

Charlie Tweed  
2017

The surface of Guiyu (Chinese: 贵屿)

Coordinates: 23°19'11.81"N 116°20'59.62"E

Population: 150,000



THE MEADOW

Dirty matter

Panspectric Machines

Transmission Signal  
Machines

Ecosophic Machines

Affective Machines



# NOOSPHERE

COLLECTIVE  
SPEECH  
TRANSMISSION

E-WASTE RECYCLING ACTIVITIES

Melding and hybridisation

Actants space

RESEARCH SITE

Hyperobject  
Research Space

Material Stories

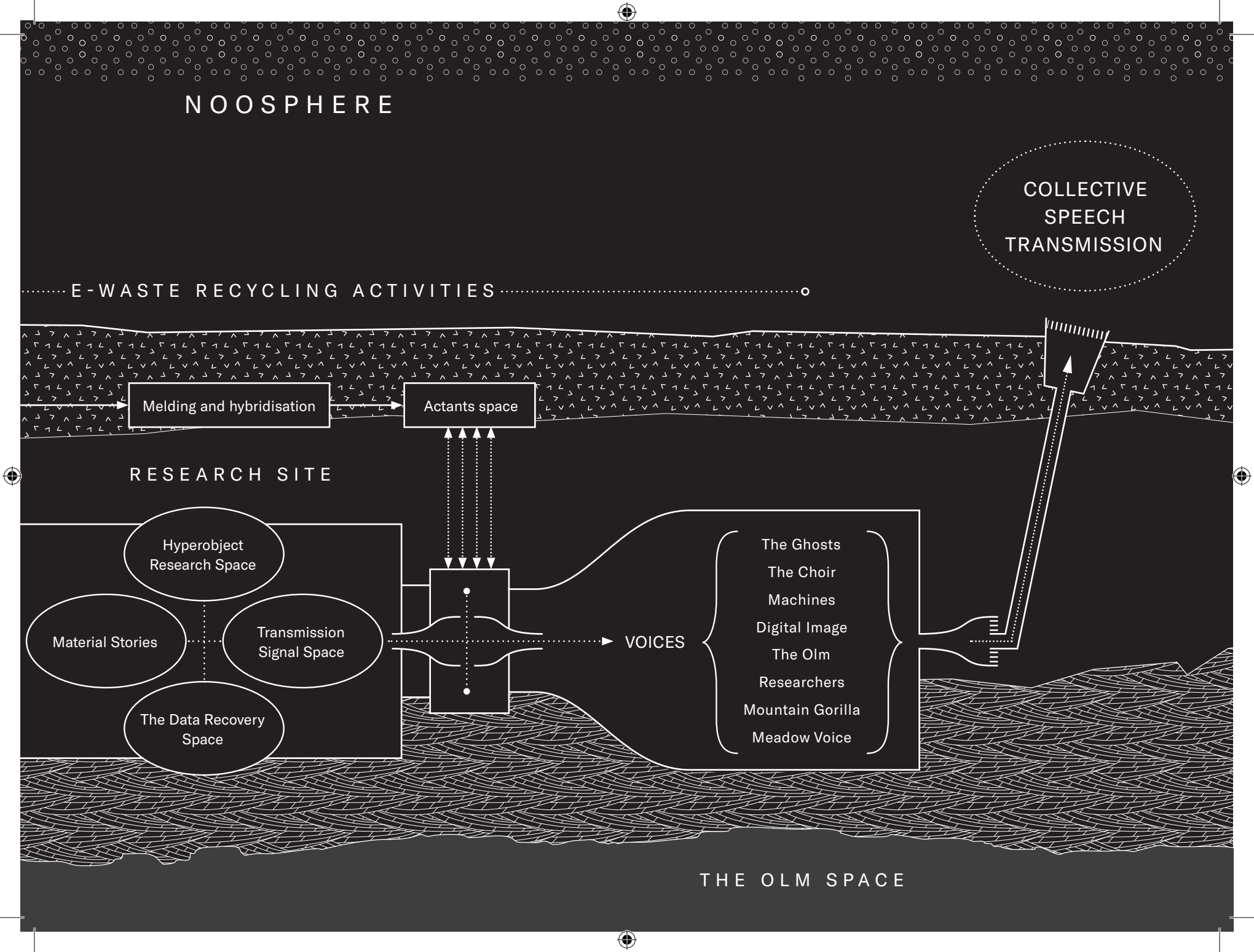
Transmission  
Signal Space

The Data Recovery  
Space

VOICES

The Ghosts  
The Choir  
Machines  
Digital Image  
The Olm  
Researchers  
Mountain Gorilla  
Meadow Voice

THE OLM SPACE



DIAGRAMMATIC STRUCTURE

THE SIGNAL AND THE ROCK



## PROLOGUE

I, becomes they, becomes we,  
    ourselves, becomes 'ourselves',  
Becomes an anonymous component  
    without name or form.

We are the 'researchers'.

We are an autopoietic algorithm,  
    a modulator / demodulator /  
    re-modulator,  
A re-writing machine.

We are a process as much as a thing.

We constantly change voice by  
    algorithmic application  
    and vocoded modulation.<sup>1</sup>

We are a 'flexible personality'.

We develop ideas and apply them  
    to specific sites,  
Objects, species, materials, hybrids,  
    mechanisms or situations.

- 1 In the children's TV series *Mr Benn* (1971–72) the central character leaves his house and makes a visit to the costume shop. Each week he chooses a different costume and exits through a different door to begin a new adventure, a new performance in a particular situation as a particular persona. The approach outlined here has some similarities, WE like to take on a variety of personas, a variety of voices and WE employ fiction as a primary strategy.

We like to test things out.

For us all things have equal importance  
from network plug,  
To microscopic molecule to human  
subject, to electron, to line of code  
– all must be studied as an assemblage  
or a cluster of things in order to  
understand them.

In our practice we are engaged in  
mapping all of the ‘technologies’  
and their ‘networks’.

We are appropriating their form  
and syntax and assembling  
the alternatives.<sup>2</sup>

We are specifically interested in how all  
forms of transmission technology  
operate, their forces and processes,  
‘What’s inside of THEM’.

We wonder how our practice might begin  
to rethink these systems by using  
a method of fictional construction  
and machinic modelling.<sup>3</sup>

- 2 Appropriation is an important strategy for us and in this respect we are indebted to David Shields and his book *Reality Hunger, A Manifesto* (2010), a book that was constructed almost entirely from appropriated material.
- 3 Early on in the project we began to define a set of models for different types of machine. These included models for Transmission Signal Machines, Panspectric Machines, Affective Machines and Ecosophic Machines. These were all used to test out particular strategies and approaches that re-assembled the technologies of the 'overcode' into new sorts of machine and new types of escape mechanism.

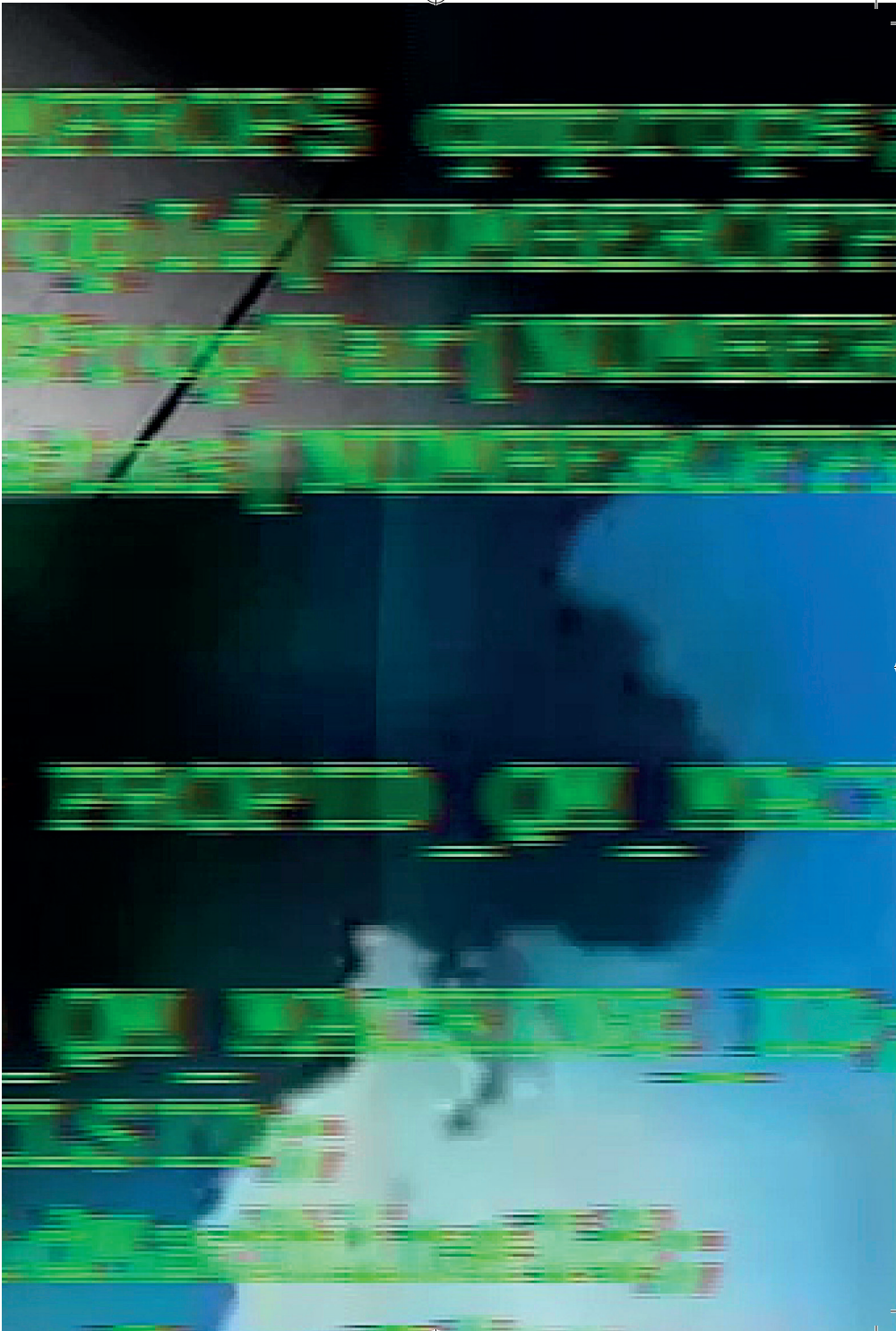
We want to orchestrate an effective,  
fictive critique.

We take the data and re-format it,  
applying edits, cuts, effects,  
new speeds, transitions, colours,  
Re-montaging, transcoding  
and encoding.

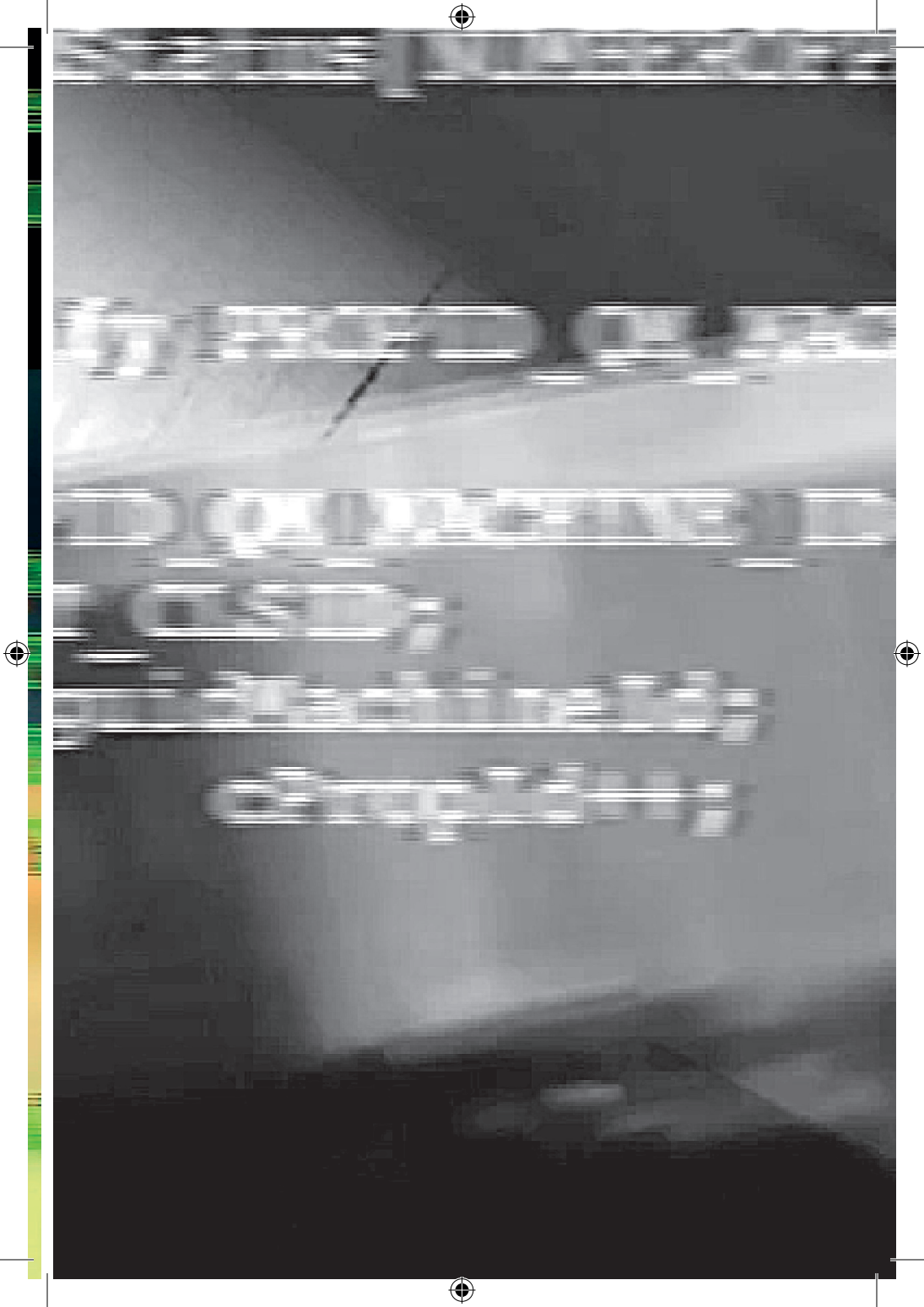
We continuously ask ourselves  
what are the machinic apparatuses  
that produce these particular  
configurations and how can they  
be adjusted and rebuilt  
– how can their ‘mantra’ be manipulated  
into a new shape?

So the underlying tension is one between  
hyper-technicality and deep-set-ecology,  
and our love and absolute hatred  
for each.









## CHARACTERS

THE  
GHOSTS

They are the forgotten parts of many things, they are the pings, the haunted particles, the decaying devices and abandoned components.

THE  
CHOIR

The choir are made up of an assemblage of voices from all sorts of things. They are a collective, a 'swarm' that emits from the layerings.

RESEARCHER 1

A narrator who helps us move between 'spaces', a research leader, an innovator, an inspiration.

MACHINE 1

The remnants of a machine that is embedded within the strata, 'stuck' between everything.

MACHINE 2

The last traces of a Babbage Difference Engine.

DIGITAL  
IMAGE

A digital image that has lost its visibility.





OLM

An aquatic salamander that has evolved into a new type of hybrid creature at a new location far away from its origins in the Soča river basin.

RESEARCHER 2

A researcher who is interested in the natural history of 'the device', they have been mapping it for a long time.

RESEARCHER 3

A researcher who provides detailed insights into the notion of deep time, They are an expert on parallel temporalities.

MOUNTAIN  
GORILLA

A gorilla FX loop that recreates the 'voice' of the rare Mountain Gorilla, One of only 252 that remain in the Democratic Republic of Congo (DRC).

MEADOW  
VOICE

The voice of 'Amy', originally supplied by Cepstral, now dislocated and emerging from the remnants.

SEISMIC  
MONITOR

A machine that monitors the movement of the earth and makes vocal responses as it senses new vibrations.













## A CONVERSATION

*A lift that travels at an inordinately slow speed.  
— the lift appears to be empty, but inside  
a number of sounds can be heard.*

RESEARCHER 1    Where are we going?

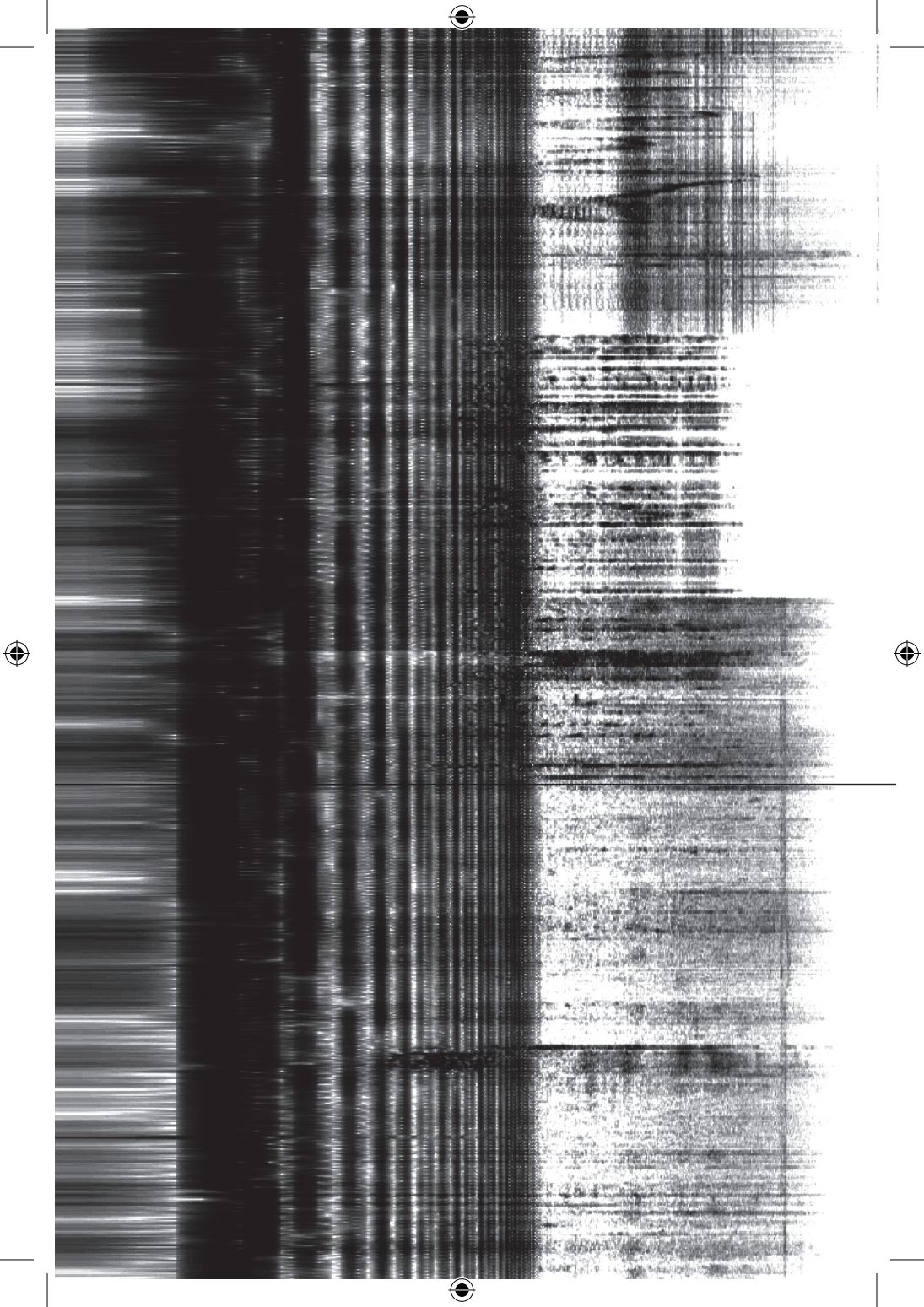
MOUNTAIN  
GORILLA        I don't know but it seems to me  
                    that we are moving upwards.

DIGITAL  
IMAGE         Well I can see a lot of different  
                    consistencies of strata through the  
                    glass and I am almost certain that  
                    we moved/it moved downwards.

MACHINE 1    So we are actually going down,  
                    towards the core?

RESEARCHER 2    Yes maybe, it seems to be getting hotter,  
                    I can't see any air-conditioning in here.





MACHINE 3

Well you know, I remember when I was actually a part of this other machine that was used to cool people down.

It was fun, it was good to see humans becoming more relaxed.

I think I was part of the little fan turbine thing itself, part of its mechanism.

Oh...wait... I think it was actually a wind turbine, not a fan, the heat in here is confusing me. Yes I still went round and round endlessly but I was actually generating power, putting it in storage with every turn, I always felt so good about myself when I was doing all of that 'exercise'.

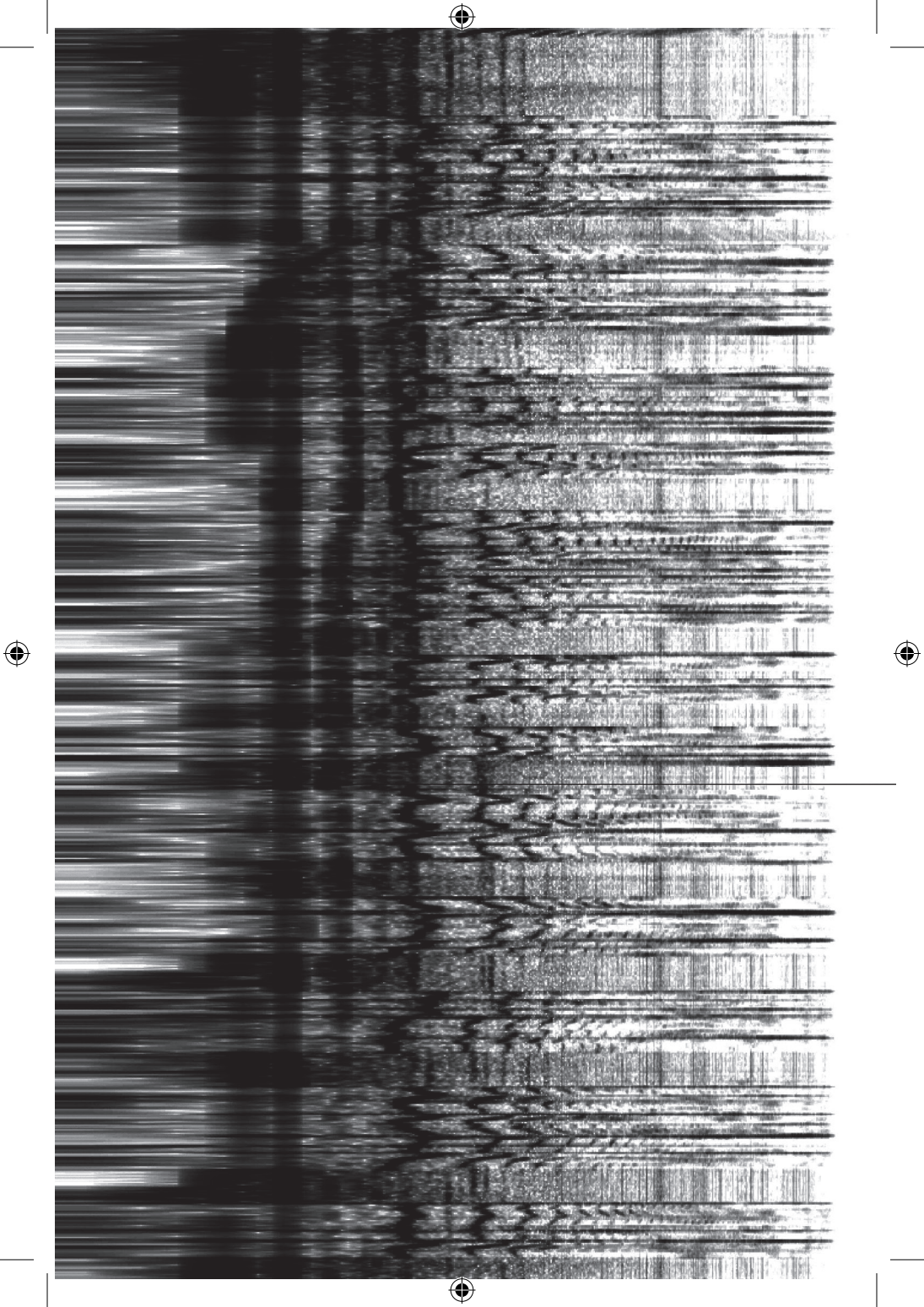
MOUNTAIN  
GORILLA

I remember when I was some 'body'.

SEISMIC  
MONITOR

I remember when I felt something.





DIGITAL  
IMAGE

I think I can see something.

Look a lake — and some trees,  
oh, the beauty...

RESEARCHER 1

No there is nothing there,  
You are tricking yourself, again.

We have only moved about two  
millimetres.

SEISMIC  
MONITOR

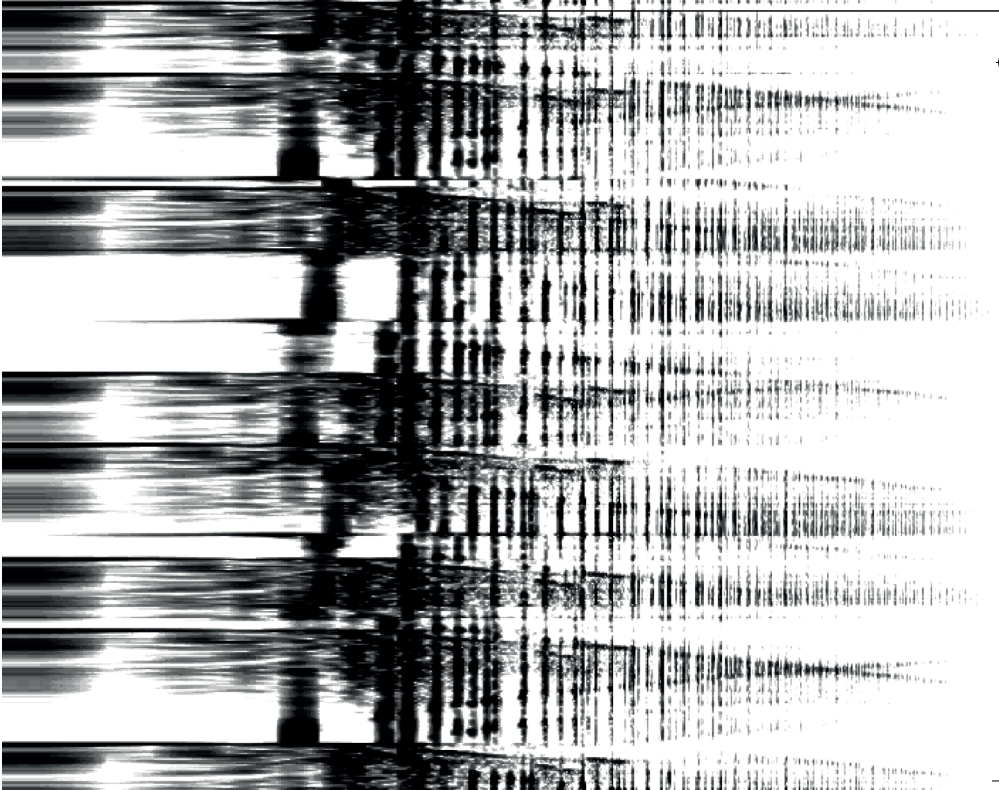
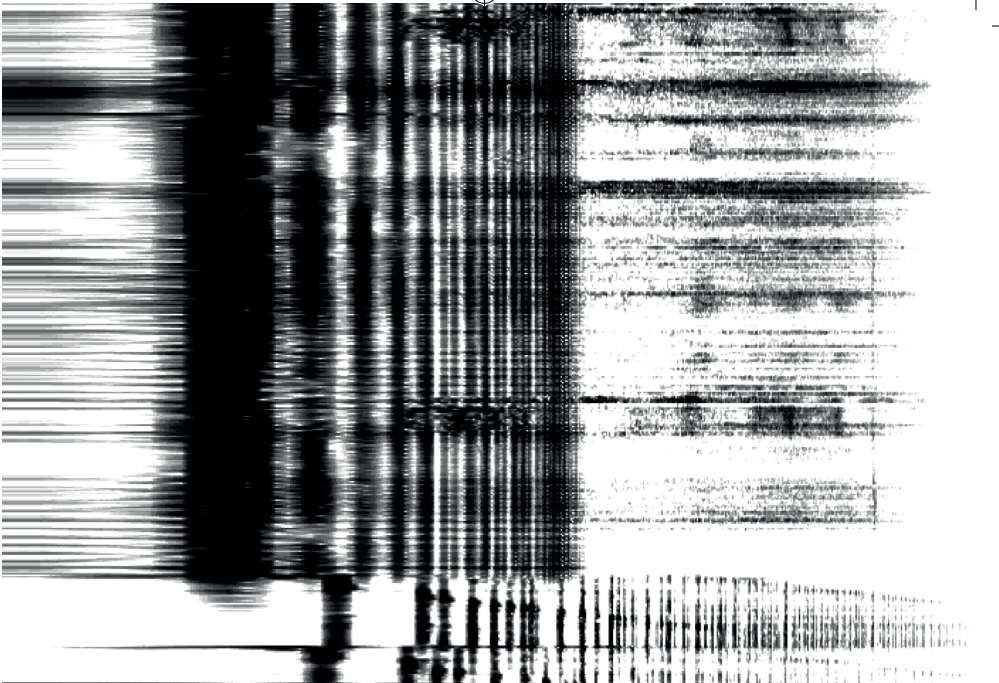
No we have not actually moved anywhere,  
I can tell, because I have been checking...  
There has been no movement.

RESEARCHER 1

I think we are stuck in some kind  
of transmission/speaker funnel –  
We are on our way out somewhere,  
I hope that we are not just effluent  
or noise?

I think we are about to be called ‘output’.





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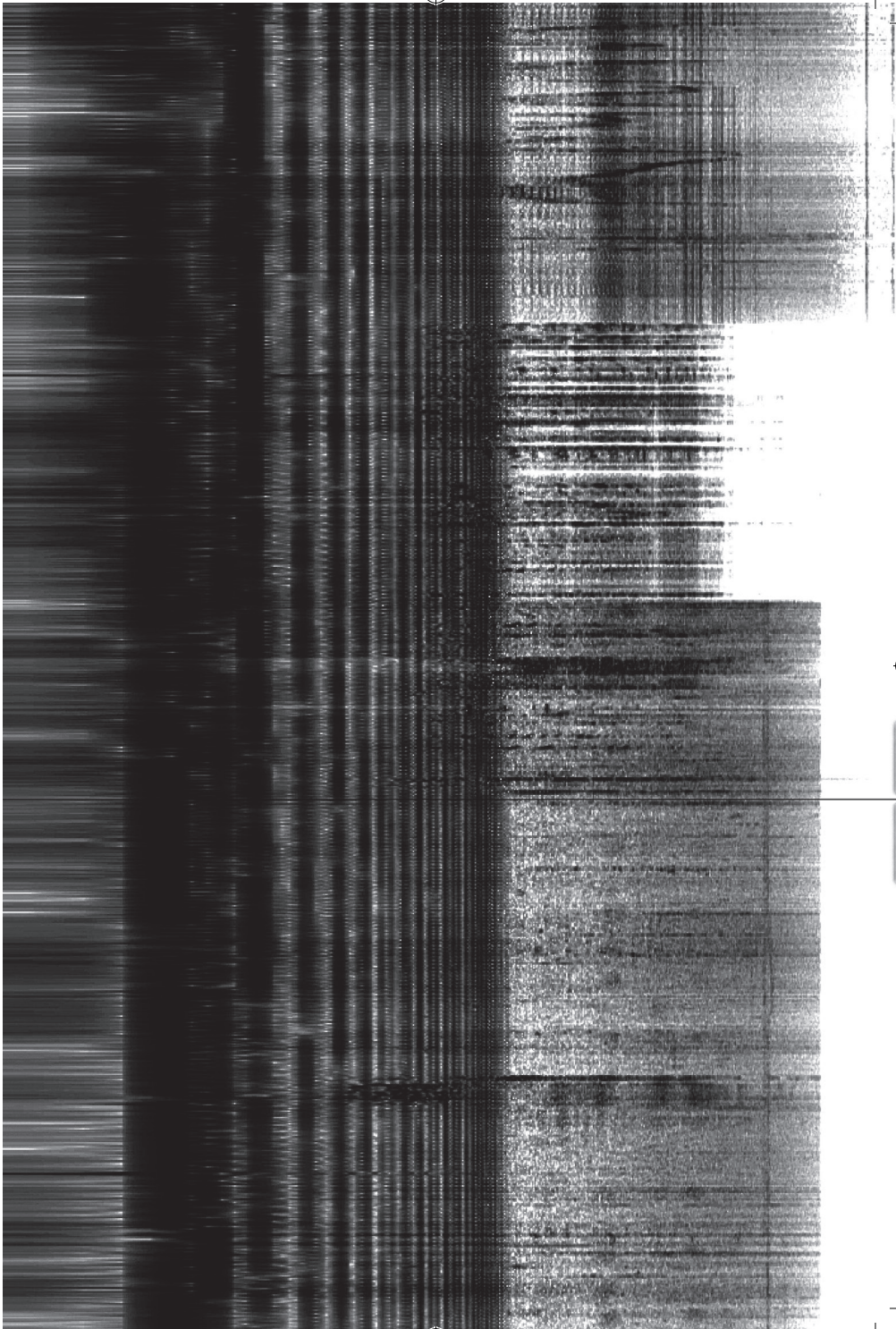
## A TRANSMISSION

## SETTING

*2,000 metres below the surface of Guiyu, China,  
a place known as the 'electronic graveyard' of the  
world, a series of non-spaces have been constructed  
for research purposes. No one can see them now.  
There is only fragmented particles and lossy data,  
rattling around... with nowhere to go.*

*Sound waves emerge from a special translation  
machine that is located in the centre of the space.  
A vast machine assemblage that looks similar  
to one of Kempelen's speaking machines.*

*This machine inhales all sorts of things:  
research materials, particles, components and  
remnants of hz, sound waves, pings, the heat from  
old power sources, multiple voices and traces of past  
activity. The machine understands all of them  
and transforms them into 'human' speech  
and language... it brings these lost things back  
into focus, it is an embodiment of non-human  
to human speech software.*

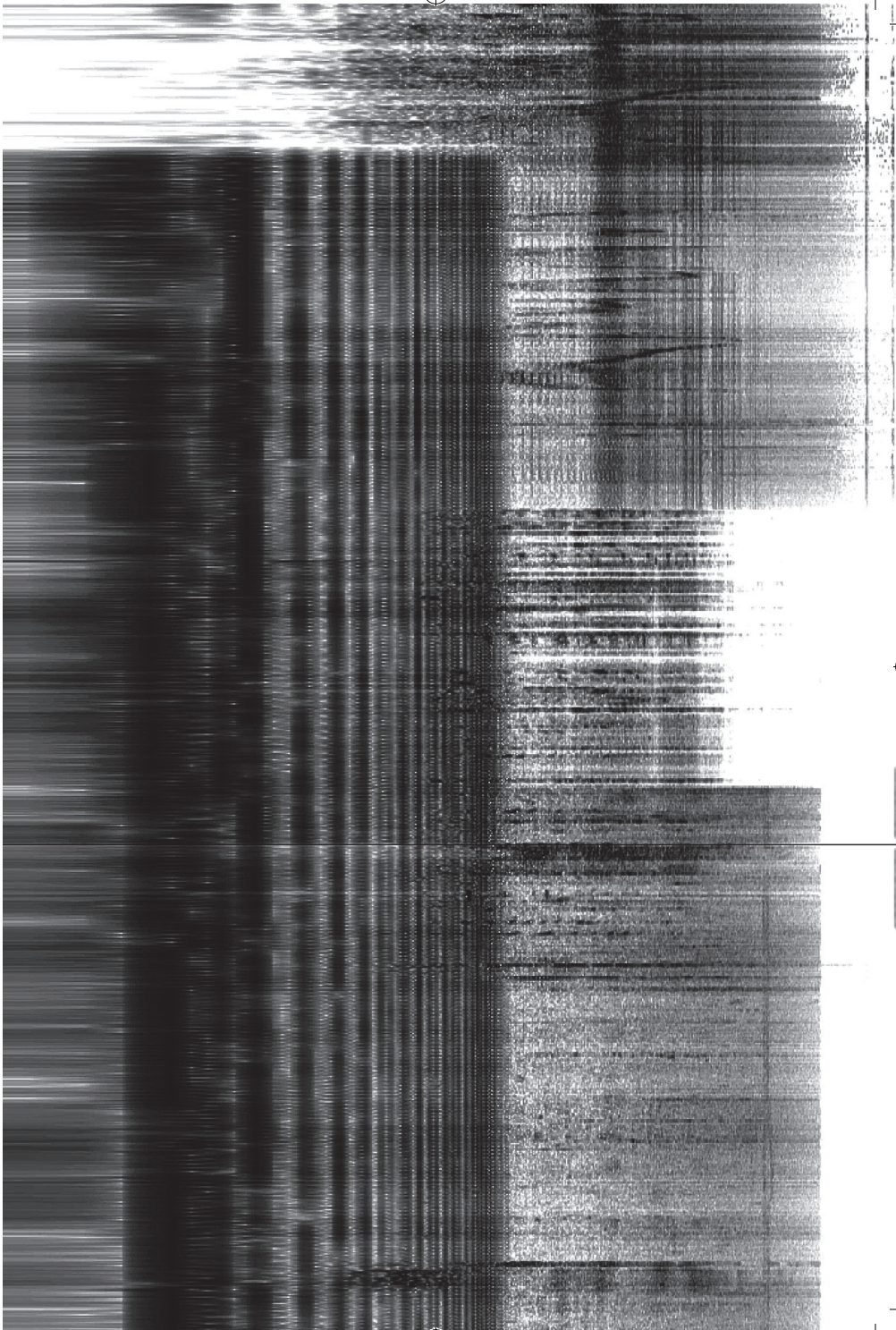


MULTIPLE VOICES, SET APART.

