

Argentea Gallery

A Q&A between Melanie King & Anna Sparham

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Your current PhD and broader practice blends science and art. Have you always had an interest in science? The chemistry, the physics, the universe?

As a child, learning about space and astronomy made me feel very fearful. I couldn't comprehend the vastness of the universe, and worried about whether there was an edge to the universe, and if so, what could be outside of it? These are things that used to keep me up at night. Of course, I am not very much closer to understanding the answers to these questions, but instead of feeling fearful I have become fascinated with space. As a teenager I had a brief but intense foray within Christianity, where I read the bible in depth, attended church and tried to understand the universe through the lens of Christianity. I am now agnostic tending towards atheism, but as a result of my time as a Christian, I am now fascinated with spirituality. I enjoy learning about how different cultures and civilisations have understood the creation of our universe, as well as the importance of the Sun, Moon and stars throughout time. To anyone who says that my area of research is quite niche – I would retort "There is an entire universe out there!".

Beyond astronomy, I am also interested in understanding the fundamental nature of matter through quantum physics, and how particle physics alters how we understand materials. This has led me to consider how deeply interconnected we are with other living beings, minerals such as the calcium within our bones and teeth can also be found within distant galaxies.

What attracted you to Finland as a location for some of the work in *Wavelengths*?

I attended a residency "Space Earth Space" with Bioartsociety in Kilpisjarvi, Finland. Kilpisjarvi is around 1000km south of the North Pole, on the perimeter of the Arctic Circle. The landscape there is very interesting due to its location on the globe - there are ancient lichens, and the flora and fauna can withstand extremely low temperatures. I was curious to see how infrared film would render these aspects of the landscape. As humans can see within limited wavelengths, humans cannot see warmth that radiates from living organisms. The infrared film helps to make the temperature of environment visible. This relates in some way to my "Ancient Light" series, particularly the long exposures of the night sky. By creating exposures of 5 minutes or more, the Earth spins on its axis taking the camera along for the journey. From the camera's fixed position on the Earth, the stars seem to move through the landscape, creating trails of starlight on the photographic film. As our eyes do not see

with long exposures, the photographs reveal an image that is not visible to the naked eye.



