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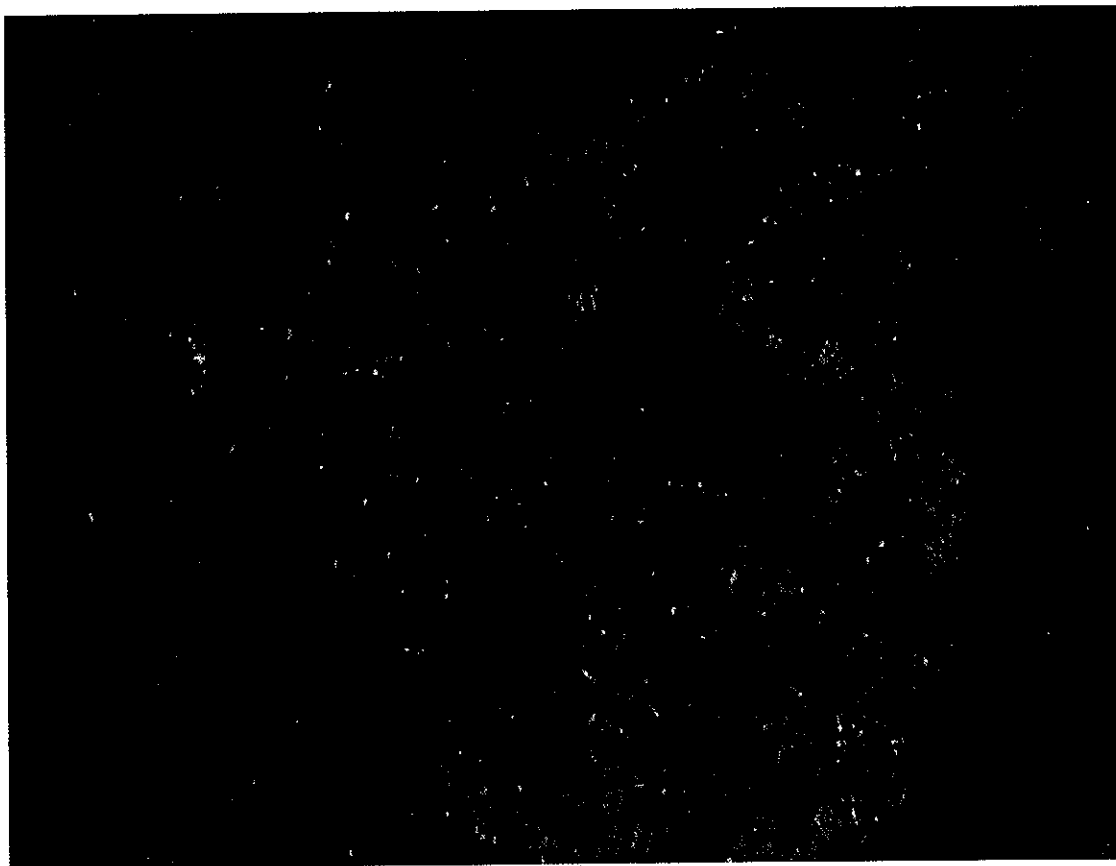
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Glass: re-materializing the digital screen

IN
Glassimations ed.
Lienors Torre



Mark Elliott and Jack McGrath, *Experiments in Living Glass #1*, 2008–2011, stop-motion animated projection, sound, suspended flame-worked glass sculpture. Variable dimensions. Collection of the artists.

Glass, known in the Eastern Mediterranean since 3,000 BC, reaches us through extensive cultural and technical histories. Its recent record includes the role of glass as both a visual storyteller via the illuminated Gothic windows worshippers viewed from inside their church, and as critical ingredient in those Art Nouveau objects like the Tiffany lamp, celebrating the electric light, populating the lounge rooms of an emergent bourgeoisie in the late 1800s. Art Nouveau appeared in unison with cinema's birth, during a period of technical innovation that, on the heels of the electric light and the photograph, turned the eye inward. Here the masses respond to light magically streaming out through the glass lens and light filament from deep inside cinema's black box, rather than searching upwards beyond the arcing sunlight striking the holy windows of

the church. In Victorian England electricity, glass and the mirror expanded domestic and public space, opening up the home to an evening's amusement with optical pre-cinema toys. Now shards of cinema and internet data-streams relentlessly blow through the lounge room's hitherto opaque walls to further challenge and invert relationships between the public and private realms. Are such transformations locatable in glassmaking's resurgence and the current moving image explosion? What is the relationship between light, glass and the moving image in our metamorphosing digitising world?