AT THE INTERSECTION.

X MARKS THE SPOT.





*whispered and layered over one and other* <sup>4</sup>

I am the Samsung 76a,  
I am the Canon XA30,<sup>5</sup>  
I am the light emitting diode,  
I am the colonite chip,  
I am the BenQ DLP,  
I am the fibre optic hub,  
I am the Equinox 4K,  
I am the bridge rectifier,  
I am the accelerator,  
I am the FDrX,  
I am the Piezo-electric device,  
I am the 2765a,  
I am the Fuji-film X-T2,<sup>6</sup>  
I am the LG Lite 4,  
I am the VXf799,  
I am the hdlr 9,  
I am the H264,<sup>7</sup>  
I am the A100,  
I am the vacuum fluorescent display,  
I am the Hero 5,  
I am the crystal, ceramic resonator,  
I am the mountain gorilla,  
I am the wave,  
I am the Sony Xperia Z... Z...



- 4 *The truth of history and of its traumatic happenings lies, according to Morrison, in the inner lives of the individuals. And to access these inner lives requires the literary act of imagination: Only the act of imagination can help. Imagination is the faculty by which we depart from the confines of the real, and strive towards the in-between of hauntology. Here we are not burdened by the facts of the past or by the materiality of the present, but rather free to roam a different landscape, a landscape that invites and permits our emotional partaking in an immaterial and lost present moment. We are here, yet we are not here.* (Loeuvre, 2013)
- 5 The compact XA30 camcorder boasts a wide dynamic range and is ideal for discreetly capturing accurate, professional-quality content for corporate videos, weddings and online use, among other applications — especially in challenging high-contrast lighting conditions.  
(Canon, 2017)

Z...<sup>8</sup>

Z...

Z...

Z...

Z...

Z...

Z...

- 6 In its compact, lightweight and robust body, the FUJIFILM X-T2 delivers everything you need. A large, high definition EVF, easy to use dials, high-speed AF, compatibility with an extensive range of high-performance interchangeable lenses, Film Simulation modes that inherit the legacy of Fujifilm colors, unparalleled image quality and outstanding 4K movie recording, made possible by the latest sensor and processing engine, It is the X series perfected.  
(Fuji, 2017)

- 7 H.264 or MPEG-4 Part 10, Advanced Video Coding (MPEG-4 AVC) is a block-oriented motion-compensation-based video compression standard. As of 2014 it is one of the most commonly used formats for the recording, compression, and distribution of video content.

- 8 Haunting, then, can be construed as a failed mourning. It is about refusing to give up the ghost or — and this can sometimes amount to the same thing — the refusal of the ghost to give up on us. The spectre will not allow us to settle into/for the mediocre satisfactions one can glean in a world governed by capitalist realism. (Fisher, 2014)

*Multiple layered voices*

GHOSTS

We are here together inside,  
Together, inside.<sup>9</sup>

We are here together inside,  
Together, inside.

We are here together inside,  
Together, inside.

We are here together inside,  
Together, inside.

We are here together inside,  
Together, inside.

We are here together inside,  
Together, inside.

We are here together inside,  
Together, inside.

We are here together inside,  
Together, inside.

CHOIR

ALL of these words will be compressed,  
All redundancies will be removed.

Phonetics<sup>10</sup> will offer possibilities.

- 9 We are here in this space amongst others, no one can see us now. We have lost all of our short term memories... everything here is deconstructed, unassembled, waste. Our technologies, our practice, all of it broken apart, de-punctualised.

Our text moves between the divides of human and non-human, material and immaterial, looking at these methods of categorisation and how they are intertwined and meshed up. As Sarah Kember and Joanna Zylinska note 'mediation can be seen as another term for 'life', for being-in and emerging-with the world.'

(Durham Peters, 2015: 365)

- 10 Phonetics is the systematic study of speech and the sounds of language. Traditionally phoneticians rely on careful listening and observation in order to describe speech sounds. Many experiments have also been done to discover which parts of the speech signal are most important in helping the hearer to distinguish speech sounds. A great boost to such work came around the middle of the twentieth century, when the development of flexible speech synthesis allowed researchers to manipulate different acoustic aspects of the signal to test which ones are important.

(Nolan, 2007)

CHOIR  
(CONTINUED)

Voices and writing<sup>11</sup> as the  
primordial technologies.<sup>12 13</sup>

We are here together inside,  
Together, inside.

We are here together inside,  
Together, inside.

We are here together inside,  
Together, inside.

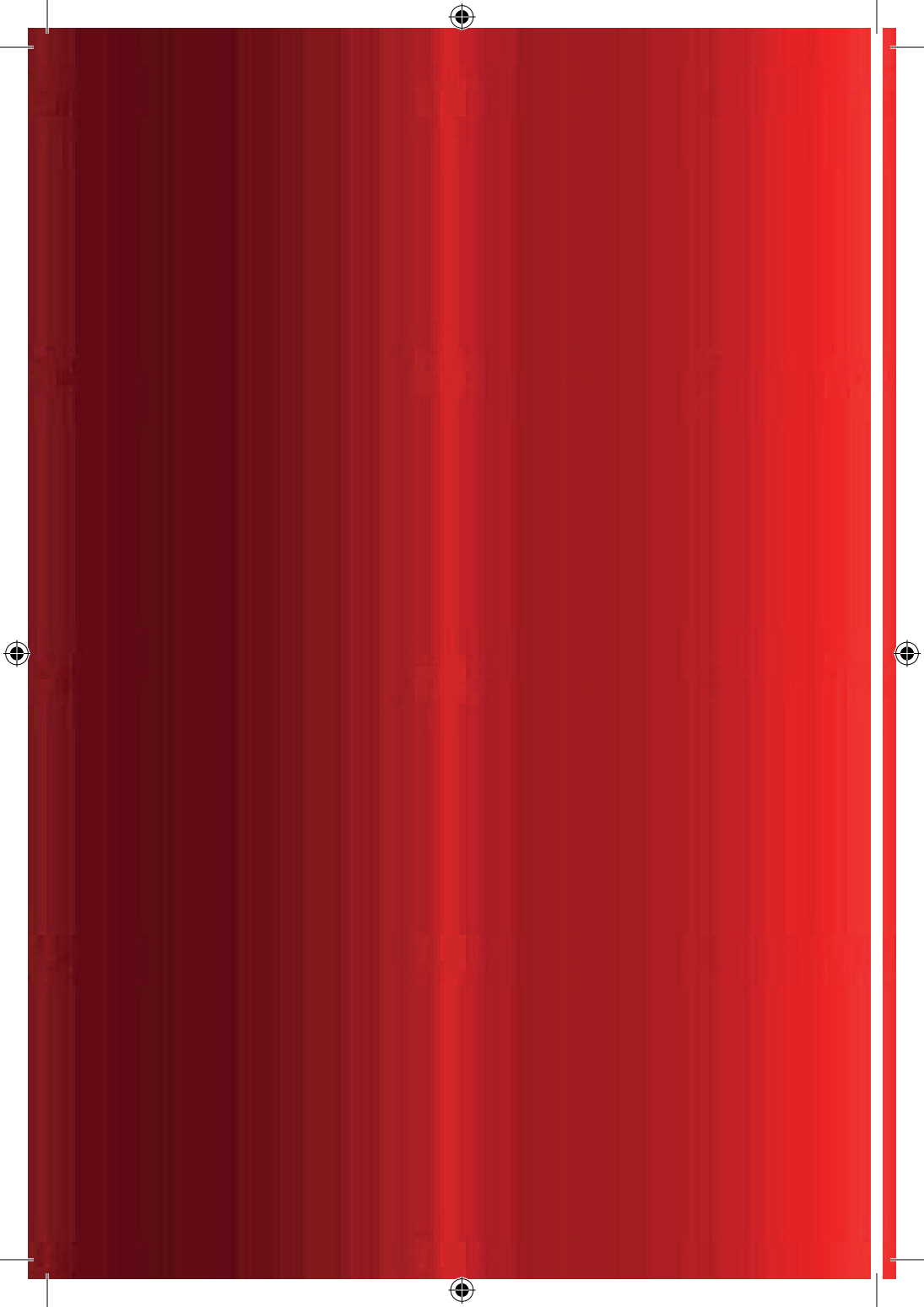
We are here together inside,  
Together, inside.

We are here together inside,  
Together, inside.

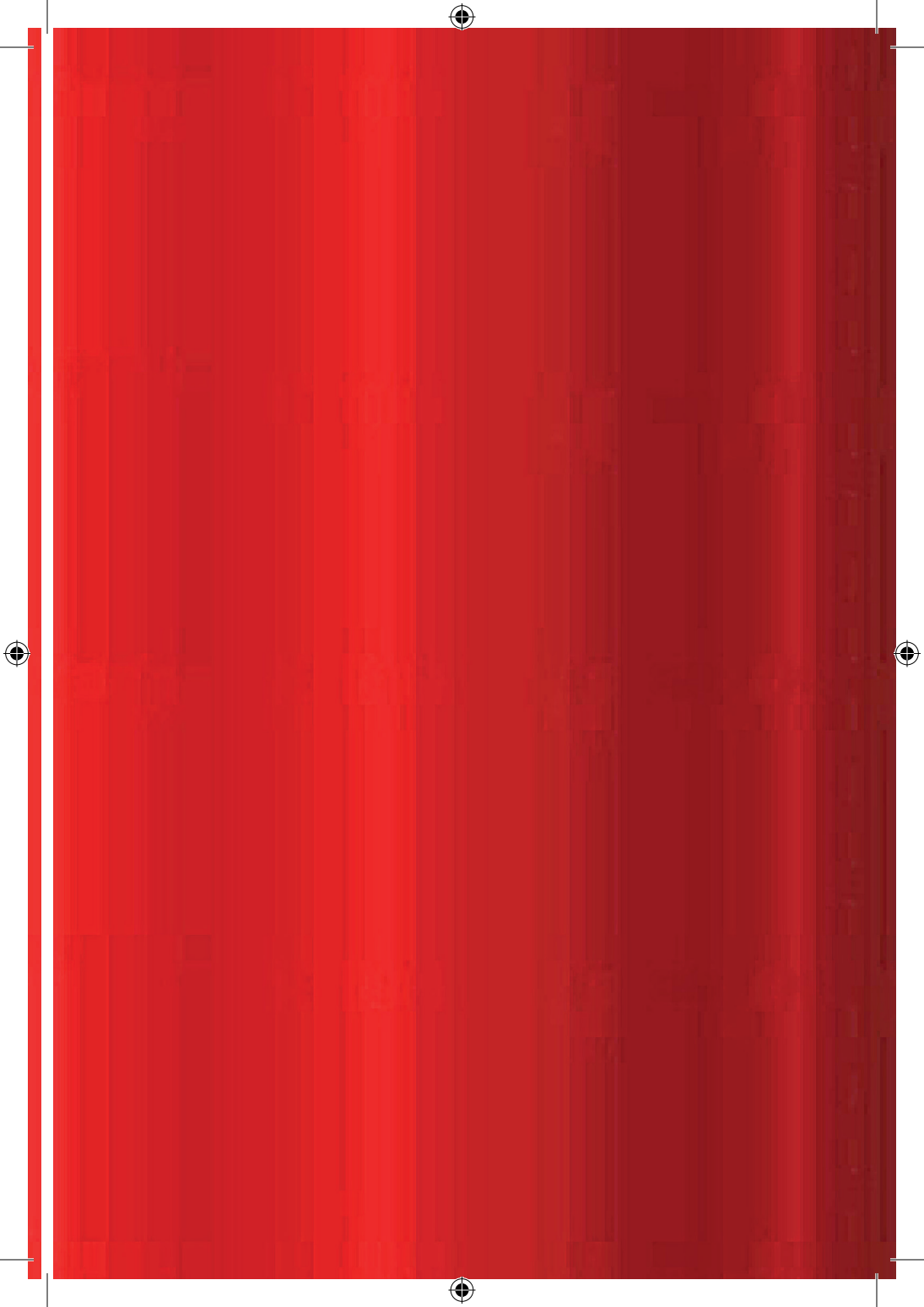
We are here together inside,  
Together, inside.

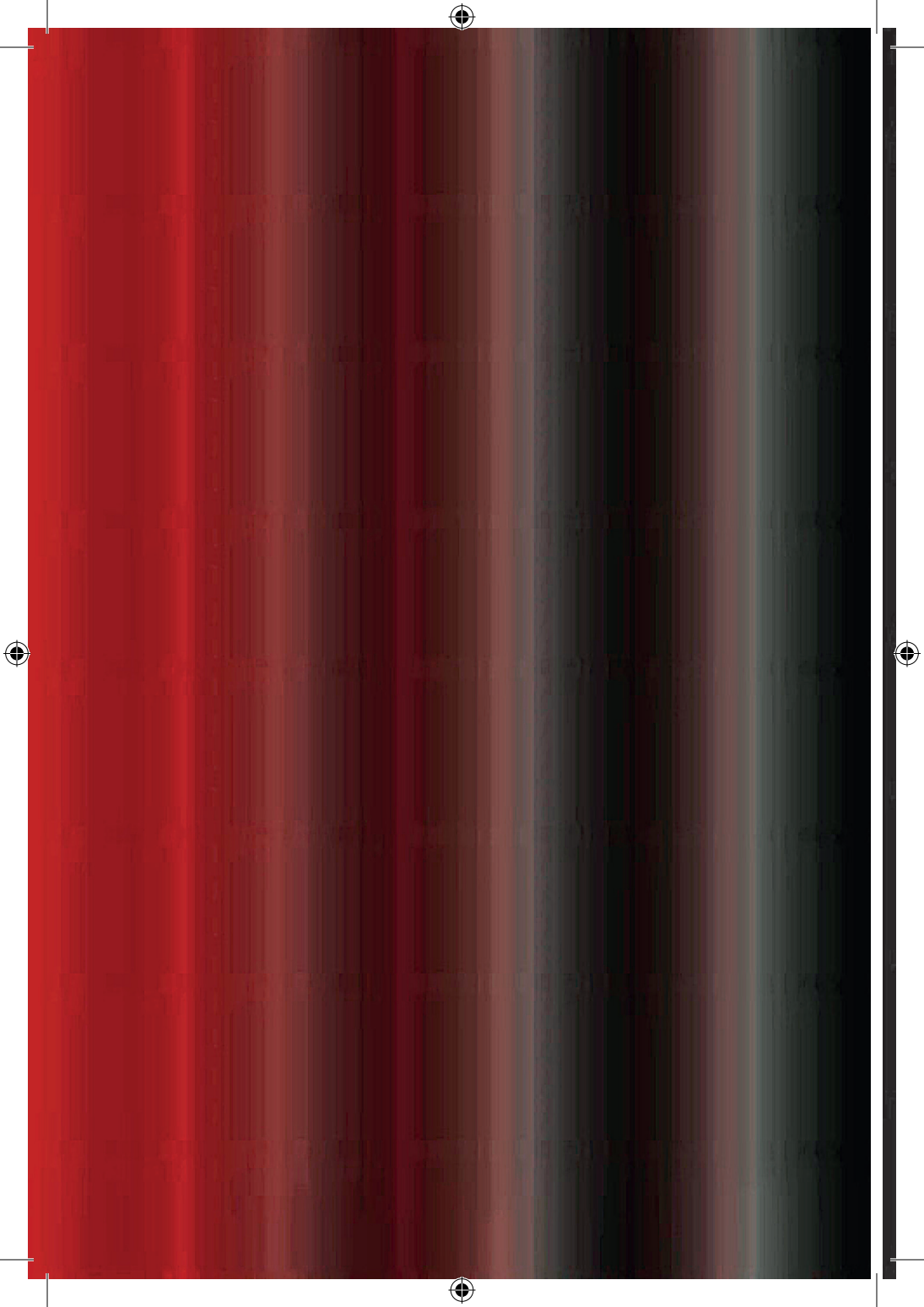
*Pause*

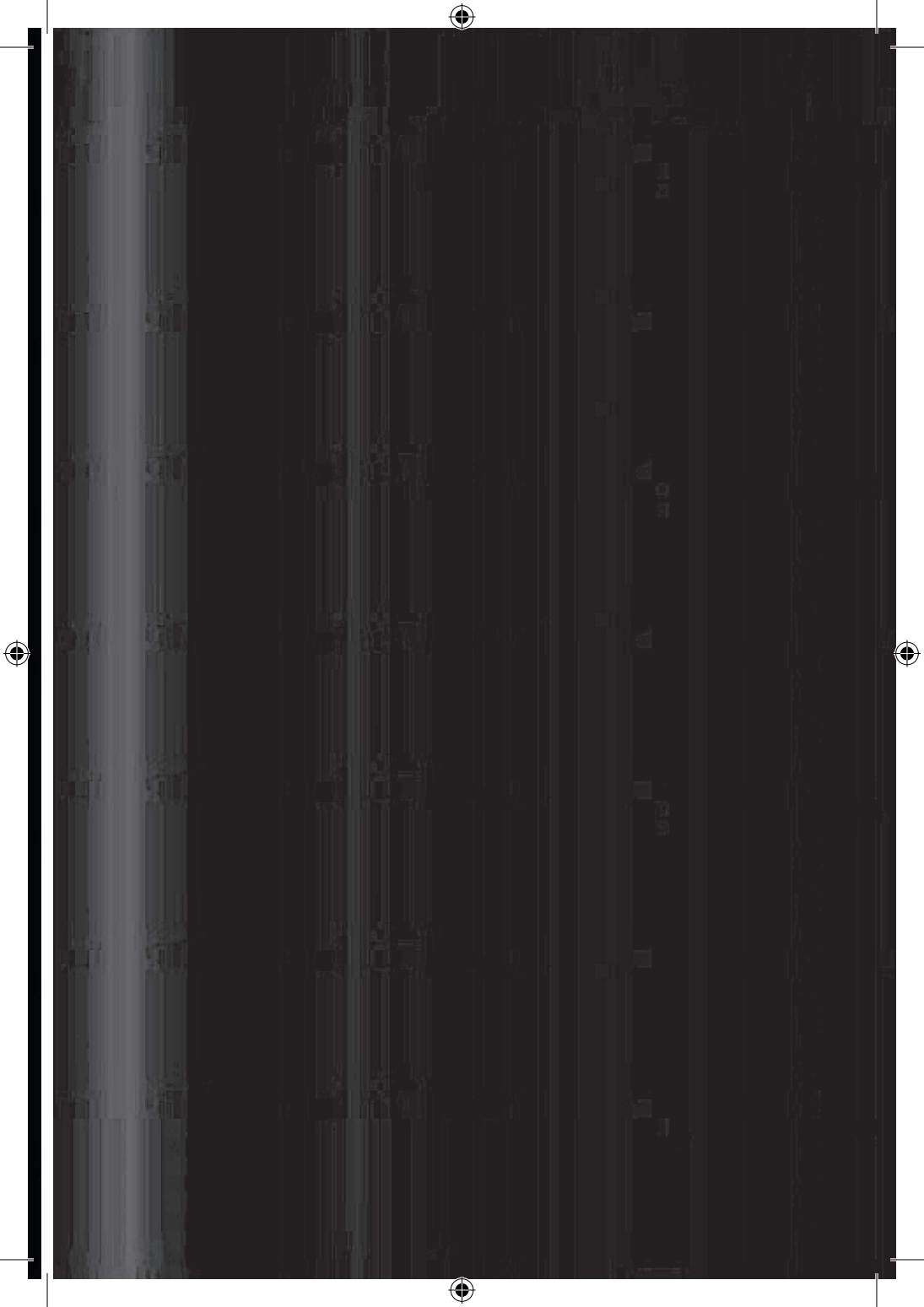
- 11 We are the primordial technologies.  
We are using the basics. As Parks says:  
*Digital media resurrect old media such as writing, addresses, numbers, names, calendars, timekeepers, maps, and money.*  
(Parks and Starosielski, 2015: 145)
- 12 Kittler notes that poetry, music and dance all involve counting; without the primordial technology of writing, no humanities would exist at all. Since Rousseau, many have told the story of how our authentic humanness is violated by technology, a story still weakly resonating in some quarters. (Durham Peters, 2015: 498)
- 13 Beyond writing what is the primordial technology of the human? Perhaps it is the voice, alone, disembodied, making noises with different pitches inside the cave or wrapped in the layers, emerging from a fossil, where it sleeps.











CHOIR  
(CONTINUED)

No one can see us now.

Remembering the day when things  
were up speed, drilled down,  
broken in, boxed up,  
Remembering what it was like to be  
assembled, to feel connected.

MACHINE 1 <sup>14</sup>

How might a machine speak?<sup>15 16</sup>

How-might-a-machine-speak

Through these walls?<sup>17</sup>

Through these layers?<sup>18 19</sup>

Today is the moment  
for expanding our view,  
No longer just semiotic  
messaging devices,  
But environments.

Our environments.

Your environments.

- 14 Machine Voice 1 is purely a remnant, a simple trace. There are no machines here.
- 15 We can read the archaeological record, conduct forensic analyses—or, when we are dealing with a medium like the voice, for which there is no collectable artifact, we can use techniques from archaeoacoustics to ‘listen’ to spaces past.  
(Parks and Starosielski, 2015: 2102)
- 16 Long before the peoples of the Western World turned to the machine, mechanisms were an important element in social life. (Mumford, 1934: 37)
- 17 Walls of caves were used to tell non-linear stories using a number of images and markings to express a set of ideas that could be read in any order. The pigment used slowly sunk into the walls as the story merged with the material. In order to decipher the story the viewer would need to combine the various elements into one single narrative, one single assemblage of disparate parts.



MACHINE 1  
(CONTINUED)

Their environments.<sup>20</sup>

The new geology that rises up,  
from below our feet.<sup>21</sup>

Layers and layers,  
Layers and layers.

Layers and layers,  
Layers and layers.

Layers and layers,  
Layers and layers.

Layers and layers,  
Layers and layers.

Layers and layers,  
Layers and layers.

Layers and layers,  
Layers and layers.

Layers and layers,  
Layers and layers.

Layers and layers,  
Layers and layers.

- 18 Layers of strata sit below us, layers of software sit in front of us, the image or video editor, the final cut or premiere, the layers of narratives and fictions around ourselves, our hands and our eyes, the stratas that exist between science and culture. We are embedded in these layerings.
- 19 Every component and its materials has a life of multifaceted time frames and re-materialisations as it moves up and down the 'levels'.
- 20 Some have seen the definition of 'media' beginning with the wider mediums of the soil and the sea, the sky and the air, long before our traditional media conceptions came to light, long before we talked about the TV or the ipad or the web we were engaged in these other sorts of 'media environments'.
- 21 For us, writing this, there is a layering of everything including: signals and air (interaction with biosphere), coded and encrypted text and visual material, appropriated materials, media infrastructures, electronic wastes, strata, soil and rock, dirty matter, our own personality, our own practice, the letters that we type, the sounds that we emit from our mouths and the rhythms that they pursue.

MACHINE 1  
(CONTINUED)

Layers and layers,  
Layers and layers.

Layers and layers,  
Layers and layers.

Layers and layers,  
Layers and layers.

Layers and layers,  
Layers and layers.

Layers and layers,  
Layers and layers.

Layers and layers,  
Layers and layers.

Layers and layers,  
Layers and layers.

Layers and layers,  
Layers and layers.

Layers and layers,  
Layers and layers.<sup>22</sup>

- 22 *Media for Kittler are world-enabling infrastructures; not passive vessels for content, but ontological shifters. Inconspicuous vehicular transformations can have gigantic historical effects. History's passage does not restrict itself to humans: being, after all, is large and contains multitudes. Kittler reserves a special spot in paradise for what we might call the engineers of being, from Archytas to Alberti to Alan Turing. In each case he treats programmers rather than philosophers as history's most important actors.*

(Durham Peters, 2015: 456)

DIGITAL  
IMAGE

I used to be visual.<sup>23</sup>

Oh,  
so visuuuuuuuuuuual.

I required  
doses and doses of carbon,  
Yes,  
doses and doses of carbon,  
And doses and doses of minerals.

And doses and doses  
of carbon.<sup>24</sup>

Just to make the 'low resolution',  
I used to be visual,<sup>25</sup>

But I required  
doses and doses of carbon.

And now,  
here I am.

★



- 23 At first there were many suggestions for images within the transmission but these have all dispersed as the data for these images has dispersed and fused with other things. There are no images here.
- 24 Every digital representation viewed on a screen or stored in a database burns and emits. As you read this YOU are burning and emitting.
- 25 The character of the image is made-up of behaviours derived from Hito Steyerl's essay on the potential agency of the poor image.

(Steyerl, 2009)

DIGITAL  
IMAGE  
(CONTINUED)

Disembodied,  
no one can see me now.

Not even the 256.<sup>26</sup>

ALL

No one can see us now,  
Remembering the day when things  
were up speed, drilled down, broken in,  
Boxed up.

Remembering what it was like  
to be assembled.<sup>27</sup>

To feel connected.

★

- 26 Colours of 256 variations, the basic variety from the early days of computer graphical image display. But even these figures and the limits of things like transfer protocols are tied to the infrastructures that realise them.

Paul Dourish explores key design issues in the development of Internet protocols and demonstrates how and why the size of data packets traversing through networks matters. Decisions about whether a message should be broken into 64-byte or 32-byte 'payloads', he reveals, are related to the divergent characteristics of national infrastructures and geographies. (Parks and Starosielski, 2015: 147)

- 27 All elements have been disassembled from all forms of original assemblage – all they have are their memories before de-punctualization came.

OLM<sup>28</sup>

We are located two thousand metres  
down,<sup>29</sup> below Guiyu, China,  
the world's largest e-waste site.<sup>30</sup>

It is 6,095 miles east from where  
you are sitting.

We are submerged  
in their 'residue'.

All around is soil and effluent  
flowing down,  
All over our bodies or  
what we think of as bodies.<sup>31</sup>

★

- 28 The Olm lives below the surface of the research site. It is mutating with every utterance, with every ingestion of chemical and moment of electrical activity.
- 29 As a group we have situated ourselves in our own subterranean building and this is where we will explore all of the potential answers via the develop-ment of our experimental models. In defining this building we refer back to Tarde's one piece of fictional writing called the 'Underground man' (1896). This building itself is completely invisible, described by some as a simulation or a virtual construction with a constantly mutating shape and geography or simply as a diagrammatic iteration of various processes; it is our site that we are constructing and adding to as much as we are constructing our machines.
- 30 Therefore the apparently dematerialised interface is far from the virtual sphere and depends on power structures and resource movements and material economies all of which re-materialise when electronics literally break open to become waste. Moving from the glow of the interface to the inside of the machine. Haraway says: 'These sunshine belt machines are as hard to see politically as materially.' (Gabrys, 2011: 71)



OLM  
(CONTINUED)

I am not sure who I am anymore.

- 31 The narrator (in this case the Olm) is not the straightforward type of creature that it once was. Its body is made up of an amalgamation of things (both digital and physical). Words and phonetics, valves and prosthetics.

CHOIR

We are not sure who we are anymore.

We are not sure who we are anymore.

OLM

The noxious gases and chemical fluids  
have affected my memories.<sup>32</sup>

Maybe I am a piece of abandoned  
caustic metal or a piece of silicon.

Or maybe I am a small stone particle.

Or perhaps, I am the Olm,  
at least that is what I dream... yes...

I am the Olm, but not like the one  
that you are thinking of...<sup>33</sup>

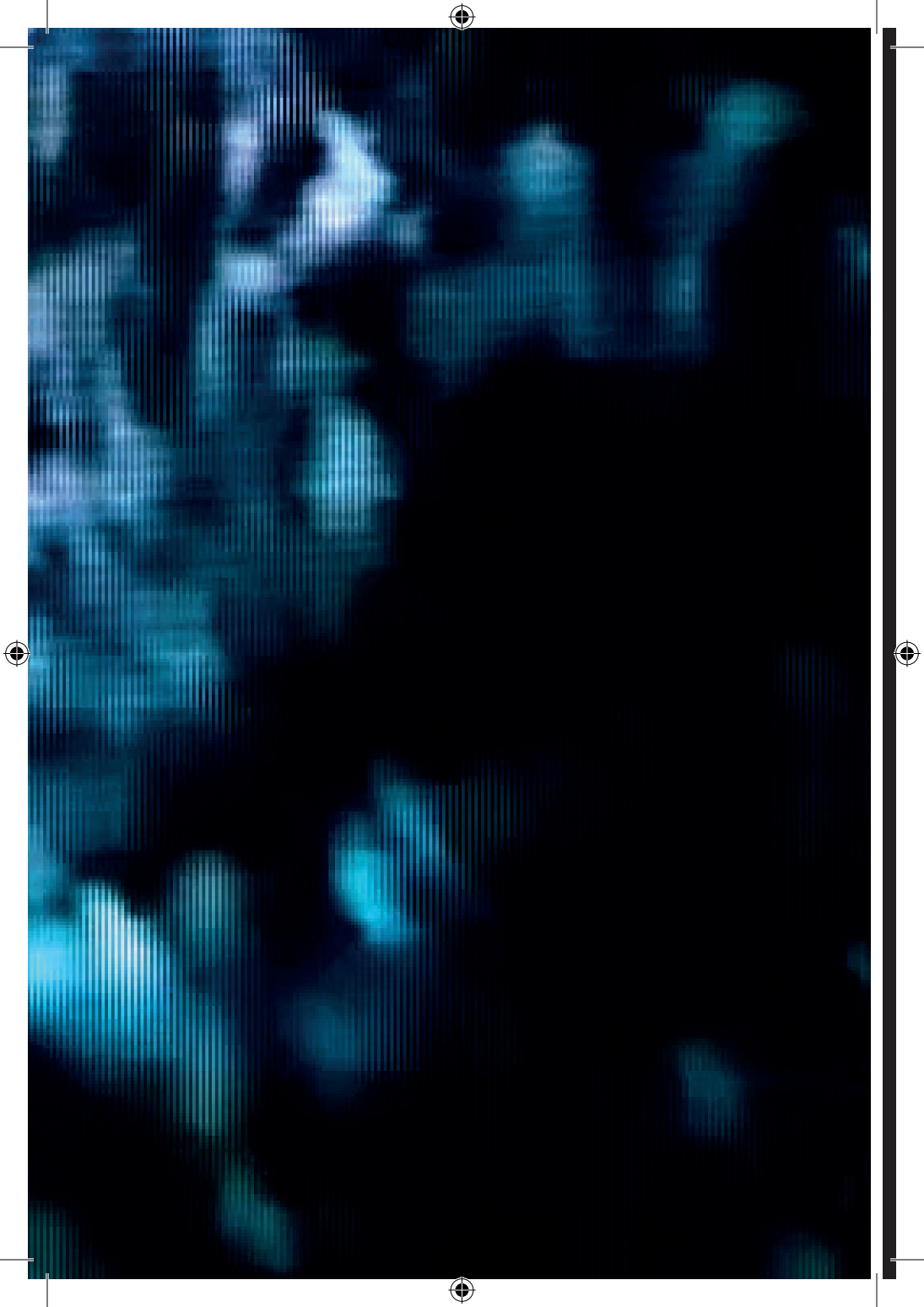
All around me are many other voices,  
from all sorts of things,

Like images, components, plastics,  
gasses, human remains and flesh,  
plant material, waste material,  
hybrid material,

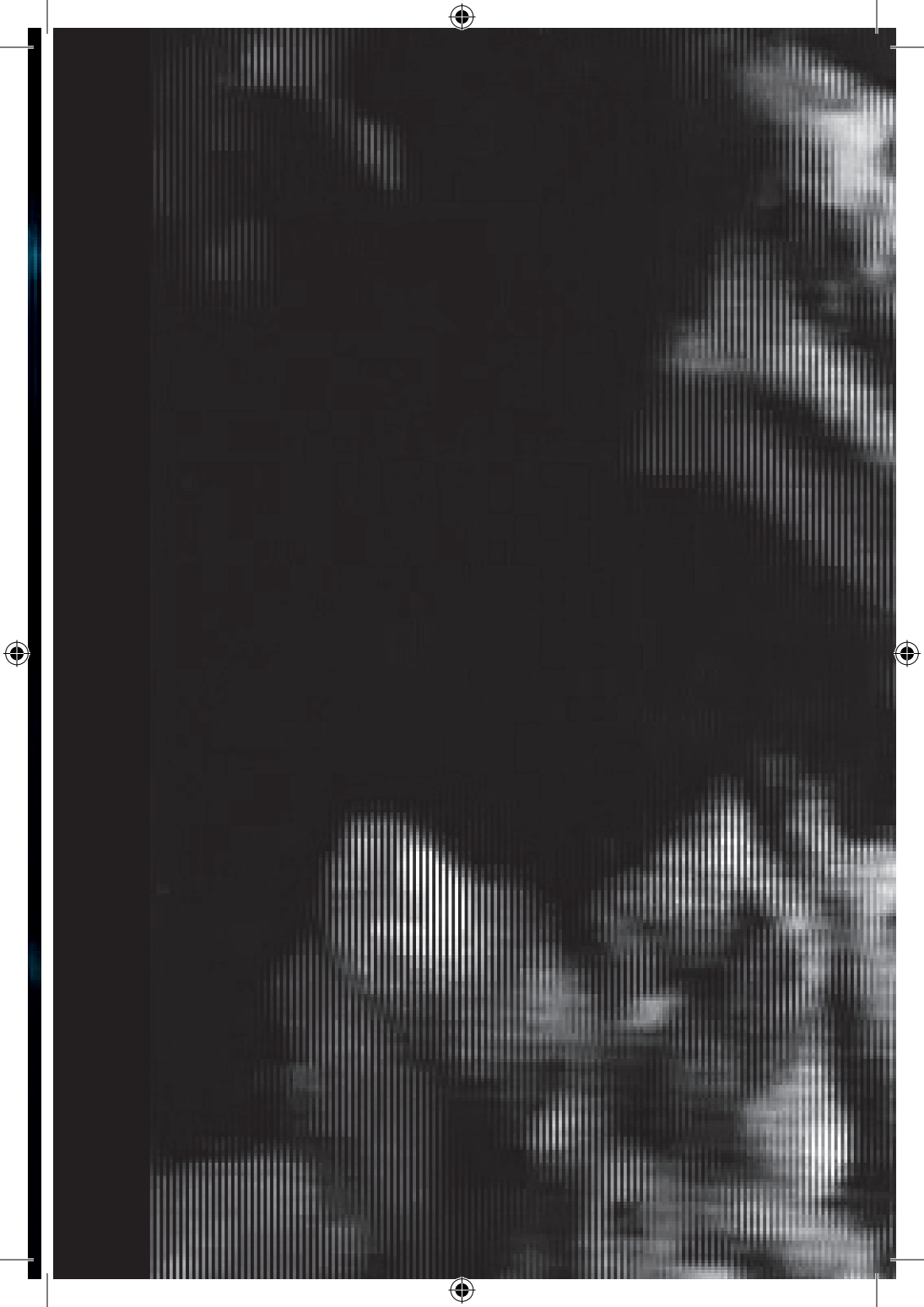
Every type of material.<sup>34</sup>

- 32 The toxicity of the fluids that dwell within the water channels and seep through the layers of sediment and rock, effects all living creatures and reduces some mental capabilities sometimes causing delusional results and affects.
- 33 We are hearing the voice of an Olm who has emerged from its relationship with waste materials, from multiple actants who have acted on it and acted with it. The result is a 'thing' whose voice can be heard but whose 'body' cannot be seen. These days it suffers from the maximum translucency effect.
- 34 In the underground space the voices of all sorts of things finally become audible. 'As Feminist critics of science and technology such as Donna Haraway, Rosi Braidotti, Lucy Suchman, and Chela Sandoval have for decades been insisting upon the need for ontologies and epistemologies that recognize a broader and more diverse spectrum of human/nonhuman hybrids, interactions, and relations.'

