Comp. Retail £5.40 Argos Price £8.45</p> <p>36. 9 ct. Gold Small Faceted Droplet Earrings. Fittings for pierced ears. Cat. No. 20711893 Comp. Retail £7.25 Argos Price £5.95</p> <p>37. 9 ct. Gold Earrings. Diamond cut front. Fittings for pierced ears. Cat. No. 20720842 Comp. Retail £11.75 Argos Price £7.95</p> <p>38. 9 ct. Gold Heart Shaped Drop Earrings. Hoop with fittings for pierced ears. Cat. No. 20720828 Comp. Retail £11.75 Argos Price £7.85</p> <p>9 ct. Gold Chevron Sovereign Hoop. Cat. No. 21620022 Comp. Retail £12.95 Argos Price £7.45</p> <p>40. Sea Horse. Cat. No. 21620007 Comp. Retail £15.50 Argos Price £8.45</p> <p>41. Wrenbird. Cat. No. 21620001 Comp. Retail £12.45 Argos Price £8.95</p> <p>42. St. Christopher. Cat. No. 21620006 Comp. Retail £14.00 Argos Price £8.95</p> <p>43. Monk and Baby. Cat. No. 21620198 Comp. Retail £24.50 Argos Price £13.95</p> <p>44. Hammer Claws. Cat. No. 21620113 Comp. Retail £26.75 Argos Price £13.95</p> <p>45. "Love-You" Spines. Cat. No. 21620171 Comp. Retail £22.50 Argos Price £13.95</p> <p>46. Dove and Bull. Cat. No. 21620223 Comp. Retail £16.50 Argos Price £9.95</p> <p>47. Tree. Cat. No. 21620228 Comp. Retail £10.50 Argos Price £5.95</p>	 <p>44. Intersphere. Cat. No. 21620218 Comp. Retail £8.75 Argos Price £4.95</p> <p>46. Tree. Cat. No. 21620223 Comp. Retail £9.50 Argos Price £6.45</p> <p>45. "Love" Cat. No. 21620217 Comp. Retail £11.25 Argos Price £7.45</p> <p>41. Eternity Set. Cat. No. 21620209 Comp. Retail £27.50 Argos Price £23.50</p> <p>42. Pensive Fish. Cat. No. 21620247 Comp. Retail £46.75 Argos Price £26.95</p> <p>43. "Love-You" Keys. Cat. No. 21620046 Comp. Retail £27.50 Argos Price £14.95</p> <p>34. 9 ct. Gold Diamond Pendant and matching earrings. Cat. No. 21621690 Comp. Retail £19.00 Argos Price £28.50</p> <p>35. 9 ct. Gold Diamond Ring. Cat. No. 21621622 Comp. Retail £21.45 Argos Price £14.55</p> <p>36. 9 ct. Gold Diamond Brooch. Cat. No. 21621619 Comp. Retail £49.50 Argos Price £21.95</p> <p>37. 9 ct. Gold Diamond Heart Shape Ring with matching pendant. Cat. No. 21621614 Comp. Retail £28.75 Argos Price £19.95</p>	 <p>44. Intersphere. Cat. No. 21620218 Comp. Retail £8.75 Argos Price £4.95</p> <p>46. Tree. Cat. No. 21620223 Comp. Retail £9.50 Argos Price £6.45</p> <p>45. "Love" Cat. No. 21620217 Comp. Retail £11.25 Argos Price £7.45</p> <p>41. Eternity Set. Cat. No. 21620209 Comp. Retail £27.50 Argos Price £23.50</p> <p>42. Pensive Fish. Cat. No. 21620247 Comp. Retail £46.75 Argos Price £26.95</p> <p>43. "Love-You" Keys. Cat. No. 21620046 Comp. Retail £27.50 Argos Price £14.95</p> <p>34. 9 ct. Gold Diamond Pendant and matching earrings. Cat. No. 21621690 Comp. Retail £19.00 Argos Price £28.50</p> <p>35. 9 ct. Gold Diamond Ring. Cat. No. 21621622 Comp. Retail £21.45 Argos Price £14.55</p> <p>36. 9 ct. Gold Diamond Brooch. Cat. No. 21621619 Comp. Retail £49.50 Argos Price £21.95</p> <p>37. 9 ct. Gold Diamond Heart Shape Ring with matching pendant. Cat. No. 21621614 Comp. Retail £28.75 Argos Price £19.95</p>
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SEARCH

CATEGORIES

Type

- bracelet
- brooch
- earrings
- necklace
- ring
- housewares
- puzzles
- lamps
- gift card
- sale

Concept

- algae
- ammonite
- cell cycle
- dendrite
- florescence
- generative
- jigsaw puzzles
- typhae
- kinematics
- radiolaria
- one of a kind
- xylem

Material

- 3d-printed
- brass
- nylon
- silicone rubber
- stainless steel
- sterling silver
- wood

Color

- black
- gold
- grey
- neon pink
- neon yellow
- red
- turquoise
- white

- JEWELRY
- LIGHTING
- PUZZLES
- HOUSEWARES
- CREATE YOUR OWN
- CONCEPTS



tetra kinematics 15b

\$35.00

BLACK SZ M

ADD TO CART

Tetra Kinematics 15b is a 3D-printed bracelet made of fifteen unique pieces. The Tetra style features organic extrusions. Varying the size of the underlying triangular framework results in a morphing, undulating landscape of smoothed tetrahedrons.

Our Kinematics system creates complex, foldable forms composed of articulated modules. It provides a way to turn any three-dimensional shape into a flexible structure. Each jewelry design is an assemblage of hinged, triangular parts that behave as a continuous fabric in aggregate. Kinematics jewelry naturally and comfortably molds to the body's contours, highlighting the complex and subtly shifting patterns of each piece. This is 21st-century jewelry, designed and manufactured using techniques that did not exist until recently.