The chronicle from St. Remi in Reims from 905 BC cites the stories told by the church's windows. The medieval glaziers translated illuminated manuscripts, model books, existing cartoons

and religious picture-books such as the *Biblia Pauperum* into the expanding windows of the Gothic church. Upon entering, the churchgoer was prescribed to 'walk all around the edifice and look at the stained-glass windows'¹ constructing a religious panorama, a shifting visual manuscript of the Church's narrative. Stained-glass windows stood in contrast to the cloistered monastery and its libraries, performing as a mass medium for the word of God to an illiterate and pauper class. Thomas Aquinas identified luminosity as one of beauty's characteristics, imparting a 'radiance of truth'². For Abbot Suger, architect of the new abbey at St. Denis in the 1140s, 'man could come to a closer understanding of the light of God through the light of material objects in the physical world'.³

Jasmine Allen points out that the spectacle of the stained glass window's fractured shadow-play and light on neighboring surfaces shifts over time, finding correspondences there with the patterning effects of the 1817 patented kaleidoscope.⁴ Similarly Marcel Proust had compared the visual effect of the late eighteenth century magic lantern's projection of small hand painted glass slides to the Church's luminescent windows.⁵ Forecasting Paul Virilio's take on the computer and speed, the kaleidoscope's inventor, Scottish natural philosopher David Brewster, saw it as an 'instrument' capable of facilitating carpeting and tiling design at the core of Scotland's textile economy: 'it will create in an hour what a thousand artists could not create in a year'.⁶ In the nineteenth century transparencies for the home were designed for window blinds, to be placed directly onto glass and incorporated into fire screens and Chinese lamps. Such transparent screen constructions acquired a 'fashionable status as a refined feminine pursuit'.⁷

Several notable technical overlaps between glassmaking and animation have since become apparent. Czech animator Karel Zeman's *Inspiration* (1949) is a clear example. This film utilises modularised glass objects in the manner of George Pal's *Puppetoons*, a system that relentlessly reconstitutes the exquisite corpse. Puppet hands, feet and body shapes are interchanged from frame to frame. This itself adapts the classic animation technique of cycling through layered sheets of acetate painted with image fragments to fashion a unified whole. Zeman's other animations similarly use puppets and his 1960s features are early combinations of the live action and animation prevalent today.

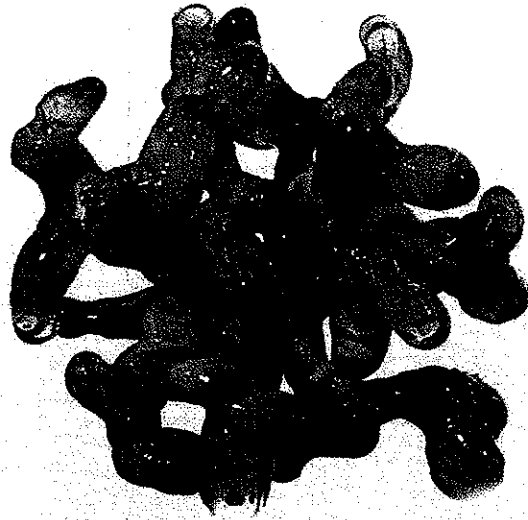
In the 1960s USA Harvey Littleton brought kiln technology to the artist through workshops and university courses, kick-starting individual technological innovation and diversity in glass art.⁸ During this period in the United States

and Europe a surplus of war camera equipment also empowered a new artist-based cinema, whose self-reflective work often focused on the luminescent screen itself (e.g. Peter Gidal's *Room (Double Take)* (1967)). Technique is reclaimed from the laboratory and factory floor. Chemical 'home processing' of film generated innovative image distortions. Both the kiln and processing tank required patience and time with mistakes often opening up unexpected possibilities. Equally glass and film's clear acetate could be directly etched, scratched and chemically painted on. Made during this period, James Whitney's *Lapis* (1960) pre-cogs digital technology. This animation, with dots of light moving through mandala-like formations, was constructed with a home-built 'computerised kaleidoscope' whose slit-scan technology was adapted for use in Stanley Kubrick's *2001* (1968) concluding light-corridor sequence.

Since the 1960s, contemporary glassmaking and animation have continued to occupy parallel worlds of technique, aesthetics and visual story telling. For Dan Klein Lucio Bubacco's tableaux of detailed figurines sourced from Greek mythology invoke 'a theatrical narrative closely allied to choreography',⁹ a description marking the territory of Norman McLaren's dance animation *Pas de Deux* (1967). Glass Artist Keke Cribbs' decorative folkloric fantasy worlds construct detailed narratives, mixing the naïve and sophisticated, a relationship also considered in Jonathan Hodgson's appropriation of a naïve 'art povera' aesthetic to convey the complex relationship between fantasy and reality in schizophrenics in his 'documentary' animation *Camouflage* (2001).

