ALLEGORY OF THE CAVE PAINTING

Edited by
Mihnea Mircan &
Vincent W.J. van Gerven Oei

In which Celan's
time-crevasses shelter ancient
organisms resisting any radiocarbon dating,
forming and reforming images, zooming into the
rock and zooming out of time. But are they indeed
images – of bodies afloat between different planes of
experience, of mushroom heads, dendrianthropes and
therianthropes, of baobabs traveling thousands of miles
from Africa to the Australian Kimberley; are they breath-
crystals, inhaling and exhaling in the space between the
mineralogical collection of the Museum and the diorama
of primitive life, are they witness to and trace of the first
days and nights of soul-making; are they symbioses of
mitochondria and weak acids, one-celled nothings,
eyes and seeds, nerves and time and rock walls.
Another humanity was possible and we are
what it did not become.

Tout s'efface, or everything fades,
yet Blanchot may assist in grasping, and
willing into language, what it is to grasp in the
paintings: a character before any signification, an act
of production before memory, a regression groping in the
darkness of the cave. Do those lines demand chronological
fixation or attribution, or do they point to a beyond or a below
of art history, where the first imager – our "forgotten dream"
– turns away from what had been the gesture before the first
image, its object or support, touches, intoxicated with the worlds
of vision and possibility that thus open, the boundary or screen
that separates image from non-image, and human from its
antonyms. Demigods, half-human slaves, rituals of inauguration,
enlightenment, and replication articulate a chronological scenario
marked by allegorical points of entry and disciplinarian oblivion,
of identities fabricated, granted and withdrawn, of positive and
negative hands, vying for the same truth. These strange images
– shadows – call upon us to turn around, apprehend their
reality, and overcome them, overturn them, like a student
superseding his master. This is *paideia*. But it is also play,
the cave painting as feeling and experimenting
"hands." We will return back to this.

What do we read
when we read, and which desires
or anxieties preclude us from actually reading:
allegory here opens towards symbolic dispossessions,
figures of thought that are with their subject, bacterial
and human colonies, eviscerated geologies and Western
chrono-colonization. There, another hand, Steven's "palm
of the end of the mind," though "not a docile slave,"
apprehends: "the absolute hand of poetry." An absolute
hand but also, and perhaps significantly so, a white-skinned
hand, stroked, manipulating black bacteria, that blacken
marble monuments – the horror – the same that elsewhere
is the monument, there were cannibalism is productive,
a metabolism that directs its toward somewhere else,
an elsewhere that is the market, perhaps, or
modernity itself.

Foucault wondering about
a truly socialist governmentality and
Agamben's monastery rule readings, a Rauschenberg
erasure and a gender- and border-crossing with Pasolini,
a genealogy of biopolitics in which fungi consume Freud,
Dawkins is obscured by memes and genes, Thucydides foresees
LOLcats, Bök works with bacteria and Hobbes; the same but
not the same story over and over again, but also a gathering of
these copies and ordering the copies of copies, and talking about
ordering them, an ethnography and anthropology of delirious
replications, of returns as farce and tragedy, of what does not
end and what does not begin in a copy. These juxtapositions and
conceptual relations, tentative but active in the mind of scholar
and the artist alike, point to more substantial connections
between the procedures of the humanities and conceptual
art, a relation that perhaps should be read through the
human, the *anthropos*, the *an-tropical*, without trope,
endlessly producing them.

Cave and
other paintings, excavations
of excavations, burials and blindingly
glowing resurrections. A story of paintings
as painting and not, of graves rebuilt and un-
built, of sculptors destroying sculptors and of
cosmologies revealed in marble, of images trying to
keep up with themselves. Chapels of bones, stone,
grass and sand, between two historical bookmarks
– an image abuzz with humans and one seemingly
indifferent to their present, us constructing a
world and the thought of a world without us,
mastery over time, organisms and micro-
organisms and the melancholy of a
broken Linnaean order.

