

For Dust Thou Art¹.

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ABSTRACT

The paper will explore the use of Atomic Force Microscopy for uncovering lost tales and histories through subtle audience interaction. The focus is the a portfolio of data driven work and ‘nano’ art developed by the author and collaborators. These projects explore the ubiquity of data streamed from an instrumentalised world and its potential as a material for manifesting things that lie outside of the normal frames of reference - things so far away, so close, so massive, so small and so ad infinitum.

The works described below are A Mote it is... (Phillips 2010), 'spɛktə/spectre (Phillips 2012a) and Exposure (Phillips 2012b). These explore the ubiquity of data streamed from an instrumentalized world (in particular the atomic force microscope (AFM)) and its potential as a material for manifesting things that lie outside of the normal frames of reference. These works are audio-visual manifestations of things so small that they require a leap of faith in theory and a delegation of perception to instrumentation to believe they are actually there.

KEYWORDS

Dust, Matter, Transcalar, Nano, Cows

“In the beginning
To see a world in a grain of sand,
And heav’n in a wild flower
Hold infinity in the palm of your hand
And eternity in an hour.”
(Blake, 1866, 586)

Ecumenical Matter (as in, “that will be an ecumenical matter”³).

The hegemony of the eye has defined our culture and the instruments that capture the visible domain indelibly shaped our philosophies. The invisible and the obscured, either because they are so infinitely big or nanoscopically small, have largely remained outside of our cultural grasp, replaced instead with the paranormal and spiritual dimensions, all too often wrapped up in the formal trappings of a religion. With the advent of transcalar instruments, such as the Atomic Force Microscope and the radio telescope, we now know that there are more things in heaven and earth than dreamt of in these ocular philosophies. With imaging technologies that require no lens to see or film to capture, we may also find that the things that were once seen as parallel interwoven occult dimensions were in fact ever-present all of the time, just out of reach in the atomic forces that bind matter or the cosmic microwave background radiation that frames our universe.

Before the amulets and talismans of ceremony and ritual are cast aside, to be replaced with the instruments of a new materialism, take a moment in time to consider the inevitable trauma such transcalar visions might inflict on a culture so comfortable with its visual acuity. If thine eye offends thee... the cultural offence caused by such new knowledge would have significant impact, just think of all those one eyed photographers... and apparently all that Cosmic Background Radiation might be just clouds of dust in our technological eyes.

Pluck it out.



Figure 1: A Mote it is..., Phillips (2010), screen capture. Copyright: the author

As Ray Milland discovered in *X: The Man with the X-ray Eyes*⁴, being all seeing has its limitations. Being able to see to the centre of the Universe can be offensive to all that we hold holy. Being able to comprehend the totality of the material world beyond the scope of the human consciousness. The slow dissolving of reality as his vision extends beyond the titillation of the material of clothes to the infinite, the view to the centre of the observable Universe brings with it madness. Plucking out the offending eyes does not alter the fact that the infinite is still there, but returning it to an invisible state where ignorance is bliss may provide a level of certainty that the human mind can cope with.

“A mote it is to trouble the mind’s eye.” (Shakespeare ca. 1599) Plucking a piece of dust from my own eye for *A Mote it is...*⁶, scanning it with an Atomic Force Microscope and then reconstructing the captured height map data of the nano surface as a swirling cloud of pixels, attempted to engage our incomprehension of the transcalar. A ‘Mote’ is both a noun and a verb. Middle English with Indo-European roots, its early Christian origins and Masonic overtones describe the smallest thing possible and empower it with the ability to conjure something into being (So mote it be...). This dual state of becoming and being (even if infinitesimally tiny) renders it a powerful talisman in the context of nanotechnology.

For Hamlet, his dead dad's ghost might or might not be a 'mote', or speck of dust, in the eye of the mind of the beholder, both creating the illusion and convincing him that what he sees is real. Something just out of the corner of the mind's eye, those little flecks of dust magnified by the desire to see more clearly. Yet the harder we look the more blurred our vision becomes. *A Mote it is...* projected a swarming dust cloud in the gallery, but a cloud that was rendered invisible by the gaze of the viewer through a simple face recognition system. The more we look the more invisible it becomes – look away and it re-emerges from the maelstrom of data. A ghost of the mote can be seen in the viewer's peripheral vision but never head-on.

To see another world in a grain of sand, to conjure up images of the dead, it is our tenuous relationship with these emergent technologies that troubles the mind's eye. Our ability to shift scales, from the smallest thing to the largest thing, in the blink of an eye is so disconcerting and the collapsing of the view from the Albertian window so traumatic.

Ectoplasmic Clouds

'spektə/spectre noun

1. A visible incorporeal spirit, a ghost, apparition, phantasm, phantasma, phantom.
 2. A mental image of some entity of terror or dread: the spectre of death...
- [C17: from Latin spectrum, literally 'image, apparition', from specere 'to look at'].