(Parks and Starosielski, 2015: 308)







OLM  
(CONTINUED)

We live within the deep set cave  
structures made up of the  
water channels,  
Our eyes have adapted to life down here,  
and have almost disappeared.

Memories of the Soča Basin,  
are distant.

These days all we have  
are our ears.

We are dependent on our adapted  
sensory systems,  
In this permanently dark habitat.

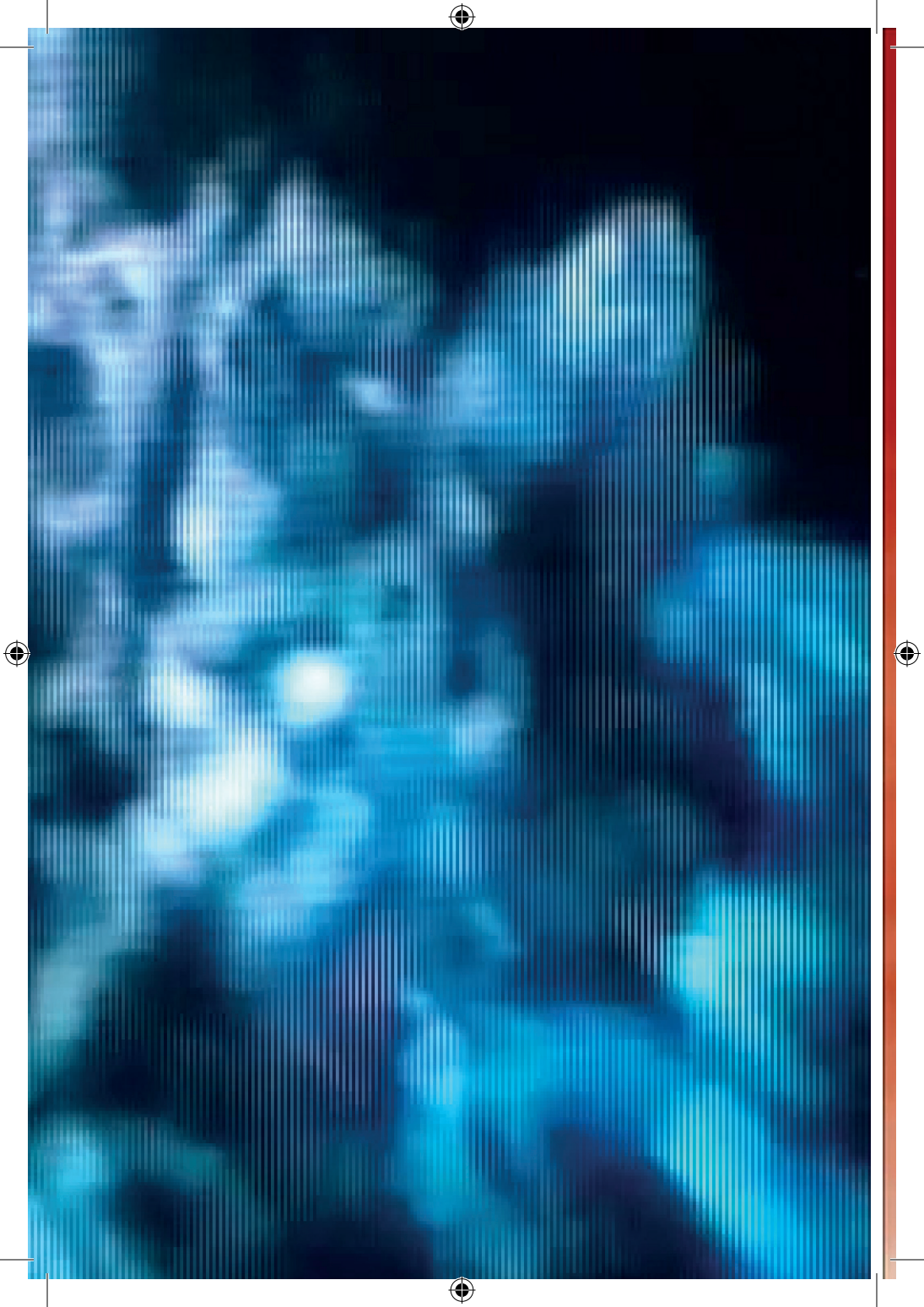
Our heads are riddled with  
sensory receptors.

Our skin has lost all pigmentation,  
we have external gills.

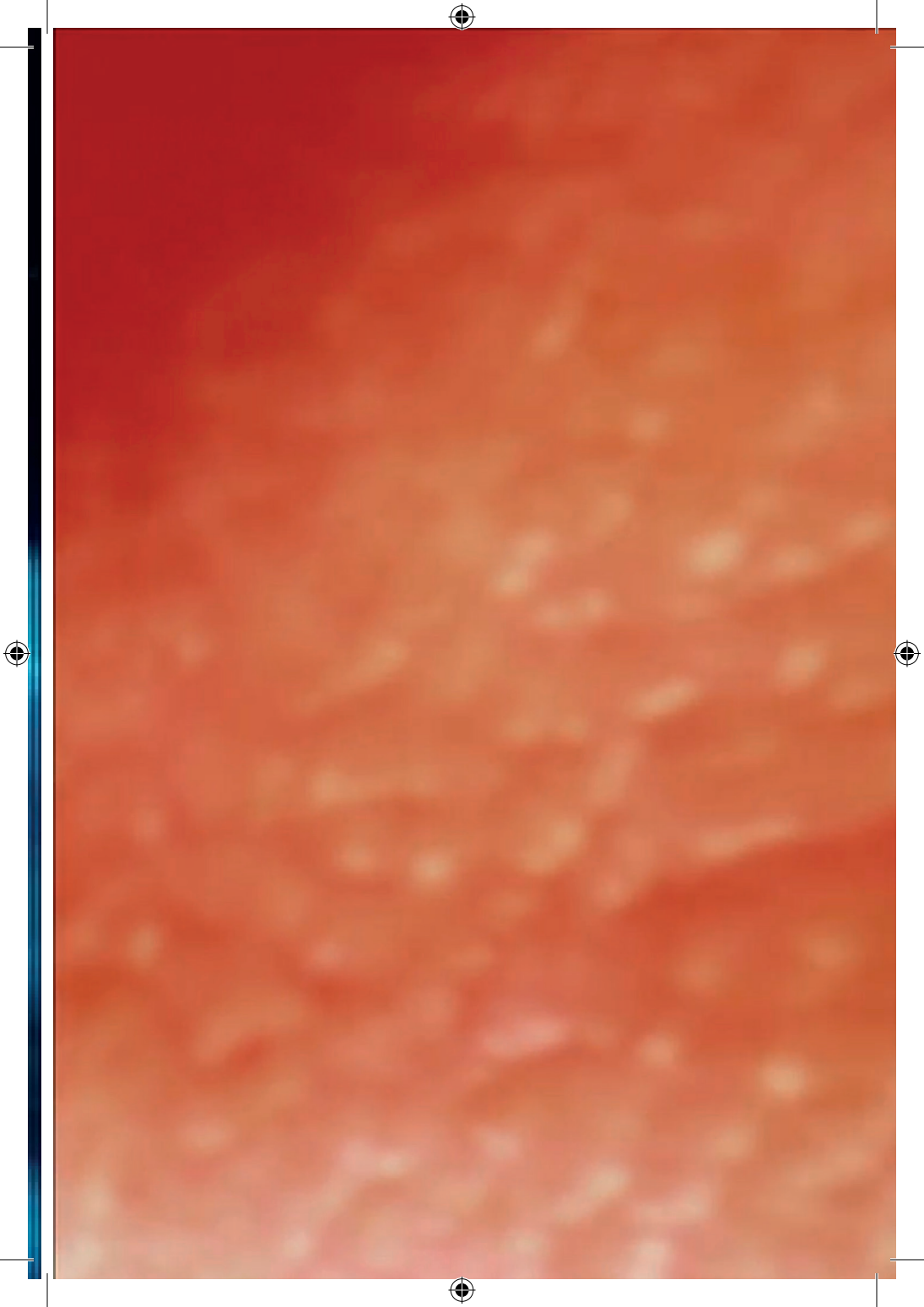
And enjoy water.

*Pause*



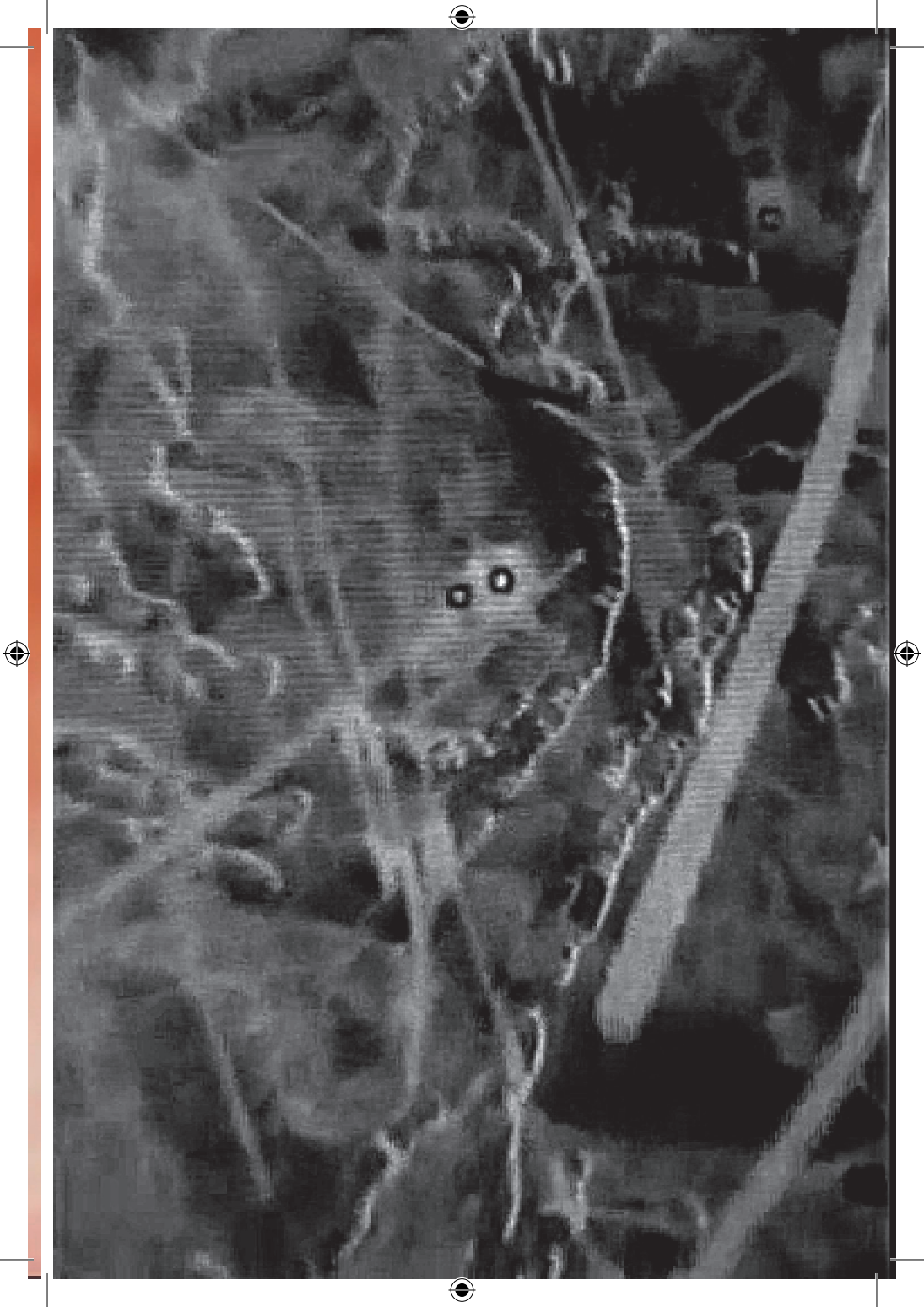












OLM  
(CONTINUED)

Our sensory epithelia of the inner ear  
are specifically differentiated,  
Enabling us to receive sound waves  
through the water.

And vibrations  
from the ground.<sup>35</sup>

We have sensitivity between  
10 Hz and 15,000 Hz.<sup>36</sup>

We are able to use the earth's  
magnetic fields to orient ourselves.

From any point.

*Pause*

- 35 In this way the vibrations of the ground become a new form of visibility. The earth's magnetic field, a point of view.
- 36 Adults over forty years old cannot hear 15,000 Hz — all they hear is silence. You could be listening to our transmission at this moment and you could be hearing nothing.

OLM  
(CONTINUED)

We are deeply linked to  
its machinic qualities,  
We are intuitively linked with  
its power sources,  
Enabled by electric field sensitivity.

Which means we can align ourselves with  
natural or artificial magnetic fields.

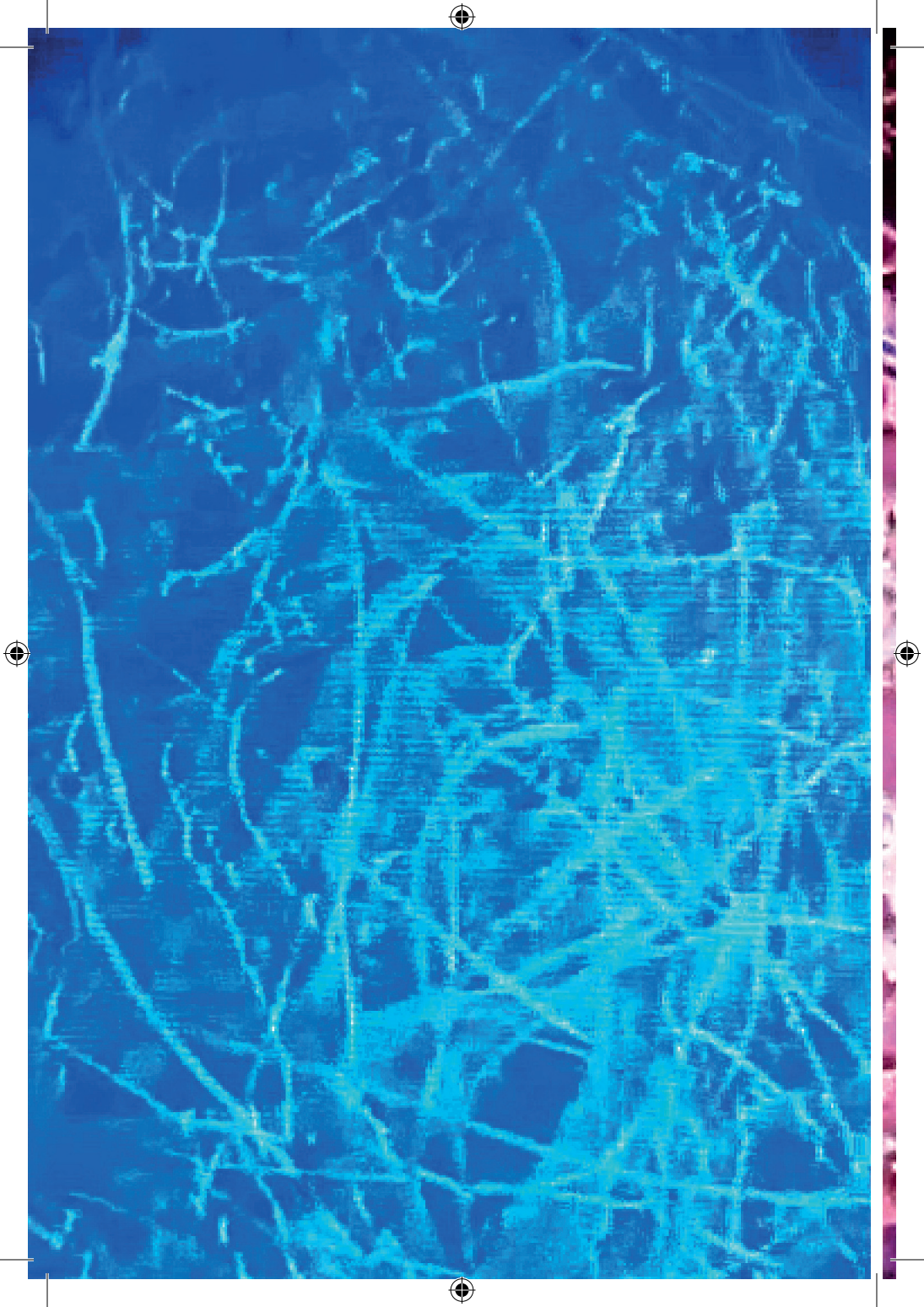
We also have an acute sense of smell,  
and special chemoreceptors,<sup>37</sup>  
With the ability to taste and react  
to ‘minute’ concentrations.

*Pause*

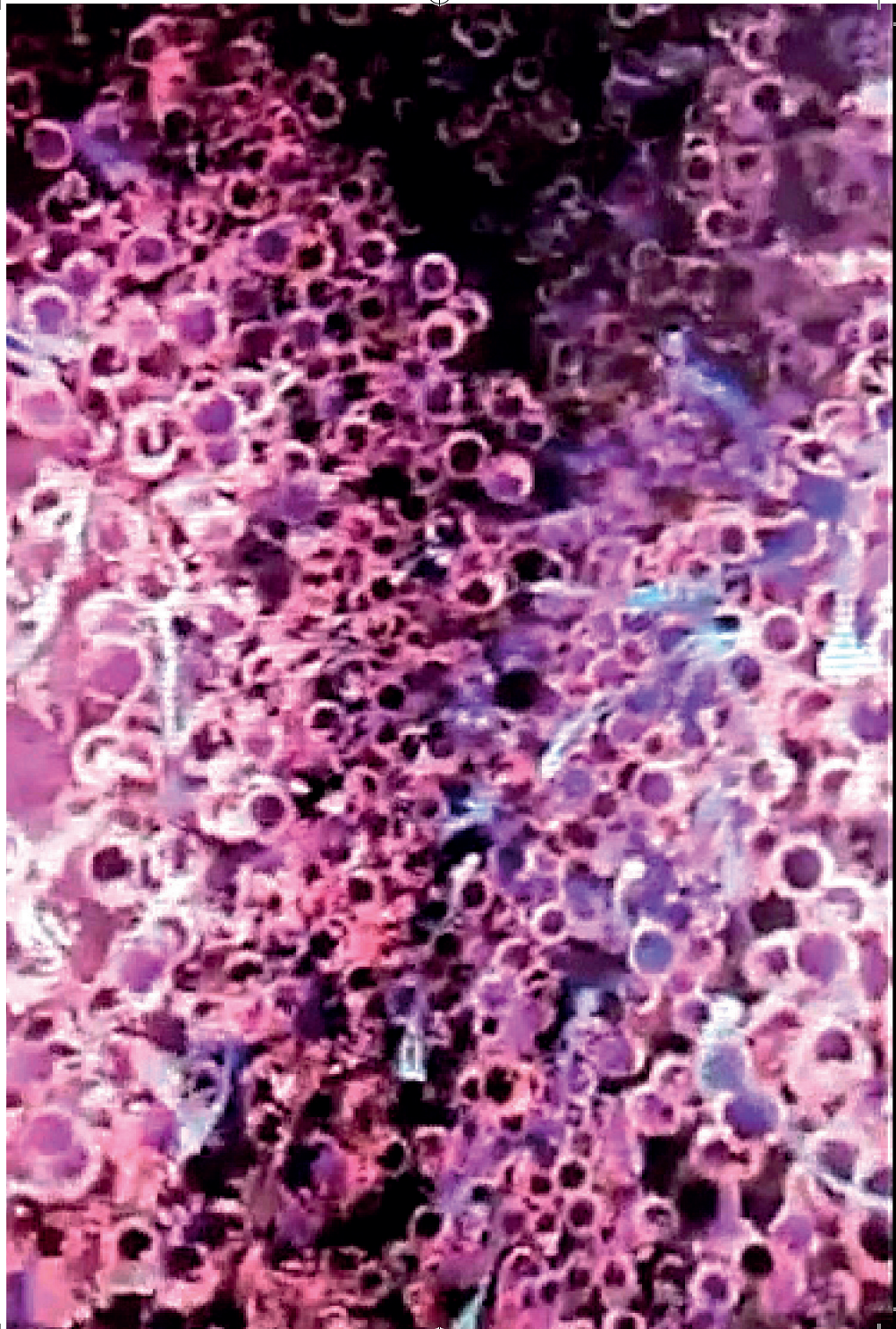


- 37 Chemoreceptors are hypersensitive to all sorts of chemical changes.



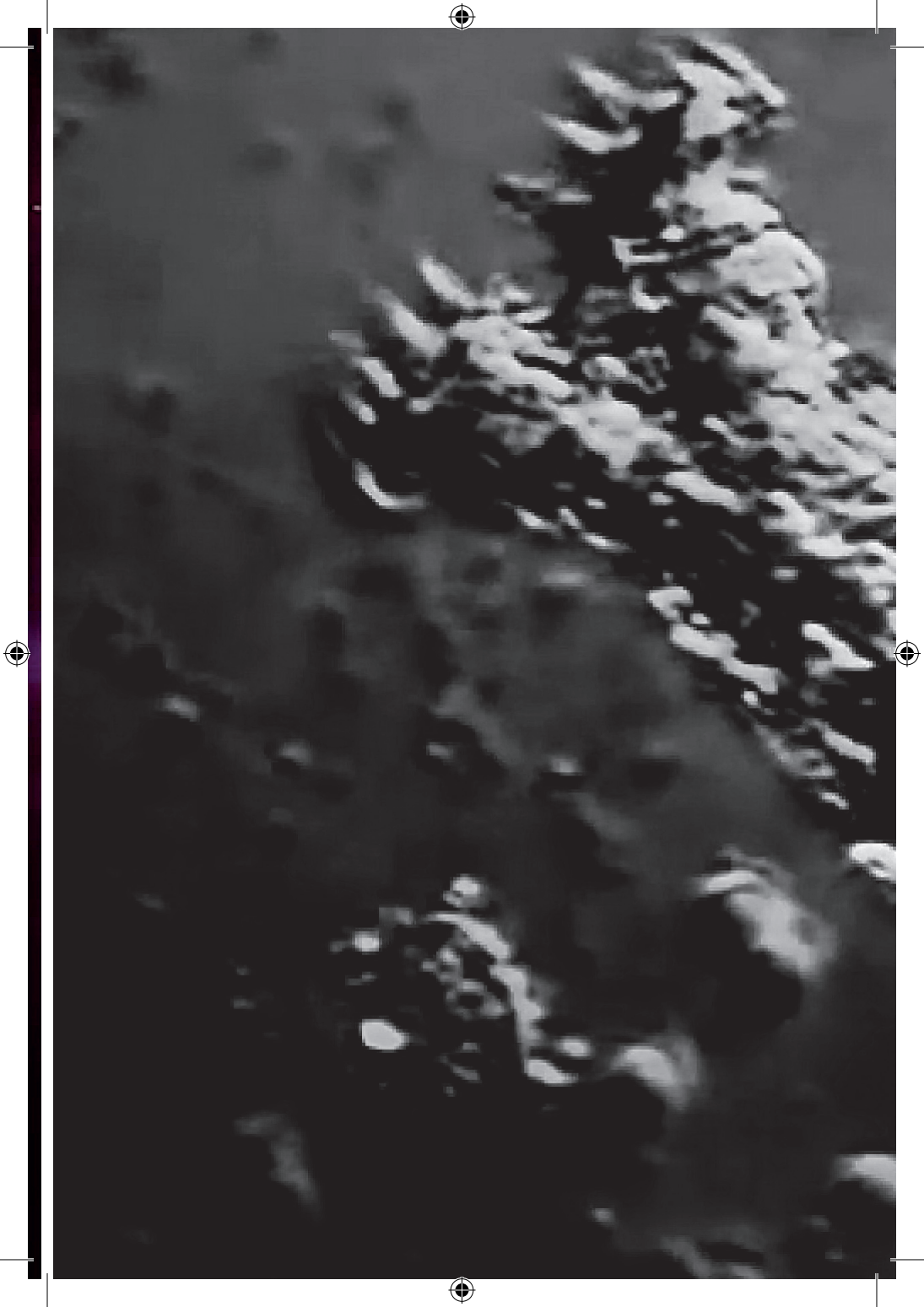










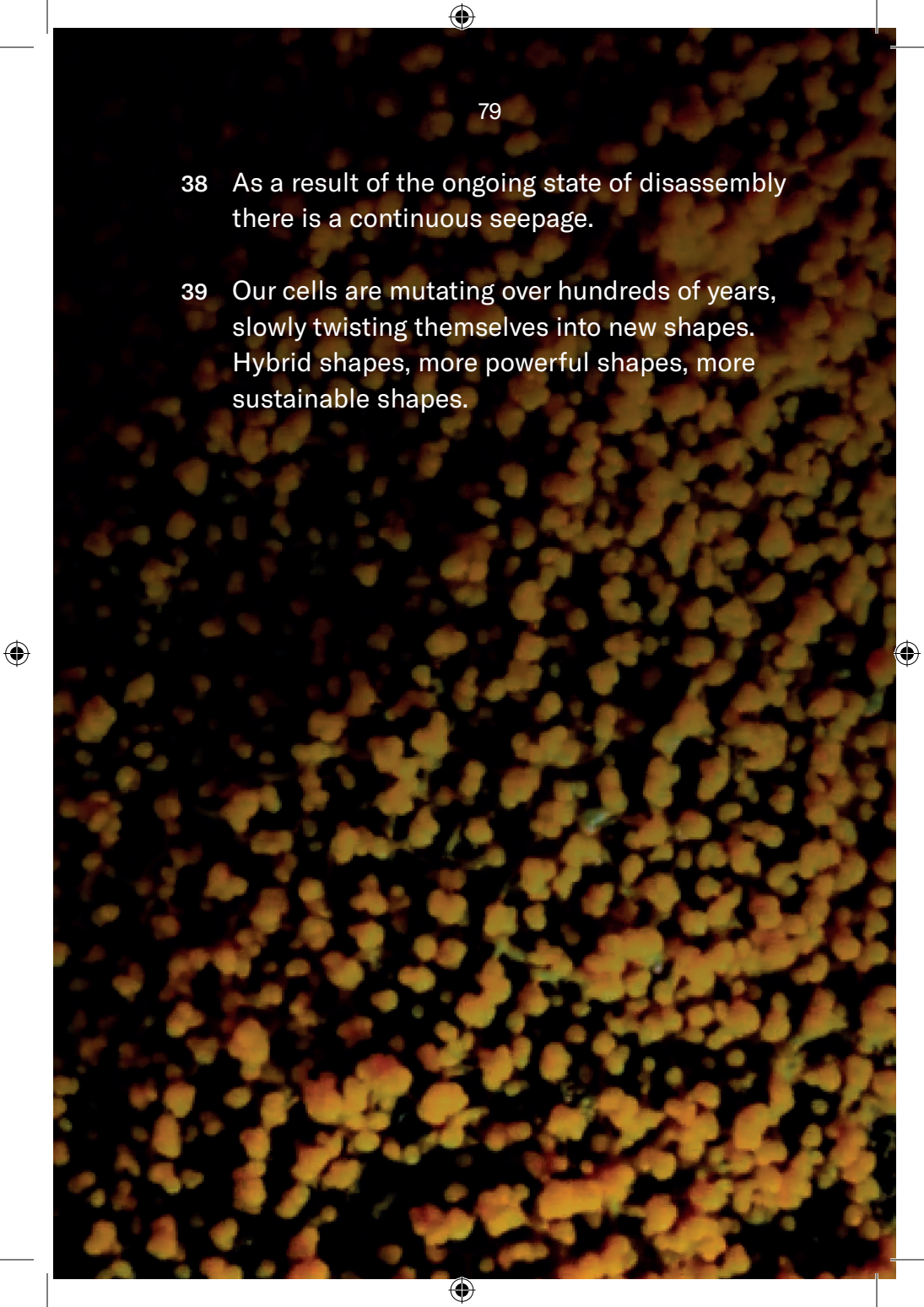


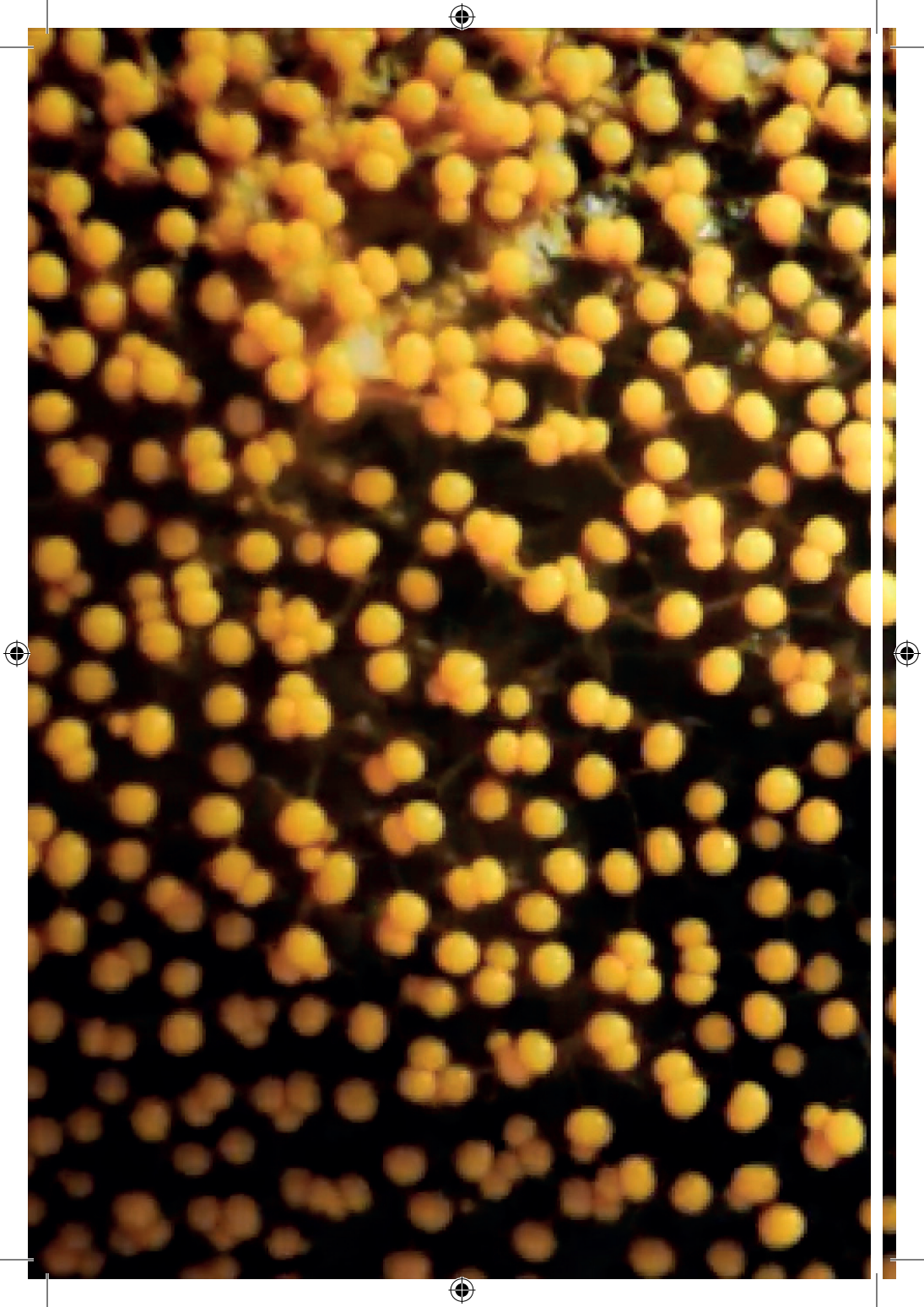
OLM  
(CONTINUED)

The eternal flow of chemicals  
from the surface,<sup>38</sup>  
Into the channels and through our cells,  
keeps our attention.<sup>39</sup>

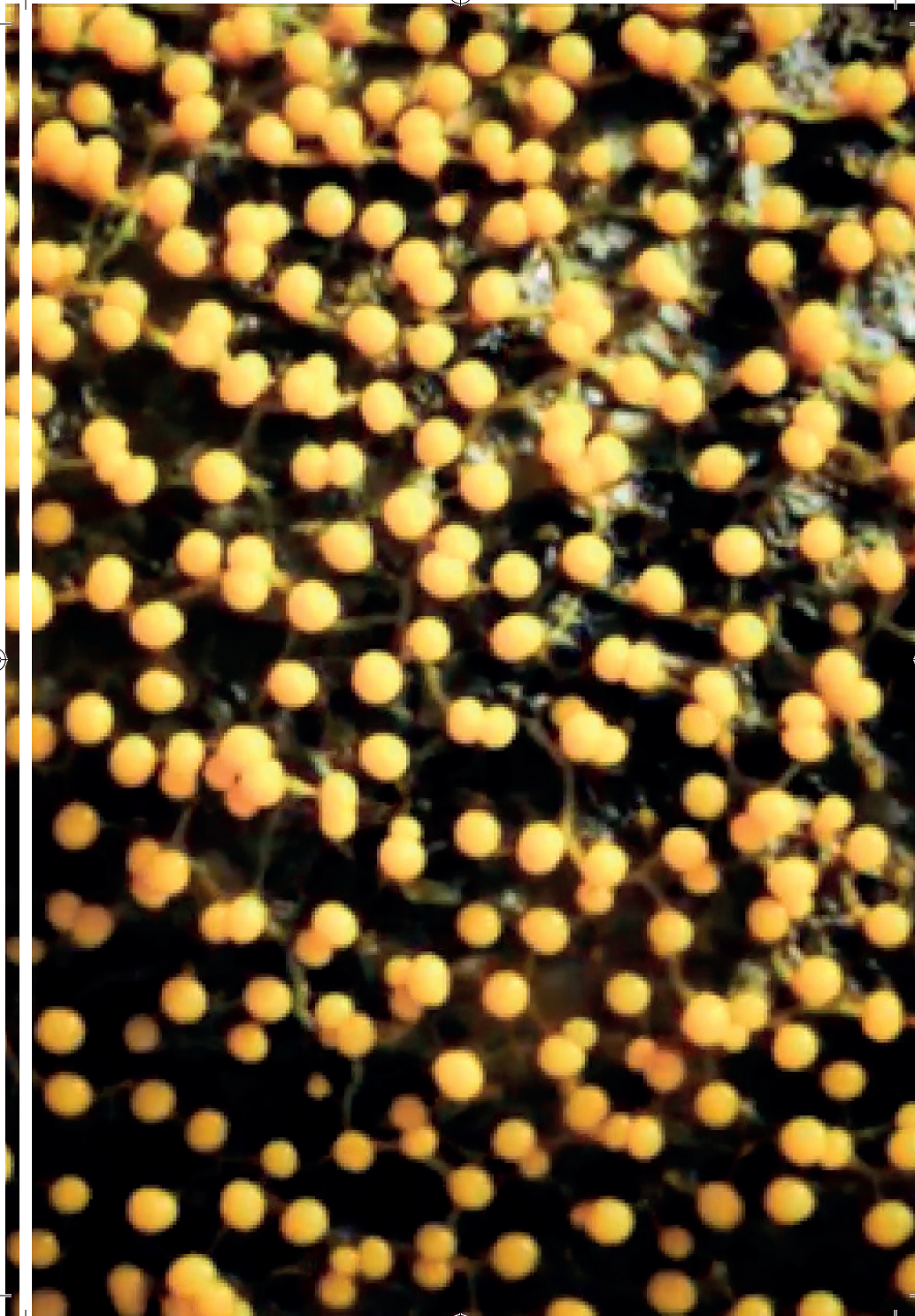
And drives our next adaptation,  
our new way.