What paintings can
do, other objects can do too:
consider that sacred shroud, where an
imprint desired and figured through multiple
scientifically and theologically structured gazes
outgrows the confines of the imprinted body to
become a text, the fifth gospel, of its passage. Take the
entire library of Plato, shot through with philological
filiations, broken into papyrus fragments that may or
may not say something about themselves and how they
should be treated, composing so many Republics that
we cannot wrest, from their dissonant multiplicity, the
one Republic. Take a Greek cave and attempt to respond,
in exhausting symmetry, to all the time into which
the remnants it holds shatter Time. We are listening
to debris, buried under and to be resonated through
different densities of dust, convinced that, in time,
objects will tell us something: on condition that we
rid them of contamination, that we clean them
of the surplus of fungi, bacteria, and false
assumptions.

When marine fossils
reveal themselves at the top of
mountains, earthquakes are first felt in bodies
and only then in tectonic plates, when radioactive
stones imprint their non-mimetic, a-visual likeness
on photosensitive paper and two screens stare at each
other and reflect a progressively distorted image of the
same stone that is also a part of the same constitution, the
mineralogical sends its petrifying tentacles closer to what we
hold to be the confines of our bodies, the boundaries between
solids and liquids. But then "a new image costs humanity
as much labor as a new characteristic costs a plant," and
there it is – an outburst, the opposite of an excavation, a
slick, rainbow-like coating of the sea, propagating at the
same rate as each of its molecules reflects another death,
another passage, another tiny step towards another regime
of representation. Alchemies, then, or rather alkahests:
forms that, were we able to invent, we could not hold
and make our own, images of control that are out
of control, images spilling onto our screens or
pages, screens or pages spilling onto
themselves.

LIVING PAINT, EVEN AFTER THE DEATH OF THE COLONY

Khadija von Zinnenburg Carroll

> "The colonies were more melanized in the contact zone, thus protecting and shielding themselves from the source of a stress factor."[1]

Bare rock surfaces are the oldest habitats on earth and rock surface colonization is a starting point in the development of many terrestrial ecosystems. The microscopic fungi that can survive on desert rocks are seen to hold clues in the search for life in extraterrestrial environments.[2] But looking back, rather than forward, this chapter is ultimately interested in the *ur*-terrestrial culture of Aboriginals and their painting.

The language that the biologists use for the micro-colonial "contact zones" of "pioneer settlers on bare rock surfaces" has an anthropomorphic tone. The behavior of the bacteria sounds political to the postcolonial historian. The astrobiologist winces at such imprecision, but replies that it is necessary to be visual in order to make ideas stick in the mind; hence science resorts to ekphrastic language.[3] In turn, the matter-of-fact account of scientific truths is tempting to mimic. To display and thus estrange the passive prose voice that reports: this or that was done, and yielded this or that insight. The scientists' own relationship to the object of study is betrayed by the intimacy of terms that increasingly anthropomorphize the microbiology.[4]

Black fungi and cyanobacteria are protagonists that produce an *ur*-story about life on earth. A biology

apparatus, the microscope, gives us a glimpse into the properties of life, the whole of life, in miniature. My essay here and its filmic counterpart *Ore Black Ore* are a biohistorical study of how life is transferred by painting parasites, chisel-breathed organisms. I will analyze living paint as an aesthetics of the biological mechanisms of life that move through every other mass of subatomic bubbling.

If, as Michael Pollan argued in *Botany of Desire*, vegetal organisms actually manipulate humans through their desire for sweetness, intoxication and beauty, then we may wonder whether bacteria also supply to a human demand?[25] The cyanobacteria are after all the spark inside steel, the iron ore that fuels the Australian mining industry. High-grade iron ore is supplied by Australia to the steel mills of Asia in vast quantities (figs. 1-4). As they expand, mining companies have bought large tracts of land in Australia that have rock art sites on them. These cultural sites are in the way of mining, and are at best documented before being destroyed. Raw natural resource is of more immediate and obvious short-term value than the elusive Aboriginal paintings on the underside of the rocks. The irony of Pettigrew's findings of Gwion Gwion cyanobacteria is that while they maintain the life of the paintings, they are also the signal that lures in mining and spells the death of rock art sites.