Saana Fell, Kilpisjarvi, Finland, from the series Wavelengths, 2019

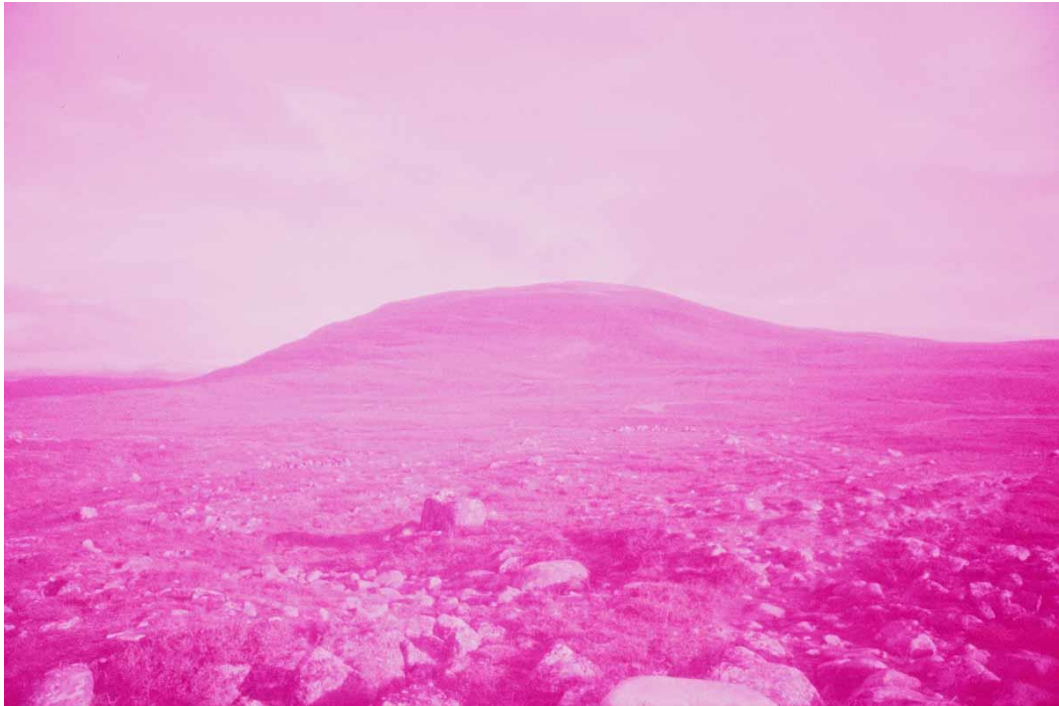


Lichens II and Lichens III, from the series Wavelengths, 2019

Infrared has long been used for image-making as well as in current art practice. How does your aesthetic and technical approach differ to some of these contemporaries?

Many artists often use Kodak Aerochrome, which produces blue and purple tones. The film that I used for Wavelengths was created by the Film Photography Project based in the USA, which produces more pink and white tones. The use of infrared film began within the military, so this has been a common theme within infrared photography. I intentionally moved away from the military link, thinking more about its connection to astronomy and identifying natural phenomena. In astronomy, many different wavelengths are used to visualise stars and galaxies, including infrared, ultraviolet

light, gamma and x rays. Within Hubble Telescope photographs these wavelengths are often combined to make a composite image, which is why we are used to seeing vibrant, colourful images of the cosmos.



Summit of Saana Fell, Kilpisjarvi, Finland, from the series Wavelengths, 2019

You came to photograph with infrared as part of a continued exploration of working with different light frequencies. So how far have you taken this to date with respect to the wider spectrum?

I use ultraviolet light to produce cyanotypes, and primarily use the Sun as a source of UV radiation. Relating back to *Ancient Light*, I am fascinated by the idea of using light from phenomena existing outside of Earth's atmosphere, such as the Sun, Moon or Stars. It excites me that photons travel from the centre of Sun before activating a photographic process such as cyanotype or anatype, here on Earth. Learning about the Sun also illuminates my understanding about everyday processes caused by sunlight, such as photosynthesis and tanning. During this horrible pandemic we have discovered just how much vitamin-D from sunlight can affect our health and wellbeing.

As part of the Laboratory of Dark Matters project led by Susan Eyre, I have worked with the Boulby Dark Matter Laboratory in North Yorkshire to learn more about dark matter detection using neutrinos. This involved travelling for over one kilometre underground to escape cosmic ray interference.

Additionally, I have worked with the Joint Research Centre at the European Commission in Ispra, Italy to learn more about quantum entanglement. I collaborated with quantum physicist Constantin Coutsomitros, discovering how he was able to split a laser beam through a crystal lens, thus creating two entangled beams of light.

Within both of these projects, I sonified data from the experiments, to create an audiovisual installation with lasers and phosphorescence. The installations made visible data that exists beyond visible and audible frequencies.



Ancient Light, Tree Canopy, Grizedale Forest, 2018

***Ancient Light* is an ongoing project. Tell us about a typical shoot when out on location – the time frame, the environment?**

I have travelled to many isolated locations in search of darkness, away from light pollution. These locations include Iceland, Italy, Ireland, Spain, Cornwall (UK) and the Lake District (UK). Ideally, I aim to find accommodation which gives me easy access to a “dark sky” – this may mean camping close to where I intend to shoot or finding a remote building to sleep in. This means that I am able to keep warm and rest when I am not shooting. In some cases, I have had to wait until 3am for clouds to pass. Living outside of a city in Ramsgate has also made it easier for me to have easy access to beautiful skies. I can walk to the beach at night to view the stars against the backdrop of the chalk cliffs, or the Moon rising over Belgium and the English Channel sea.