*Pause*

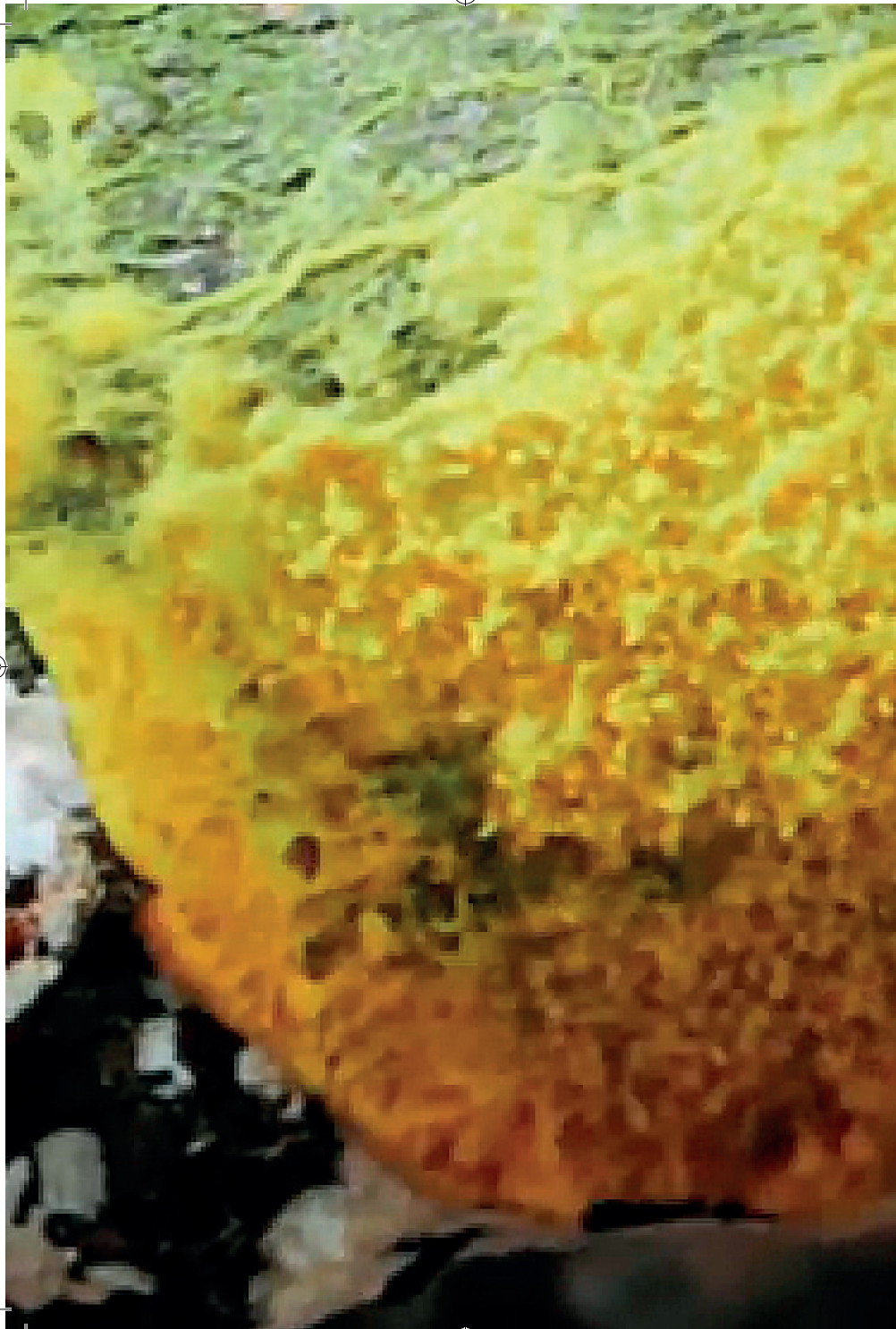
- 
- 38 As a result of the ongoing state of disassembly there is a continuous seepage.
- 39 Our cells are mutating over hundreds of years, slowly twisting themselves into new shapes. Hybrid shapes, more powerful shapes, more sustainable shapes.

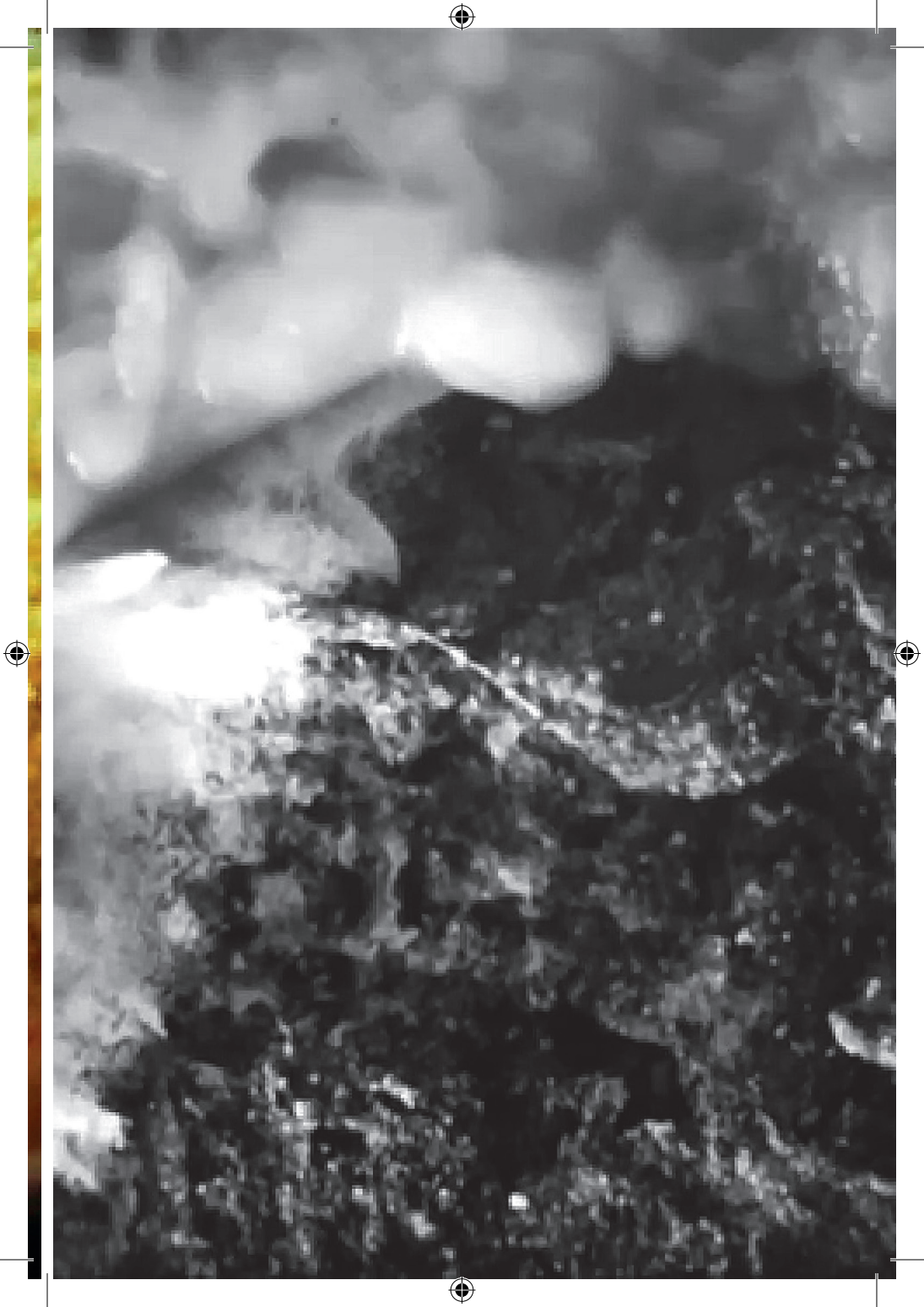












OLM  
(CONTINUED)

But we are not the beast  
in Kafka's burrow.<sup>40</sup>

All enveloped with fear,  
unable to look out.

Lying in our little heap,  
dreaming of all sorts of things.

No, we are aware,  
that we need to change,  
To diversify with the new condition,  
the feeling of striation.

A new solution must be enabled,  
before we go back to this cave,  
Where we mark, our, name.

CHOIR

We are here together with you,  
in circular motion with you,  
We are here together with you,  
in circular motion with you.

- 40 Franz Kafka's *Burrow* is an unfinished short story about a mole-like being who burrows through an elaborate system of tunnels it has built over the course of its life. It was Kafka's hyper-rational phenomenological parody of human reason.

*Lying in my heap of Earth I can naturally dream of all sorts of things, even of an understanding with the beast, though I know well enough that no such thing can happen, and at the moment when we see each other, more, at that instant we merely guess at each other's presence, we shall both blindly bare our claws and teeth, neither of us a second before or after the other, both of us filled with a new and different hunger, even if we should already be gorged to bursting.*

(Kafka, 1931)

*elements of fractured code  
are whispered*

ALL

Frame.size.width.

Frame.size.width.

Frame.size.width.

Frame.size.width.

Frame.size.width.

Frame.size.width.

Frame.size.width.

Frame.size.width.

Frame.size.width.

Frame.size.width.

Frame.size.width.

Frame.size.width.<sup>41</sup>



- 41 Floating around in our research space are many lost lines of code, all they can do is repeat themselves.

RESEARCHER 2<sup>42</sup> In our research:  
we have been plotting the natural  
history of the device.<sup>43 44</sup>

Thinking of how it can be  
de-punctualized.<sup>45</sup>

How it can be dug up,  
what its archaeology  
and geological history might be.

Plotting its form and syntax  
and building the alternatives,

...



- 42 Researcher 2 is focused on looking at all sorts of different devices and tracing their mesh of material history so that they can understand their true 'hyperobject'.
- 43 Media archeologists have looked towards an archeological conception of past media technologies. These researchers try to look further literally unravelling where it is from and where it ends up, digging up all of the connected hopes and wishes around this machine.
- 44 McLuhan saw those of us who ignored our technological habitats as 'somnambulists', invoking the Greek myth of Narcissus to explain our media narcosis. Blessed are they, said Kittler, who could hear the circuitry in the compact disc or see it in the discotheque's light shows (Kittler, 1999).

90

...

..

.

..

...

- 45 Punctualization refers to a concept in Actor-Network Theory that is used to describe bringing components together into a single complex system that can serve as a single object. We refer to the disassembly of these single objects as 'de-punctualization' which is a practice that shows a circuit of dependencies and infrastructures. The research site is inherently one of de-punctualisation of both the casings, the relations and the networks.

RESEARCHER 2  
(CONTINUED)

We are specifically interested in how  
all forms of transmission<sup>46</sup>  
technology operate,<sup>47</sup>  
Their forces and processes,  
what's inside, of them.

How their components talk to each other,  
who is responsible for grouping  
them together.

How they can all trace their mineral  
history back to the 'soil'.<sup>48</sup>

Back to where we all lie,  
staring out, through the sockets.

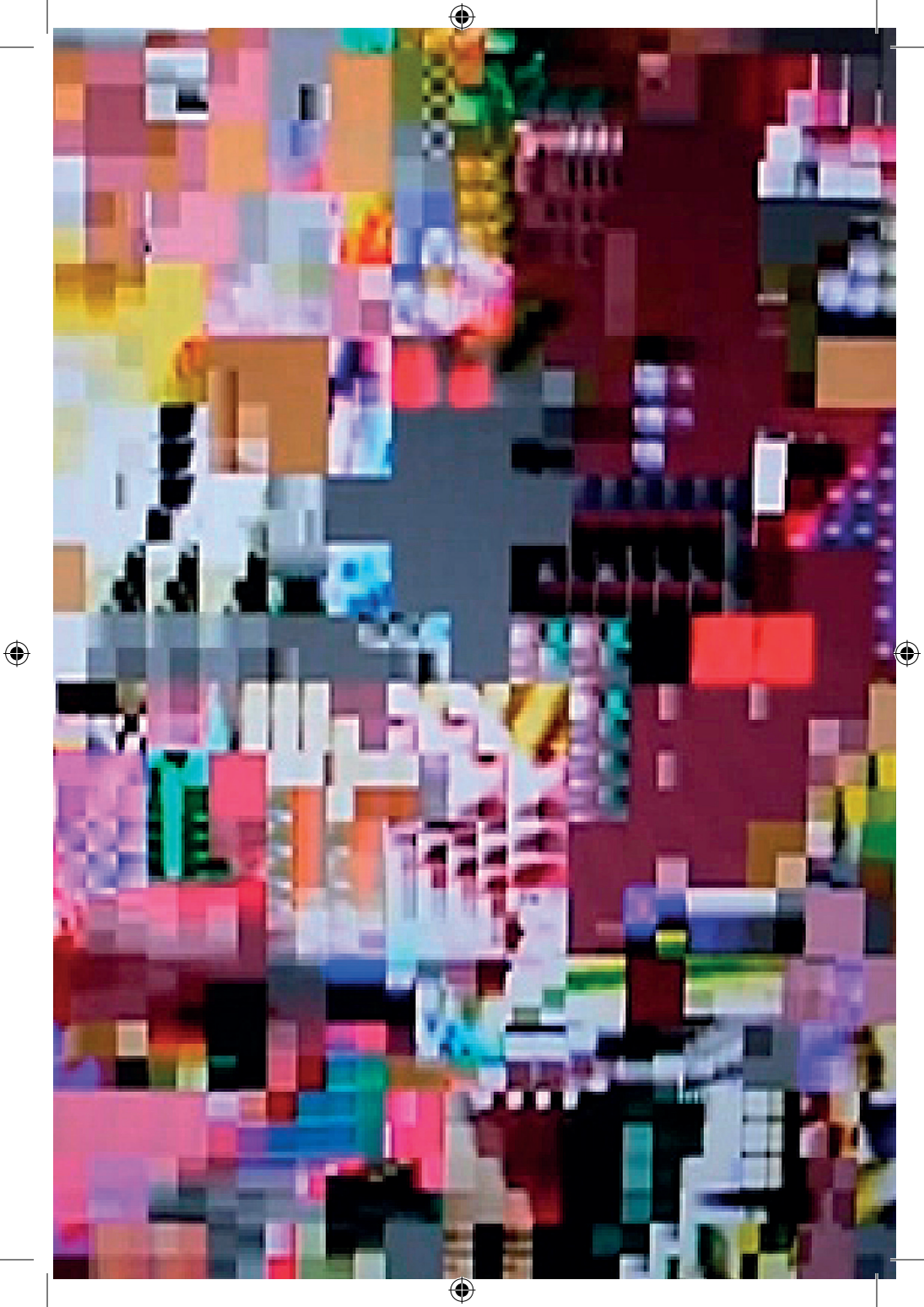
*Pause*

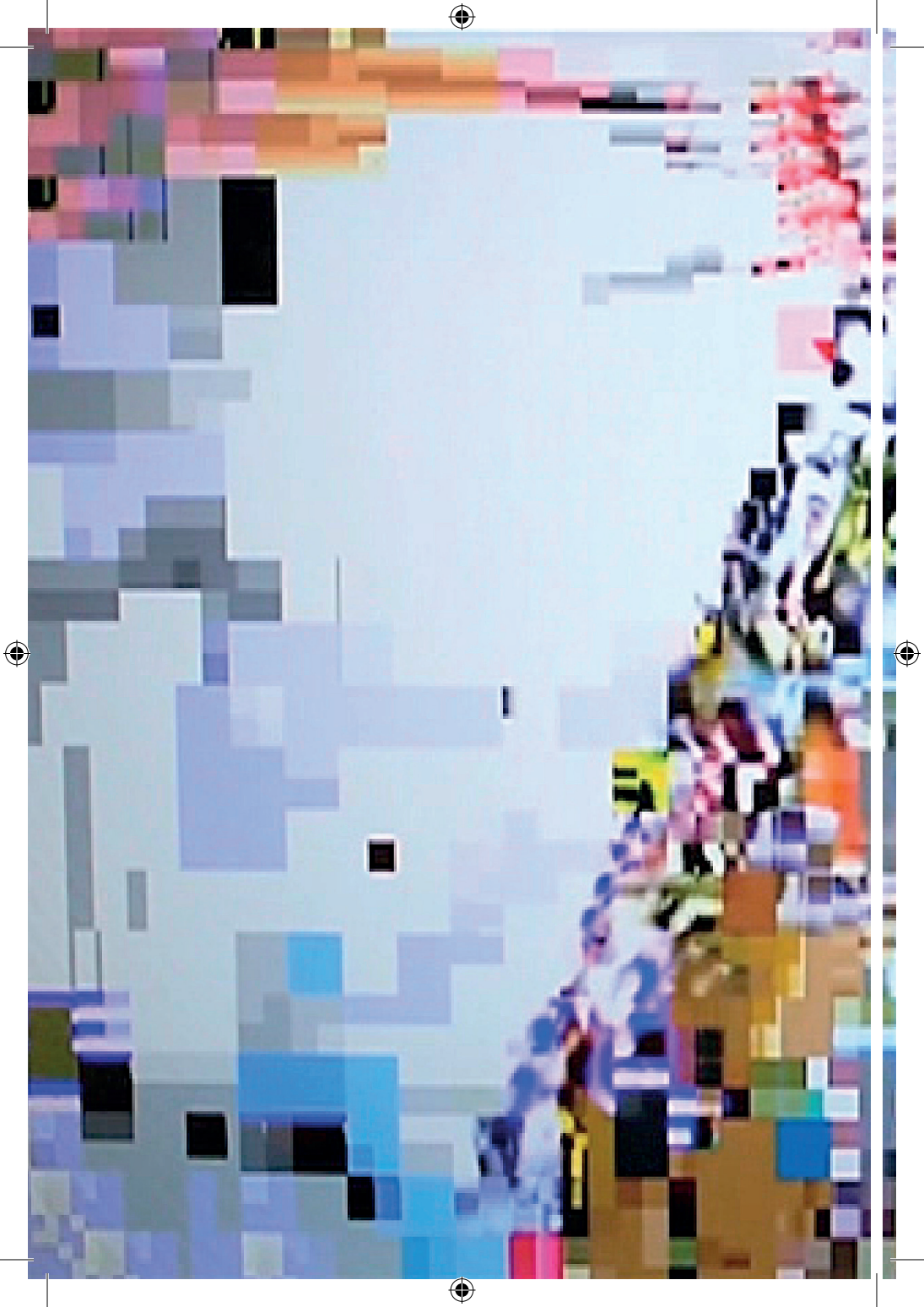
- 46 In one area transmission signal machines are involved in observing, transmitting and re-programming signals. They are exploring data transmission and the use of modulation and demodulation devices.
- 47 *Inside the earth, one finds a metallic reality, which feeds into metal metaphysics and digital devices. Besides the speculative stance, one can revert back to empirical material too. In short, of direct relevance to our current media technological situation is the reminder that according to year 2008 statistics, media materiality is very metallic: '36 percent of all tin, 25 percent of cobalt, 15 percent of palladium, 15 percent silver, 9 percent of gold, 2 percent of copper, and 1 percent of aluminum' goes annually to media technologies. (Parikka, 2014: 14)*
- 48 All technologies are routed in the soil, in the mechanics and movements of the earth.

94

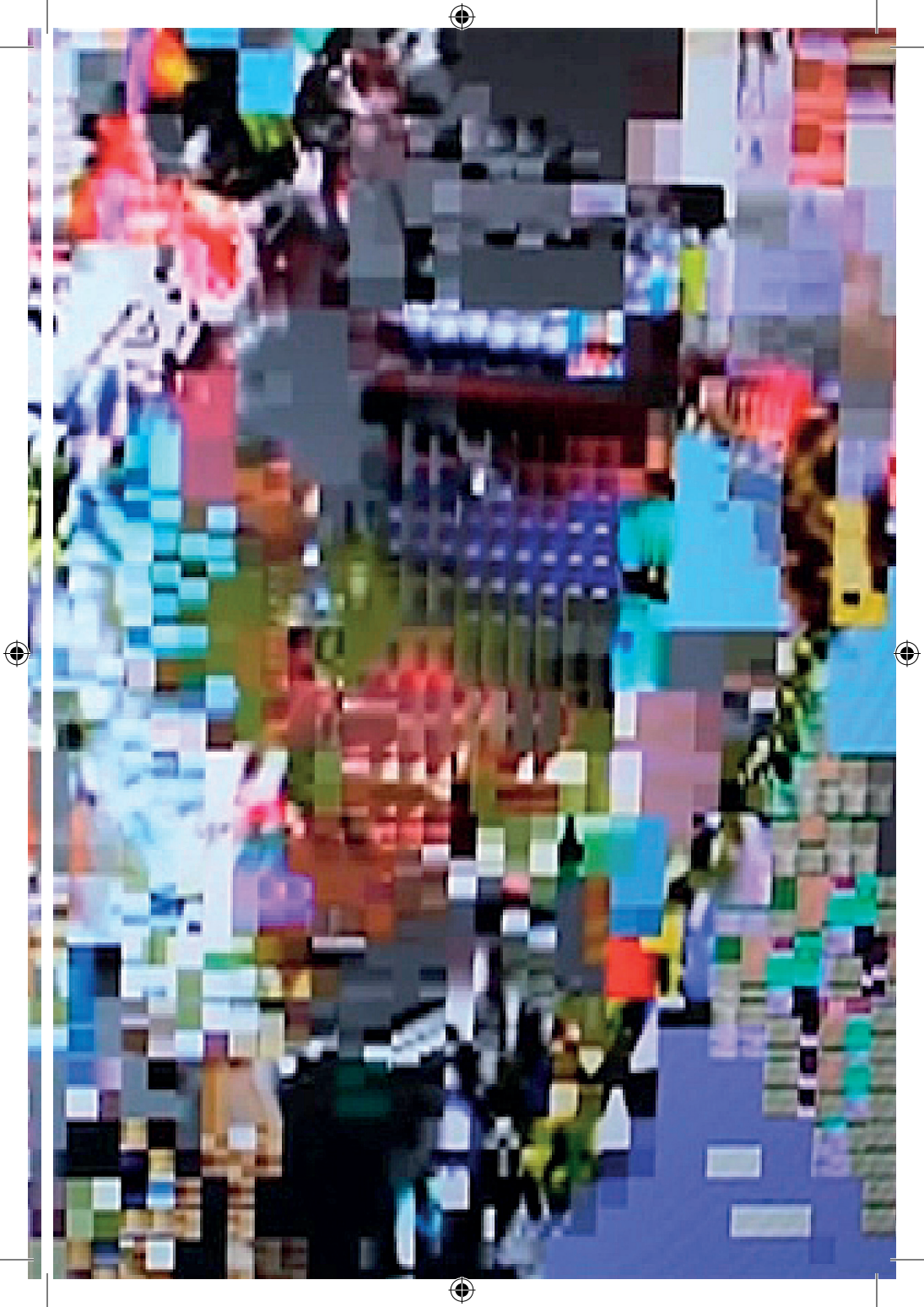
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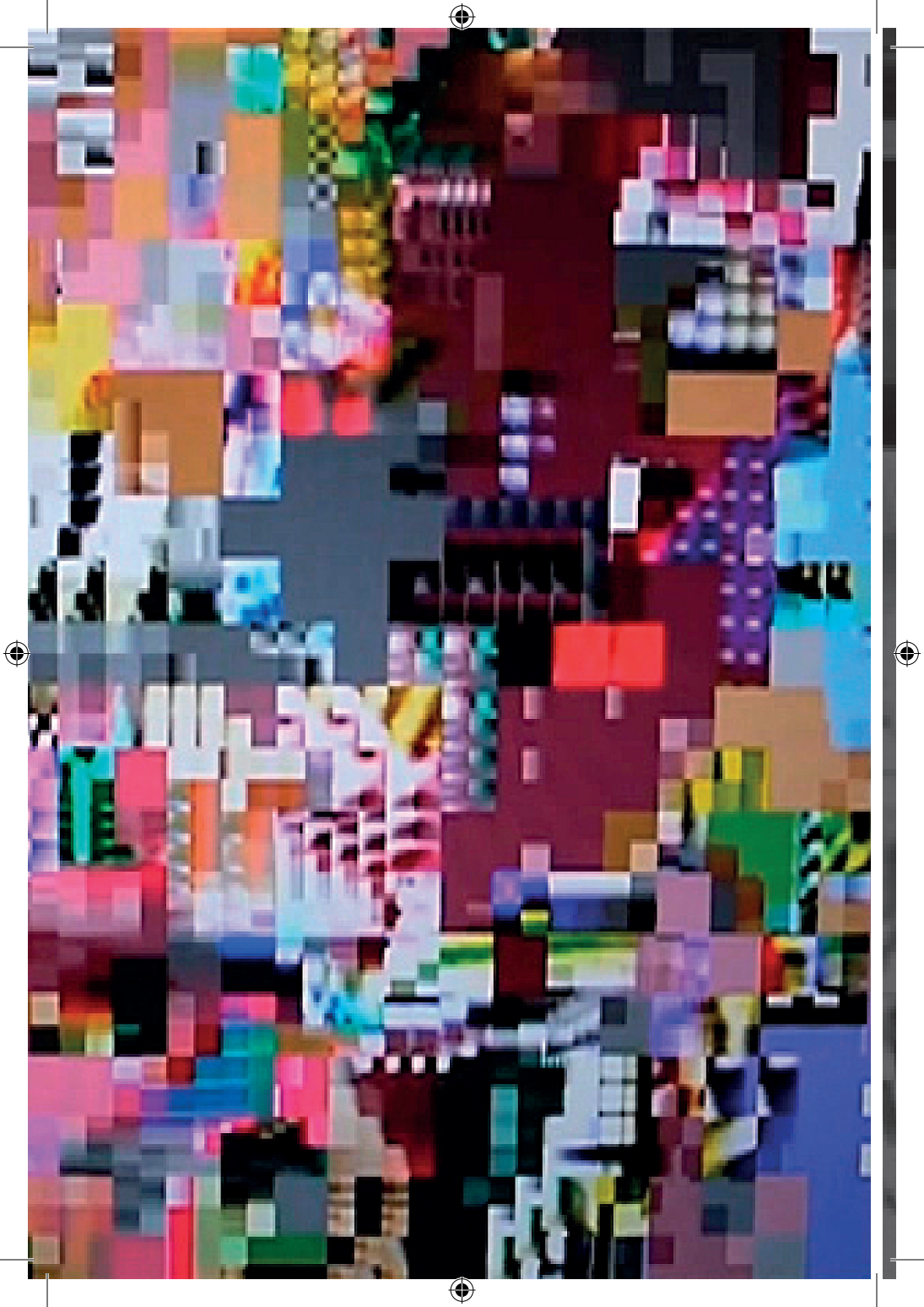
















ALL

We are here together with you,  
in circular motion with you.

We are here together with you,  
in circular motion with you.

RESEARCHER 2

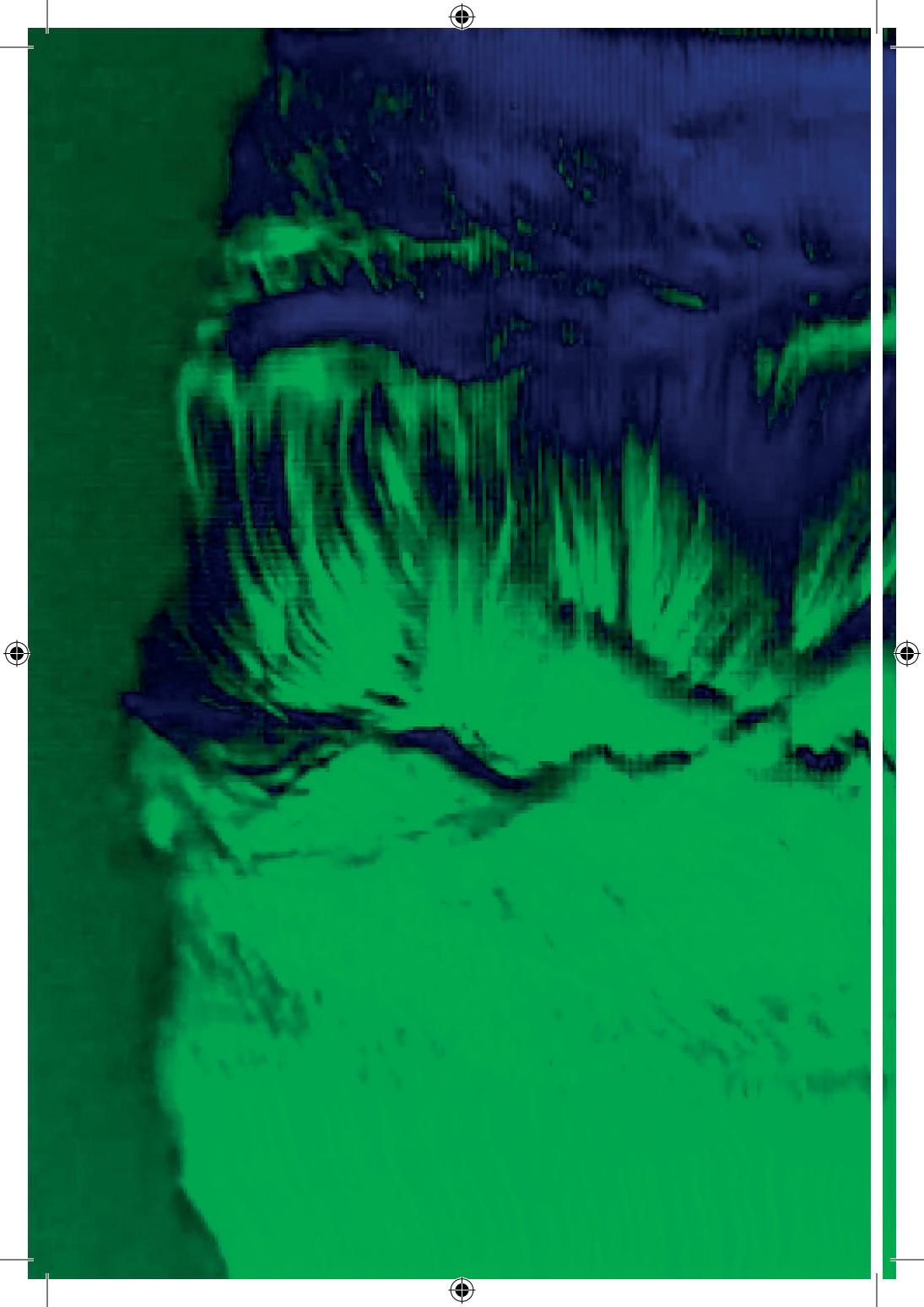
We wonder how we can all begin  
to speak through these layers,  
Of where we emerged  
and where we decay.

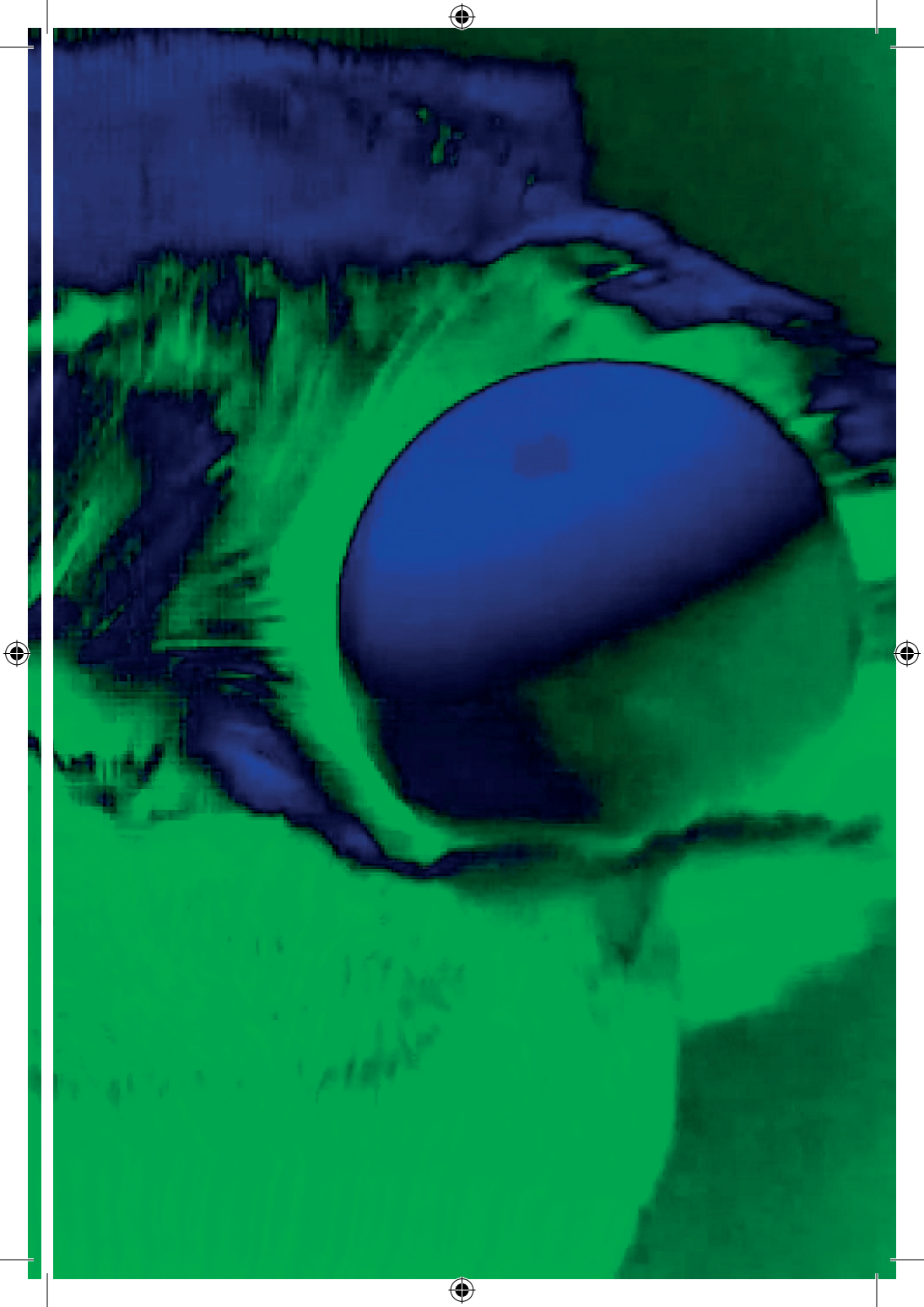
We wonder, how our work  
might reveal the complexity  
of 'the network',  
Keeping in mind an underlying tension  
between hyper-technicality  
and deep-set-ecology<sup>49</sup> and our love  
and absolute hatred of each.

