

Mineral Machine Music (Fay / Goodwin, 2014)

<https://mitchgoodwin.wordpress.com/mineral-machine-music/>

Production Information

Video Title: *Mineral Machine Music*

Video Format: HD 1080P MP4

Image File Source: Video screenshots

Image Format: 1920x1080 (square pixels)

Production Credits:

Mitch Goodwin - Street Photography, Sound Design and Video Assemblage

Clement Fay - Microscopy and saxophone

Project Synopsis

An audio-visual collaboration between geologist Clement Fay and media artist Mitch Goodwin. *Mineral Machine Music* is an aesthetic and functional exploration of the fabric of the earth as seen from the stage of a microscope and the lens of the industrialized city. The work juxtaposes the man-made structural textures of the New York cityscape with the geological mineral formations from the South Australian outback. Blending cityscape with substrate Fay & Goodwin compliment the imagery with layers of sonic noise – musical representations of tectonic activity, echoes of the universe from deep space and the groans of the restless earth all juxtaposed against the industrial machine ambiance of a New York City subway.

Screenshot File Names

MMM 01 Biotite (Iron Magnesium rich) blades and intergranular Quartz

MMM 02 Porphyroblasts (Aluminum-silicate polymorphs)

MMM 03 Poikiloblastic Quartz inclusions

MMM 04 Muscovite (Pink & Blue) and Biotite (Cross-polarised light)

MMM 05 Mosaic of dirty Quartz (Cross-polarised light)

MMM 06 Muscovite (Pink & Blue) and Biotite (Cross-polarised light)

MMM 07 Deflection of two biotite foliations (Mica and Quartz) (Cross-polarised light)

MMM 08 Pseudomorphism, containing two Porphyroblast inclusions (staurolite and andalusite)

Note: All microscopy mineral image plates (right panel) are juxtaposed with subway and street photography (left panel) from New York/Brooklyn subway system

Notes on Screenshots



MMM 01 Biotite (Iron Magnesium rich) blades and intergranular Quartz

Plane polar photo-micrograph. **Biotite** (Iron Magnesium rich) blades and intergranular **Quartz**. This slide has a dirty thin section where some of the metallic grit used to polish the rock to a thickness of 5 microns is still attached to the slide.



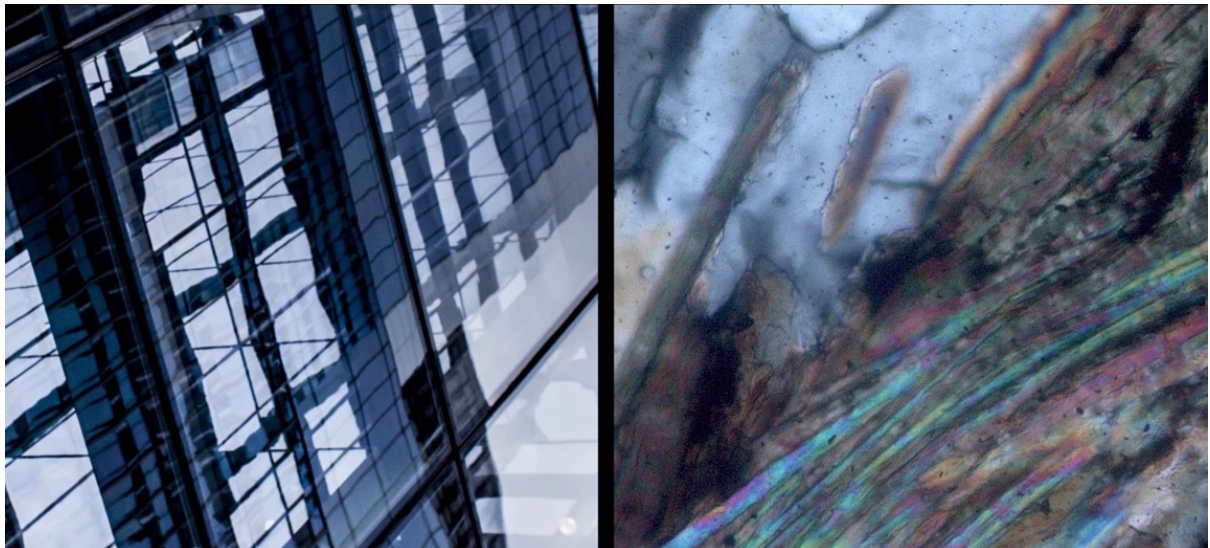
MMM 02 Porphyroblasts (Aluminum-silicate polymorphs)

High resolution scan of a non-polished hand sized sample section. The large whitish minerals are to cm scale are a class of **aluminum-silicate** polymorphs. These are important **metamorphic minerals** as they indicate a period of stability (in pressure and temperature) during which the crystals nucleated and grew. **Porphyroblasts** have a competency difference with the overall surrounding material and therefore display different behavior during deformation.

