

Sky Lab: Kepler's Dream

Felicity Spear (curator), Daniel Armstrong, Magda Cebokli, Lesley Duxbury, Simon Finn, Sam Leach, Harry Nankin, Tarja Trygg, Paul Uhlmann

17 August – 2 September

Gallery 1

(Left to right)

Lesley Duxbury

Night Vision(s) #1 #2 #3, 2016
Inkjet print on aluminium

The motivation for *Night Vision(s)* was initially the photographs I took of the Aurora Borealis, which I experienced for several nights while on an artist residency in North Iceland in October 2015. These, along with the introductory text in Johannes Kepler's *Somnium*, in which the protagonist recounts the tale of growing up in Iceland close to the volcano Mount Hekla and the long night hours there, led me to reflect on my dream-like experiences of the Aurora in such a volatile location. The Aurora Borealis flitters across the sky in spooky, magical bands and waves reminiscent of the spirits recounted by the mother in *Somnium*, who 'reject the greater light of other regions...and seek out our shaded areas.' One of the spirits was able to transport humans to 'other shores'.

Viewing the Aurora Borealis is not a passive experience. As the green curtains of light flit and flare across the black sky one's eyes inevitably follow, hardly able to rest on one image before another materialises. The multiple panels in *Night Vision(s)* encourage visual movement from one panel to another, emulating the otherworldly experience of being beneath one of the most astounding phenomena in the world.

Simon Finn

Surface Area One, 2016
Synthetic polymer and enamel

Surface Area Two, 2016
Synthetic polymer and enamel

Surface Area Three, 2016
Synthetic polymer and enamel

Downward Spiral Two, 2013
Charcoal on paper

Submerged, 2014
HD video (loop)

Simulant, 2016
Synthetic polymer and enamel (on plinth)

I am fascinated by the technological projection of humankind into the reaches of space, in particular matters pertaining to visual subject matter beyond our physical grasp. The cultural

investment in new data technologies for image production impact on our relationship with our environment, and this body of work looks particularly at outcomes generated by tele-operated robotics (NASA's Mars Rover). The

works are birthed in the machine, and manipulated for an alternative scenario (interplanetary camera being dismantled and submerged under an ocean surface) in order to demonstrate a re-colonisation of the image. I consider these works to be collaboration between artist, technology and environment that lies somewhere between experimental verification and poetic speculation.

Sam Leach

Dymaxion Mars, 2014
Oil resin on wood

Working with contemporary data visualisation and models, diagrams and maps, *Dymaxion Mars* explores formalist figuration and Utopian modernism, embedding the Mars Rover within an icosahedron. In doing so I reference the mid-20th century architect Buckminster Fuller's *Dymaxion* map. This map grew out of Fuller's Utopian proposal that the Universe has no preferential or political direction, and space is ideally understood by the gravitational forces that react in the presence of matter. It provides a model that reveals our connectedness to each other and the potential for as yet unrealized possibilities for humanity beyond our own planet.

Paul Uhlmann

Nine Skies 32.0569°S, 115.7439°E, 2016
Digital photographic print on aluminium

Paul Uhlmann's work strives to question and translate philosophies of impermanence and the unifying interconnectedness of all living beings. He works experimentally across the mediums of painting, printmaking, drawing and artists' books – at times employing the mechanics of simple cameras obscura. In so doing he is absorbed in the process of making – of movement and change, which parallels life itself – for life too is process. The perpetual transition of the sky provides an everyday source of wonder and a constant meditation to his investigations.

Felicity Spear

Somnium (i) Subvolva – Privolva, 2016
Wood, acrylic paint, perspex mirror

Somnium (ii), 2016

Pigment inkjet print. Original images – *Diving Man – Denmark*, 2014, photograph F Spear. Restored: *First Image of the Earth from the Moon*, Lunar Orbiter 1, 1966, Credit: NASA/LORP. Lunar Orbiter Image Recovery Project, 2008.

When we lay culture over nature like a map we raise questions about the way we observe, speculate and imagine the natural world and our relationship with it. Working with painting, photography and three dimensional objects my visual works are speculations about the way we map and attempt to understand the physical world and our relationship with the cosmos. Throughout history the study of optics and the behaviour of light have opened up ever shifting boundaries to the physical universe. There are now myriad images of cosmic phenomena being transmitted back to Earth by the Hubble Space Telescope, the Kepler Observatory and the like. This changes the way we see ourselves. In this series of works titled *Somnium I* respond to Kepler's still prescient ideas, working with models which emphasize the value and complexity of the physical universe to create a sense of, or feeling for, space, time, geometry and matter.

Somnium (ii) finds an historical and celebrated image, the first image of the Earth from the Moon, which was captured by NASA's Lunar Orbiter 1 in 1966. It has now been restored using new technologies and is titled, *Restored: First Image of the Earth from the Moon*, and credited to the National Aeronautics Space Administration, NASA, and the Lunar Orbiter Image Recovery Project, LORP. Within this image I have superimposed one of my own photographic images of a diving

man in Denmark, coincidentally the country in which part of Kepler's story takes place. It is from this perspective, between Earth and Moon that Kepler's story unfolds in time and space, and *Somnium (or Dream)*, is celebrated for its imagination and foresight in travelling beyond the known boundaries.