The scientist is stroking her own hand, gesturing my attention to her white skin. Her skin is so undamaged by the sun that I think during the beginning of the interview about how irreconcilable her age is with her wrinklelessness. My mind wanders to fantasies of the laboratory we are sitting in as a preservative chamber, clean and white, with ventilation to remove any airborne life from operating tables. As she explains that the Gwion

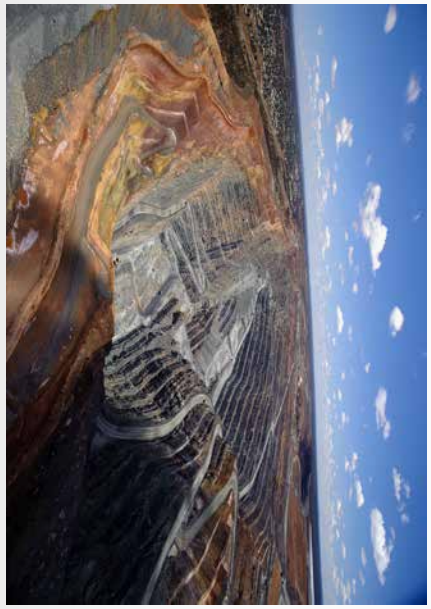


Fig. 1. John Gollings Photography, Mt Newman Overburden, open cut mines outback Australia. From Ore Black Ore, 2014.

Fig. 2. John Gollings Photography, Mt Newman, open cut mines outback Australia. From Ore Black Ore, 2014.

Fig. 3. John Gollings Photography, Kalgoorlie Super Pit 01, open cut mines outback Australia. From Ore Black Ore, 2014.

Fig. 4. John Gollings Photography, Kalgoorlie Super Pit 03, open cut mines outback Australia. From Ore Black Ore, 2014.

Gwion paintings are a microcolonial biology that has a black skin, a melanin layer to protect them from the sun, just as humans do, she motions to her own skin. I am afraid and curious to know more about the black skin that is studied as survival strategy by this white-gloved scientist.

To make sense of "her fungi" in the experiment, she needs to identify with them, and to do that she anthropomorphizes them. The cyanobacteria have a red skin and, together with the fungi, black and red eat into the rock to produce the paintings. The melanin that makes the fungi black to survive the UV radiation also makes them mechanically strong enough to eat into rock. The fungus exerts pressure on the stone as it grows and thereby chisels its way between the crystals. To watch its action is to watch a world in miniature in which life breathes tiny amounts of CO^2: together with a sniff of water this CO^2 produces a weak acid. The black fungi have the peculiarities of all other organisms, they can communicate and thereby grow together with the cyanobacteria. Anna explains this in terms of collaboration, in which one does not take over the other, as could be the case with other stress-tolerant life forms. The cyanobacteria photosynthesize and by fixing atmospheric nitrogen, together with the black fungi, they form a complete system.[6]

This microcolony is the colonial world in miniature. It is a self-reproducing, self-sustaining entity that survives the harshest environments. The Australian desert, a most vicious terrestrial site, is used by scientists as a model place for extraterrestrial life. If these bacteria can survive in the Australian desert then they can likely also colonize other planets: that is the astrobiologists' hypothesis.[7]

In Europe these microcolonies of bacteria are more of a destructive menace than in the heroic outpost in Australia. The German government invests in researching them in order to evict the vandals of modernity that they have become. The same parasite affects a whole spectrum of time, embodied in materials from solar panels to ancient monuments. Rather than maintaining Aboriginal tradition, they are blackening the marbles of Greek antiquity.[8] International outcry. The crystals of marble are particularly delicious to the black fungi, who are more to blame for the blackening of white monuments than any air pollution in Athens is. Blackening of White: The horror.