This bracelet is built up layer-by-layer in strong but slightly flexible nylon plastic using selective laser sintering, a kind of 3D printing. The hinges are built in during the printing process so each design comes out of the printer fully assembled. The pieces are polished until smooth, but they retain a delicate texture from the printing process. The bracelet is fastened simply and securely with a hidden magnetic clasp.

COLOR	black
MATERIAL	polished 3D-printed nylon
SIZE	fits wrists up to 8.25 in 7.3 x 1.0 x 0.6 in
WEIGHT	1 ounces

TAGS

BLACK, WHITE, BRACELET, 3DPRINT, KINEMATICS, CUFF, JEWELRY

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# The New Technologies

- Milling
- SLA – stereolithography
- DLP – direct light printing
- SLS – selective laser sintering
- Laser-cutting
- Others

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# Milling



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# SLA - Stereolithography

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DLP – Direct Light Printing

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# SLS – Selective Laser Sintering

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# Laser-Cutting

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# Others

- Wax-printing
- Water-cutting
- Laser metal deposition
- Hybrids
- “Rep-rap” type deposition

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Rep-rap – A Slight Diversion

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# Materials

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# The New Materials

- Metal

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# The New Materials

- Organic



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# The New Materials

- Glass/ceramic/gemstone

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# The New Materials

- Movement
- Light
- Sound
- Data

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# The New Consumer



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#### STYLE NOTES

Stylish necklace that emphasizes the fluidity of repeated vertical lines of rubber. Designed to be worn high on the neck, this piece is particularly beautiful. Made from soft reclaimed rubber and polished steel plated chain. Rubber is subtly finished in a pique/white.

#### CARE & INFO

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#### DELIVERIES & RETURNS

#### VIEW MORE

#### MEET THE DESIGNER

Elaine Ware makes bold, tactile, fully adorned, minimalist contemporary jewelry. Her work is inspired by nature and an innate desire not to conform. Previous collections are constructed from recycled rubber transformed into sensual, abstract sculptures. New Elaina's focus is turned to traditional leather working techniques and silver manipulation. A London based designer with a background in fine and applied arts, Elaine built a film-making career in the camera department before an increasing need for creative independence ignited the conception of her label Ware London. Her motivation remains the interplay between constructed shape and human form with the pure thrill of being adorned.

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# Chris Boland Designs



Products: All Rings Earrings Pendants

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# Jewellery

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- Dangle & Drop Earrings
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### Bracelets



### Rings



### Body Jewellery



### Cuff Links & Tie Clips



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### Sweater Clips



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### Dress & Shoe Clips

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Urgent rethinking is required to avoid the revolutionary potential of 3D printing being lost in a sea of pointless plastic products.

Rachel Adams, Architectural Review, 2014

# Summary

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- Tatty Devine - <http://www.tattydevine.com/>
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# Thanks

- School of Jewellery, Birmingham; Jewellery Innovations Centre Birmingham
- Claire Price and Frank Cooper
- David Webster
- Glasgow Kelvin College
- Jonathan Boyd

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# Digital Tools and New Technologies In Contemporary Jewellery

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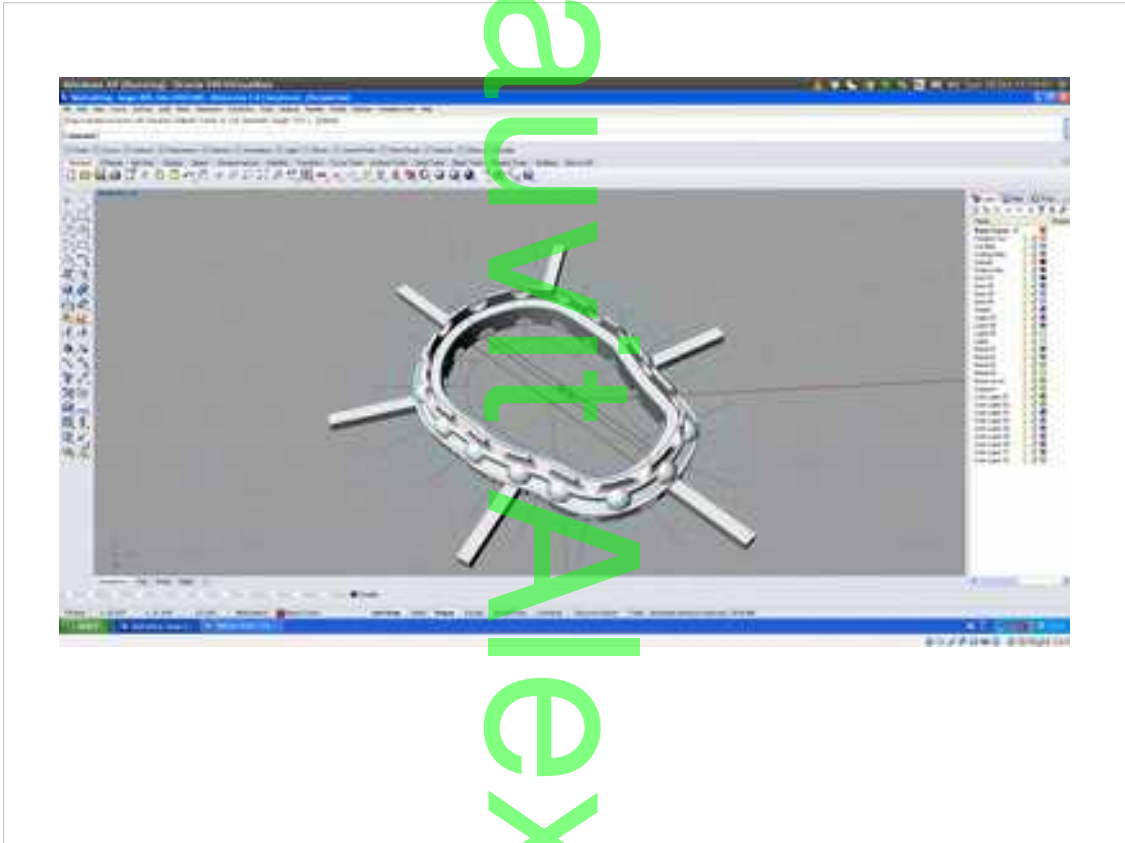
Good evening. Thank you for coming along. Before we get started, I'd like to give you a very brief introduction to myself and to my interest in the subject.





