

## CAA 105<sup>th</sup> Annual Conference, Los Angeles

### Conference Paper

#### **Beyond Facture** : Ingrid Murphy

Material arts, craft-based practices, digital processes and technological constructs influence, support and affect each other in multiple possible ways, each with their own historical lineage and associated aspirations or concerns.

Just as throughout history, we cannot ignore the pace and influence of technological progress, Paul Valery's comments of 1936 are equally pertinent today:

"In all arts there is a physical component that cannot continue to be considered and treated in the same way as before, no longer can it escape the effects of modern knowledge and modern practice". (1)

For Valery it was the advance of the mechanical age ... for us it is the advance of the digital age that is changing the physical components of our craft, quite literally.

Recent publications such as "The Post Digital Artisan" (2) and the "Digital Handmade" (3) are testament to the growing prevalence of the digital artisan, those makers whose digital tools have released them from the creative and physical limitations of the analogue age.

"Through combining the precision and flexibility of the tools of digital fabrication with the visual quality and tactility brought by the traditional craftsmanship, the modern artisan is empowered to take the best of both worlds and make a new one - and with it make a new kind of maker's mark." (4) Lucy Johnston

This integration of digital processes with traditional making skills forms much of current discourse regarding craft and technology, and many of the outcomes place the emphasis on the notion of 'facture', on how the thing is made.

But in our newly connected world of pervasive technology, it is not only the methods of 'facture' which are changing, our whole relationship with objects and how we navigate them is changing. Where will craft sit in this new way of making and this new way of thinking about making? Does emergent technology have more to offer the skilled craftsman than a set of new tools?

To answer this we need to examine the 'meta' of our making, the structure that exists above and beyond the "*making*" itself, to see beyond facture, and explore how emerging technology can augment how we experience craft, if we change how we perceive it, we may change how we conceive it in the future

To understand our future world we need to understand the trajectory of the technologies which will be forming it. So for this I look to Garter's Hype Cycle of Technology. The 'hype cycle' is a graphic presentation of the maturity, adoption and social application of specific technologies. Not only does it provide us with a vision of what the future hold technologically but the hype cycle model proved strangely analogous to my own attempts at integrating digital technologies into my practice.

In 2011 I began a research project to look at ways in which new technologies could benefit the sole practitioner working in ceramics, based in my studio in rural France it was important that I worked with opensource technologies.

At the outset, like many others before me, I began by replacing my hand or my physical tools with their digital counter parts, after serving my apprenticeship in the school of the YouTube tutorial I had my new set of digital tools. It is indeed easy to be seduced by the capabilities of these tools and the objects they can create, the digital theorist Peter Lunenfeld gives us a cautionary note about the technological enchantment of digital objects; “They attract less for what they mean than for the fact that they are.” (5)

To avoid this I chose to focus my efforts on how technology can enhance our experience of a crafted object and so began my experiments with the Augmented Object, The Hacked Object and the Connected Object.

#### The Augmented Object

As the future is frequently the past re-interpreted, that is where I started my journey by bridging the real and the virtual through QR (Quick Response) enabled Staffordshire flatbacks. The use of QR codes and subsequently AR (Augmented Reality) enabled me to give static objects a voice, this appealed the storyteller in me. The digital content can be ever changing, in effect making the object a portal for reiterative engagement, an engagement, which thanks to Google analytics can be quantified. It also allows me to occasionally bring the beauty of historical artifacts to an unwitting audience as can be seen here in LoveMatch.com or in the shifting political landscape that can be seen in Little Red Riding Hood and her ever changing activism.

The ‘Hacked Object’ used scanning & 3D printing as well as AR to both digitally and physically hack my effigy into and onto objects, it was interesting to hack my way into ceramic history and it’s institutions, as can be seen with my V&A plate hack. Are

these the unwitting forebears of the 'post truth' objects of the future?