No water, no air, no sun, no life. My own nightmares of objectification behind glass are also confirmed by the biological description: The best way to kill this life that colonizes the European marble monuments is to put them in a museum. Then the influence of humidity is eliminated. The museum as death of material and bacterial culture is confirmed also by this conservation science. In a sense the ecology of the Gwion Gwion is also a museology. Because their position on the underside of rocks is meant in many cases to ensure their visibility from the floodplain below, rather than make things easy for the painter.

Even after the death of the microcolony, the cell's empty architecture remains and these walls can be used as protection by new settlers.[9] The macroscopic political life of humans colonizing each others' buildings and cities, conquering and reconquering, acts resonantly with this microscopic life.

The red organic pigments, carotenoids, hide under the black cell wall. Surely through trial and error the Aboriginal painters realized that by mixing them with

certain minerals these red carotenoids become stable and remain resplendent. How to paint eternal painting: add iron to carotenoid and you have a lasting ochre effect.

While modern time is thought as extension in space, the Gwion Gwion painting's bacteria remarkably stay *in line*. Call these bacteria lazy, or economic, their cannibalizing, which is euphemistically described as "collaboration," sustains their symbiosis and stabilizes them.[10] Central to the production of oxygen through photosynthesis, they are the source of soil, and thus of land, and thus of Country. The spiritual concept of Country in Australia has become politicized, and is hence asserted as central to almost every Aboriginal artwork. The Aboriginal cosmology in which the Gwion Gwion and all other creation occurred is a form of non-linear time occurring in a cosmos parallel to the one we experience. Thus Aboriginal paintings resist classification within a teleological notion of the progression of human production over time. The rainbow serpent for instance creates everything and its marks are understood to be visible in the kind of color visible in Figures 1-4.

The cyanobacteria are quite unlike their lichen counterpart in respect to linear time. Lichenometry dates artefacts such as stonewalls and gravestones.[11] The expanding European lichen is a guide to time – a time that moves ever outward in space, that spreads and covers materials such as stone. This is in contrast to the Australian walls, where the cyanobacteria keeps the black fungi within a bounded territory – the ultimate non-linear time that circles in upon itself, eating its own shadow. Rather than voracious colonization of ever further outlying territories, it is dot eating dot.

In the effort to reflect upon time, it is space that responds. As Henri Bergson writes, "duration is always

explained as extension."[12] The physical accumulation of duration is a physiological time, a Bergsonian quantity. While physiological time exists apart from clock time in its extensions in space, it is still a form of linear historical understanding that fails to grasp the movement of the Gwion Gwion in time and space. The physical accumulation of mark making on the same point is the product of a collective and ceremonial time. For this, Tim Ingold's non-linear history of the drawn line offers anthropological approaches to understanding of mark-making as a complex modality akin to speaking. Theorizing the performative reiterations that enliven acts of drawing, Ingold describes them as unfolding communication, rather than movements towards a fixed point.[13] The repetitious mark making of the Gwion Gwion is thus in keeping with the importance of process over finished product in Aboriginal painting.

The symbiotic communities studied in lichenometry are the poetic counterpoint to the incommensurability of a bacterium that paints. Instead of "spreading hyphal colonial growth," it is a "colony of a stress-compacted unicellular organism," not a "spore cluster" but a "growing and foraging fungal unit."[14]

"Life colonizes everything," say the biologists, but these are "wise colonizers," they argue, because they do not grow beyond a manageable size. They have enough cells to cope with environmental stress and remain sustainable but do not expand too far.[15] The scientist compares these life forms with ancient Greek cities and their "wise colonization." In their logic of anthropomorphic comparison, kinship laws and territories in Australia that maintained the size of populations that the land could sustain, without the overpopulation that threatens earth today, could also visualize the bacteria's relation to

the environment.