Some of you may be familiar with my work, but what might surprise you is that I use a lot of cutting-edge digital technology in my work.

A lot of my cutting-plans are made digitally and then executed manually and if you look at the setting for the skull above...



Here is the digital model which made it.  
A lot of my work involves this sort of blending  
between traditional jewellery techniques and ultra-  
modern digital technologies...



And I enjoy playing with the idea that it is not always possible to determine which areas are hand-made and which are machine made.

Tonight's talk is not, however, about me or my work. It is about something which is already happening, which has been happening for twenty years and which is completely changing the jewellery world. Rather as in my own work – but for very different reasons – the jewellery industry has been blurring the lines between the traditional and the revolutionary new processes which they have been adopting...

2015

“The past is history, the future mystery...”

To turn a popular cliché on it's head, “The future is history...” it just hasn't happened yet. We are constantly re-writing the future with every decision we make, either individually, societally or at a species level, making changes which can have both local and global impacts.

~~“The past is history, the future mystery...”~~

To turn a popular cliché on it's head, “The future is history...” it just hasn't happened yet. We are constantly re-writing the future with every decision we make, either individually, societally or at a species level, making changes which can have both local and global impacts.



This is not going to be a futurological or sociological talk, despite that introduction...

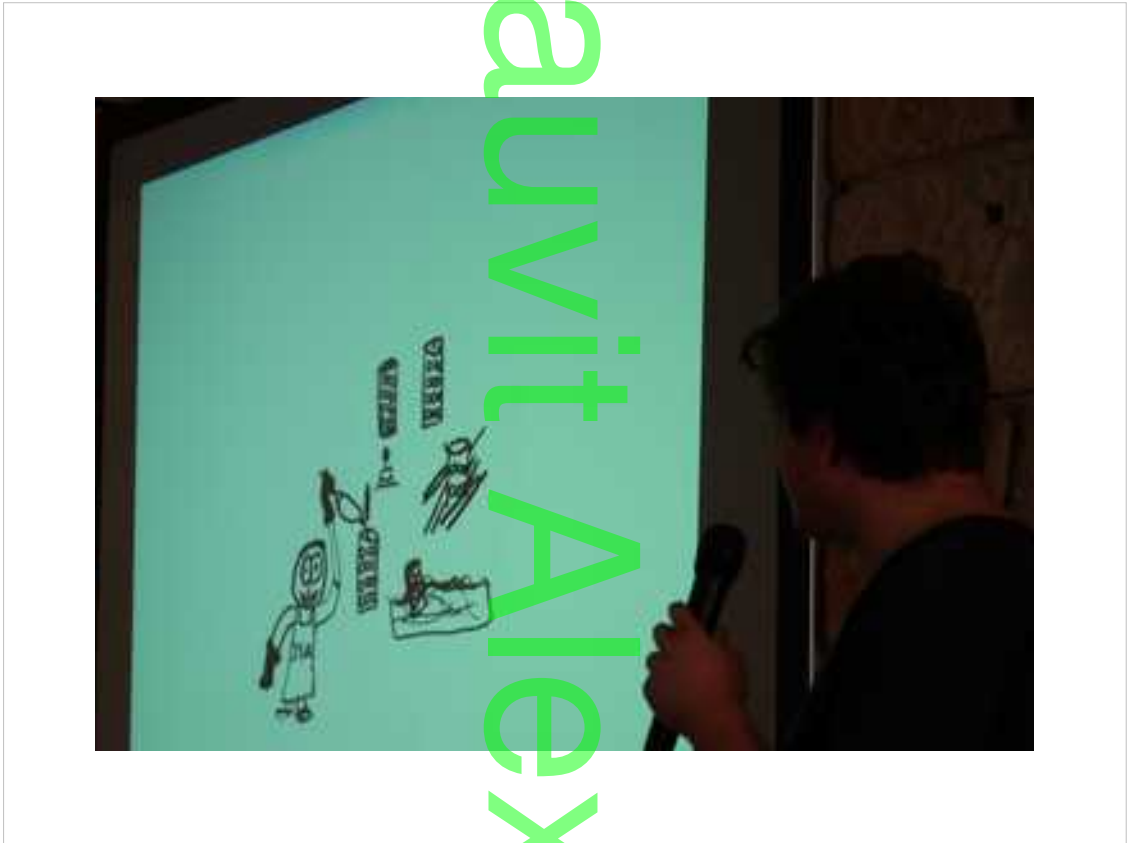
Rather focus on how the stuff of science fiction is happening NOW – especial impact on the jewellery industry; possibly not even noticed by the general public.

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In order to understand the importance of the recent developments in technology and how it affects jewellery now, we have to step back to the last time there was a major shift in the technology of jewellery production...