I generally choose locations with an interesting foreground to contrast against the night sky, for example the snow-covered foregrounds within my Iceland images. This helps the viewer to differentiate between locations, whilst also allowing the viewer to

see the landscape and starlight sky simultaneously. When I view the images, I see the universe and the environment I am standing within as entangled with one another.



Ancient Light, Seltun, Iceland, 2018

You are often working in remote landscapes at night and walking alone. Do you find those solo times liberating or a test of nerves?

I find it unnerving to explore a landscape alone at night. It is not something I am comfortable with, though I do push myself to do it. I come from Greater Manchester and have always lived in urban areas. My first experience alone at night was on Dartmoor. Outside it was so dark that I couldn't see my hands or my camera, only the dome of stars above my head! I prefer truly rural locations to semi-built up areas like Ramsgate, as I'm afraid of encountering another person. I currently cannot drive so participating in artist residencies is one of the only ways that I can produce work in new locations whilst feeling safe at the same time. As a woman, I think it is more difficult to muster the courage to spend time alone outside. With collectives such as Lumen Studios (which is female-led) we have provided numerous opportunities for other women to view and photograph the night sky in a group setting.



Ancient Light, Perseid Meteor Shower, Atina, Italy, 2018

How important to you is the experimental in your wider practice – for example, your trial and error in making a developer using left over pasta water?

Experimentation is a fundamental part of my artistic practice. Before starting my PhD, I'd completed a Fine Art Degree, followed by a Masters in Art and Science. I have always been interested in the transformation of materials and was drawn to analogue photography due to the dynamic interaction between light and matter. Over the past few years, I have been involved with The Sustainable Darkroom project pioneered by Hannah Fletcher. Alongside the benefits of reducing my impact on the environment, I find it enchanting that I can use plant matter found on my daily walks within the construction of my artworks. My interest in science is also rooted within experimentation, using materials, processes or tools that are predominantly used within scientific fields. For example, in 2016, I worked with the Royal School of Mines to grind meteorites into dust to make meteorite imbued ink for photo etchings.

Considering your broad and interdisciplinary work to date, what do you hope to be communicating to viewers through your art?

The motivation of my work is to demonstrate the interconnectedness between humans, Earth and the Sun, Moon and Stars, through a deeper understanding of materiality. Astronomy has allowed me to understand how precious life is within the entirety of time and space, as well as the precarious balance of factors a planet needs to support life. Currently, we face ecological catastrophe and I believe that this is partially due to our collective lack of understanding of materials - where they come

from and where they go. If we are unaware how and where something is made, we will find it hard to understand the environmental impact of its existence. Similarly, if we are more knowledgeable about how a material will be treated once it has left our hands, we are more likely to reuse or recycle. For example, in the past year I have been thinking a lot about silver. Heavy metals such as silver can only be created in high energy states, such as within supernovae. The Earth was formed with these silver atoms originating from these explosions and can now be mined from beneath the surface of Earth's crust. To extract silver is quite a damaging process to the environment, so it is important that we use it carefully. Silver can be recycled from used photographic fixer, which also stops it entering the water system and damaging life in the ocean.

Is there something or somewhere you ambitiously want to be able to capture from the night skies that you haven't yet attempted?

It is a dream of mine to visit the Atacama Desert in Chile. The extremely dry atmosphere provides an ideal environment for astronomy, due to the clear night sky. The European Southern Observatory is situated in the Atacama for this reason. I have never been to the Southern Hemisphere, so I would also find it interesting to see different constellations than I am used to.

With that said, I have barely scratched the surface with dark sky locations within the United Kingdom. I'd love to spend more time in Scotland and Wales for example.



Ancient Light, Jupiter, Atina, Italy, 2018



Ancient Light, Seltun, Iceland, 2018