Figure 2: 'spektə/spectre installation, Schauraum, Phillips (2012a). Copyright: the author.

Further explorations with transcalar imaging techniques provided by the AFM were enacted in the Museums Quartier in Vienna in 2011. Hamlets conjuring of nano ghosts was extended to a ménage à trois of engineer, medium and artist from the 1930's.

In the mid-1980s the author entered into an exchange of letters with Robert Morris, Koestler Chair of Parapsychology at the University of Edinburgh concerning the development of technologies that would enable a 'psychometric' architecture. Embedded in the fabric of a building these sensing technologies would manifest the activities of the previous day and replay them through a dreaming architecture of ghostly inhabitants.

'The concept of objects (or places) seeming to record events and then play them back for sensitive people is generally referred to as psychometry. The objects can be called psychometric objects or token objects' (Morris 1986).

'*spektā/spectre* suggested that the Schauraum in the Quartier21 (Electric Avenue) of the Museums Quartier in Vienna is such an architecture, and that the memories of the building are bonded to its fabric by the atomic forces that have now been unlocked by the AFM. *spectre* builds on the collision of A Mote it is... and psychometric architecture by drawing on the experiences of Professor Gustav Adolf Schwaiger, the technical director of the Austrian Broadcast Corporation, and his collaboration with famous medium Rudi Schneider from the late 1930s to the early 1940s. 'G.A. Schwaiger [...] conducted some private (and rather obscure) experiments with the famous medium Rudi Schneider in the studio of a female painter [...] In fact the flat could have been right above our exhibition space (Schauraum)' (Fiel 2011).

Schwaiger developed several instruments, sadly all destroyed by allied bombing, which apparently were able to manifest clouds of ectoplasm. His early broadcasting technologies focused on the development of transmogrification and matter transmission from the hereafter to the studio, rather than bandwidth and resolution. According to Mulacz's History of parapsychology in Austria, 'Schwaiger in his research focussed on investigating that "substance" and its effects applied then state-of-the-art apparatus, such as remote observation by a TV set' (Mulacz 2000).

That 'substance' was the cloud of ectoplasm that would emerge from Schneider's mouth during their experiments. *spectre* extended these experiments by broadcasting live feeds from the space of the Schauraum and simultaneously replaying the physical remnants of these happenings as captured in the atomic forces binding the dust from the laboratory. This blended reality provided by the multiple screens merges the viewer with the recovered presence of the three 'lovers' - Schwaiger, Schneider and the mysterious painter.

These instruments may have indeed accessed the afterlife, or alternatively they may have accessed the dust clouds that lie at the molecular core or lurk at the edge of the known universe. Whatever this cloudy substance was, the fallout of these experiments is imprinted in the dust of the architecture that housed them. The *spectre* of Schwaiger is made manifest from the atomic forces that bind the Schauraum dust - a dreaming architectural space. The visions that the installation extracted from the atomic forces of the dusty floor recaptured the work of this unholy trinity.

Smoke Gets in Your Eyes



Figure 3: Exposure, Phillips (2012b). Basal series. Copyright: the author.

The third act in this nano-trinity is *Exposure*, (Phillips 2012). Here the slow emergence, over many years, of a basal cell carcinoma on the face of the author provided a link between photographic narrative and molecular instruments. It wasn't like it suddenly appeared one day, it had been there all along, looking back at several years of snap shots it was clear that the small red mark was getting bigger and deeper. It was as if the molecules of the skin had conspired with the grain of the photos and the pixels of the screen to disguise the transition. Only looking back could the difference be seen. Somewhere at a cellular level things had be transforming, from one state to another, and somewhere below that the matter that made up the cells had decided to reorganise themselves to adopt a new structure.

For a pale skinned individual who spent his life in the shadows avoiding direct solar rays, it was a bit of a surprise to see the impact of sun damage. What sun? But then nothing that a bit of local chemotherapy cream could reverse. The cell though had transformed and although it was subsequently burnt out leaving only a blushing barely visible blemish, there was a loss of faith in the materiality of flesh.

This was the year that Eastman Kodak filed for bankruptcy protection, the same year Fujifilm moved from film production to beauty products (Pico-Collagen¹²). This not only marked a technological shift from film grain to nanoparticles, but also a massive cultural shift – a shift from capturing the face on film to the embedding of 'film' in the face.

The thing that once froze the face in an eternal youthful smile is now the anti-ageing nanoparticle that preserves the face we wear. Barthes described the face on film as representing 'a kind of absolute state of the flesh, which could be neither reached nor renounced' (Barthes 1993). Now this

absolute state is closer to hand, and we will walk around wearing our old photo albums as our face, peeling away the frames like layers of dead skin.