Earlier equivalences now proliferate. Glass-maker Alison Kinnaird's repetitive human figures remind Klein of Edward Muybridge's photographic studies.¹¹ Jaromír Rybák's glass sculptures¹² would be at home in a Brothers Quay animation and Ronald Pennel's glass engravings of caricatures of British eccentricity recall Michael Leunig's cartoons and animations. Czech Dana Zamecnikova's paintings on sheets of layered glass have been likened to animation stills¹³ as apparent in Caroline Leaf's *The Street* (1976) or in Australian Lee Whitmore's *The Safe House* (2006). Painting on glass is an established animation technique, partly due to its proximity to the core tradition of paint on layered acetate. Sophisticated animation software simulating painting-on-glass now exists.¹⁴

For Lev Manovich, the digital image's malleability (a characteristic glass shares), its ability to break, stretch, distort, morph, pulse and colour shift seamlessly, transforms the image from a photographic medium to a painterly one. The warehouse of technique accumulated in



Mark Elliott and Jack McGrath, *Slow Growth Improvisation #2*, 2011–2012, stop-motion animated projection, flame-worked glass sculpture, wood plinth. Variable dimensions. Supported by Canberra Glassworks. Collection of the artists.

animation and avant-garde film practice moves to centre stage, populating computer software's filter, transition, distortion and image adjustment menus. Alexander Alexeieff and Claire Parker's pin-board animations¹⁵ envisage computer paint-box interfaces. Pins become pixels. Their roller and template tools correspond to those found in digital toolboxes and their *Night on Bald Mountain* (1934) transitions and moves like an early computer based animation.

Manovich identifies animation as the core practice of digital moving image production: '*Digital cinema is a particular case of animation that uses live-action footage as one of its many elements.*'¹⁶ He also discerns an affinity with pre-cinema toys: 'the manual construction of images in digital cinema represents a return to the pro-cinematic practices of the nineteenth century, when images were hand-painted and hand-animated.' Digital media's re-invigoration of animation also stimulates glassmaking.

Within the digital, glass artist Dan Dailey's lamps,¹⁸ like *Swiveler* (2009), occupy the same creative territory explored in Pixar's first computer animation *Luxo Jr.* (1986). Further, Pixar's production method for 3D Animation incorporates a continual dialogue between analogue and digital forms, between sculptors and screen-based 3D animators. Robert Knottenbelt utilises computers in the design of his glass sculptures

and also to direct the high-pressure water jets that cut his glass.¹⁹ Another Australian, Tony Hanning's sandblasting and engraving technique²⁰ produces the solidly lined forms so prominent in Flash based digital animations. Benjamin Kaiser's use of wire mesh in *Interlocking Squares III* (1980),²¹ materialises digital 3D animation's wire-frame as do Anna Skibska's more recent fragile lamp-worked constructions²² (but with an intensity eluding the digital realm).

What is lost by migrating technique into the digital is the corporeal experience of shine and transparency, 'a contrary yet seductive mixture of surface and depth, reflection and refraction'²³ that Plunkett identifies in pre-cinema transparencies. As with glass for Stephen Prince it also remains available in celluloid film: '*Grain – bits of silver halide suspended in the emulsion of a film stock – gives the celluloid image its special luminosity and vividness.*'²⁴ As an act of refuge from the proliferation of digital media recent moving image art practice has honed in on this elusive difference.

Marcia Jane's installations focus on the light emanating beyond the screen and Todd Johnson places glass bottles in front of digital screens to manipulate and distort the image in real space. Bruce McLure's sonic assaults of flicker and abstraction perform after-images and optical residue, un-photographable retinal effects, the purview of Stan Brakhage's

'closed-eye vision'. Guy Sherwin focuses on this perceptual gap by mining perceptual ambiguity. In his *Mirror Performances* the audience becomes disoriented as to whether they are viewing an image or a real touchable body, with the reflected image consequently loosened perceptually from its on-screen moorings.

I have located correspondences in the artistic triumvirate of glass, animation and digital media, similarities that orbit around diverse constellations of glass and animation's craft and technique, particularly as accumulated since the 1960s. Digital cinema's plasticity prompting Manovich to anoint animation as its core practice benefits glass art. Glass's pliable response to diverse techniques speaks to digital media's strengths. Yet by remaining a material practice, orchestrating and capturing light in its originating physical form, glassmaking further excels by producing art objects outside digital media's range and so simultaneously speaks to its 'lack'. This lack is often imagined technically through opacity settings, the fly through and the wire-frame in 3D animation programs, in the conception of virtual space and is now promised perceptually in stereoscopy's rise. Glass's relation to this technical situation provides a unique opportunity. Can glass address an absence that our everyday immersion in the digital unwittingly creates in all of us?

For Vilem Flusser the digital or 'technical image' is a surface resisting history, the technological sublime conjuring a collective amnesia.²⁵ Flusser insists that the technical image's inner workings must be laid bare: *'as long as there is no way of engaging in such criticism of technical images, we shall remain illiterate.'*²⁶ Does glass's straddling of both digital and analog worlds offer up a space from which to critically review this digital situation and so escape Flusser's illiteracy? To reiterate though lost to digital media and discernible in experimental film practice a physical relationship to light still operates in glass art. In our digitally dominated world, glass's materiality, luminosity and malleability positions this medium uniquely to comment on both digital media's strengths and absences. A glass artist's hands craft a tactile body-centred practice, performing an elusive 'doppelganger' critique on the painterly digital image. In their stories and form glass artists directly access historical experience, resourcing a time-line running through Art Nouveau, Magic Lanterns and the Medieval Church window right back to firelight's luminous dance at night or in a cave, as well as that glittering opal fortuitously extracted from that same cave wall.

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