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As I choose to work with clay because of its deep connection to haptic activity and sensory experience, I was keen for the audience to eschew the screen and experience a crafted object through touch and we rarely get to have physical encounters with crafted objects when on display.

"The thing about an object is that if you put it in front of someone they actually have to deal with it. It's demanding. It's the difference between a Tweet about gun rights and putting a gun in someone's hands" (6) Glenn Adamson

So in the piece 'Things Men Have Made with Wakened Hands', the viewer is required to handle the object. Inspired by the eponymous D H Lawrence poem, AR interaction was used to reflect the sentiment of the verse, which conjures evocative images of handmade objects 'awake through years of transferred touch [...] warm still with the life of forgotten men who made them.' (7) D.H. Lawrence

Here a gold lustred replica of an old thrown jug triggers a live film projection when handled, the film depicts the hands of makers handling the original, and reflects the notion of a maker's 'intelligent touch' while the gold lustre records this transference of touch in its ever growing tarnish. It is interesting to note that the viewers modified their handling of the replica once the embedded film is triggered, following the movements of the maker's hands, exploring the jug as would an expert.

The AR enables the viewer to experience object, live feed, and embedded feed simultaneously, blurring the boundaries between immediacy, hypermediacy and remediality, creating a new phenomenological experience of a once familiar object.

The use of AR is also incredibly useful in teaching, for example at Cardiff we have augmented our tool boards to provide instruction on safe tool use. Coupled with 3D scanning, AR can become a distinctly useful tool when teaching through objects. The Meta-Objects project is embedding digital data such as studio scans, making methods or material composition onto crafted objects, this has enabled them to become palimpsests of their own making, revealing their provenance and enhancing a student's understanding of process, material and context. Such immersive interactions and access to data can help scaffold a student's learning and forge new connections for creative applications of their knowledge. Students also learn how to embed their own digital content, which they can accommodate for their own creative needs. The aim of the project is to create a collection of teaching objects which can be fully interactive, using NFC, AR, VR and RFID technologies to access various levels of content spanning materials, processes and contexts, activated by touch, by sight, and gesture. The eventual aim is that these objects can be easily replicated and use connectivity enabling interactions and learning to occur in vastly different learning environments.

### The Connected Object

The essential element of the digital world is connectivity, conversely the crafted object generally inhabits its world of isolated splendor. The advent of accessible physical computing and micro processors such as Arduino and Raspberry Pi have made it possible for makers to connect their objects to sensors, to actuators as well as other objects. Such connectivity is at the heart of "The Campanologist's Tea Cup", a collaborative project with the sound artist Jon Pigott commissioned for The Sensorial Object Exhibition in 2015. The ambition of the exhibition was to uncover

new 'apertures of perception within and beneath our familiar daily experience' (8) (Sensorial Object 2015,) through materiality and objects of a domestic scale. We chose a tea cup.

An initial inspiration for the work came from the common practice of tapping or pinging a piece of ceramics and listening to the resulting sound in order to ascertain the inherent quality, value and material integrity of the object. Through a sound sensor, an arduino and a series of actuators, the cup 'pinger' is rewarded with a cacophony of ceramic auralities, each horn having an individual pitch born out of its cast thickness or firing temperature, thus drawing attention to the inherent connection between material, form, sound and process

Working with physical computing has completely demystified my previous 'black box' approach to electronics, the fact that it requires dexterous making skills to complete the bespoke circuitry appeals to me greatly. Not only have electronics facilitated connectivity in my work, they have enabled me to exploit some of the other material properties of ceramics that I seek to celebrate.

Currently in development, is the Syn-Tea-Sizer, which exploits the conductivity of on-glaze lustre to enhance one's morning brew. The rise in our use of smart devices and connectivity not only augments the experiences we have but it is augmenting the world we live in and some would argue augmenting our very beings. Rather dramatically predicted here in a quote by Alan Watts in 1970

"The wheel extends the foot. Brush, chisel, hammer and saw extend the hand. But electric circuitry extends the brain itself as an externalization of the nervous system,

and will therefore perform wonders of art which have not hereto been seen.”