Forgive me for exposing your refined eyes to this but I will be coming back to this later and it is important to realise that the technology I am going to talk about is going to affect ALL aspects of jewellery in the future



That image from the Argos catalogue of 1976 shows most clearly the last time a shockwave went through the jewellery industry – the arrival of “lost wax” casting on an industrial scale.

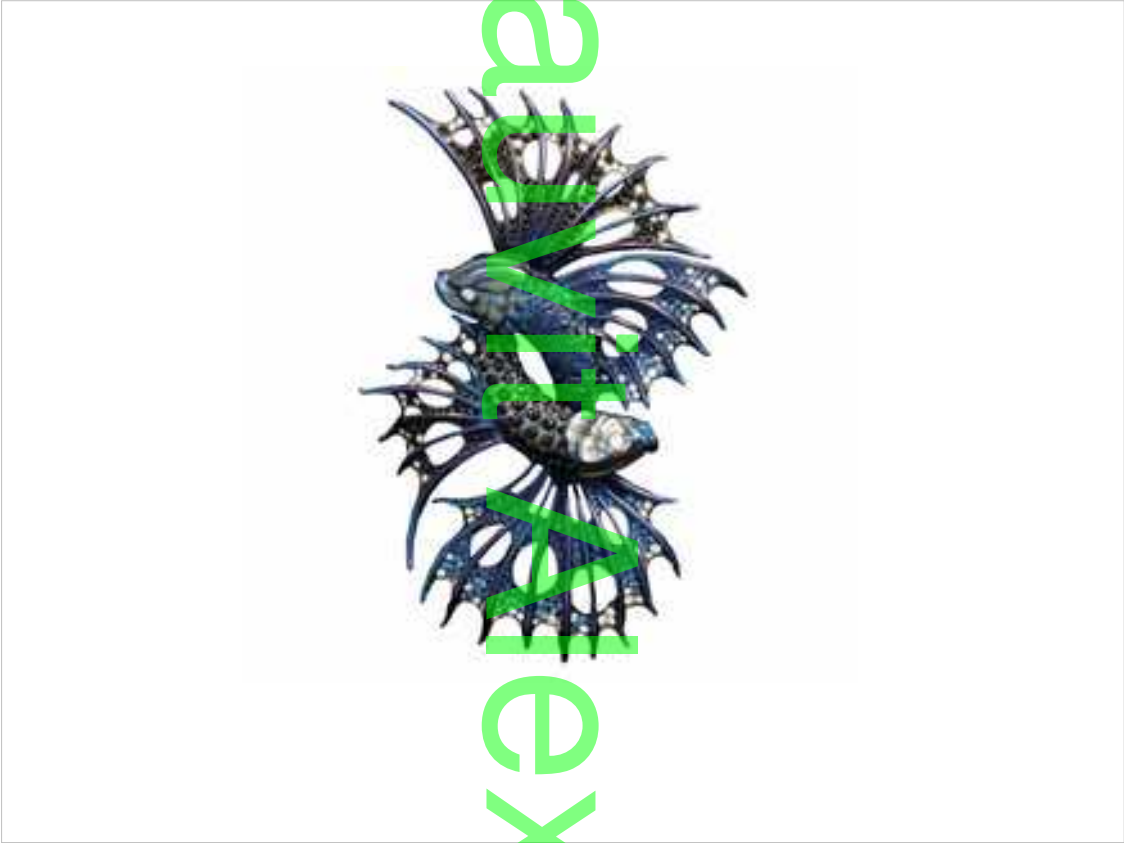
This is a drawing by Jonathan Boyd's nephew of how industrial-scale lost-wax casting works.