The Gwion Gwion as Living Paint

Ogling at the living paint through the lens of the microscope leads to a portrait of science that is not my ultimate interest in this research. What is the implication of living paint for an Aboriginal science of observation and intentional manipulation of biology to produce the paintings? Aboriginals were historically not seen to be intelligent enough to manipulate a biological process such as those I have been delineating here. However, even without microscopy the paintings could be observed over time to remain more vibrant with the microcolonial fungi added, and could then intentionally be painted in. This is in keeping with the ways in which ancestral knowledge is passed down through generations of painters.

These are the resources of the mental worlds that did not come out of the propertied, agrarian, economic, cognitive universe. They are the resources for reimagining subject and world outside of the agricultural revolution for those of us who are products of that cognitive universe that we entered into via the Neolithic.[16]

The language and life used to tell stories with pictures in these distinct universes may be of the same material, but in my very description above I have tried to juxtapose the microscopic detail and the properties of life as a whole. For to see microbiologically is to become microscopic in focus, to become abstract, blown out of proportion. Take for example the rock art gallery in Kakadu with layers of hands and so-called x-ray style animals. On the top of this photograph of the paintings the outline of the organs of the platypus can be made out. Or can it? The platypus is an amphibious mammal that epitomizes the excessive creativity of biological adaptation

in Australia. Painted by those whose story it is to tell, the platypus is not known by its Aboriginal painters through the same x-ray technology that Western science uses to see bones. This abstraction of insides in the x-ray style rock art evidences a focus on ceremonial anatomy.

As Thomas Huxley's told his audience in the Sunday-evening lecture of 1868, "this is you," as you look through a microscope at the "innumerable multitude [...] seen to exhibit a marvelous activity, changing their forms with great rapidity, drawing in and thrusting out prolongations of their substance, and creeping about as if they were independent organisms."[17] In her paper on the specificity of the film medium for cell biology, Hannah Landecker interprets Huxley's lesson as "the technique of looking inside oneself to see the innumerable was to detach a bit of oneself and magnify it. In order to look inside oneself, one had to look outside oneself, and through a microscope."[18] The investigation of the Gwion Gwion as microcolonial biology is enabled through the microscope that identifies and estranges the living paintings' collectivity. Mirroring and abstracting the viewer's own biology, cellular island selves come into view. Viewership becomes archipelagic as the distance created through the microscopic lens oscillates the focus from micro to macro.

To look at those bacteria that first moved out from the sea and onto land is to observe the beginning of life on and of earth. A bacterial microcolony can then be seen an anti-allegory of the actual Australian colony. The extraterrestrial life forms find their counterpart in the alien migrants to an island, and the humans who manage to survive its aridity. In the most hostile environment, the arid desert of the country I grew up in, there was a seemingly endless struggle that the white

settler-colonials embarked on to produce *The Australian Ugliness*.[19] This aesthetic identified by Robin Boyd is made by intentional erasure of any preexisting life on a block of land before building the suburban dream. This myopic ham-fistedness is the equivalent architectural farce to the even more environmentally devastating mining industry's view of land as tabula rasa.

Europeans as Waterborne Parasites

> "Europeans were waterborne parasites who moved confidently over the earth because they were convinced that they possessed a more profound knowledge of Nature."[20]

A German scientist first discovered the culture of *Gloeocapsa sanguinea* on rock art in the nineteenth century. These cyanobacteria would prove that they are older and tougher than the maritime European power. What a blow to art history's claim that there are "40,000 Years of Modern Art"![21]

"One of the strange facts that emerges is that some of the earliest exhibits particularly the mammoth ivory Venus from the caves of the Dordogne (which seems is a good 40,000 years old) appears to be the most modern in conception," Herbert Read wrote in 1948.[22] It is indeed a *strange fact* that the "Primitive and Modern" discourse continues to this day. *The Ice Age: Arrival of the Modern Mind* exhibition with advertising byline of "40,000 years of art" at the British Museum in 2013 put petite prehistoric statuettes into a prolix modern art scenography replete with a visual-sonorous environment of a cave at the very center. In tune with the onward march of the universal museum *The Ice Age* draws the caves of