Could the damage to the skin cells, never knowingly overexposed to the sun, be the result of all those camera flashes that had recorded the transition? The 60th second of a flash and aperture exposure competing with the 20 minute scan of the AFM. *Exposure* provided a data landscape for the viewer to wander across, captured from the remains of the basal cell carcinoma. The projected image flickering between states, pure data and cancerous cell in the response to the viewer's movement. Here the transcalar was not just the distance of perspective from the viewer to the molecular landscape, but the temporality of the exposure and decay of the skin cell. There is no truth in the fact that the majority of dust is human skin. Believe me, have faith.

Small... Far Away.

“These are small... but the ones out there are far away. Small... far away.”¹⁴

It isn't just a matter of distance, sure the billions of light years are to the edge of the observable universe are daunting, but the journey the other way is no less tricky. It is dust all the way up and all the way down, clouds of the stuff. These imaging technologies reveal things that challenge assumptions about distance, time and relationships. We are all Father Dougal's struggling to grasp the complexity of the relationship of the small plastic cow in our hand to the cow over there in the field ¹⁴. As we zoom from the clouds of cosmic dust and constellations that make up the Cow Nebula, through the cow shaped clouds in the sky, past the cloud shaped patterns on a cow to the blurry cow shaped patterns in the dust in Schwaiger's studio, we realise that this matter is sacred, ecumenical matter...

But maybe these clouds of dust at various resolutions are, and have always been the same thing? It is just our privileged position in the scale of things that registers a difference. The next particle of dust flickering in the light of a camera flash, that mote reflected in an ectoplasmic dust cloud may well be an over exposed skin cell. The clouds we look for in the sky, may be a little closer to home, for dust thou art, and unto dust shalt thou return.

References:

- 1: Genesis 3:19
- 2: William Blake, *Auguries of Innocence* (1866). Penguin Book of English Verse. London: Penguin, 2001, 586.
- 3: Father Ted. "Tentacles of Doom." Episode 3, Series 2. Directed by Declan Lowney. Written by Graham Linehan and Arthur Matthews. Performed by Jack Kelly. Chanel 4, 22 March 1996.
- 4: *X: The Man with the X-ray Eyes*. Film. Directed by Roger Corman. Los Angeles: American International Pictures, 1963.
- 5: Shakespeare, W., *Hamlet*, Act 1, Scene 1, Line 129. <http://shakespeare.mit.edu/hamlet/full.html> [Accessed 25, March 2012].
- 6: Phillips, M. (2010), “‘A Mote it is...’”, art in the age of nano technology’, John Curtin Gallery, Curtin University of Technology, Perth, WA, February, <http://www.i-dat.org/a-mote-it-is-update/> [Accessed 25, March 2012].
- 7: Robert L. Morris (Koestler Chair of Parapsychology at the University of Edinburgh 1985 to 2004) in a letter to the artist 21 October 1986.
- 8: Phillips, M. (2012a), ‘‘spektə/spectre’’, Schauraum, Quartier21 (Electric Avenue), MuseumsQuartier, Museumsplatz 1/5, 1070 Wien, Austria, 27 January–18 March.
- 9: Fiel, W. (2011), E-mail correspondence concerning the curation of 'spektə/spectre' installation, Schauraum, Phillips (2012a).
- 10: Mulacz, P. (2000), ‘History of parapsychology in Austria. Notes for a history of

parapsychological developments in Austria', paper presented at The Parapsychological Association (PA) – the 43rd Annual Convention, hosted by the Institut für Grenzgebiete der Psychologie und Psychohygiene (IGPP), Freiburg i. Br., Germany, 17–20 August, <http://parapsychologie.info/history.htm#paper> [Accessed 25, March 2012].

11: Phillips, M. (2012b), 'Exposure', California NanoSystems Institute (CNSI), ART|Sci Gallery, UCLA, Los Angeles, CA, USA, 7 March–16 March.

12: Pico-collagen (acetyl hydroxyproline), <http://and-fujifilm.jp/en/html/skincare/index.html> [Accessed 25, March 2012].

13: Barthes, Roland (1993), 'The face of Garbo', *Mythologies*. Translated by Lavers, A. London: Vintage, pp. 56–57.

14: Father Ted. "Hell." Episode 1, Series 2. Directed by Declan Lowney. Written by Graham Linehan and Arthur Matthews. Performed by Dermot Morgan. Chanel 4, 8 March 1996.

Images

Figure 1: A Mote it is..., Phillips (2010), screen capture. Image courtesy of the artist.

Figure 2: 'spektø/spectre installation, Schauraum, Phillips (2012a). Image courtesy of the artist.

Figure 3: Exposure, Phillips (2012b). Basal series. Image courtesy of the artist.

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Biographical Notes

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