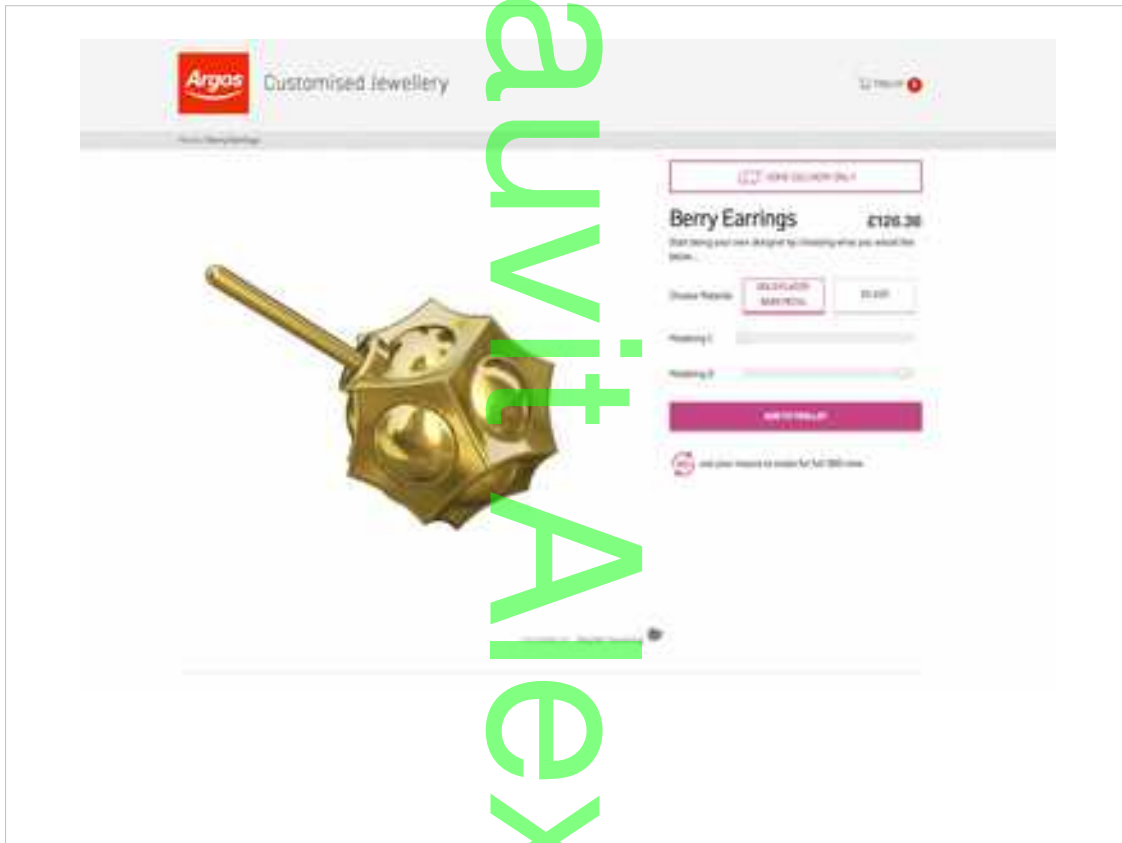


Although lost-wax casting had been around for thousands of years, it was only in the late 1950s and into the 1960s that it started to make an impact on the jewellery industry, replacing more traditional mass-production techniques like stamping.

Alongside the ability to mass-produce, jewellers started to become experts in the science of the process; it became more accurate, finer; they started to experiment with it, creating work that was not possible with traditional techniques.



And so we come to the same point again. This brooch by Stephen Webster would not have been possible until recently; digitally-modelled and laser-sintered in Titanium; it has taken the technology and pushed the limit of possibilities both in terms of material and jewellery and this creates a feedback-loop where the technology influences the design and the design – and designers – influence the technology.



And as with the lost-wax casting in the past – I actually find it quite pleasing that lost-wax casting is now an integral part of many of these contemporary digital processes – the mass-manufacturers are getting on-board, which brings me back to Argos (unfortunately).

This project disappeared in an incredibly short time after launch and I'm unable to find out any more information about it but do not be deceived This idea will be back and Nervous System has a practice to prove it...

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This is a screenshot from the Nervous System website.

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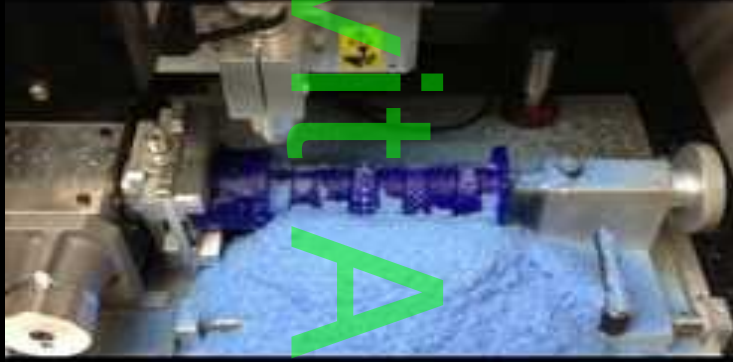
This kind of imagery is very seductive, combining lots of things that consumers love: mystery, the thrill of the new, the ability to create something semi-bespoke and so we also have to consider how this technology is impacting on the retail environment.

## The New Technologies

- Milling
- SLA – stereolithography
- DLP – direct light printing
- SLS – selective laser sintering
- Laser-cutting
- Others

So, having rambled on about the new technologies, what exactly are they? Broadly speaking, there are four main technologies which have been impacting the jewellery industry. Milling is probably the best-known of these.

## Milling



Probably the longest-standing of the techniques used by jewellers

Advantages – cheap and easy to use; easy to cast the product; jewellers already experienced in casting this material; relatively straightforward to learn and maintain

## SLA - Stereolithography



Stereolithography is the process of solidifying a liquid resin using a focused laser beam. If you can imagine being able to focus the laser at any point in a tank, where that focus-point occurs, the resin in the bath solidifies and makes the object.



## DLP – Direct Light Printing

Essentially this is very similar to the SLA process in that it uses light to cure a resin but with this process, it uses a device based on the technology in this projector to solidify the resin.

## SLS – Selective Laser Sintering



This is sometimes called “Direct Metal Printing” and works by using a laser to fuse powdered metal in layers. In this video, you can see the powder being pushed across after each pass of the laser has fused the material

## Laser-Cutting

You will all be familiar with laser-cut jewellery. Laser-cutting is a process by which digital patterns are cut from materials using a high-power laser. It is everywhere in the fashion world and on the high-street...



A laser-cut lobster from Tatty Devine.

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## Others

- Wax-printing
- Water-cutting
- Laser metal deposition
- Hybrids
- “Rep-rap” type deposition

In addition to the main processes outlined above, there have been dozens of other advances in technology which have impacted in a number of ways.

Wax-printing – a fairly established process which prints wax models for casting

Water-cutting – using a jet of abrasive in water to perform accurate cutting of almost any material; already widely used in the watch industry for cutting tiny parts