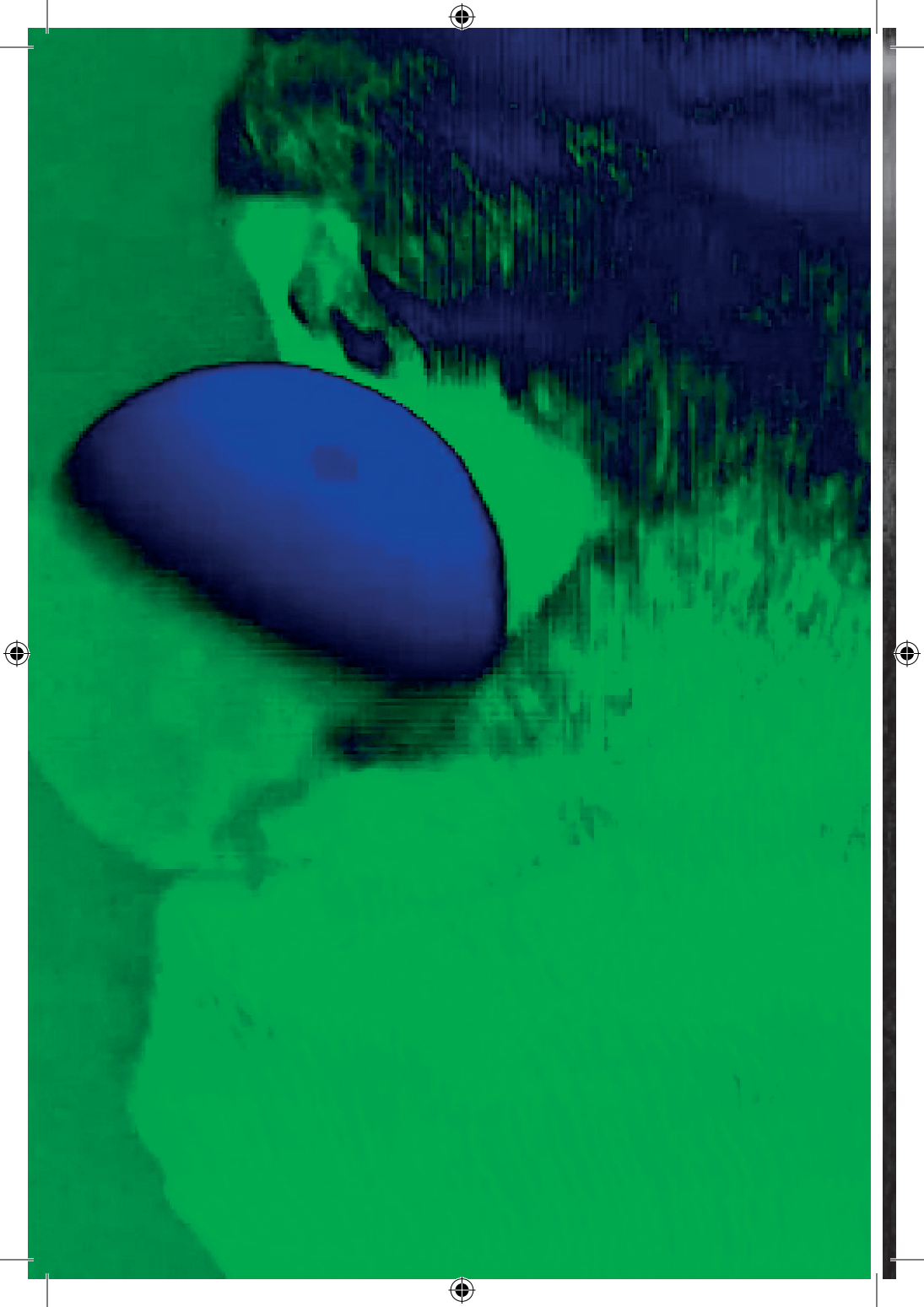
*Pause*



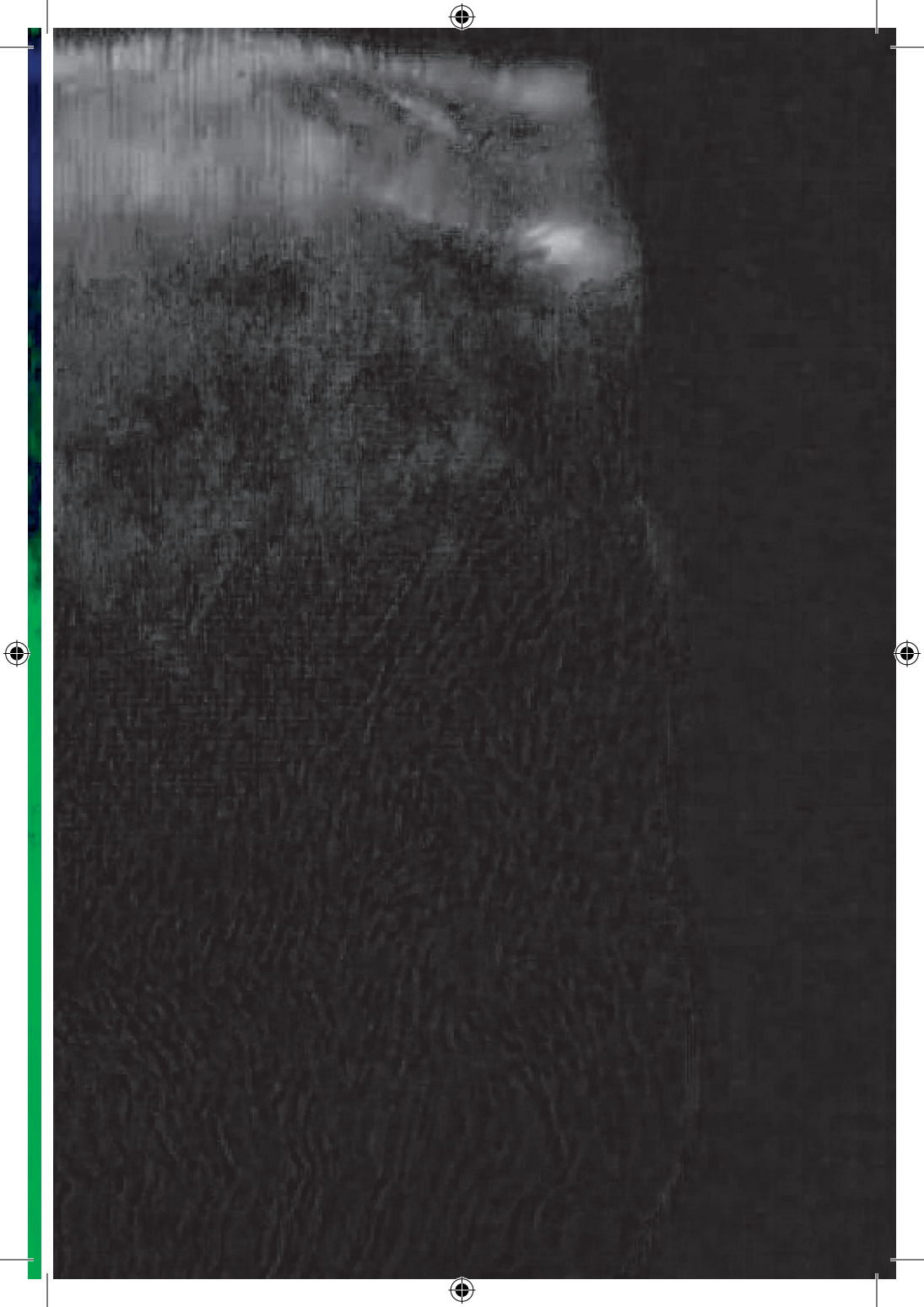
- 49 *Technology is not only a passive surface for the inscription of meanings and signification but a material assemblage that partakes in machinic ecologies and these technologies aren't necessarily natural but are prone to change.* (Goddard and Parikka, 2011)













RESEARCHER 2  
(CONTINUED)

Our research site is bathed by  
the decay of machines of all types,  
As they are deconstructed and melted,  
recombined and obsolescent.<sup>50</sup>

Where material<sup>51</sup> structures are  
constantly changing pace and rhythm.

Our entire site follows a  
DIAGRAMMATIC STRUCTURE,  
Like one of Kempelen's speaking  
machines<sup>52</sup> in terms of its shape  
and movement,  
His machines invested their purpose  
in becoming the voice of 'the human'.

The disembodied voice emerging  
from a handmade machine  
consisting of wood, leather and air.

Together we will become  
the speaking machine.

Together we will become  
the speaking machine.

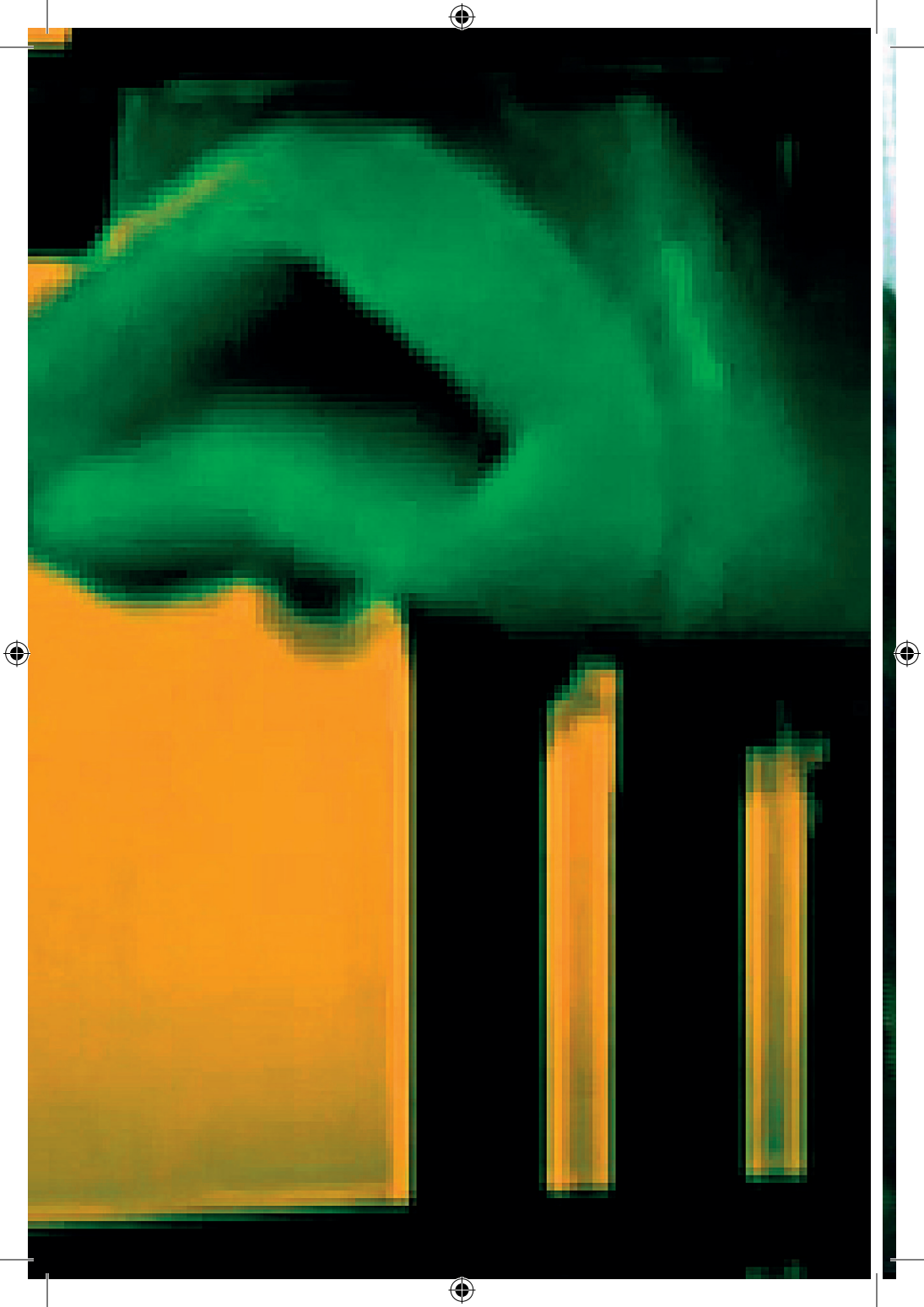
- 50 Planned obsolescence is a central focus within the production of all sorts of machines. It allows them to rust and decay in time for the next iteration. Their life is short-lived.
- 51 *What are the different kinds of material qualities in media systems with their various and particular or shared rhythms, codes, politics, capacities, predispositions and drives and how can these be said to mix, to interrelate and to produce patterns, dangers and potentials? Crucial to such an approach is an understanding that an attention to materiality is most fruitful where it is often deemed irrelevant in the immaterial domains of electronic media.*  
(Goddard, 2011)
- 52 Wolfgang Von Kempelen formulated the concept of his first 'Speaking Machine' in 1791. A machine made from wood and leather that simulated the human lungs and this was the first machine to simulate human speech.

ALL

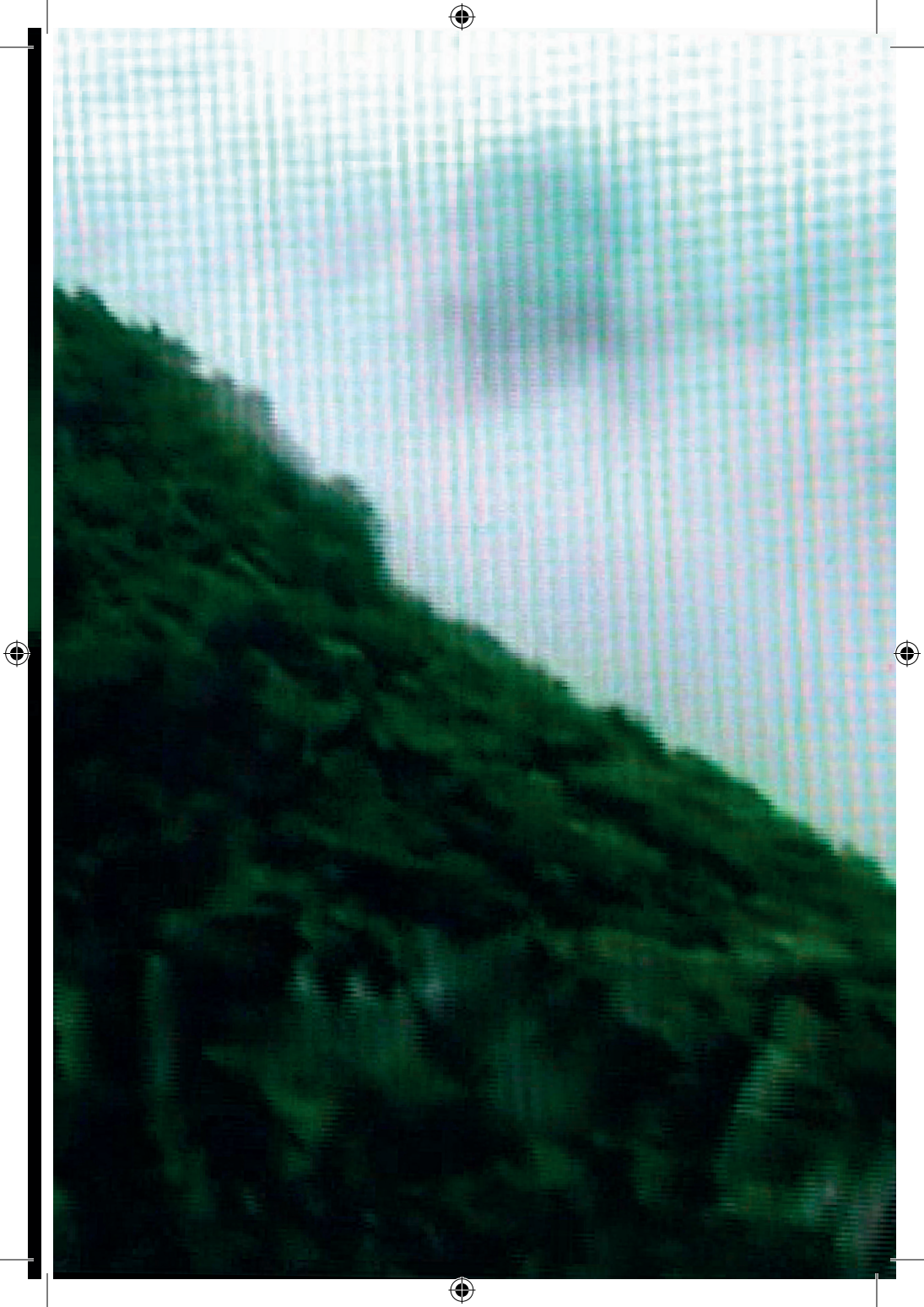
All of us joining together,  
speaking together,  
Pumping the bellows together,  
emitting the vowels with an open  
configuration of our vocal tract,  
Articulating the new 'ontologies'.

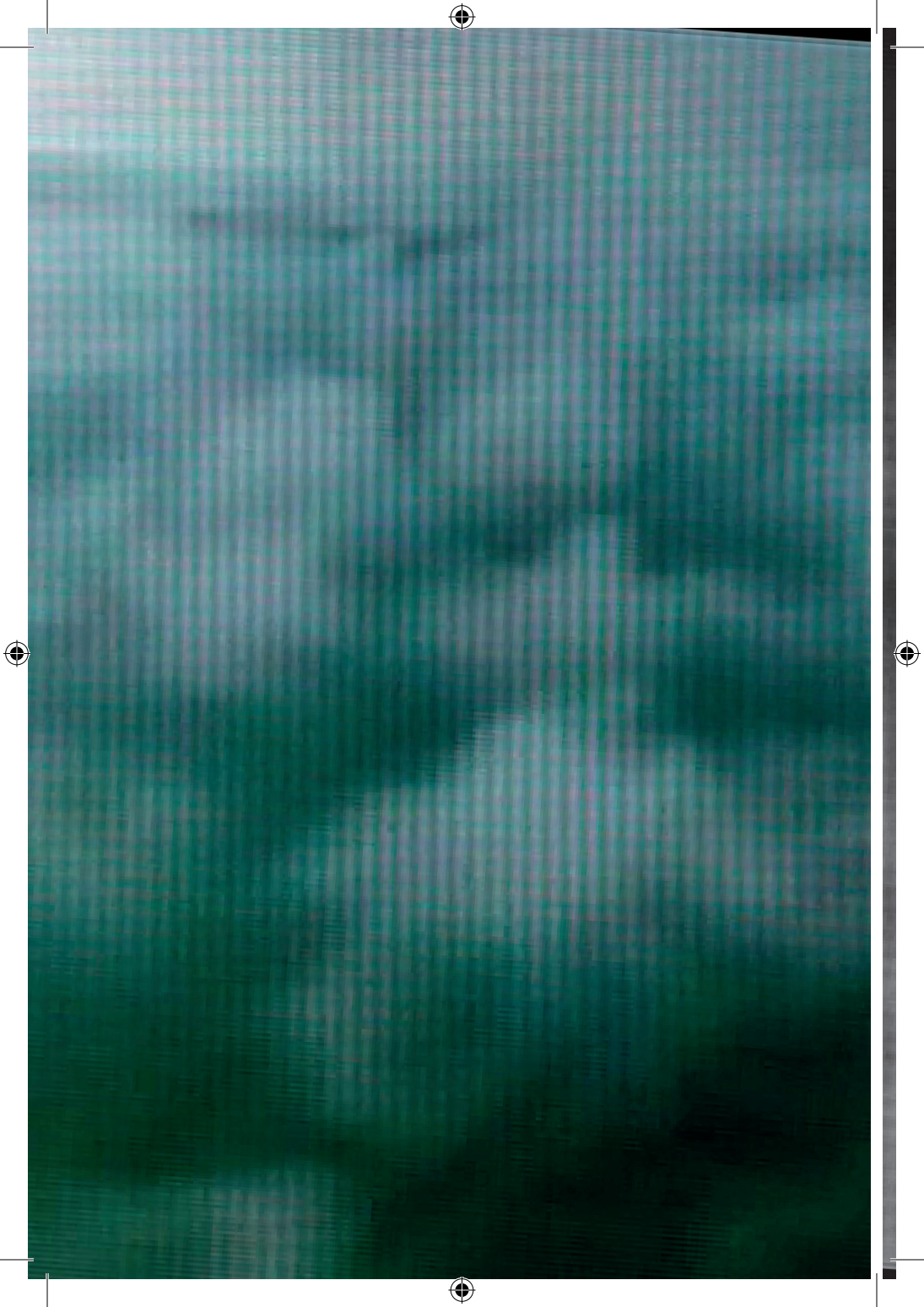
*Pause*

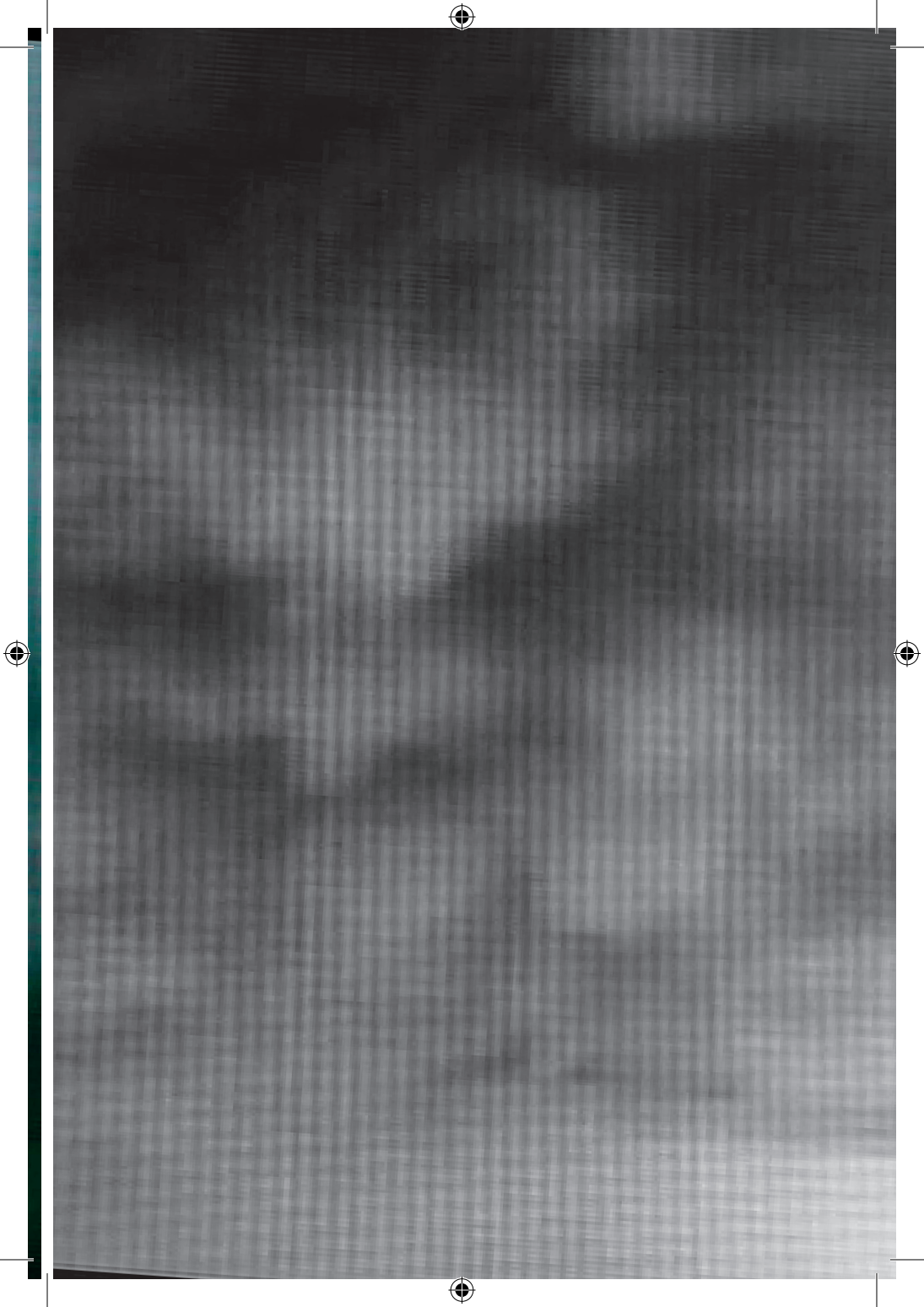














RESEARCHER 3

Time runs slowly down here.<sup>53</sup>

And we like that.

We feel a sense of calm,  
living a life in the slow times.<sup>54</sup>

Among the layers of cobalt, copper,  
tungsten and columbite-tantalite.

Abandoned components whose operation  
was once all about high speed,  
real time, begin to decay into their  
different sort of time.<sup>55</sup>

The use of fiction is developed further  
by constructing the voice of personas  
and anonymous things.

Wondering what it might be like  
to operate as a mineral or  
an algorithm or as a device.<sup>56</sup>

★

- 53 Jennifer Gabrys looks towards the material connections of these media: 'The electronic extends from technologies to markets and to modes of waste, decay and disintegration. Therefore articulating the relation between the signal and the thing and how they are bound into a shared material process.' (Gabrys, 2011)
- 54 Parikka notes that the technological contemporary is: 'grounded in the slowness of earth's dynamics, visual operations, geopolitics and colonial arrangements.'  
(Parikka, 2016: 11)
- 55 *Serres criticises modernist perception of time, both he and Latour argue that every event is a mixture of different epochs or times. A supposedly brand new car model is an aggregation of tech and scientific solutions that date back to a number of different periods: e.g. a car: some components are an aggregation of technical and scientific solutions that date back to a number of different time periods – some decades old and others from previous centuries. Therefore every event is a hybrid of times therefore these temporal hybrids are poorly treated by the representational framework of the modern constitution.* (Blok, 2011: 65)



BUT

- 56 The space where 'I' becomes 'we', becomes 'they', an anonymous subroutine or middleware, where white noise fuses into black noise. Where noospheres and biospheres become broken down into a set of material remnants and new possibilities.

RESEARCHER 3  
(CONTINUED)

We are not the scientists or geologists,  
merely hobbyists, weekend tinkerers.

Working with the material,  
embodying its concerns,  
Vocalising, testing, and improvising,  
performance is important...

*whispered*

We need,  
rehearsal time...

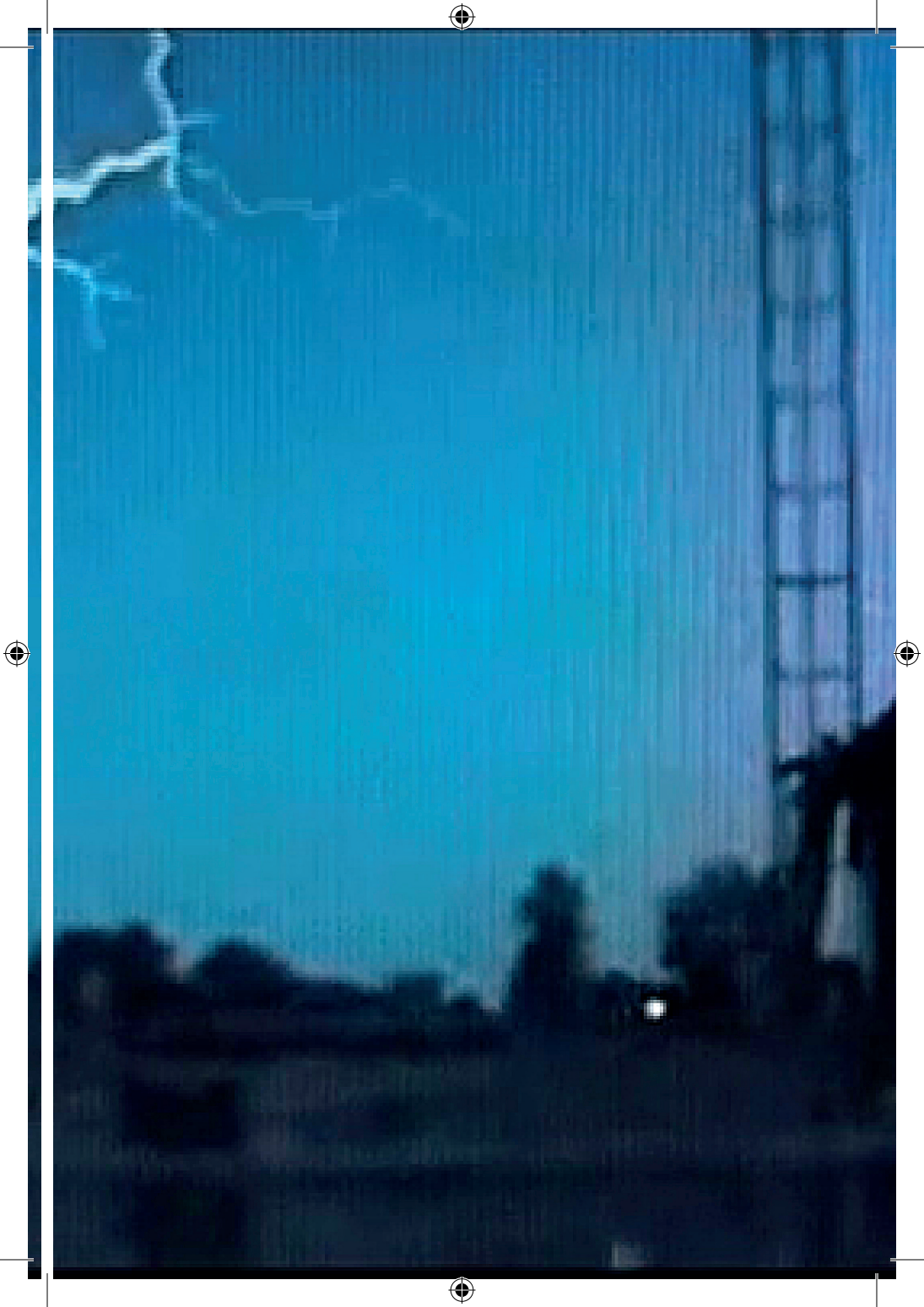
*whispered*

Practice, makes,  
perfect.<sup>57</sup>

- 57 Many of our most successful experiments have been the result of pure improvisation, of performative edits, of 'acting out' the material.











*Pause*

RESEARCHER 3  
(CONTINUED)

We are looking towards Hutton  
and feeling the depths, of time.

Understanding his conceptions of earth<sup>58</sup>  
as a living machine.<sup>59</sup>

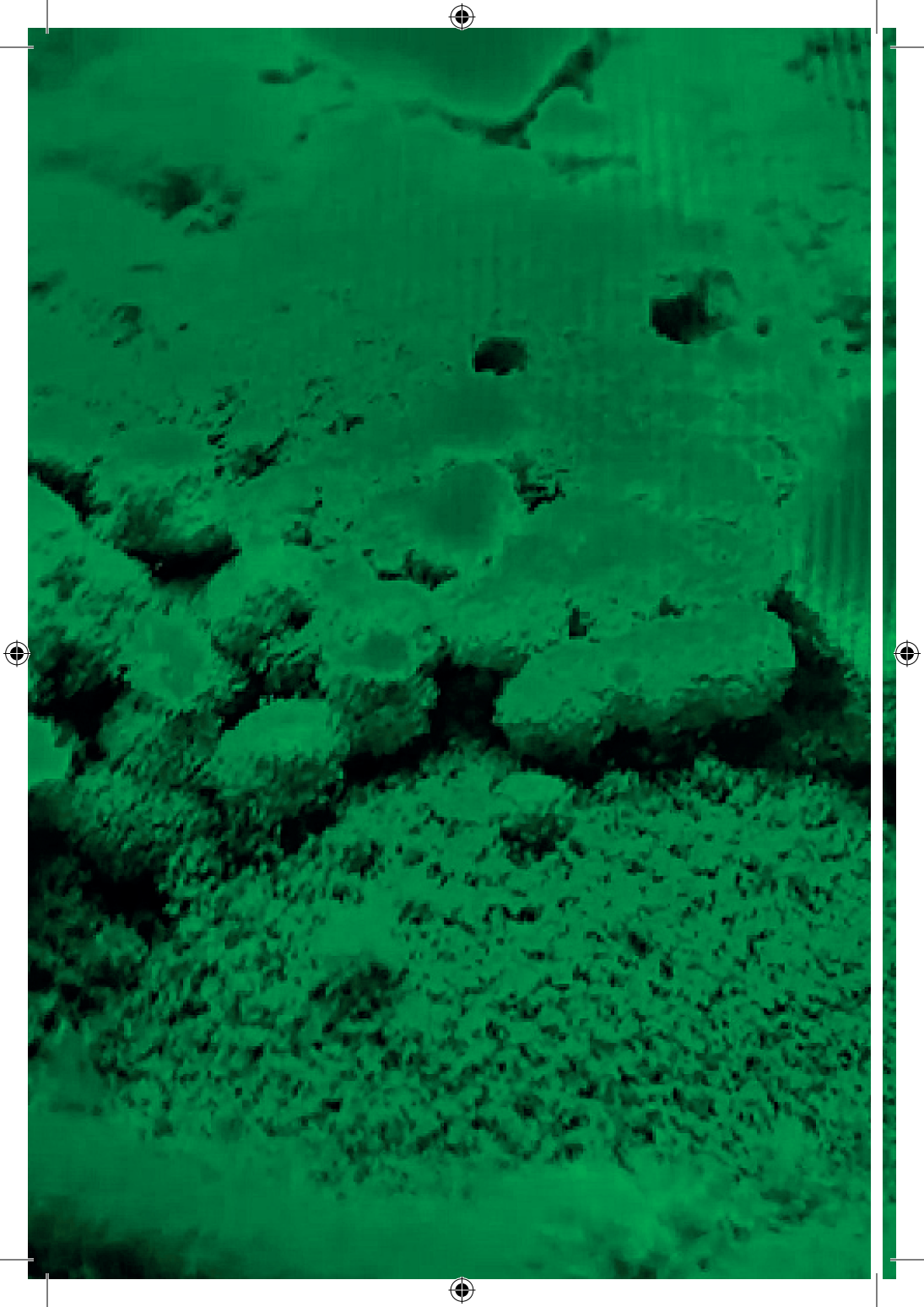
Measuring its rhythms,  
its tectonic movements.