Lascaux into the "unbroken continuum of human creativity." Buttressed on older scientific arguments, it closes down the range of intelligence that can be found in art. (Cyanobacteria and black fungi do not figure in this logic of a continuum of creativity). Instead the curator Jill Cook is careful to make the Darwinian argument that animals (represented in the art) also represent that which is not the "Modern Mind." In a "neurological sense, [...] all art is the product of the modern brain," Cook goes on to say. She thereby rehearses the old distinctions set up by teleological narratives of formal progress in art from abstraction; "unlike the African examples, these works are figurative."[23] These claims treat on tired and shaky ground when the old suspects, Picasso, Matisse, and Moore are smattered among The Ice Age works to illustrate their modernity.

"I acknowledge the Wurudjeri and Kulin Nation as the original owners of the land on which I live and work. This includes an acknowledgment that the moral and legal consequences of invasions remain unresolved," writes Tom Nicholson in the last paragraph of his artist's book accompanying his *Cartoons for Joseph Selleny*.[24] As Tom and I cycle around Antwerp looking for remnants of the colonial culture that has long been bombed or repressed, we talk about our responsibility to deal with the absences of the traditional Aboriginal owners of the Gwion Gwion.

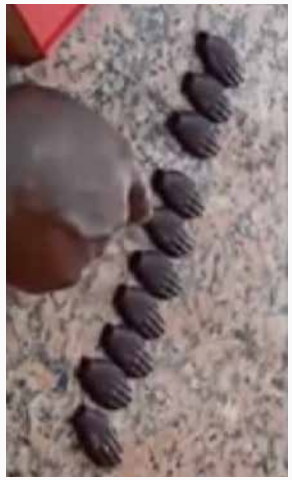
His work presents a parallel to the tyranny of distance Australia suffers (and enjoys) from Europe. From a distance the trace of life generating itself in Nicholson's *Cartoons* in charcoal appear to be bacterial mold growing on the wall. Closer up the gathering and dispersing of the representation of colonial failure is a spectral presence. The hand that loads the gun is in the constellation

of *spolvero* spots that the artist has punched into the wind and into the wall. The artist's hand is so black from the process that the painter's signature limb spins out in these vortexes of marks (Fig. 6).

The black-hand severed from its body and replicating colonial fantasies is an automata. Producing an ongoing stream of chocolate hands that recall the alleged colonial tactic of ordering soldiers to cut off the right hand from each African killed to account for their use of cartridges.[25] The local replication of the founding myth of Antwerp being saved by a brave sailor is the slippery material referent that has heaps of chocolate hands loosened from their bodies and returning as the repressed violence in the Congolese colony. In Peter Bates's documentary

Fig. 5, Hands and platypus painted on the rock wall in Kakadu.

Fig. 6, Saskia Doherty, Untitled, 2013. Digital photograph from Tom Nicholson, Cartoons for Joseph Selleny, 2014, off-set printed artist's book, designed by Brad Haylock, published by Surplus Melbourne.



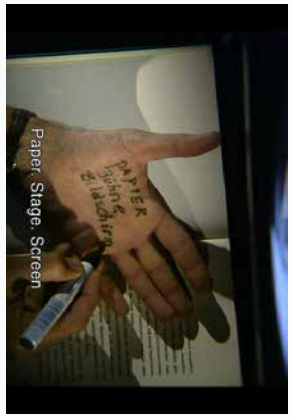


Fig. 7, Stills from Peter Bates' documentary, White King, Red Rubber, Black Death, 2003

Fig. 8, Anna Gorbushina's hand, Berlin laboratory, video still from Ore Black Ore, Camera by Kruno Vrbat, Sound composition by Rebecca Wilson, 2014

Fig. 9, Video stills from Harun Farocki, The Expression of the Hands, 1997

White King, Red Rubber, Black Death, a Congolese man sits at the table of an Antwerp confiserie and associates the miniature black chocolate hands with the severed hands of his ancestors (Fig. 7).