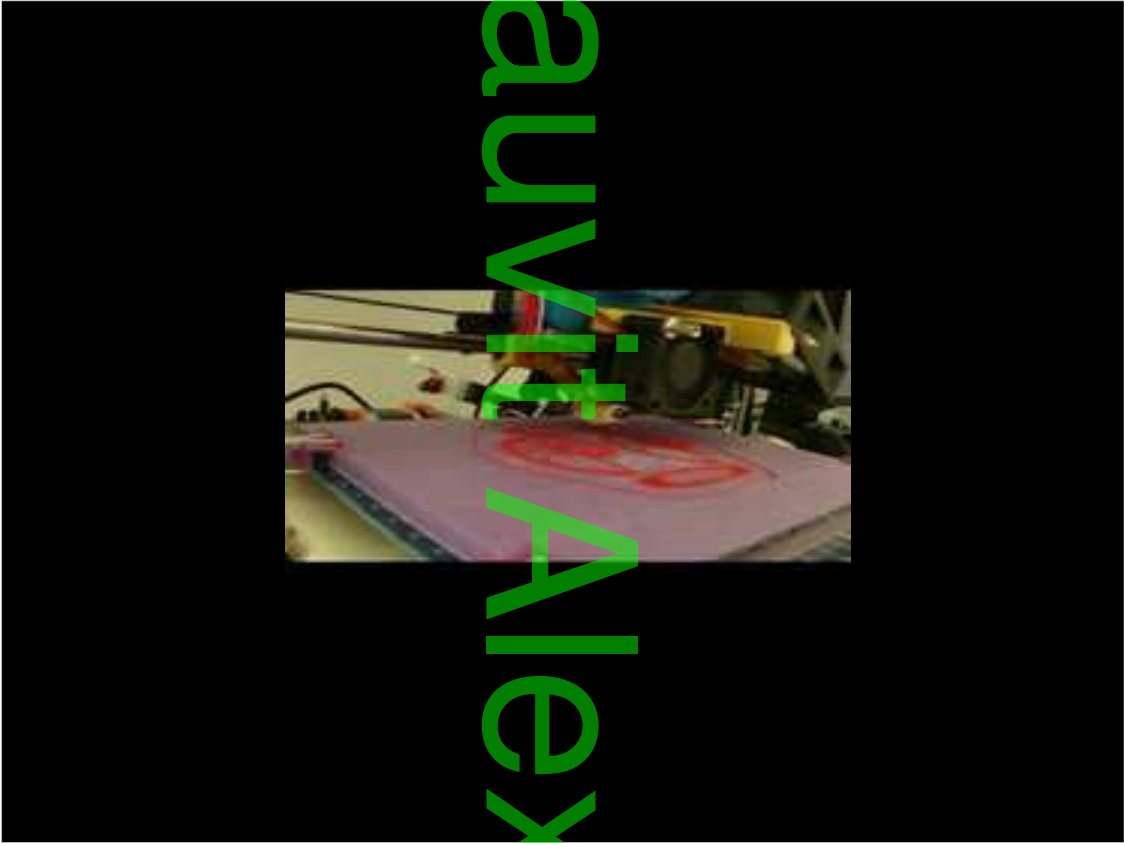
Laser-metal deposition – using a stream of gas to direct metal powders into a focused laser to build objects

Hybrids – for example, deposition machines with milling heads and cutters

And Rep-rap...

## Rep-rap – A Slight Diversion

I get very excited about what have come to be known as “disruptive technologies”, that is, technology which evolves from outside an industry and which comes to shake that industry up. In effect, all the technologies here are “disruptive” but one of the most interesting of these is the development of “rep-rap” machines which were essentially toys. Machines developed by enthusiasts, hand-built and which work by extruding materials.



This is an inexpensive machine which prints plastic objects by layering the materials together. It is made from parts of other devices – printers, computers, toy engineering parts and this technology has evolved to allow the printing of things as diverse as ceramic, glass and chocolate.



Some of you will be familiar with Michael Eden's work and this piece was created using an extrusion process similar to the one that the Rep-Rap uses.

As a result of these technologies making possible forms and methods which have hitherto been impossible, we are going to see new materials appearing in contemporary jewellery, both supplementing and replacing the traditional.

To go back briefly to one of my own works, 20000 Leagues Under The Seas...

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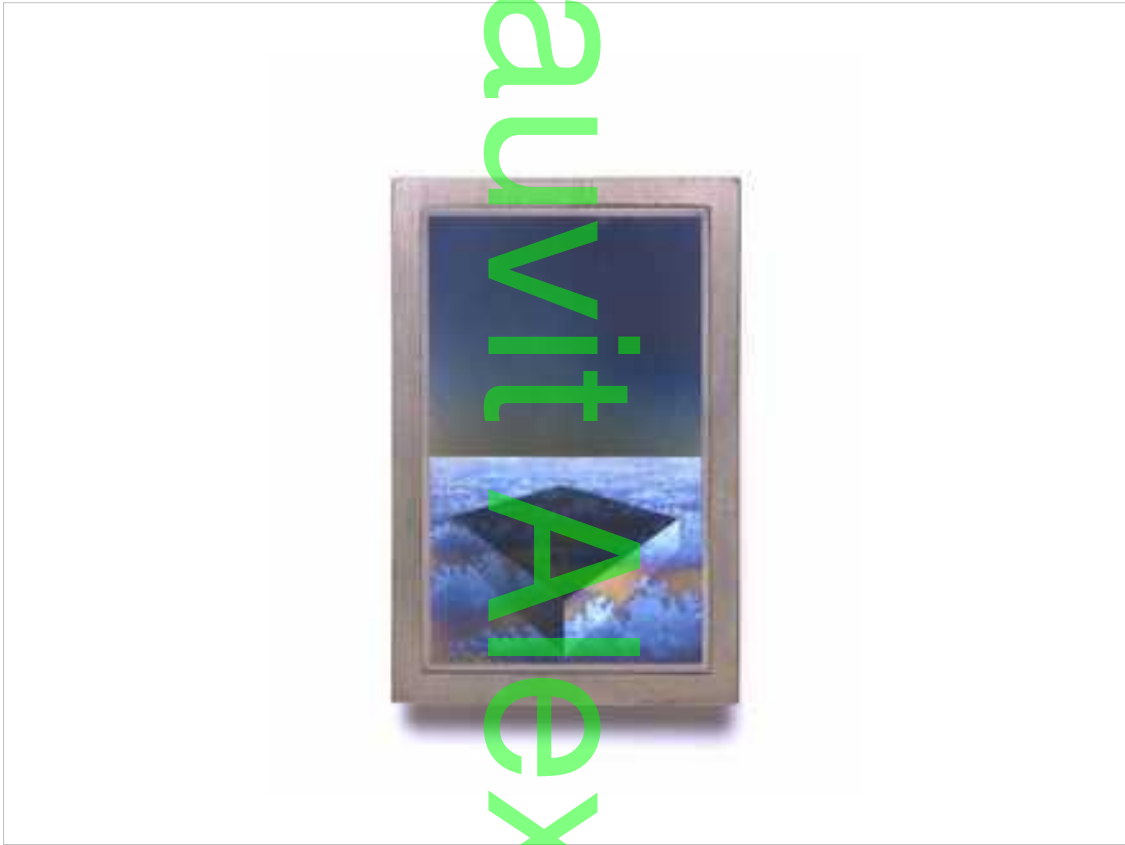