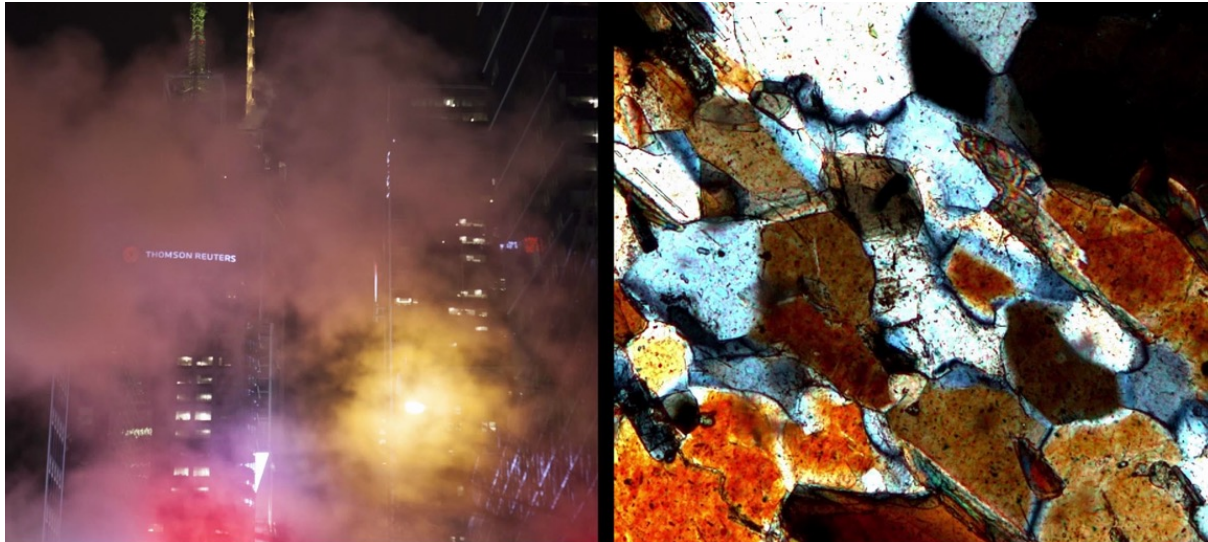


MMM 03 Poikiloblastic Quartz inclusions

High magnification **polarized** photo-micrograph in plane. Features **poikiloblastic** inclusions (fine grains of one mineral embedded in the metacrystal of another). **Staurolite** composition (which often has twinned cross-like optical properties). These inclusions (in this case, Quartz) are a relic of a previous **metamorphic fabric** (deformation driven mineral alignment).



MMM 04 (& MMM 06, not shown here) Muscovite (Pink & Blue) and Biotite (Cross-polarised light). A very high resolution photo-micrograph in cross polarized light, **Muscovite** (Pink & Blue) and **Biotite**. Difference in color is due to what is called **pleiochromism**. This is an optical phenomenon in which the color of the mineral changes depending on the angle of view (the incidence of the light and crystallographic axis).