The painting of hand with charcoal in the cave that we know from Aboriginal rock art also travels as representation to Belgium to contrast with the white gloves that protect the hand that mixes the properties of life in a petri dish (Fig 8).

Archaeologists have long asked themselves to what purpose were the rock paintings painted? Pettigrew's bacterial brains suggest archaeology is positing the wrong agent. What if it is not the painter but the painting that is painting? To shift from the intention of the Aboriginal painter of the Gwion Gwion to the question of the biological intentionality of the cyanobacteria is also to shift from searching for an ancestral voice, which the postcolonial subject is conditioned to do. How short the continuities between pre-contact tradition and the decolonized subject appear when with such force the cyanobacteria assert continuity and intention on another scale.

The multitude of small black hands of fungi etch while their cyanobacterial collaborators keep them in line. Some microscopic workforce that covers almost every surface, the black-handed fungi make an impression on mass. They are mistaken for pollution or filth on most sites. But the Gwion Gwion paintings show the black-hand's physicalization of time. The melanized that have adapted to the stress factors of the Australian desert adapt their painting to likewise survive. The interdependent fungi and cyanobacteria replicate themselves for each other, like humans and birds that paint the other to figure themselves. The Wandjina Wunggurr

Wilinggi peoples that say the beak of a bird paints the Gwion Gwion thereby imagine collective enlivenment that inscribes itself as a chiseling beak. Looking long enough in a microscopic mode brings hallucinatory images by the collective black hands into focus. I find myself staring at stone walls admiring the biofilm. As if watching an orgy of painters, each making their replica mark on the material support, like forgers living from established representations, narcissistically reproducing ad infinitum. I am more engrossed by a blackened marble in a European alley than by the allegory painted within the church behind.

How to capture the living, as they are already living, and thus already passing away? This question haunts the contemporary artist staring into the Cave Painting. Look more closely at the matter: there is no fixed point, everything that takes the shape of a human figure is changing, passing, dead and beginning to live. Looking into deep time, geologic time, extracts identification with colonial time and shifts agency from the human to the microbiological.

1 Interview of the author with Anna Gorbushina (September 22, 2014).

2 Anna Gorbushina, Wolfgang Krumbein, and Marc Volkmann, "Rock Surfaces as Life Indicators: New Ways to Demonstrate Life and Traces of Former Life," *Astrobiology*, 2.2 (2002). The research I did to confirm my hypothesis that the painters worked knowingly with living paint led to astrobiology labs, the material and environmental research unit that studies this microscopic life. What I have described in this paper comes from conversations primarily with research professor at the Free University of Berlin Anna Gorbushina in the Material and Environment laboratory she runs.

3 Khadija Z. Carroll, "Re-membering the Body: J.J. Winckelmann's Ekphrasis," *Word & Image: Journal of Verbal and Visual Inquiry* 21.3 (2005): 261-69. Available at http://www.kdja.org/web/Ekphrasis/images/Winkelmann Khadija.pdf

4 For an ethnography of scientists necessarily anthropomorphizing their biological subject see Natasha Myers, in conversation with Alana Jelinek on Marianne North in the forthcoming *Botanical Drift*, 2015.

5 Michael Pollan, *Botany of Desire: A Plant's-Eye View of the World* (New York: Random House, 2001).

6 Anna A. Gorbushina, Kenia Whitehead, Thomas Dornieden, Astrid Niesse, Anette Schulte, and John I. Hedges, "Black Fungal Colonies as Units of Survival: Hyphal Mycosporines Synthesized by Rock-Dwelling Microcolonial Fungi," *NRC Research Press* (March 7, 2003). <http://canjbot.nrc.ca>

7 A. A. Gorbushina, A., "Methodologies and Techniques for Detecting Extraterrestrial (Microbial) Life Microcolonial Fungi: Survival Potential of Terrestrial Vegetative Structures," *Astrobiology*, 3.3 (2003).