Not only does this feature my usual array of found and corroded objects, precious metal and gemstones, but the 'barnacle' forms were produced in bronze-infused stainless steel, using a laser-sintering process. (Sample)

Materials

New materials in jewellery come and go... remember the burst of enthusiasm for titanium in the late 1970s and early 1980s?



A brooch by Edward de Large from 1977 in the V&A collection.

Materials in jewellery seem to be faddish with periods when the traditional materials appear to be eclipsed for a variety of reasons: from Berlin Ironwork to pate-de-verre to the laser-cut perspex I showed earlier.

New technologies have the potential to further enhance the jewellery world by offering new materials. Again, to go back to my own work briefly, my “Hymn To Amun Ra” piece...

2015



Features a central element of a 3D-printed nylon scarab beetle. The collar supports are Kevlar and steel bullet-proof vest material; the catch is made from rare-earth magnets; the central element is a brake pad from a Cessna jet; the rest is more traditional silver, gemstones and enamel.

Some of the new “content” of jewellery might surprise you. Ideas about what jewellery can and should be will change...

## The New Materials

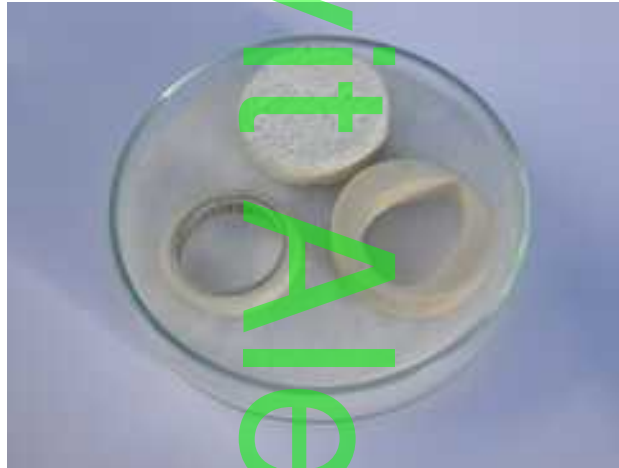
- Metal

This material ecclcticism comes from an excitement about the possibilities of new materials and when these materials are formed using the new technologies, a world of possibilities is offered to the designer and maker.

Metals are the obvious one and I've covered how steel, titanium and the traditional metals might be used but there are new metals available which change their form depending on environment, ones which are so black that they don't allow any photons to escape, there are metals which are super-strong, super-magnetic... and these are being developed all the time.

## The New Materials

- Organic



In terms of organic, who knows where this will go; it is currently possible, as I am sure you all know, to “print” a hamburger and some time ago Tobie Kerridge and Nikki Stott created wedding rings from human bone-graft materials; Peter Skubik long ago proposed implanting jewellery.

Body modifications; materials which bond to the skin; fabric which changes colour depending on mood... all of these are under investigation and many of them are already being investigated by contemporary jewellers.

## The New Materials

- Glass/ceramic/gemstone

The ability to print glass and ceramic is already fusing with the ability to grow synthetic gemstones and shaped sapphire glasses for watch crystals are already being produced. Will it be possible to grow our synthetic diamonds in any form?

## The New Materials

- Movement
- Light
- Sound
- Data

It might seem odd to put these “methods” under materials but it is materials which are driving the move towards jewellery which is able to interact with the wearer and the wearer's environment, things like fibre-optics, Light emitting diodes, micro-controllers, micro-sensors, miniature computers and if you think that all this is a bit far-fetched, I would suggest that most of you have already seen this type of jewellery...





This does it all... it lights up, it records your heartbeat, it moves and vibrates to let you know that there is a message waiting for you, it changes colour, produces sound. I know it is an ugly lump but it's there and some makers have already been working with these technologies to make much more interesting work.



The “Bella Beat” is a piece of “smart jewellery” aimed at women and on sale now. On the website, they describe it as, “A beautifully designed health tracker that helps you monitor your activity, sleep quality, stress levels, and understands your menstrual cycle”.

The Bella Beat is highly commercial and is not particularly well-designed but it gives an insight into how the jewellery world is changing and how even the most commercial products are adapting to new technologies.

# Dauvit Alexander - 2015



Wearable technology will blur the boundaries... technology, biology, jewellery, clothing, psychology...

This is leading to a changing mindset amongst those who buy contemporary jewellery...

## The New Consumer



Lesley Craze gallery closed this year. It followed electrum and repeatedly we hear about galleries struggling to survive. Why is this? Lesley said herself of the closure, "Three things have changed over the years: diversity of materials used, diversity in the manner of making and diversity of selling"

The market has diversified. It has fragmented. It is a veritable powder.