Dan Armstrong

Mysterium Cosmographicum: Traces of Mars, 2016.

Large images: *Traces of Mars 1, 2, 3, 4, 5*

Scanned 4x5" black and white film negatives. Pigment ink prints

Observational Instruments 1, 2, 3

Brass, steel, timber, glass

Astronomers live in a state of somnambulism. When the dark blanket of the night sky falls across the world they apply instruments of scientific enquiry and observation, measuring and collecting data while all the time dreaming of things that lie distant and beyond

In the summer of 1600, Johannes Kepler was twenty-nine years old when he accepted a position as a mathematician for the wealthy and eccentric Danish astronomer, Tycho Brahe. Using specially made astronomical instruments Brahe had recorded the most precise data ever relating to the movements of celestial bodies. All of Brahe's instruments required careful alignments and angular measurement and accurate timings. These instruments were used to record positions as mathematical coordinates. These were not instruments of magnification, for the telescope was yet to be invented. Brahe had conceived a model of the universe which was geo-heliocentric, in which the Sun, Moon and the stars circled the Earth with the remaining planets orbiting the Sun.

In 1596 Kepler had published a book titled *Mysterium Cosmographicum* (The Cosmographic Mystery or Secret of the World) in which he advocated for the Copernican model of the cosmos, which proposed that the planets, including the Earth, moved in circular orbits around the Sun. This heliocentric model was yet to be proven and Kepler believed that within the vast data accrued by Brahe, this proof lay in waiting. The relationship between Kepler and Brahe was difficult and yet each needed the other to realise their visions. Brahe it seems was jealous of Kepler and would only give him access to the most difficult data to work with which related to the motion of Mars. With tenacity and mathematical brilliance Kepler eventually resolved the confounding records and discovered that the motion of the planets is elliptical and not circular and with this the mathematical proof which validated the Copernican system.

The images in this exhibition present long exposure and time-lapse photographs of Mars (the brightest trace) made during May to July 2016 (which includes the closest period of opposition between us and our planetary neighbour).

Speculative instruments, which draw inspiration from Brahe's observatory, are directed to these celestial traces and invite the viewer to align both body and eye and with traces of Mars in an act of observation, imagination and dreaming.

Tarja Trygg, *Motion / Rotation of the Earth*, 2015

Pigment inkjet print of solargraph. Pinhole exposure 6 months, 'can' assistant Sebastian Kirchhof, Namibia, Africa.

Solargraphy refers to lens-less pinhole photography which captures multiple Sun paths on the same image. Exposure times of several months reveal the rotation and seasonal movement of the Earth in its elliptical orbit. Different latitudes, seasons and weathers bring to the images a combination of artistic and scientific interest, which without solargraphy would remain invisible to the naked eye. Although we do not perceive our movement around the Sun, we can see the tracks of the Earth's rotation and movement in solargraphs.

Solargraphy is full of mysteries, wonders and changes that have made me curious to find out how these kinds of pictures can possibly reveal our environment from new perspectives. Compared with a digital photograph from the same position, the solargraph is not a frozen moment, nor a trace of a rapid movement. All days emerge in the single image over time. The atmosphere of solargraphs reveals surprises, coincidences and unpredictable effects. The results seem sometimes to be almost surreal. The sky is full of Sun trails. The clouds may interrupt some trails,

stormy weather and winds may shake branches of trees, and the humidity may leave its marks as well. Rainy and Sunny days can be differentiated. Never before has it been possible to observe Sun trails during multiple days and see such colour variations as in these solargraphic images.

I've been experimenting with this unique hybrid photographic invention for the past sixteen years. It combines analogue and digital photography. As the light-sensitive material uses black and white photographic paper (the film), without requiring any developing chemicals, the post-processing is done digitally. Scientific space-based research relies on accurate physical observations and mathematical modelling. Art-based research, using solargraphy, brings an alternative way to observe, explore and understand the universe. Solargraphs capture what's invisible to the eye. Although we do not feel the rotation of the Earth, everything is in motion in Space. Adhering to the current heliocentric view of the cosmos in which planet Earth orbits around the Sun on an elliptic trajectory, the light trails in the image represent the rotation of the Earth in its relationship to the Sun.

The solargraph of *Motion / Rotation of the Earth* shows the daily path of the Sun across the sky for about six months (30 July 2014 - 3 January 2015). It was exposed on the top of the water tower of the Gobabed Research & Training Centre, Namibia in Africa (-23.561912°S, 15.041601°E). My 'can assistant' Sebastian Kirchhof set up my small pinhole can camera for me.

Gallery 2

(Left to right)

Harry Nankin

Flay 1-9, 2016

Toned gelatin silver photographic films mounted on a sapphire glass pane.