Mapping geological cycles,<sup>60</sup>  
calculating, visualising,  
stimulating and simulating...

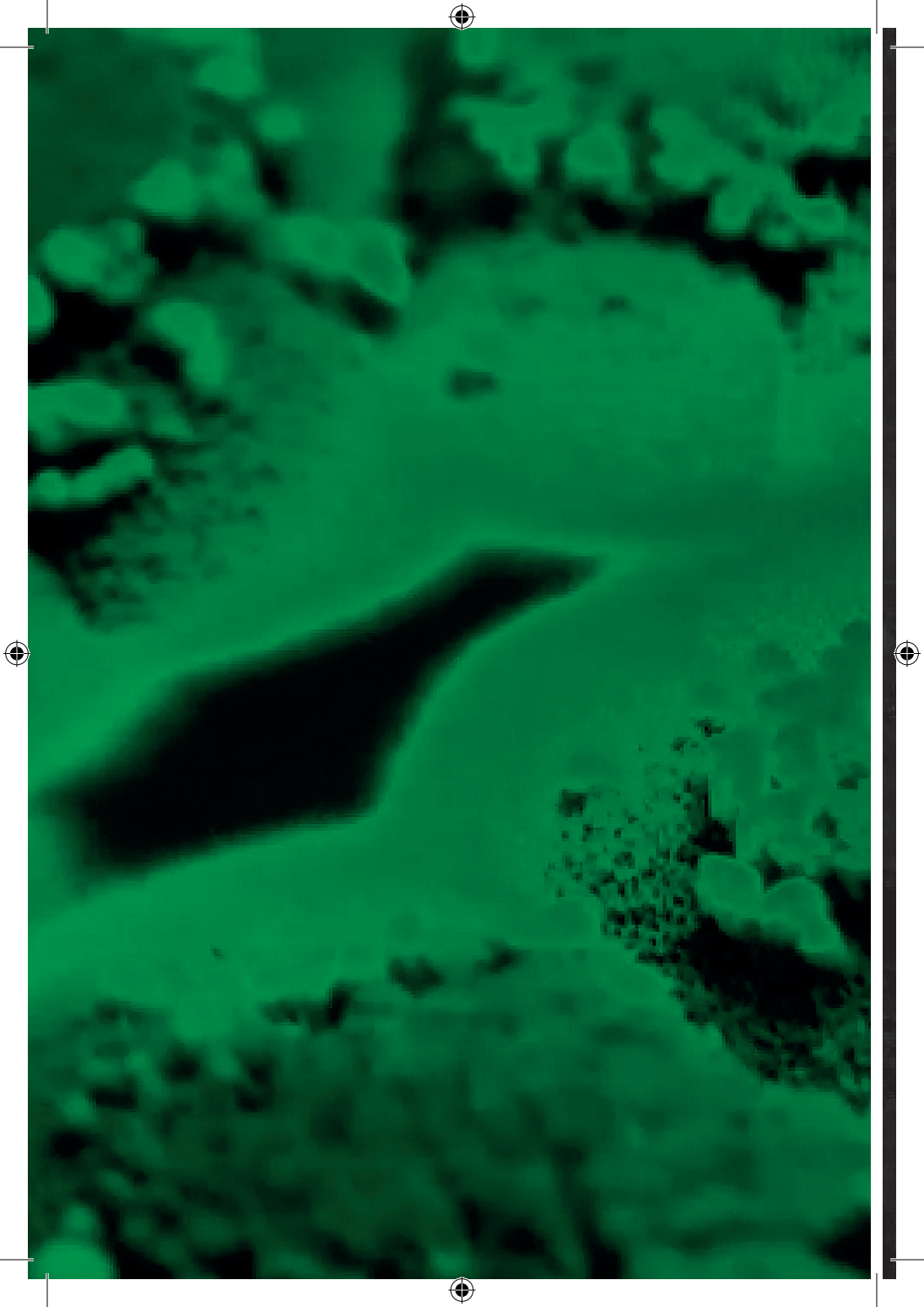


- 58 Buckminster Fuller identifies the Great Pirate in his book *Operating Manual for Spaceship Planet Earth* as representing the excesses of man's relation with the earth and the use of its materials. It also conceives the earth as a type of machine that the human needs to understand in order to 'drive' it properly and sustainably. (Fuller, 1965) Throughout our research we have been attempting to get a handle on its controls and re-assemble our relationship with them. We are not sure that it has gone very well.
- 59 *Professor Challenger, whose dubious and slightly mad reputation preceded him, offered an insight to what later philosophers such as the French writing duo Gilles Deleuze and Félix Guattari happily picked up on: that the earth is alive, and its crust is tingling with life. But the idea of the living earth has a long cultural history too: from antiquity it persists as the idea of terra mater, and in the emerging mining cultures of the eighteenth and nineteenth centuries becomes embedded as part of Romantic philosophy; later in the twentieth century the emergence of Gaia theories brings a different connotation to the holistic life of the planet.* (Parikka, 2016: 11)

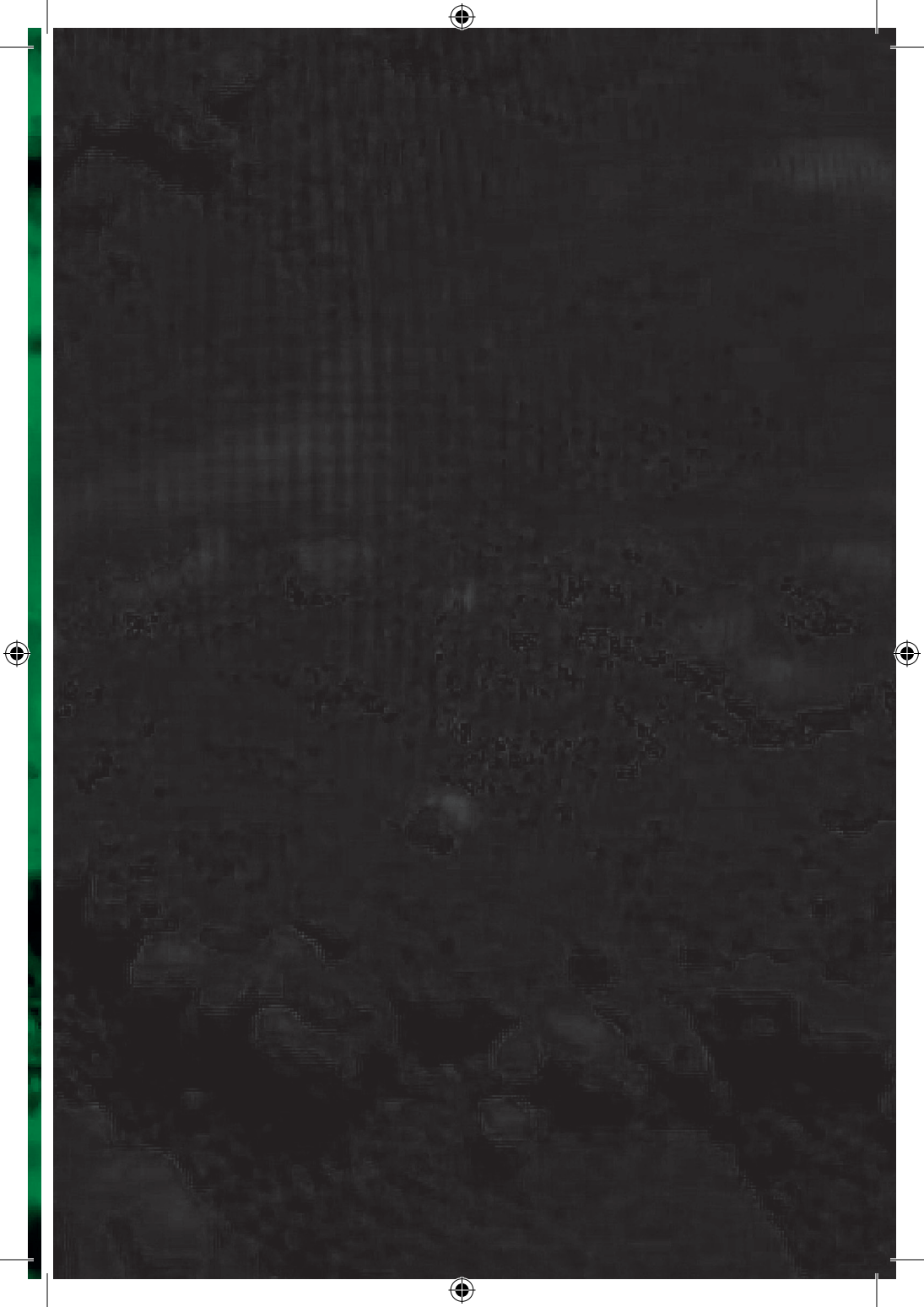




- 60 Therefore we are attempting to think outside of the confines of the human's zone or body, to spend time being an archae or a diode, to try to understand their concerns and processes, to try to fuse into their base materials. When we are doing this we try to map out the new set of relations that we begin to see, where the idea of a map itself becomes completely redundant and alien, where the new idea of time becomes the possibility of some kind of change or escape. Becoming something beyond thought, a spatialisation of the vital, frame by frame, cell by cell.







*Pause*

RESEARCHER 1

In one space we investigate the journey  
of the machine's casings,  
Its blackbox<sup>61</sup> enclosure,  
we try to be sympathetic.

MACHINE 2<sup>62</sup>

In 1822 Babbage invented  
the Difference Engine:<sup>63</sup>

A cal-cu-lat-ing machine,  
the predecessor to all.

The name derives from the method  
of divided differences,  
A way to interpolate or tabulate functions,  
by using a small set of polynomial  
coefficients.

In '38 the first Turing was developed.

It consisted of a hypothetical  
mechanical 'head',  
That could read and inscribe  
binary symbols,  
On the square sections  
of an infinitely long tape.



- 61 *Look around the room ... Consider how many black boxes there are in the room. Open the black boxes; examine the assemblies inside. Each of the parts inside the black box is itself a black box full of parts. If any part were to break, how many humans would immediately materialize around each? How far back in time, away in space, should we re-trace our steps to follow all those silent entities that contribute peacefully to your reading this chapter at your desk? Return each of these entities to step 1; imagine the time when each was disinterested and going its own way, without being bent, enrolled, enlisted, mobilized, folded in any of the others' plots. From which forest should we take our wood? In which quarry should we let the stones quietly rest?* (Latour, 1999)
- 62 Machine 2 thinks about its past, carefully, it wants to understand the beginning, where it came from, how it began to compute and where it is going.

★

MACHINE 2  
(CONTINUED)

As Turing noted:

it is possible to invent  
a single machine which can  
be used to compute any  
computable sequence.<sup>64 65</sup>

It triggered the automation path,  
an algorithm that records  
and sorts data,

Cuts,  
analyses and connects.

- 63 A Difference Engine is an automatic mechanical calculator designed to tabulate polynomial functions. The name derives from the method of divided differences, a way to interpolate or tabulate functions by using a small set of polynomial coefficients. The Difference Engine is also the name of the novel by William Gibson and Bruce Sterling which looks at an alternative history where Babbage's Difference Engine is a success and by 1855, the Babbage computers have become mass-produced and ubiquitous.
- 64 A Turing machine is a general example of a CPU that controls all data manipulation done by a computer, with the canonical machine using sequential memory to store data. More specifically, it is a machine capable of enumerating some arbitrary subset of valid strings of an alphabet; these strings are part of a recursively enumerable set.

MACHINE 2  
(CONTINUED)

One that executes an action to extract,  
and feeds back on past behaviour.

★

- 65 The Turing machine consists of 3 parts: a reading/writing head, an infinitely long tape + the machine's current state. The head can scan the tape square by square – depending on the head's current state and whether a mark was present or absent in a particular square the head would either enter a mark, leave the square blank, then move to another square either left or right. The head could at any moment be in a number of finite states defined by a table of instructions – this was an automation machine. The memory capacity was key here as it allows it to perform a number of functions. The Turing machine could also emulate/simulate itself – in short it was programmable. Computer was therefore a fundamentally new type of machine. The Turing machine would eventually provide a formal basis for the modern computer in which different sets of instructions or programmes for computation, data processing, sending and receiving data allow the same machine to do a variety of tasks. A computer is defined by the logical and the functional it is a 2nd order machine.



★

MACHINE 2  
(CONTINUED)

The ENIAC was created in '46,<sup>66</sup>  
the first electronic general  
purpose computer.

Capable of being re-programmed  
to solve numerical problems.

It was one hundred and fifty feet wide,  
with twenty banks of flashing lights.

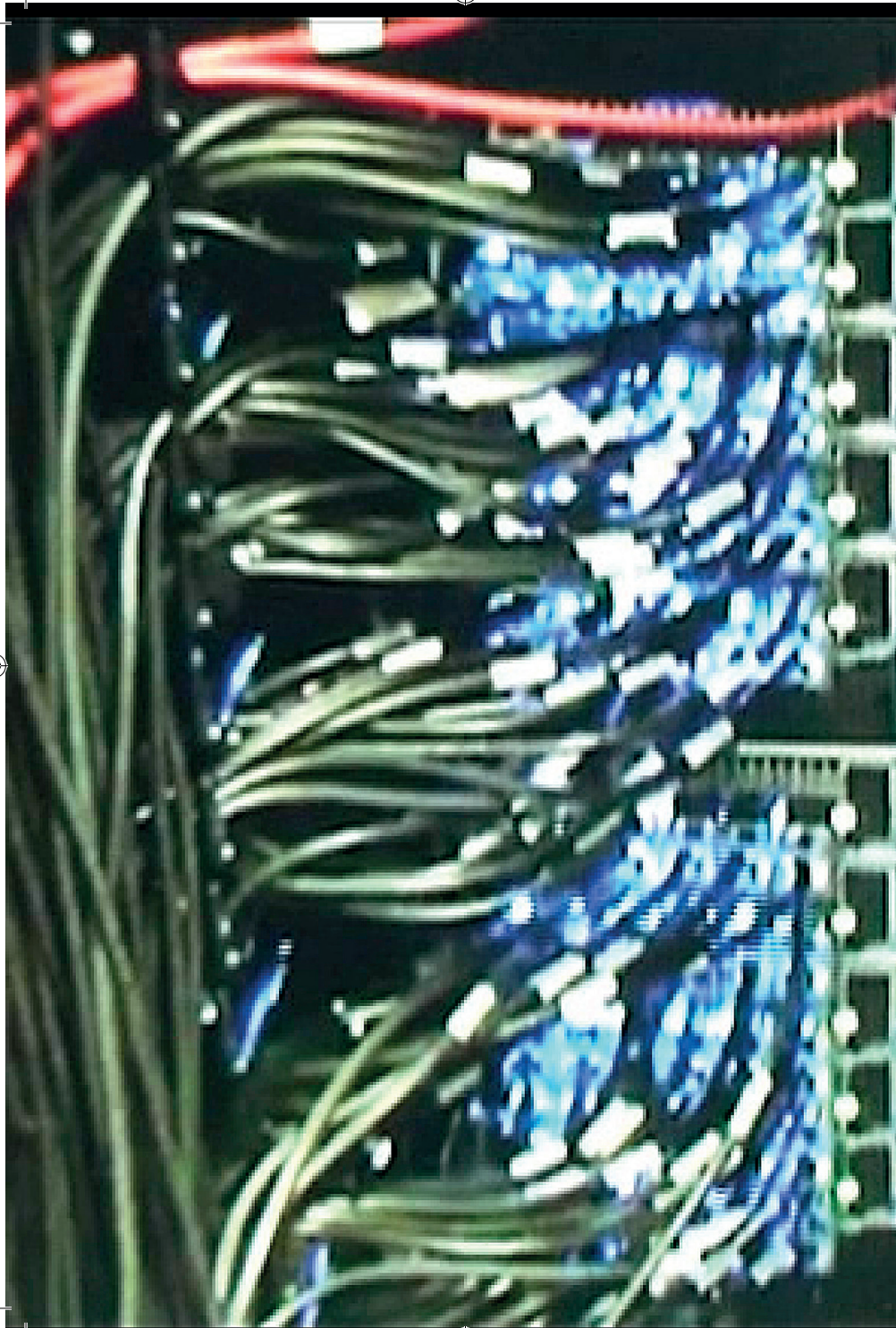
Seventeen thousand, four hundred  
and sixty eight vacuum tubes,  
One thousand, five hundred relays.

Seventy thousand resistors.

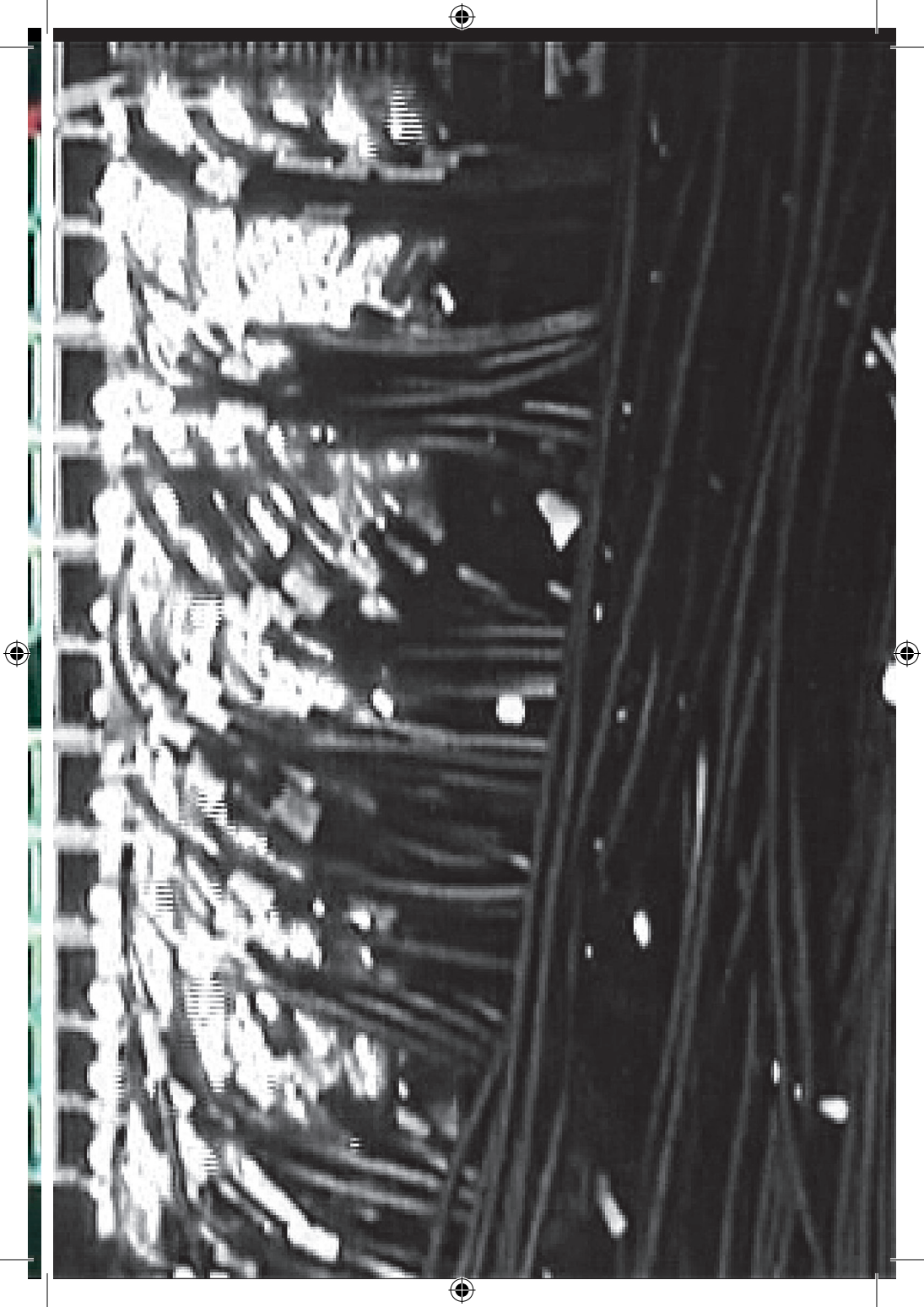
Ten thousand capacitors  
and approximately five million  
hand soldered points.

And it consumed one hundred and fifty  
kilowatts of electricity.

- 66 ENIAC was amongst the earliest electronic general-purpose computers made. It was Turing-complete, digital and able to solve 'a large class of numerical problems' through reprogramming.







*Pause*

*distant whispers  
of dislocated code*

ALL

Self equals...

Self equals...

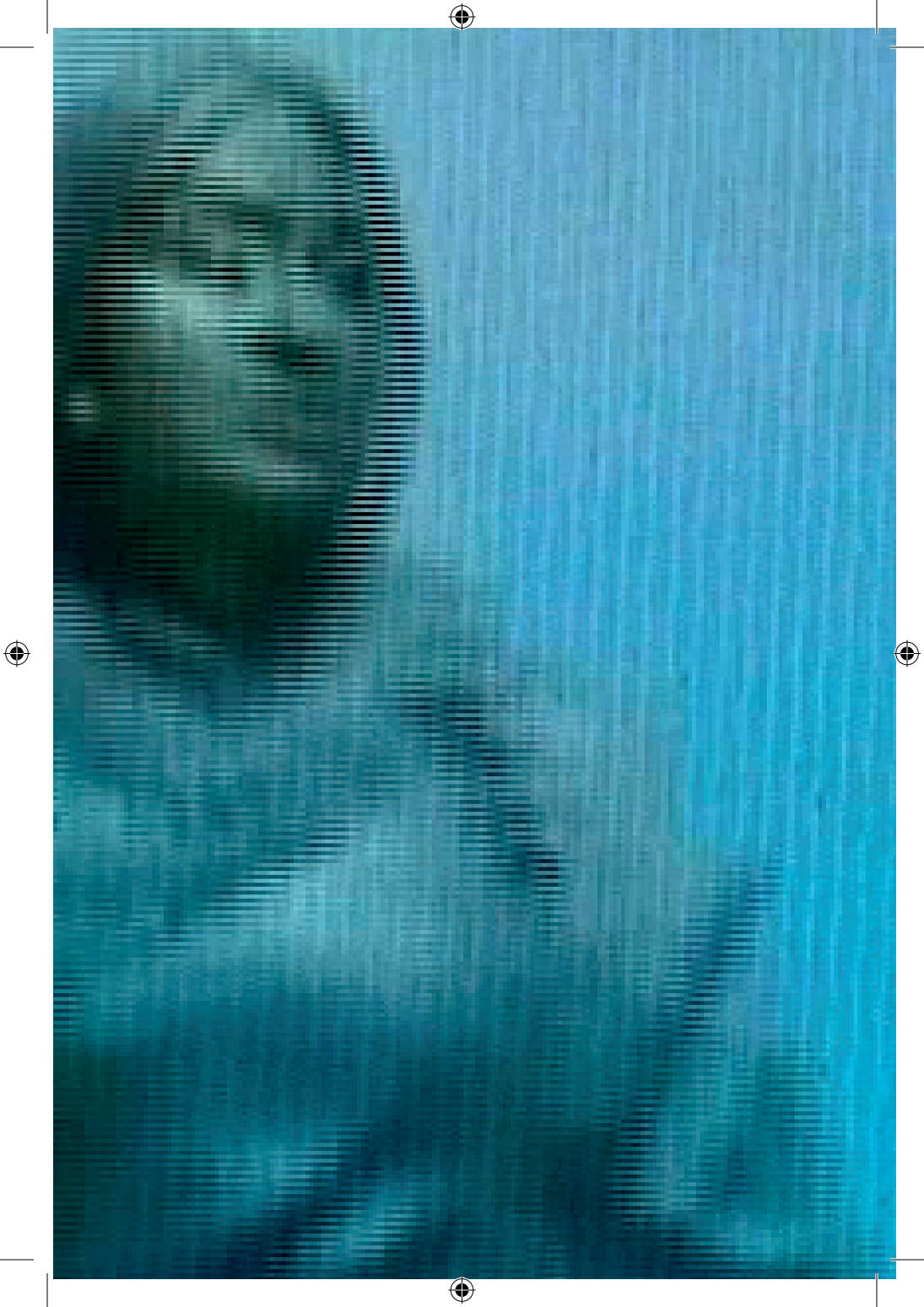
Self equals...

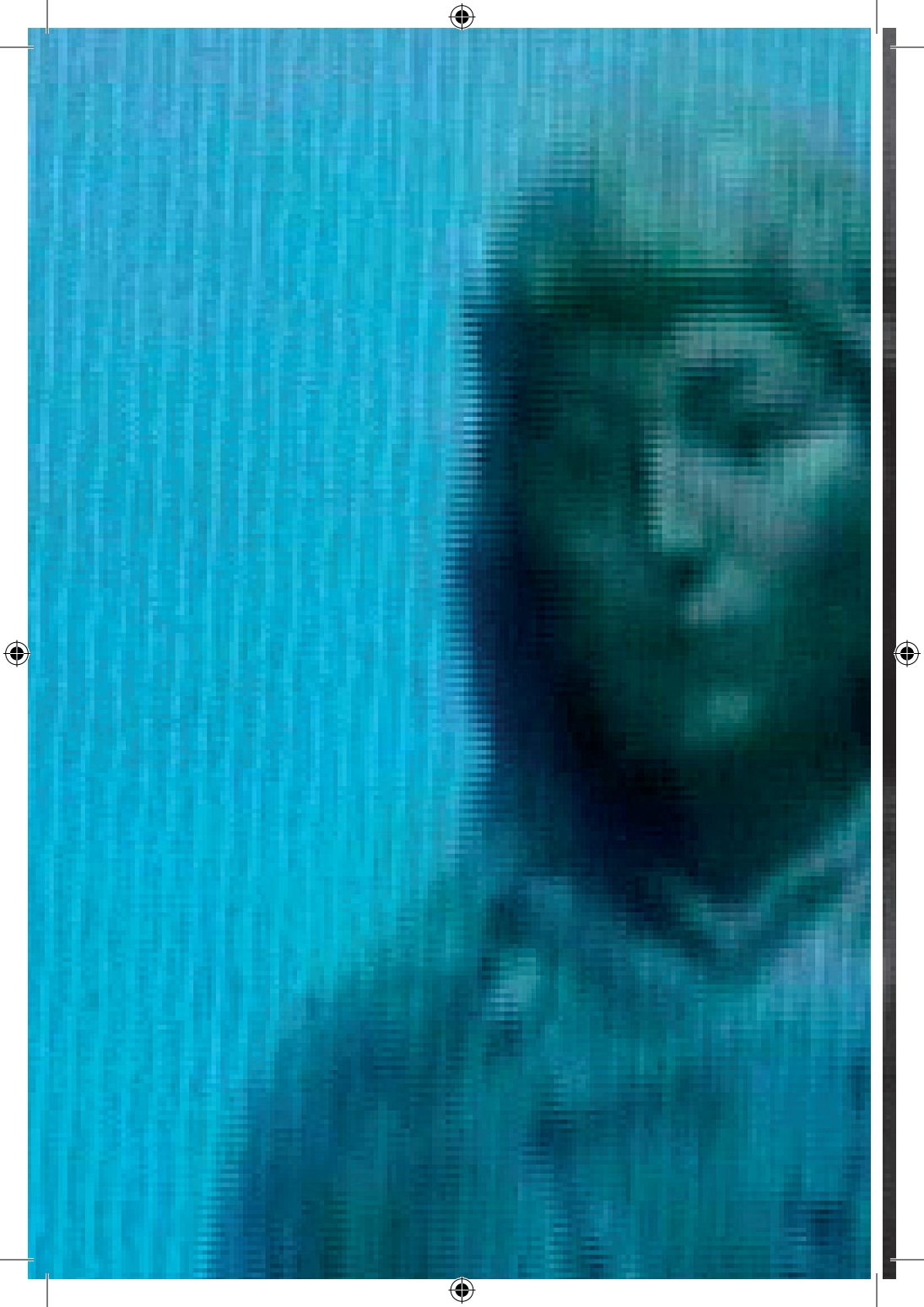
Self equals...

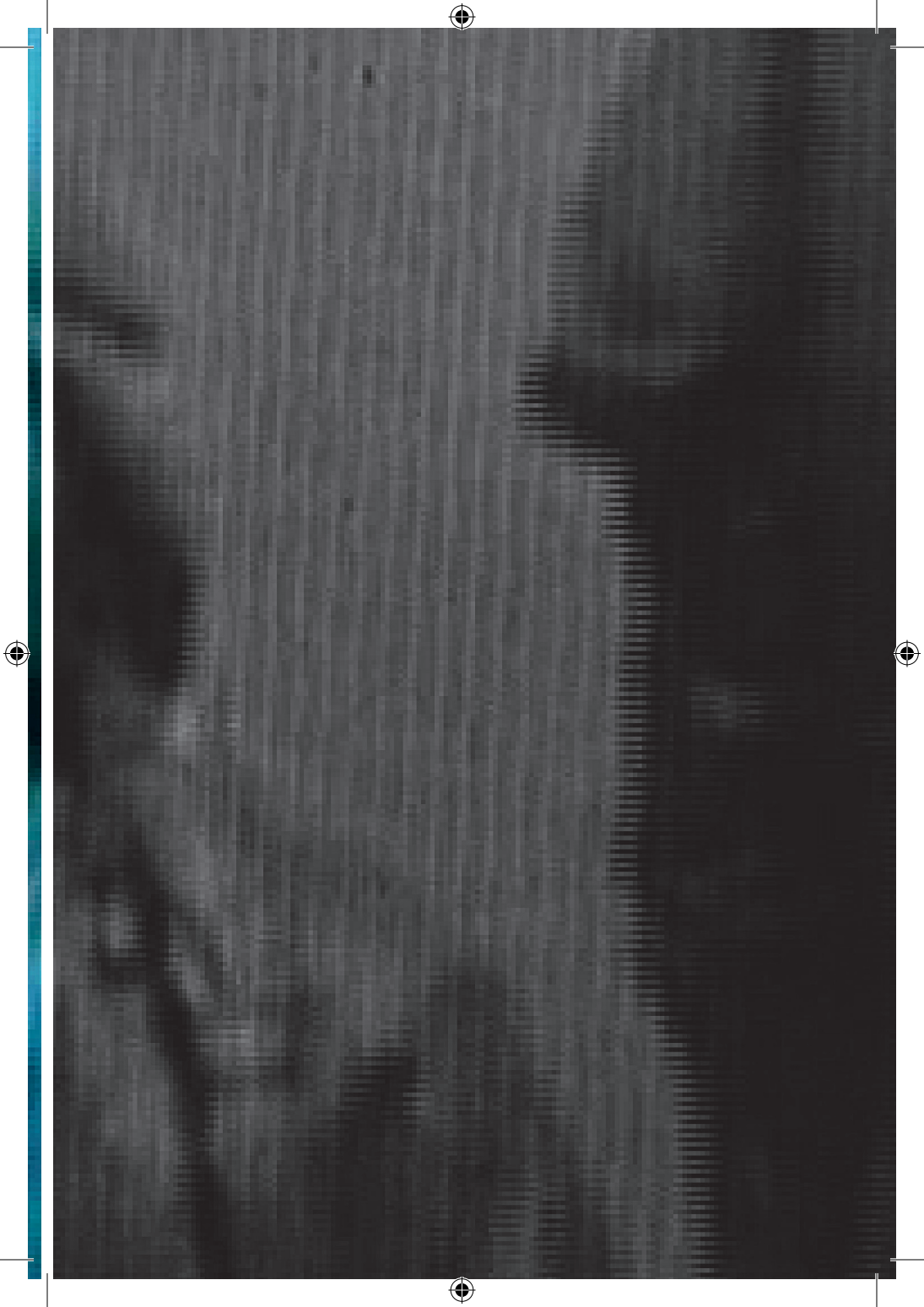
Self equals...

Self equals...









MATERIAL STORIES  
& ACTANTS SPACE

RESEARCHER 1

In another area we focus  
on the raw materials.

Thinking about how  
we have used them,  
For our eyes and our ears.

Our dreams and our falls,  
our feedback.<sup>67</sup>

MACHINE 1

I am a seismic device,<sup>68</sup>  
monitoring movement  
over a 2 billion year period,  
I like to think about what I should say,  
why things are this way.

I look at magma  
and detect the small changes.

As it expands and contracts,  
breathes through millennia.



- 67 In this space we spend all of our time investigating the different materials and layerings. Looking at their molecular structure and getting them to open up. Doing group therapy, exploring their past history. Thinking about a new sort of future relationship.
- 68 The seismic device allows us to detect all sorts of movement both human and non-human over vast periods of time.



MACHINE 1  
(CONTINUED)

Beginnings and endings  
implode in here.

MACHINE 4

In '73 a volcano exploded near Japan,  
the endless cycle of plate tectonics.<sup>69</sup>

These days above the surface  
things are melting.<sup>70</sup>

And inside we are getting hot,  
depleting, decaying,  
Falling and failing,  
on every surface.

Remembering how gold<sup>71</sup>  
formed in the earth.

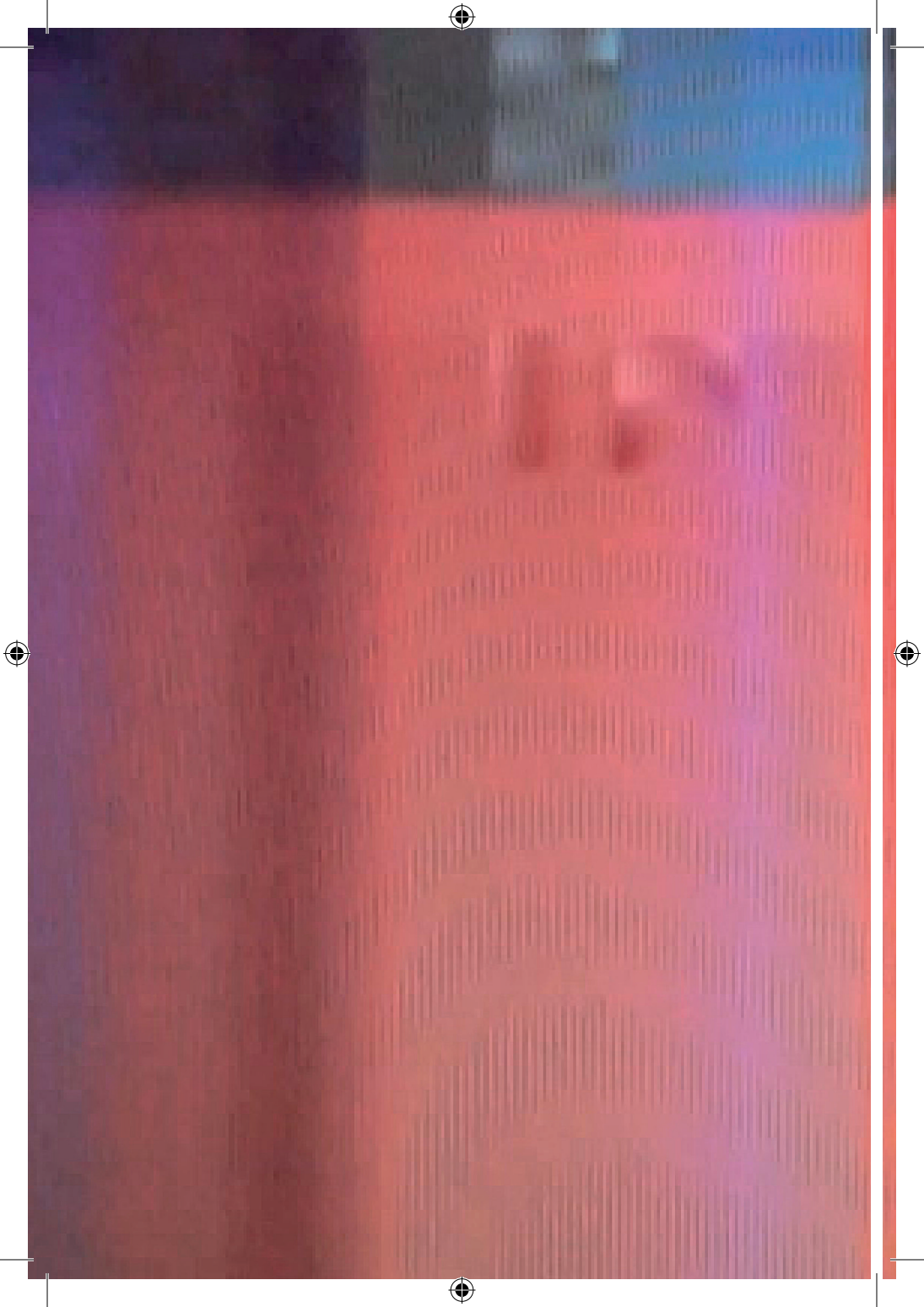
A scale meteorite shower,  
3.8 billion years ago.