8 A. A. Gorbushina, W. E. Krumbein, C. H. Hamman, L. Panina, S. Soukharjevski & U. Wollenzien, "Role of Black Fungi in Colour Change and Biodeterioration of Antique Marbles," *Geomicrobiology Journal* 11.3-4 (1993): 205-21, finds that most discoloration is not pollution but microbiota. A. A. Gorbushina, W. E. Krumbein, C. H. Hamman, L. Panina, S. Soukharjevski & U. Wollenzien, "Role of Black Fungi in Color Change and Biodeterioration of Antique Marbles," *Geomicrobiology Journal* 11:3-4 (1993), 205-21.

9 Interview of the author with Anna Gorbushina (September 22, 2014).

10 "Chaetothyriales, an extremely conservative group of rock-adapted fungi that replicate without hyphae by cannibalising their predecessors *in situ* [...] they occur solitary or in communities with similarly stress resistant organisms such as lichens and cyanobacteria."

11 <http://www.primaryresearch.org/stonewalls/nylund/> [accessed September 22, 2014] with resonant information about how "once one colony of lichens has started it is easier for others to develop" and how "Lichens are easiest to "read" on wet, rainy days." I thank Nick Davies for this reference.

12 Henri Bergson, *Time and Free Will: An Essay on the Immediate Data of Consciousness* (1910), cited in Hannah Arendt, *The Life of The Mind*, Harcourte & Brace, 1971, 14.

13 Tim Ingold, *Lines: A Brief History* (London: Routledge, 2007).

14 Interview of the author with Anna Gorbushina (September 22, 2014).

15 Wolfgang Krumbein, cited by Anna Gorbushina.

16 Richard Drayton, "Art in the Time of Colony," King's College London lecture, (June 11, 2014), available at <http://www.kdja.org/web/book/drayton.html>

17 Thomas Huxley, "The Physical Basis of Life," *Fortnightly Review* 5 (1869): 133.

18 Cited in Hannah Landecker, "Creeping, Drinking, Dying: The Cinematic Portal and the Microscopic World of the Twentieth-Century Cell," *Science in Context* 24 (2011): 381-416, esp. 388.

19 Robin Boyd, *The Australian Ugliness* (Penguin, 1960).

20 Richard Drayton, *Nature's Government: Science, Imperial Britain, and the "Improvement" of the World* (New Haven: Yale University Press), 90. This refers to the maritime power rather than to microbiology, but the analysis of imperial attitude provides a historical background for my suggestion as to why prior art history may have been resistant to the science that shows Gwion Gwion being painted by cyanobacteria.

21 This claim was most recently made by *The Ice Age* at the British Museum in 2013. At the same time I was presenting a series of re-enactments of exhibitions, including the Institute of Contemporary Art's *40,000 Years of Modern Art*.

22 On December 14, 1948. Herbert Read papers for *40,000 Years of Modern Art*, Tate Archive.

23 The exhibition was in part funded by the Bradshaw Foundation. Jill Cook, *The Ice Age: Arrival of the Modern Mind* (London: British Museum Press, 2013),esp. 1-20. For more on the art historical background of the abstraction and figuration debate see Khadija von Zinnenburg Carroll, *Art in the Time of Colony*, Farnham: Ashgate, 2014, pp. 61-65.

24 Tom Nicholson, *Cartoons for Joseph Selleny*, Melbourne: Surpllus, 2014.

25 Missionaries, Charles Banks, Eliza Clarke, and Reverend E. V. Sjoblom reported on this from the Congo and are cited in Peter Bates, *White King, Red Rubber, Black Death*, BBC Four, 2003 (42-55 mins), <https://www.youtube.com/watch?v=_paPL5VyU9I>, accessed November 9, 2014.

même trame gouverne souterrainement la
il ne sait la place qu'il y occupe. »
retrouve l'Argentine et Vi
conférences, retourne en
ine de Cappillita
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ndré