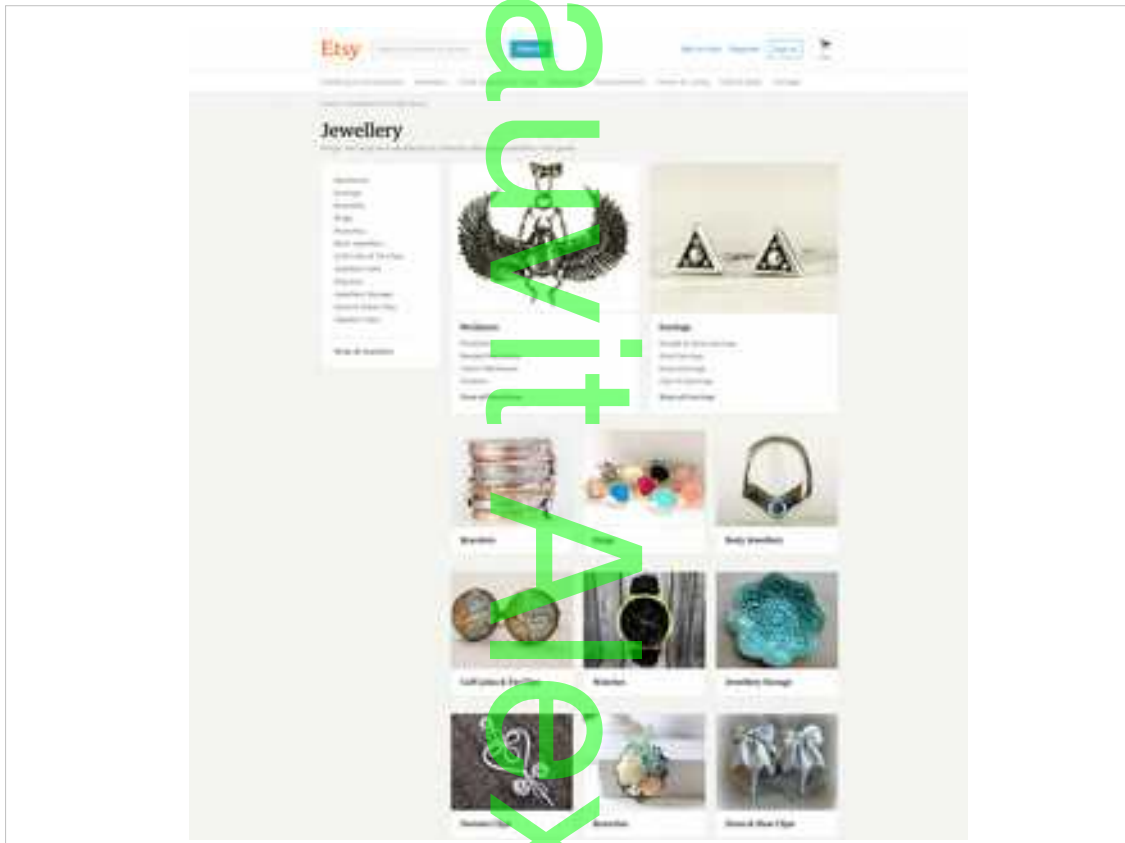
It is not a leap of imagination to suggest that the kind of work which might have been stocked by specialist jewellery galleries in the past has moved online. Lesley added, “The internet’s diversity of selling has really affected the way jewellery is sold, but it has led to a dumbing down of work.”

I don't think that the work is being dumbed down, but I do think that while it is easier than ever to buy work from far-flung and experimental makers, even unique pieces, the people who would have frequented places like Lesley Craze are not comfortable with this online market place.

We are seeing a “youthquake” if I may be excused re-animating a wonderful 1960s phrase.



Increasingly, more and more makers are taking the retailing of their work into their own hands and setting up web-shops – the tools for online retail are available to anyone who wishes to do this, from sophisticated online shopping, such as this by Chris Boland...



And any hobbyist can get into online sales...

It is no exaggeration to say that this sort of marketplace is, for the younger generation, replacing the likes of Gill Wing or Lesley Craze or even H. Samuel as a place to purchase jewellery.



The rise of the maker culture, the amateur, the hobbyist is something to be celebrated. It is about making things. It is about creativity. It is about people taking control over the means of production (which makes me sound like an old Marxist)

This necklet was designed by an eight year old and printed by an online bureau service in nylon





Some people may feel that there is something wrong with the idea of anyone at all being able to design and make jewellery but I would suggest that it raises the game; jewellery makers and designers have now to compete in a market place in which anyone with a good idea can make those ideas real, can get them out there rapidly and can manufacture them almost immediately and inexpensively.

I will finish on one final point.

2015

Urgent rethinking is required to avoid the revolutionary potential of 3D printing being lost in a sea of pointless plastic products.

Rachel Adams, *Architectural Review*, 2014

And I think that this can be applied to all the other technologies I've outlined. It is this idea which gives me hope. There has always been - and always will be - tat; grock; crap; call it what you will. It is up to the designers to take these technologies and to make them useful or even to make them revolutionary.

## Summary

This has been a quick overview of the state of flux surrounding not only the world of contemporary jewellery but this state of flux is reflected in all other industries, creative or otherwise. There are some gaping holes in what I've talked about. For example, I've not addressed any of the software issues – software allows for all manner of creative processes; machine-generated objects; objects which build other objects; self-replicating structures and I've skipped over enormous fields such as robotics, bioengineering and nano-materials, all of which have potential to be used in some way in jewellery.

Whatever happens, the future history of jewellery is looking very exciting.  
Thank you.

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## Thanks

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David Alexander - 2015