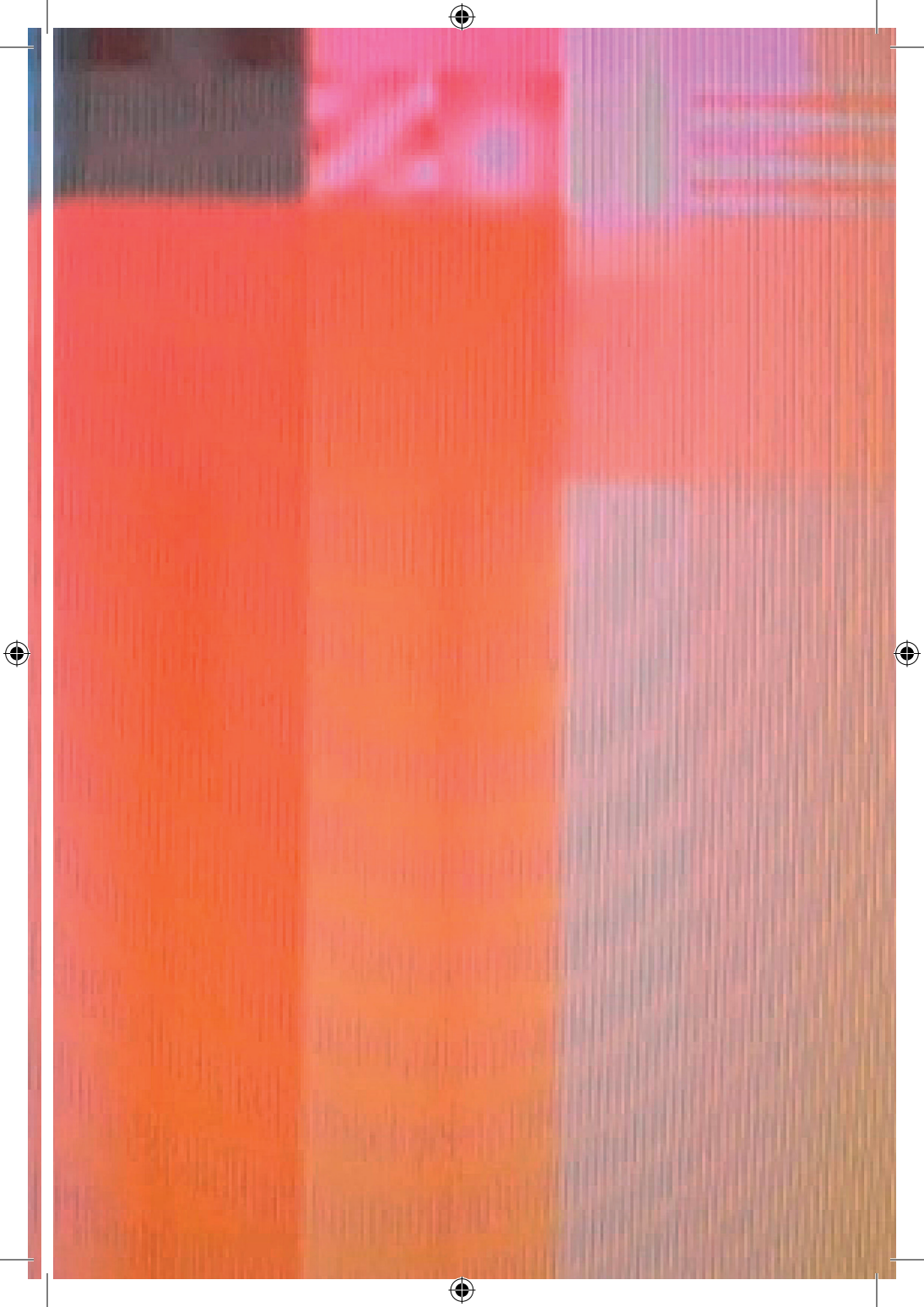
Twenty billion tonnes  
of asteroid material.

Providing the connectivity.

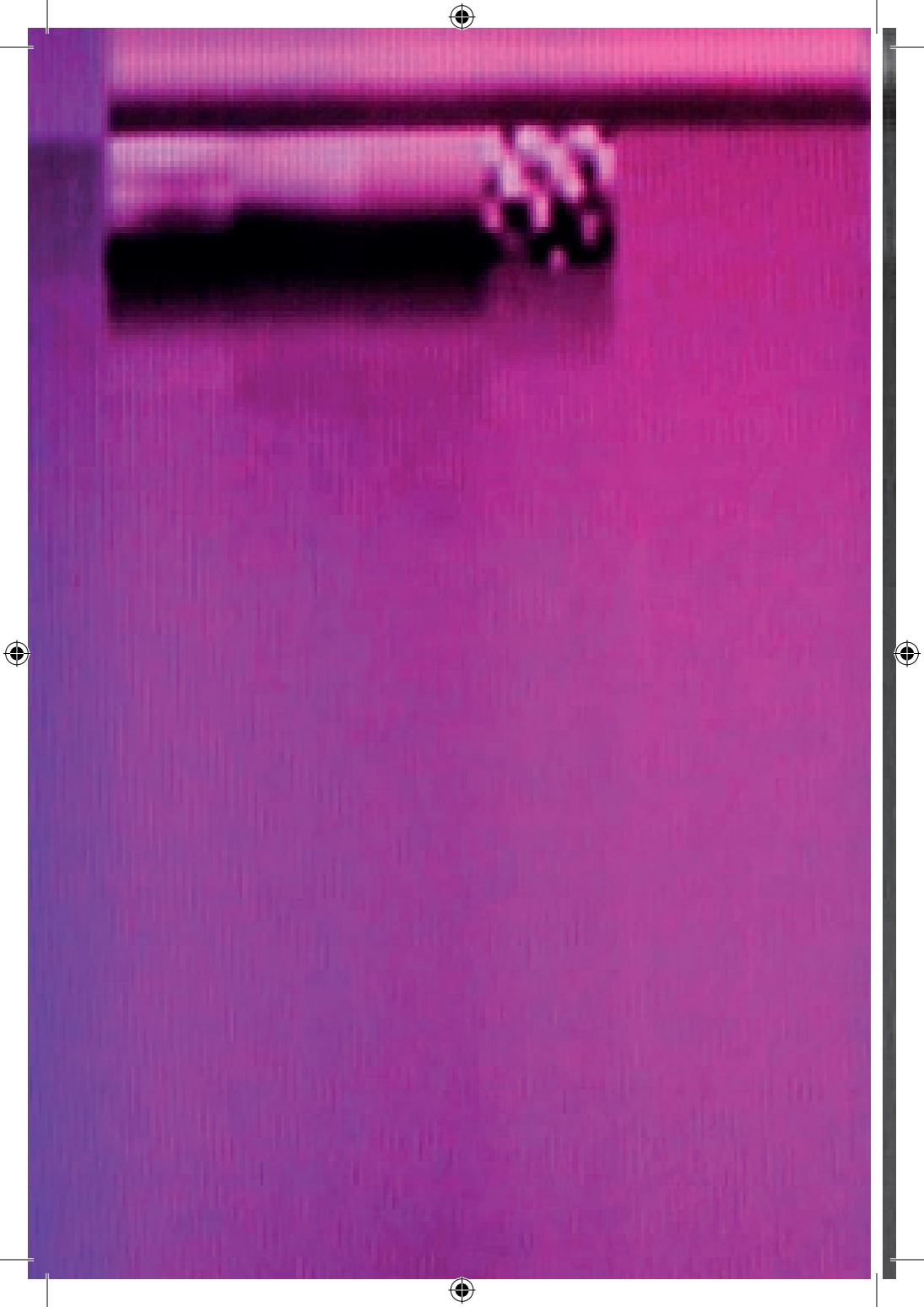
*Pause*

- 69 The cycle of plate tectonics is one way that Spaceship Planet Earth communicates with us and we have been trying to find ways of communicating back.
- 70 By the summer of 2040 it will be possible to sail a boat over the North Pole.
- 71 Most of the earth's natural gold reserves along with other precious metals sank to its core when the earth was formed.

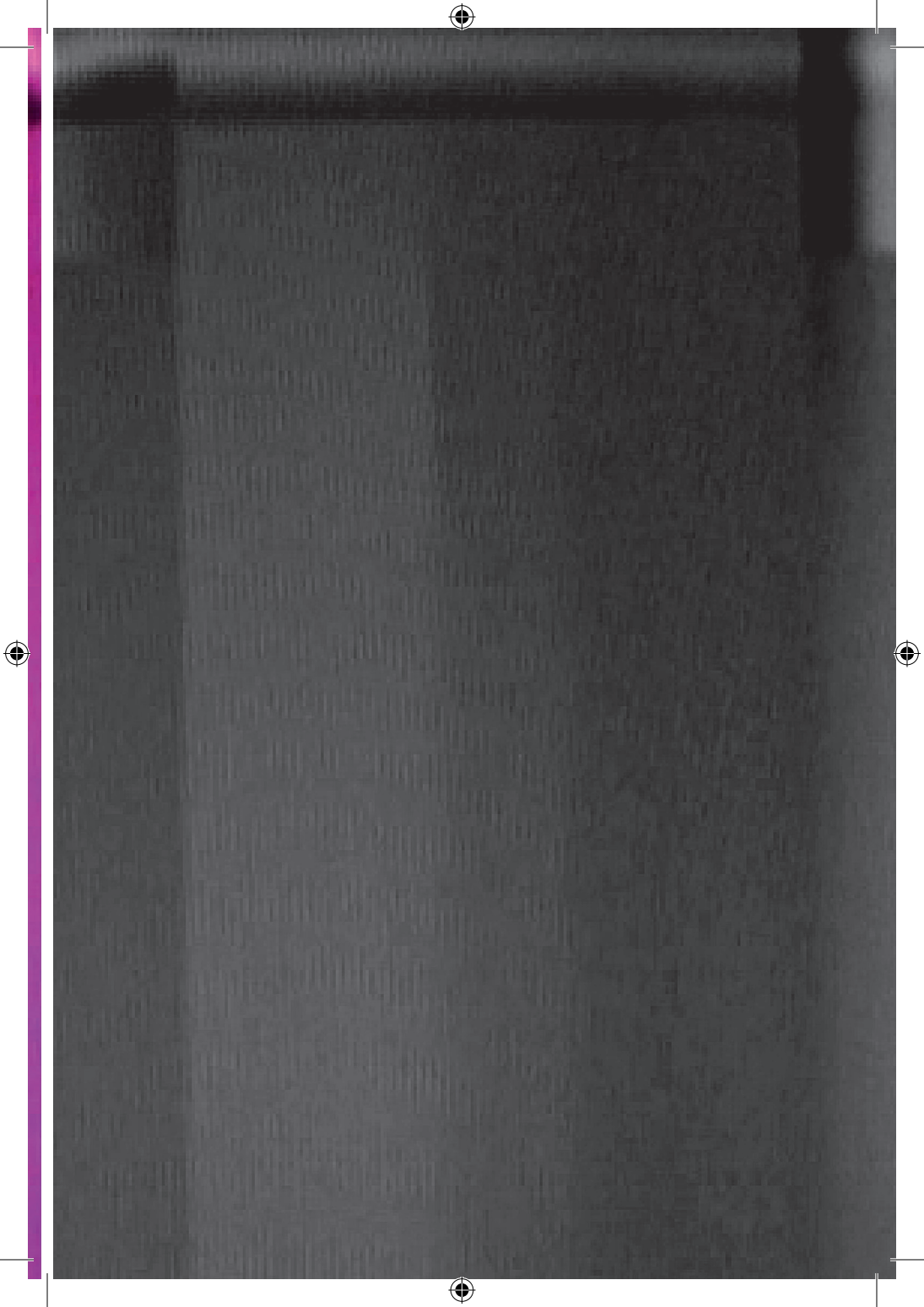












MACHINE 4  
(CONTINUED)

On July 28th '76 there was a large  
earthquake in Tangshan,  
North Eastern China.<sup>72</sup>

Twenty six miles of the city  
were destroyed,  
The most regressive quake  
in two thousand years.

There is, as they say  
'no primal layer of the world',<sup>73</sup>  
No ultimate 'substrate' or 'substance',  
on which everything resides.

Just constant movement,  
continuous re-writing  
and machinic movement.

And as we monitor these walls,  
we bump into the remnants of cabling,  
The forgotten networks,  
dug in deep, ebbing away,  
Flowing down to where we lie.

*Music interlude*

72 At 3:42 a.m. on July 28, 1976, a magnitude 7.8 earthquake hit the sleeping city of Tangshan, in northeastern China. The very large earthquake, striking an area where it was totally unexpected, obliterated the city of Tangshan and killed over 240,000 people — making it the deadliest earthquake of the twentieth century.

73 Grant, 2011

RESEARCHER 1

In another space we focus on  
DATA RECOVERY,  
We are learning from THE DECAY.

The echoes and the remnants,  
of permeable media.

Recovering what we can,  
Imagining what the environment  
was once like.

Examining molecules and sounds:  
The sounds of your images?

Were they the sounds of your structures?  
Or the name of your files?

Your spreadsheets and tables,<sup>74</sup>  
Were these murmurs your  
streaming 'things',

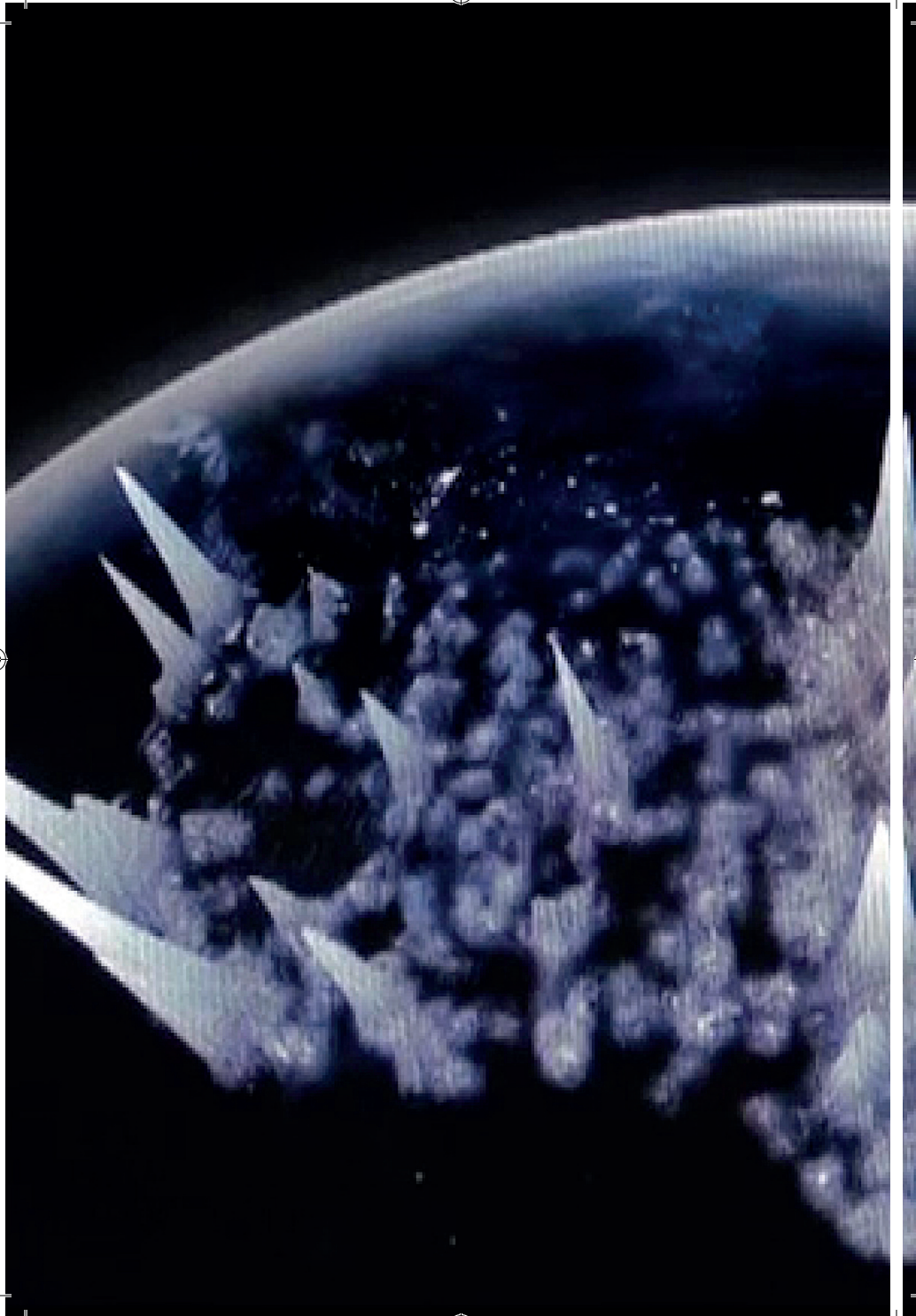
Or auto reminders?  
Your red-un-dancy?

And this single dot, which might be grey,  
Was this the image of your decay?

*Pause*

- 74 Spreadsheets which once contained numerical values find themselves losing the power to organise or calculate, their algorithms are failing.

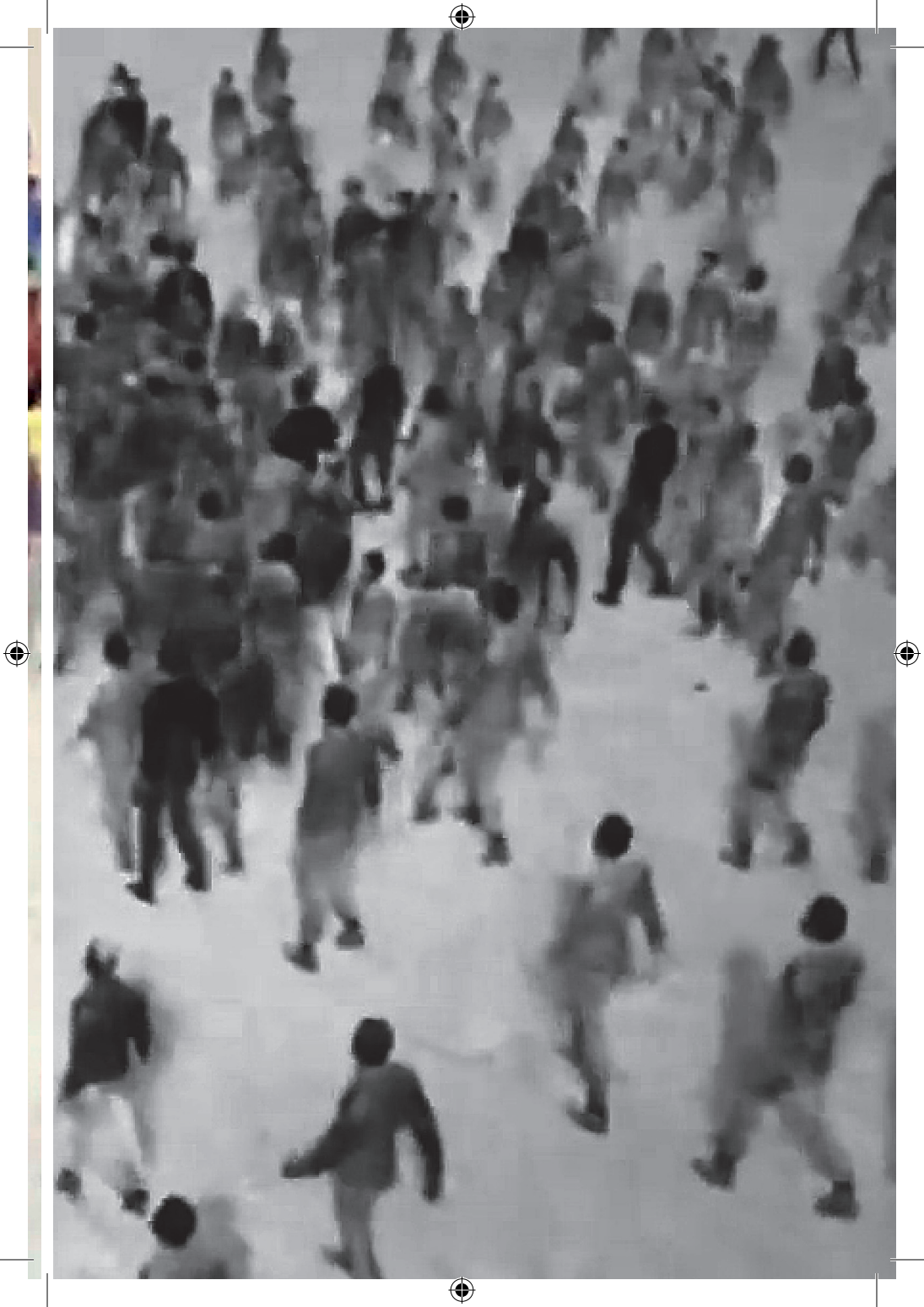












RESEARCHER 1  
(CONTINUED)

The data has merged  
with other materials.

With the memories of elements  
and the source codes of vegetation.

They live in the crystallizing chemistry  
of technological alchemy.<sup>75</sup>

Exploitation through  
chemical 'reactions'.<sup>76</sup>

Resulting in:  
'information oxidation'.

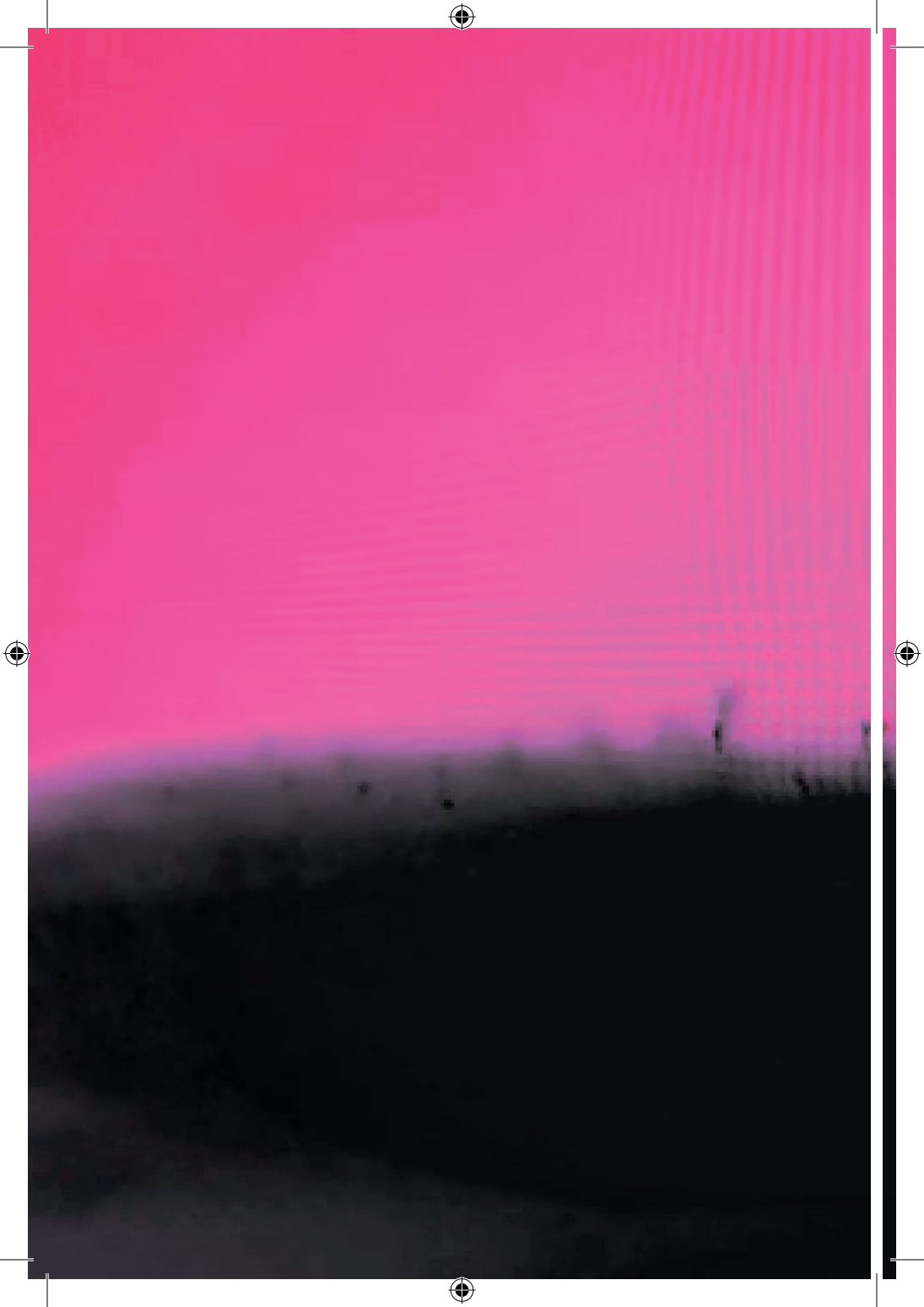
Resulting in:  
'information oxidation'.

Resulting in:  
'information oxidation'.

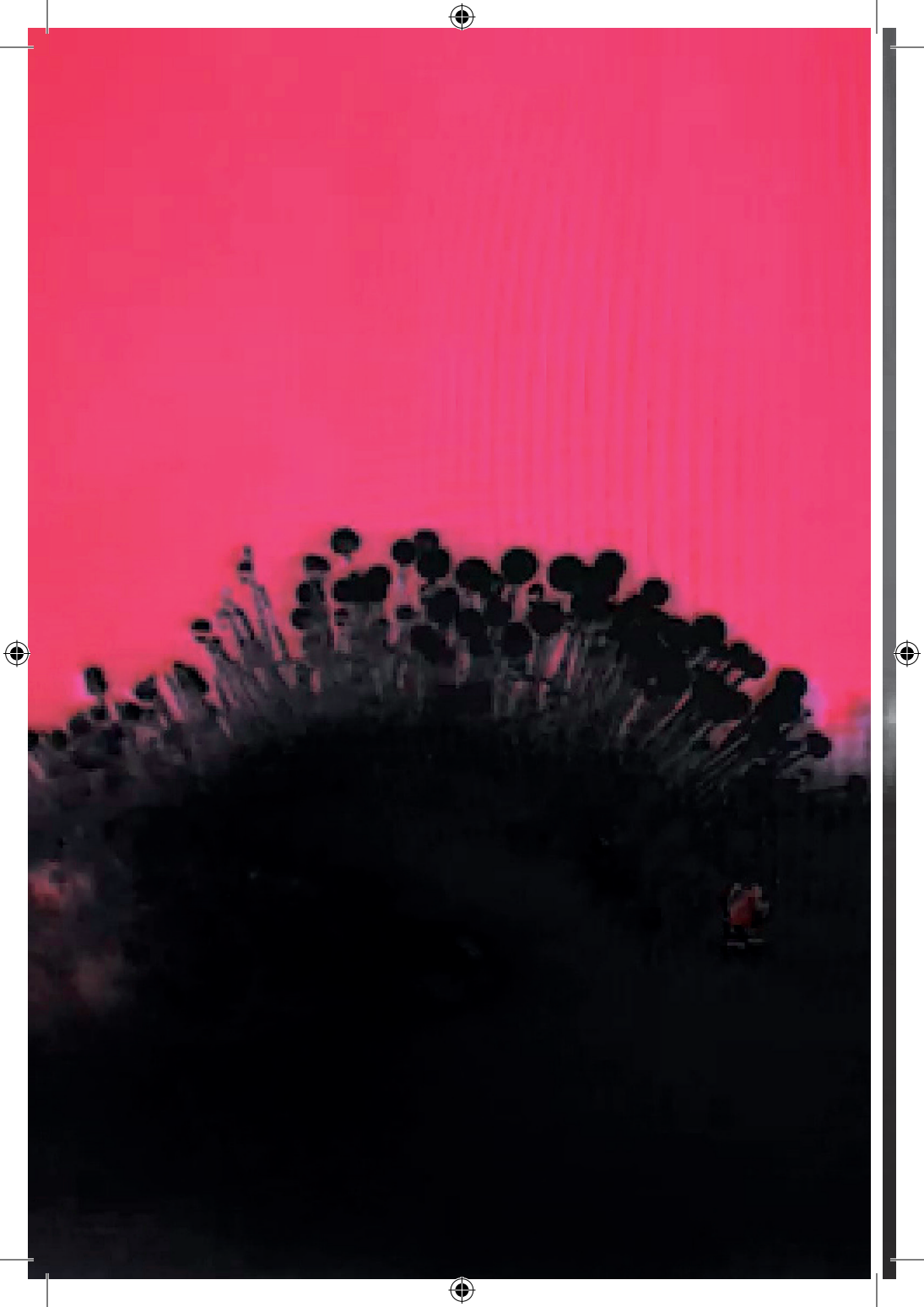
Resulting in:  
'information oxidation'.



- 75 *Picking up inspiration from Sean Cubitt, we can approach media cultures through the various materials, components, long networks, and genealogies in which media technologies are being produced. Media history is one big story of experimenting with different materials from glass plates to chemicals, from selenium to coltan, from dilute sulphuric acid to shellac silk and gutta percha, to processes such as crystallization, ionization, and so forth. What is more, the materials have their aftereffects, nowadays most visible in the amount of e-waste our electronic culture leaves behind, which presents one further “materiality” for our investigation.* (Parikka, 2016: 26)
- 76 According to Pynchon the transformation from the use of alchemy of materials to that of chemistry corresponds with the development of capitalism. ‘Maybe capitalism decided that it didn’t need the old magic anymore’... says his characters.  
(Gere, 2008: 187)











## HYPEROBJECT RESEARCH SPACE

RESEARCHER 1

In another space we map<sup>77</sup> out  
the great mesh of production  
and destruction at the route  
of every technology.

The blurred connections,  
the realities.

Our findings play out,  
becoming immense.

Working together.

We focus on the capacitor,  
the story of its true object:  
Beginning with the Mountain Gorilla,<sup>78</sup>  
sitting in its habitat in the Democratic  
Republic of Congo, unaware...

A plane flies above it,  
emitting a trail of nitrogen oxide...

- 77 *Approaches to the multi-temporal technocultural world are one way to continue the discussions articulated by Peter Osborne concerning contemporary art as a mapping of the site of complex temporalities and the disjunctive sense of 'now' in which we are living.* (Parikka, 2016: 30)
- 78 The number of remaining Mountain Gorillas in the Democratic Republic of Congo where Columbite Tantalite is mined as the primary raw material for capacitors in electronic devices.

RESEARCHER 1  
(CONTINUED)

Meanwhile in New York an algorithmic  
system automatically<sup>79</sup> generates  
an electronic signal.

This is translated into a binary code  
and travels along conductive material,  
It triggers an action.<sup>80</sup>

This is represented on the screen  
of the NASDAQ index<sup>81 82</sup>  
by changes in colour of yellow,  
blue and red digits.<sup>83</sup>

*Pause*

- 79 *As soon as we separate software it inevitably leaks into material structures – irrevocably bound up with material and technological processes that enable these performances. Software facilitates the increasingly refined programming of matter and exchanges but even more it allows for the sense of expanded possibilities for transferring that matter... Automation is a process that transfers matter, could be called as Michel Serres says ‘a revolution operating on matter’. When technologies are automatic and autonomous they become catalysts not only of material complexity but of new distributors and creations of energy.* (Gabrys, 2011: 65)
- 80 *From screens to networks and from networks to software and automation, technologies and processes have emerged for distilling and mobilising matter.* (Gabrys, 2011: 47)
- 81 Gabrys notes that the NASDAQ and the screens used become critical objects to examine the process of materialism and de-materialism via exchange and the rise and fall of value – therefore articulating the relation between the signal and the thing and how they are bound into a shared material process. (Gabrys, 2011: 47)

170

*Pause*



- 82 Automation is represented here by the signal emitted by the software of the NASDAQ as Erich Horl notes: 'this autonomization of technology as such is the historical moment that enables and forces us to speak about and to conceptualize the technosphere.' (Horl, 2016)
- 83 *The electronic market sets the pace in more ways than one, for the speed of trading has as much to do with the rise and value as it does with the accelerated movement and programming of exchanges. These electronic markets are bound up with performative registrations – material, temporal and rhetorical deployments* (Gabrys, 2011: 49).