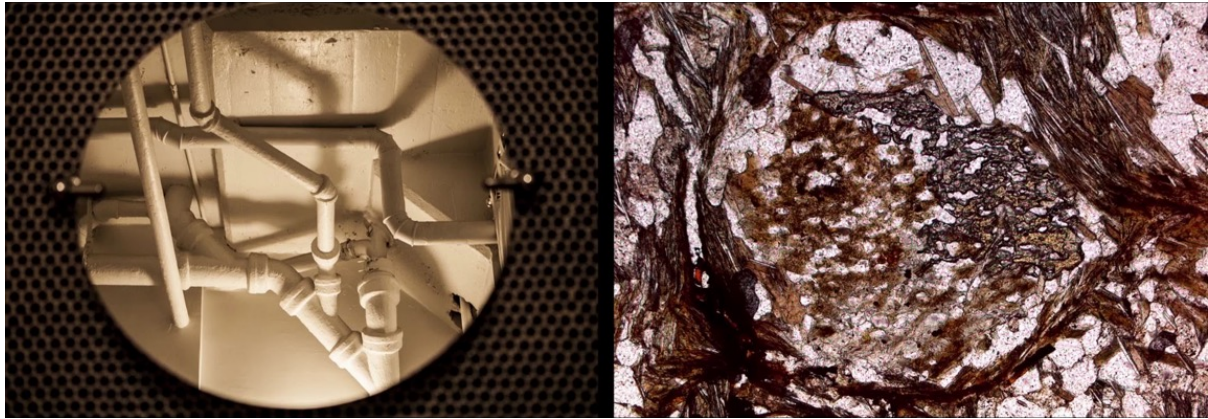
MMM 05 Mosaic of dirty Quartz (Cross-polarised light)

Mosaic of dirty Quartz, this happens when the rocks are not grinded to a 5 micron thickness. This particular slide is actually the **artisanal proxy** used to verify that your thin section is thin enough. This slide image is from one of the first batch of thin sections that were made, the process is still being refined so the slide – by later standards – is imperfect.



MMM 07 Deflection of two biotite foliations (Mica and Quartz) (Cross-polarised light)

Cross polarized image of two biotite foliations across two domains: *M Domain (Mica)*: Central oblique elongated biotite, and the *Q Domain (Quartz)*: The right and left sides of the Mica domain consist of quartz deposits. The central foliation is the youngest. From the M to the Q domain you can see **opposite deflection** of the micas that illustrate shearing along the central cleavage of the sample.



MMM 08 Pseudomorphism, containing two Porphyroblast inclusions (staurolite and andalusite)

In the middle you have two **porphyroblasts**, one **staurolite** (right) and one **andalusite** (left). The continuity of the quartz inclusion trails from one to the other indicates that these two crystals grew in a co-stable manner. However, the andalusite is now totally reacted-out to fine grain mica (**pinnite**). This happens when the rock moves outside of the stability field for the mineral due to a change in conditions (i.e. heating, cooling or tectonic displacement). Furthermore we can see that the original crystal shape is still preserved in the rock. This reaction, where a mineral is replaced but it's original shape and inclusion remains, is called **pseudomorphism**.

In summary, this phenomenon – and the associated theoretical premise of its occurrence – represents the aesthetic and functional duality of the two image sets.

Project History

Mineral Machine Music was developed for a collaborative art/science exhibition, **Synthesis**, at Umbrella Studios in Townsville Australia. Clement and myself were partnered together having no previous knowledge of our respective research interests. The film project became an aesthetic and figurative study of two independently produced pre-existing visual image sets.

Image Design

The work juxtaposes the man-made structural textures of the New York subterranean cityscape with the geological mineral deposits located in the South Australian outback that formed in the early Proterozoic period. Originally conceived as an interactive experience in which a viewer's physical proximity to the screen would determine the depth of the rock sample and the cityscape.

Sound Design

The imagery is augmented with layers of sonic noise:

- musical representations of seismic activity;
- echoes of the universe from deep space;
- sampled groans of tectonic activity;
- the industrial machine ambiance of a New York City subway system and its inhabitants.

Rock Sampling

This Orogenic belt is part of a larger system that was created during the early Paleozoic formation of the **Gondwana super-continent**. These rocks display what are called a typical type of **metamorphism** which occurs under medium pressure and a medium-to-high temperature range. The tectonic forces that deformed these rocks are mostly collisional i.e. **frontal collision** between two plates.

City Sampling

The urban images featured in the film are from a collection of photographs taken during my second visit to New York City in April 2013. They were collected on the NYC subway system, predominately between Brooklyn and Manhattan over a four day period.

These images compliment another series exploring artificial manifestations of line and form in the natural landscape of South-West Victoria. Like much of my photographic work the images represent my interest in the texture and the fabric of my environment. This inevitably lends itself to aesthetic comparisons between shape, contrast and colour.

mitch.goodwin@unimelb.edu.au | mitch.art | fb.me/mitchgoodwin.artist | [@oldmateo](https://twitter.com/oldmateo)