Lake Tyrrell in the Victorian Mallee once served as an indigenous celestial observatory. The heavens mirrored in its shallow, saline waters enunciated a sacred reciprocity between sky and country – a reciprocity long ago ruptured by clearing and colonisation. Reflecting on this sacrament and its loss, *Syzygy* presents the lake's surface as a photographic opening or focal plane, which as a consequence of modernity, no longer aligns with or reciprocates the heavens. The project was conceived as an act of pyrrhic restoration, a gestural undoing of the lost reciprocity of Earth with sky through the use of camera-less, indexical methods of image-making.

The last series of works in the *Syzygy* project, *Flay*, began as a graphite recording on tracing paper of the bodies of two dancers performing on the salt-bed of Lake Tyrrell. The graphite imprints were then laid upon photographic films and exposed on the lakebed to the naked light of the stars. The light of the universe literally transformed the invisible silver halides of the unexposed film into metallic silver negative imagery; thus, in a very real sense, the film images are congealed starlight. In the same way, these star-lit shadow films invert the light and dark of their source, so the familiar landscape-to-human symbolism is upended: in *Flay*, the sensual veneer of warm, life-scale, human flesh recalls the eviscerated skin of the salt country upon which it was made. Indeed, viewed up close, these delicate sweat-salted pores, whorls and undulations could appear akin to what the great astronomer Johannes Kepler in his 17th century novel *Somnium* imagined the Earth's surface looked like from the Moon.

The evolving nine-year undertaking was made in collaboration with scholar/artist Paul Carter and astrophysicist Maurizio Toscano and a generous team of volunteers.

Magda Cebokli

Kepler's Horizon, 2016

Acrylic on linen. Photo: Tim Gresham

Foci, 2016

Acrylic on linen. Photo: Tim Gresham

In honour of ...

Kepler straddled two worlds of thinking: the rational and the mystical.

On one hand he was embedded in the centuries-long tradition that the heavens reflected divine harmony and therefore must embody perfection. The circle, being the perfect form, must be the pattern on which the heavens moved. On the other, he was a man of science who believed in measurement, observation and logical explanation. In his mind, the testing of hypotheses, the use of mathematics and logic were the paths by which the order in the universe was to be revealed.

The history of astronomy is bookmarked by leaps in thinking, leaps resulting from the challenge of a fundamental assumption. Copernicus challenged the Ptolemaic notion that the Earth was at the centre of the universe and replaced the Earth with the Sun. Kepler challenged the notion that heavenly bodies orbited in perfect circles and replaced the circle with the ellipse. In doing so he ripped tortuous complexities out of the explanations of planetary motion and introduced physics into the heavens.

By moving the heavens from the realm of the divine to that of the material, he raised the need for new explanatory principles: if the motion is not divine, what moves the planets? The structure and nature of the universe is a mystery we are still unveiling. Kepler's *Horizon* and *Foci* were inspired by Kepler's work in the field of optics and light and by his three laws of planetary motion.

Felicity Spear

I use photography as a tool to experiment and play with its relationship to other forms of expression such as painting through the medium of light. I often take photographs of the Moon with a hand held camera. Using my own photographs, the digital print *Somnium (iii)* takes the viewer on a journey in time and space through a lunar eclipse.

Somnium (iii), 2016

Pigment inkjet print. All photographs – F Spear, hand held Canon Power Shot SX50HS). Moon eclipses (Queensland, Victoria).

Other images – Northern Territory, European Arctic, Western Australia, 2013-2016.

Paul Uhlmann

Full Moon (22nd May 20.08hr, 2016), 2016

Oil on canvas

Full Moon (22nd April 20.08hr, 2016), 2016

Oil on canvas

Full Moon (23rd March 21.15hr, 2016), 2016

Oil on canvas

Foyer

Felicity Spear

Orbit, 2013

Oil on linen

Small courtyard

Sam Leach

Chair for Rock, 2015-16

Granite, bluestone, steel, automotive paint

When considering the story of Kepler's Dream I became most interested in the idea of a link between the Earth and space. In historical paintings, the link between Earth and heaven was sometimes indicated by the colour blend of the sky from white to a deep, rich blue. Kepler's story, and indeed his practice as an astronomer, underscore the fascination we have for making a connection with space. It is the desire to extend the range of human senses beyond the atmosphere of the Earth and is linked to a yearning for immortality, as was later made explicitly by the Russian cosmist Fyodorov and Tsiolkovsky, who built on Kepler's legacy to establish the space program as we now understand it.

In my work, I have focused on this desire to move into space, but to look at that from the point of view of a rock, the substance of the Earth itself. A rock receives some information about its environment, the ground it rests on, the temperature, perhaps the acidity of the substance it comes into contact with. Graham Harman, a philosopher interested in the metaphysics of objects, points out that this sensing of the world by the rock is different by degree, but not different in kind, to the way humans sense the world. So my proposal is to try and imagine that if the rock senses the world, perhaps it could have a type of desire for immortality as well. This might take the form of going into space, traversing the link between Earth and heaven.

Large courtyard

Paul Uhlmann

Small Room to Observe the Heavens (camera obscura), 2016

Mixed media (lens, box, black cloth, table, chair)

Sam Leach

What Bluestone Wants, 2015

Bluestone and oil on paint

Rock Wants to be a Meteor, 2015

Wood, rock, oil paint