Alan Watts 1970

Does it Matter

Essays on Man's Relation to Materiality

The ability to turn domestic ceramic ware into sensors, actuators or connected objects has some highly practical applications in the real world. The 'IoTea Cosy' I made for my father in Ireland uses a heat sensor and a WiFi shield to connect to my Teasmade in Britain, alerting to me to the fact that this elderly technophobe is up and about and having a cup of tea, and simultaneously making me one.

An interesting contemporary view on what Watts was describing in the limitations of the analogue tool is mirrored in the futurist and Auto Desk Maurice Conti describes in a recent Ted talk, here he cites the rise of the generative tool and the creation of a digital nervous system to inform design.

Currently I am working on FabCre8 funded research project using generative digital tools, entitled the 'ceraMic-skinAir' project, it is a collaboration with electronic composer Alexandros Kontogeorgopoulos and architect and artist Odysseus Klissouras, we are attempting to make ceramic instruments from algorithms based on the Helmholtz effect, turning electronic sound into data and using that data to create stereo lithographically printed porcelain forms, with internal chambers capable of producing the desired sound using pneumatic air. The idea of taking mathematical form from an ethereal and digitally produced sound to create an interpretive ceramic form capable of producing that sound by physical phenomena, is as perverse as it is exciting. It is also proving to be very difficult.

To end with an image of student work taken the day I left Cardiff a work by one of my students , we are currently looking to work with welsh water to change the behavior of users and here is his design of a glass created using one of NASA's data sets of the rise in ocean surface temperatures.

For students like evan dissolution of the physical and the digital barriers is concurrent with the dissolution of disciplines, ...as a material artist he has realised the digital is no longer immaterial.

“It is clear that the much nurtured and cherished differentiation between the virtual (the simulated ) and the real is no longer valid. Digital information is becoming physically tangible.” Barbara Junge (9)

It is this concept of transdisciplinary practice that informs the pedagogy of the Maker course at Cardiff School of Art & Design, it truly celebrates making, but it promotes a holistic non-hierarchical approach to making and its application in the broadest of possible contexts, but how will these student identify and develop their craft in this augmented age one where Maurice Conti predicts:

Where we will be augmented cognitively, physically and perceptually.

The world will shift:

From things that are fabricated to things that are farmed.

From things that are constructed to that which is grown.

From being isolated to being connected.

From extraction to embrace aggregation.

From craving obedience from our things to valuing autonomy.

Maurice Conti - Portland 2016

## Footnotes

1. Valery, Paul from foreword to Benjamin Walter, 'The Work of Art in the Age of Mechanical Reproduction' (1936 London) pp. 1
2. Johnston, Lucy. "Digital Handmade", (Thames & Hudson London 2015)
3. Openshaw, Jonathan. "Post Digital Artisans" (Frame Publishers 2015)
4. Johnston L *ibid.* pp. 8
5. Lunenfeld, Peter "Snap to Grid. A User's Guide to Digital Arts, Media and Cultures." (M.I.T. 2001). pp.173
6. Adamson, Glenn. *Disegno Magazine* "The Object as Reality Check"  
<https://www.disegnodaily.com/article/the-object-as-reality-check> as visited on 5/1/17
7. Lawrence, D H. 1929. "Things Men Have Made", Pinto, VS and Roberts, W (eds). *The Complete Works of D H Lawrence Vol 2.* 1954. Heinemann
8. Mayo, Natasha. "The Sensorial Object" *Catalogue Essay* (CIBT 2015)
9. Junge, Barbara. *The Digital Turn.* Zurich, (Park Books) 2012 pp 11
10. Guttari, Felix. As quoted in "The Transdisciplinary Studio" Coles, Alex (Sternberg Press) 2012