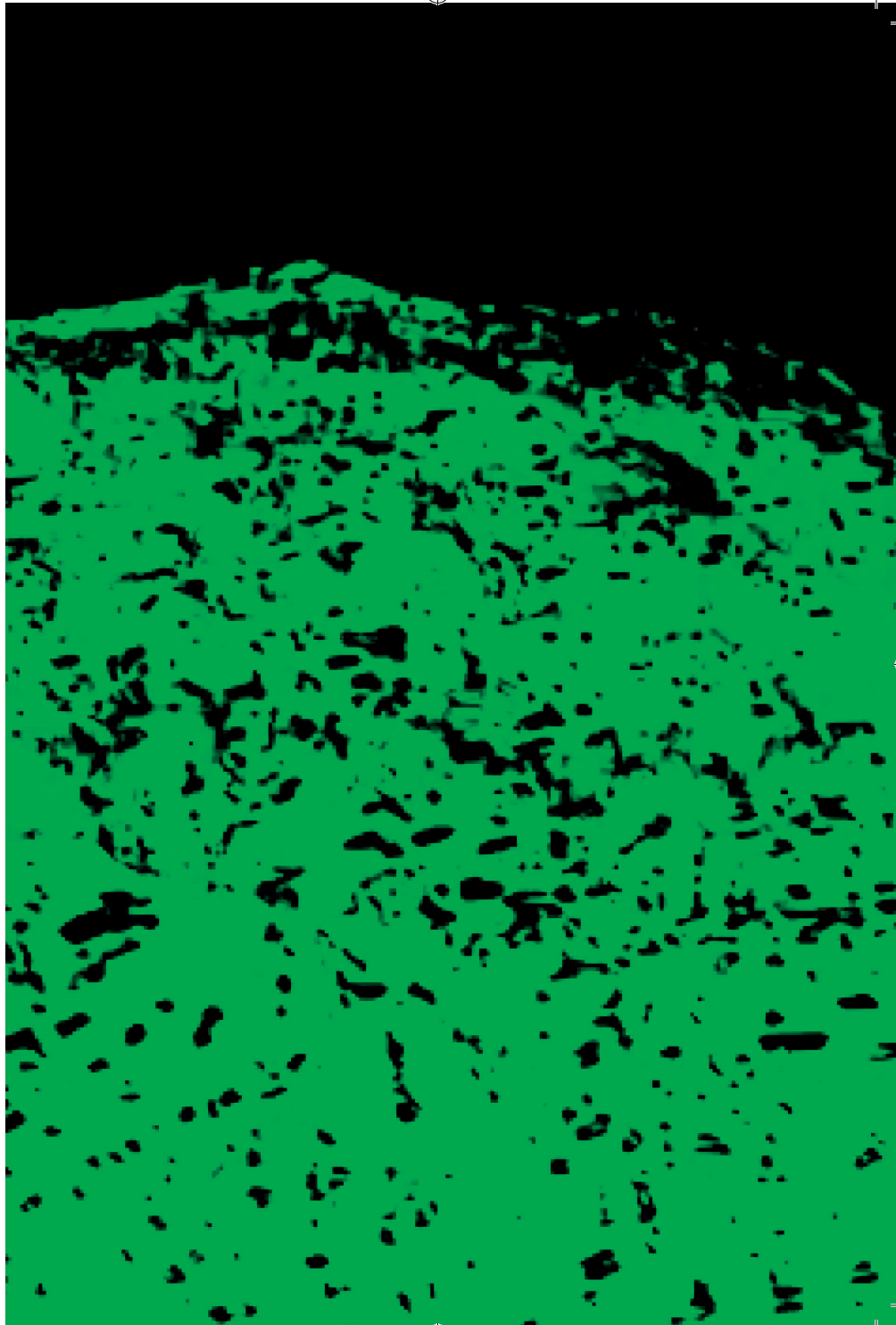
RESEARCHER 1  
(CONTINUED)

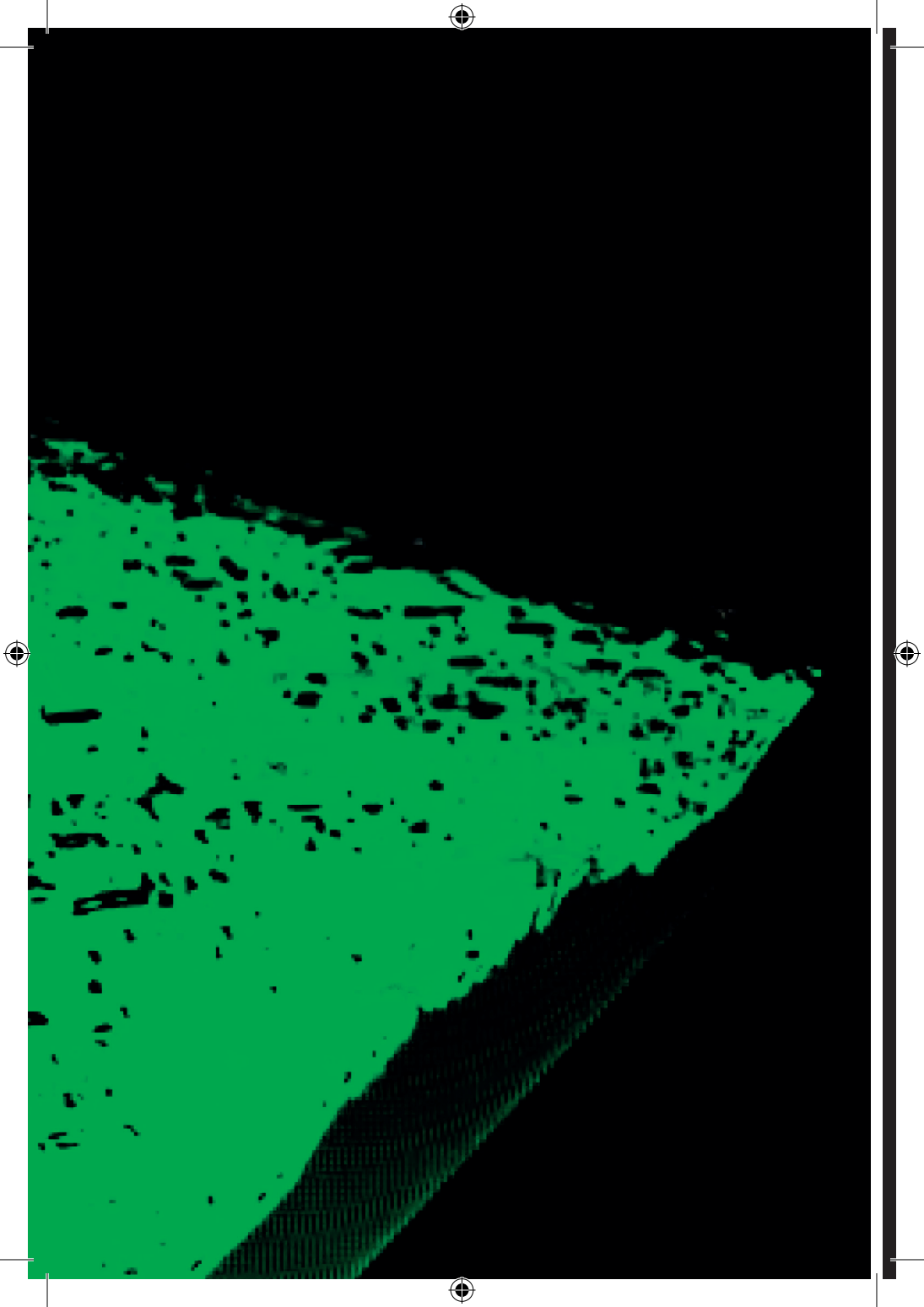
The gorilla's heart rate increases  
as it breaks open a termite nest,  
It begins to eat the larvae,  
unaware that soon its physicality  
will transform into a record of its code,  
Simulated within the wireframe  
of a 3D model.

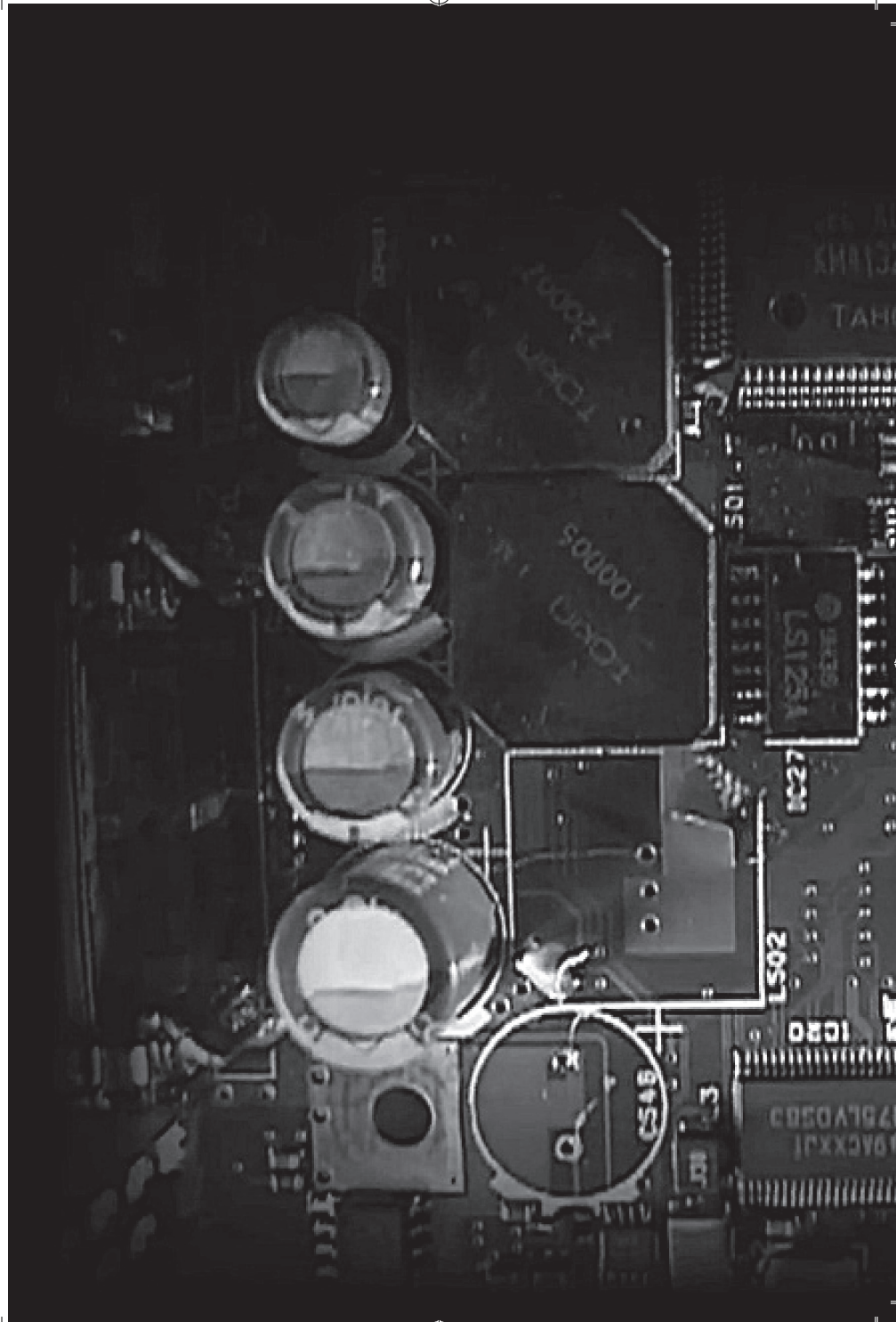
Stored on ceramic substrate,  
enclosed in steel,  
A remnant of data storage  
with nothing left to say.

We remember the history  
of the machine and the earth.

*Pause*







RESEARCHER 1  
(CONTINUED)

That day in April 1784 when James Watt  
patented the steam engine,  
This was the moment that positioned  
humanity as a geophysical force  
on a planetary scale.<sup>84</sup>

The signal that began  
the decay.

The element tantalum was extracted  
from its parent material known  
as columbite-tantalite and used  
to create a capacitor.

Often from mines in the  
Democratic Republic of Congo,  
near to the gorilla's home.

Back then the DRC had seventy per cent  
of the world's reserves.

*Pause*



- 84 *Already Crutzen had initiated the expansive way of understanding ‘anthropocene’ to be about more than geology. In Crutzen’s initiating definitions it turned into a concept investigating the radical transformations in the living conditions of the planet. The anthropocene can be said to be – in the way the German media philosopher Erich Hörl suggests referring to Deleuze – a concept that maps the scope of a transdisciplinary problem. So what is the problem? Hörl’s suggestion is important. He elaborates the anthropocene as a concept that responds to specific questions posed by the technological situation. It is about the environmental aspects but completely tied to the technological: this concept as well as its object are enframed by technological conditions into which we should be able to develop a further elaborated insight with the tools and conceptual arsenal of the humanities.*

(Parikka, 2014: 35)

RESEARCHER 1  
(CONTINUED)

A capacitor acts as the heart of the device,  
it holds its power and keeps it alive,  
Without its capacitor it would simply  
run out, and shut down.

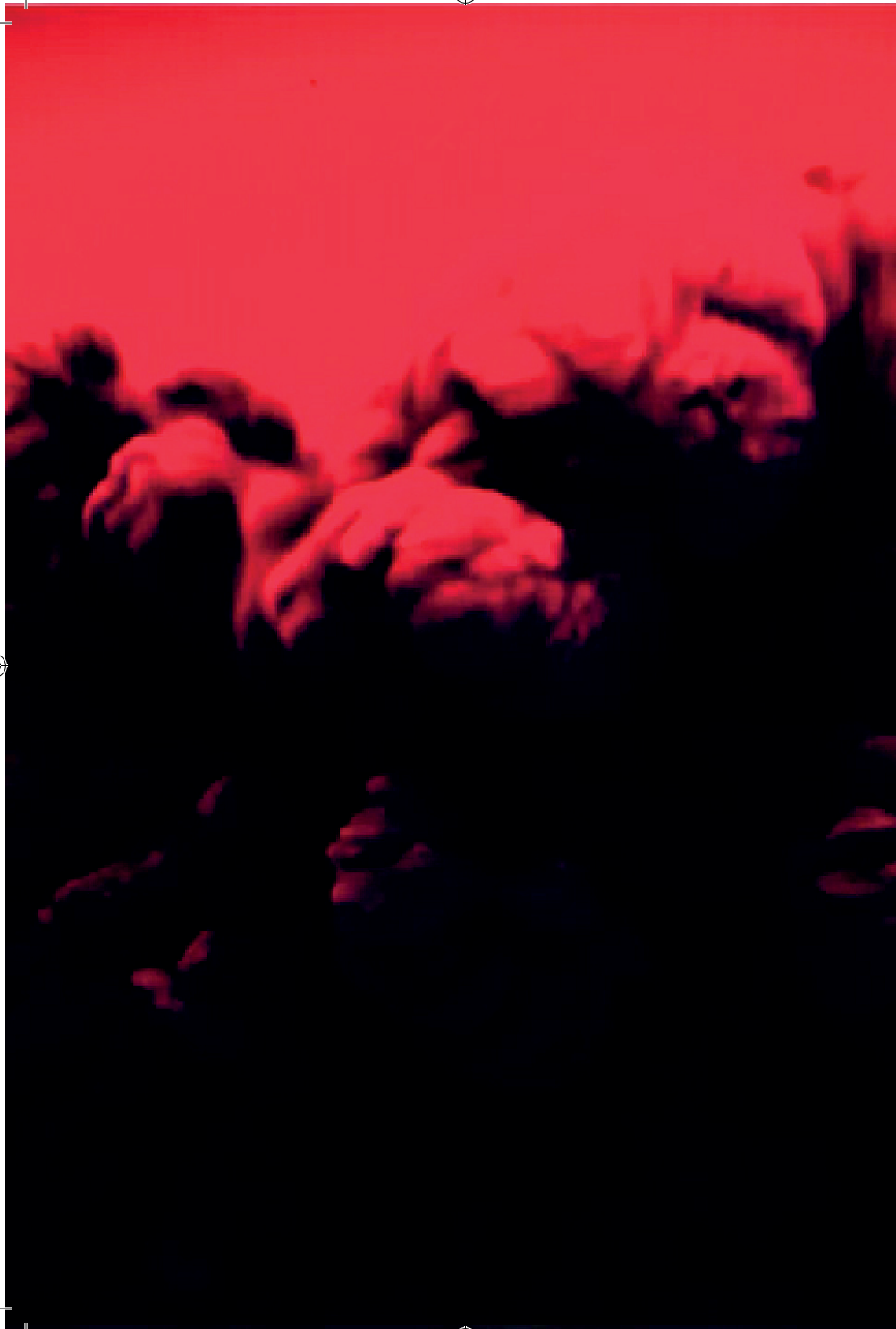
Tantalum's source is rooted in the earth<sup>85</sup>  
and its slowness but it is also part of  
the high speed flow of processes and  
electromagnetic signals on the surface.

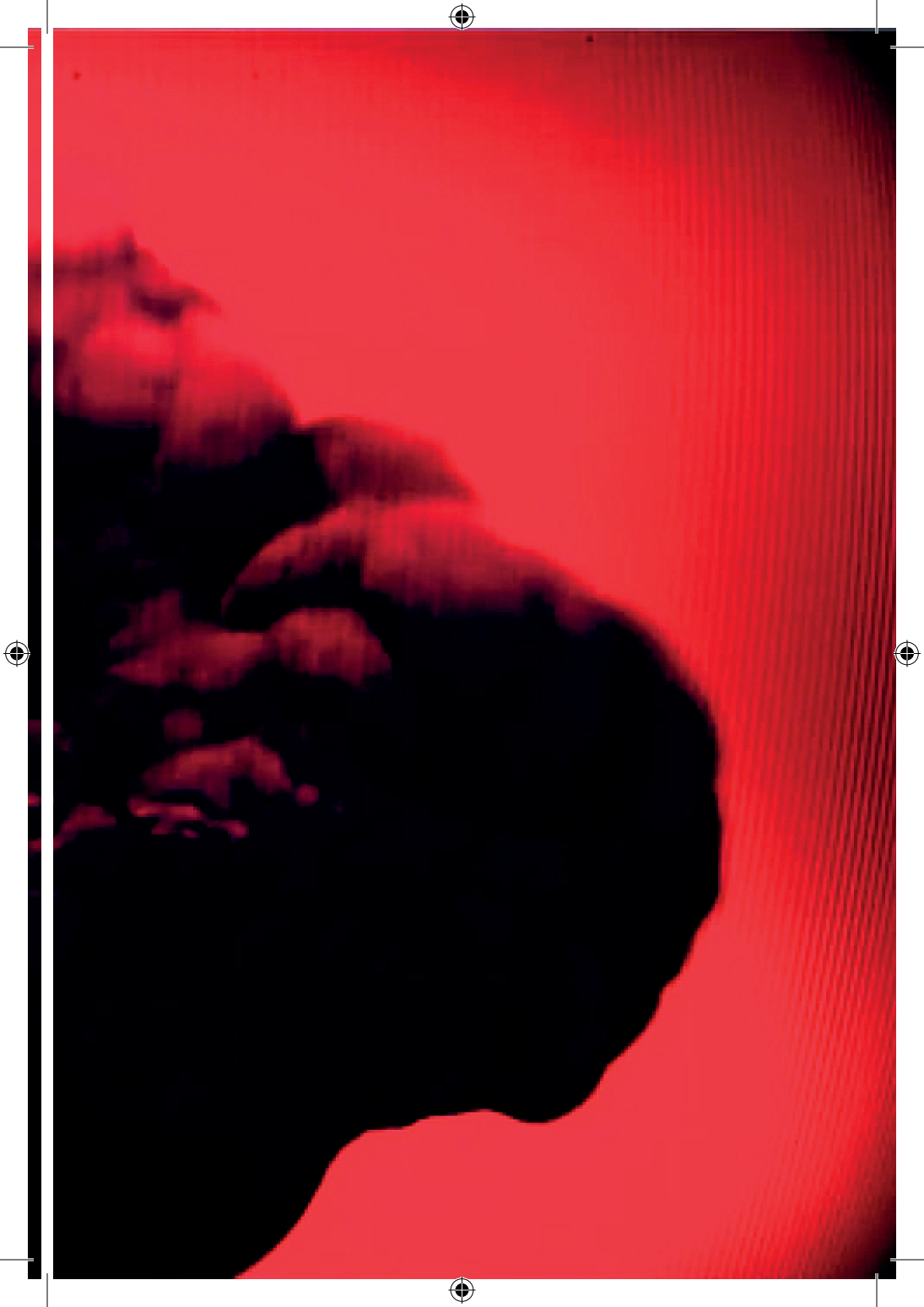
The transformation<sup>86</sup> from its time  
of origin, deep underground, to its  
time on the surface has an unwelcome  
effect and provides many unwanted  
stresses and confusions.<sup>87</sup>

But this tension is important,  
and sometimes a certain type  
of magnetism draws it back,  
To its origins.

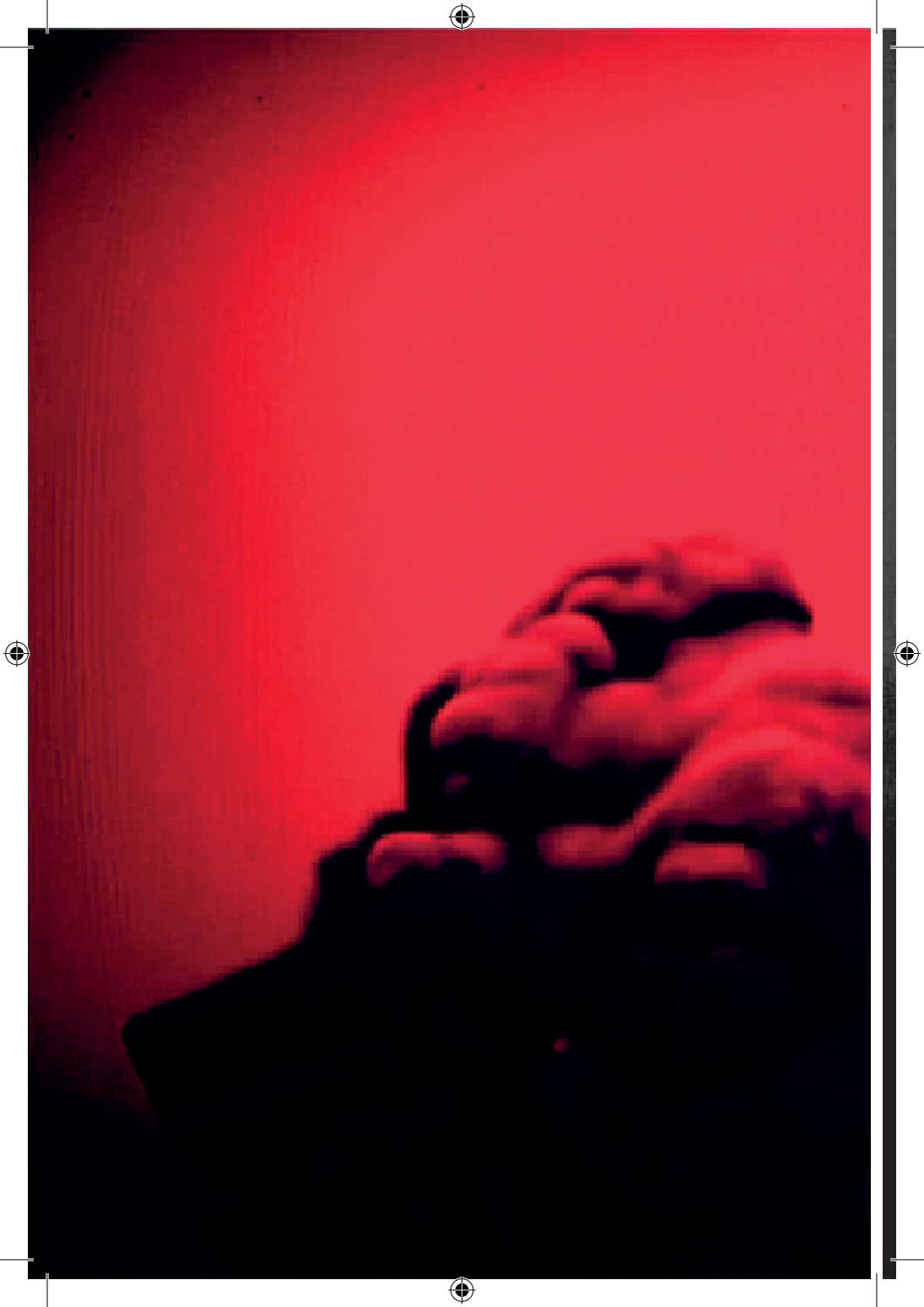
★

- 85 Parikka notes that the technological contemporary is: 'grounded in the slowness of earth's dynamics, visual operations, geopolitics and colonial arrangements.'  
(Parikka, 2016: 11)
- 86 Kelly says that: 'circulation in the form of networks is the source of accumulating value. Circulation is also the basis for devaluation and is bound to the generative dynamic of waste.'  
(Gabrys, 2011: 67)
- 87 *When technologies are automatic and autonomous they become catalysts not only of material complexity but of new distributors and creations of energy.* (Gabrys, 2011: 65)









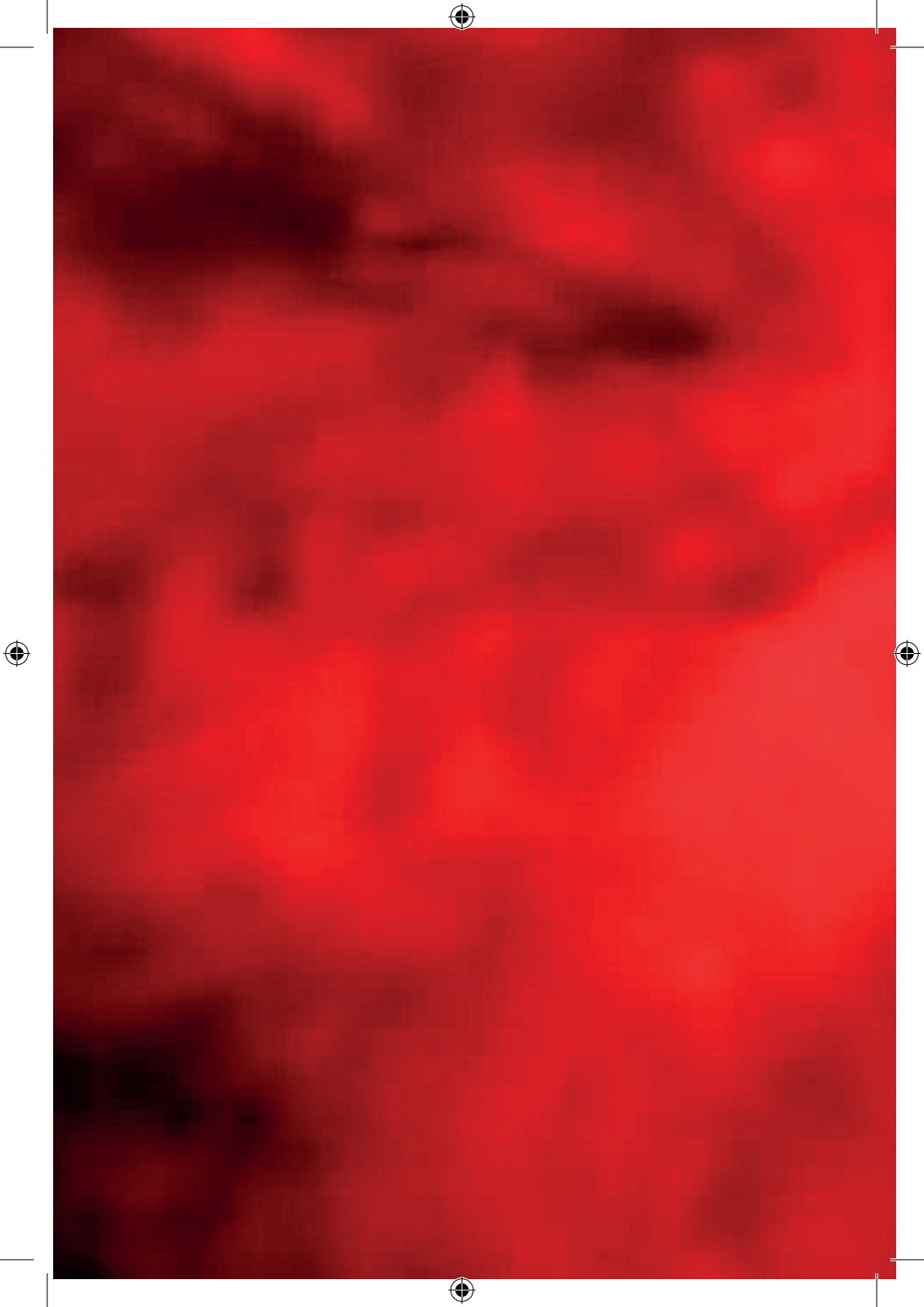


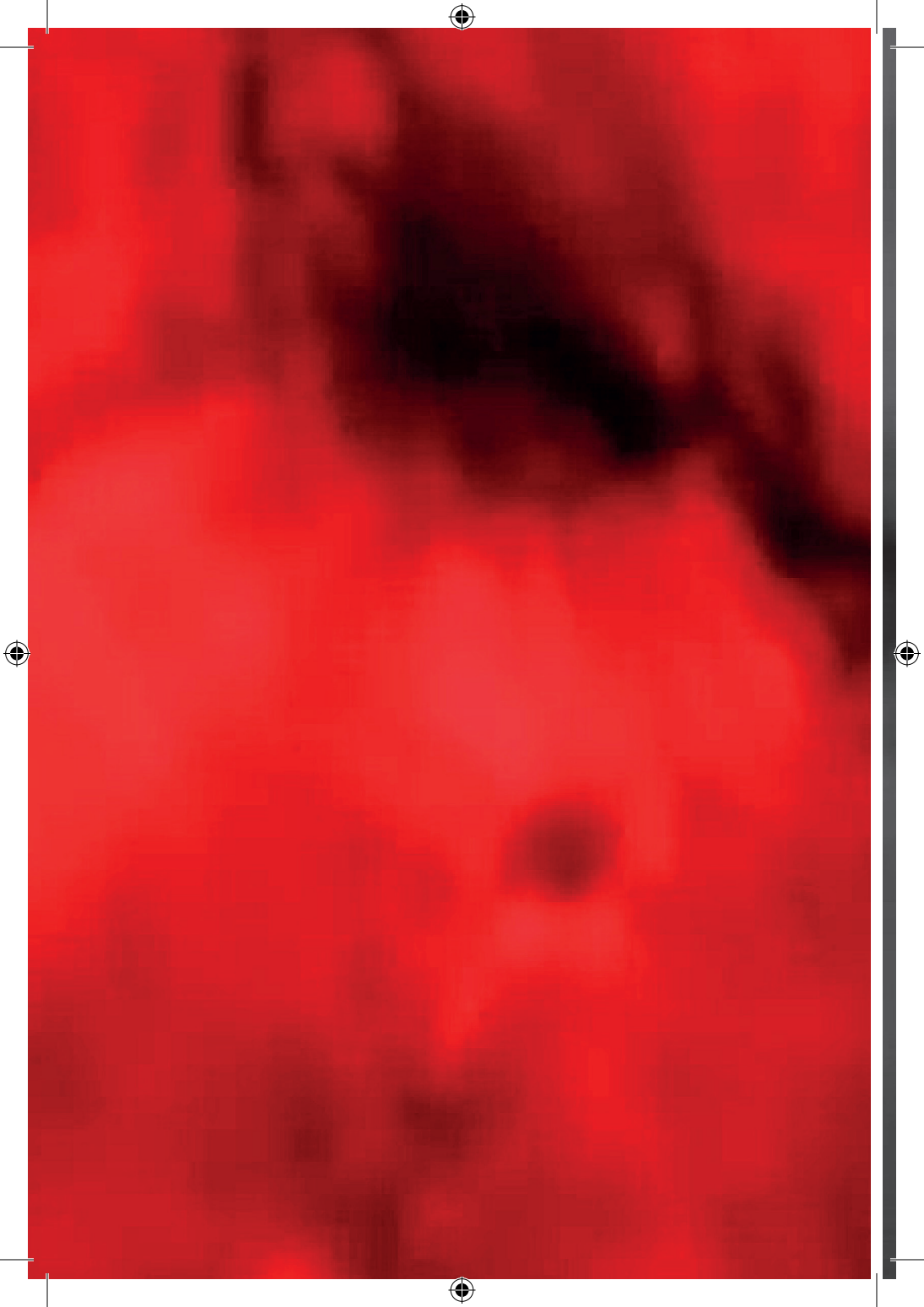
RESEARCHER 1  
(CONTINUED)

Columbite-tantalite is mined by hand  
by groups of workers who dig basins  
in streams by scraping off the  
surface mud.

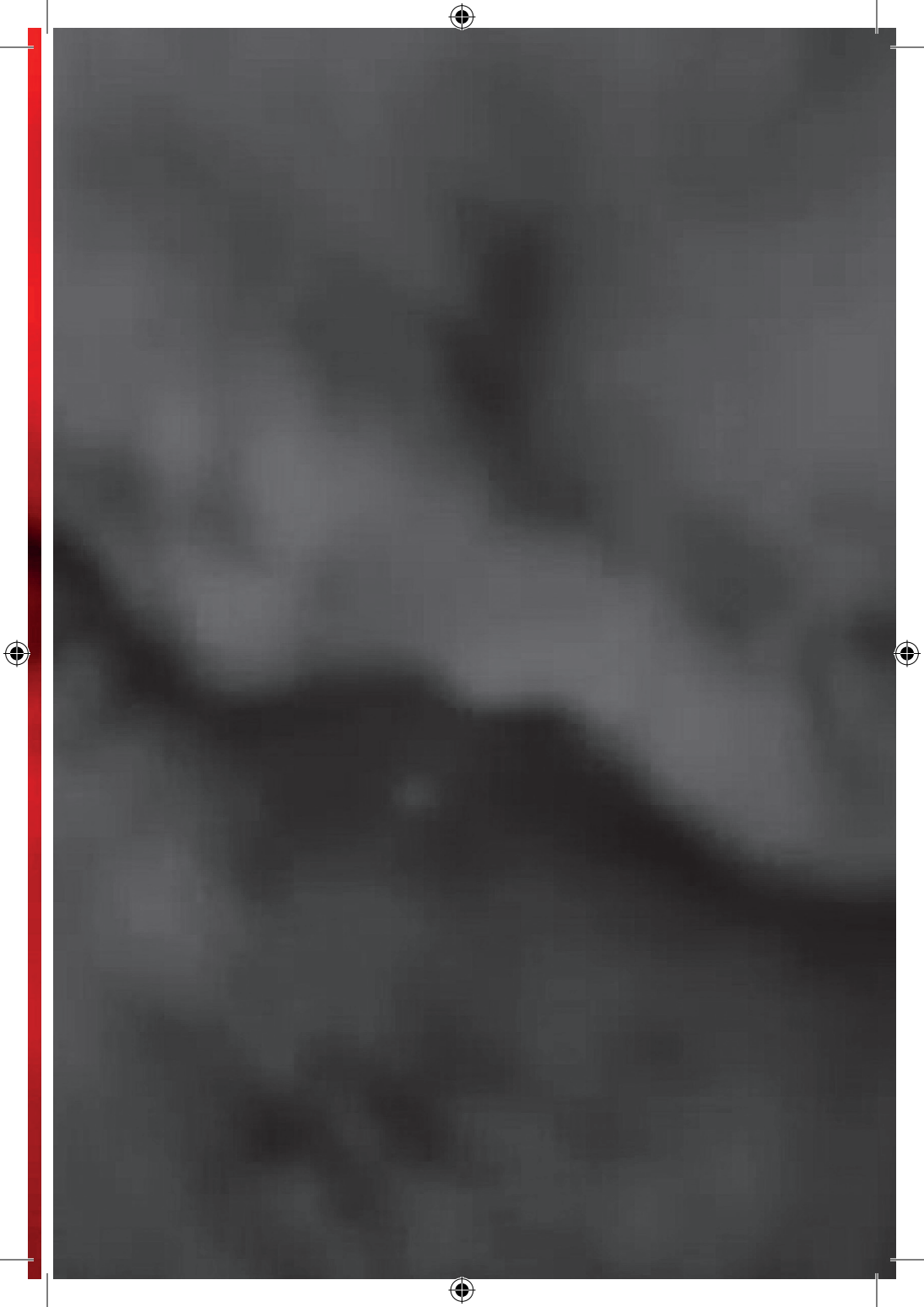
They wash the water around the crater,  
which causes the Coltan ore to settle  
to the bottom where it is retrieved.

*Pause*









RESEARCHER 1  
(CONTINUED)

In 1885 Joseph Conrad wrote about his experience of living in the Congo.

Under the guise of a philanthropic concern it was being exploited for its raw materials and Conrad noted that the perpetrators were engaged in: 'the vilest scramble for loot that ever disfigured the history of human conscience and geographical exploration'.

Today the DRC remains a central focus, raw materials for electrical components are extracted in the form of: tantalum, tungsten, gold<sup>88</sup> and tin.

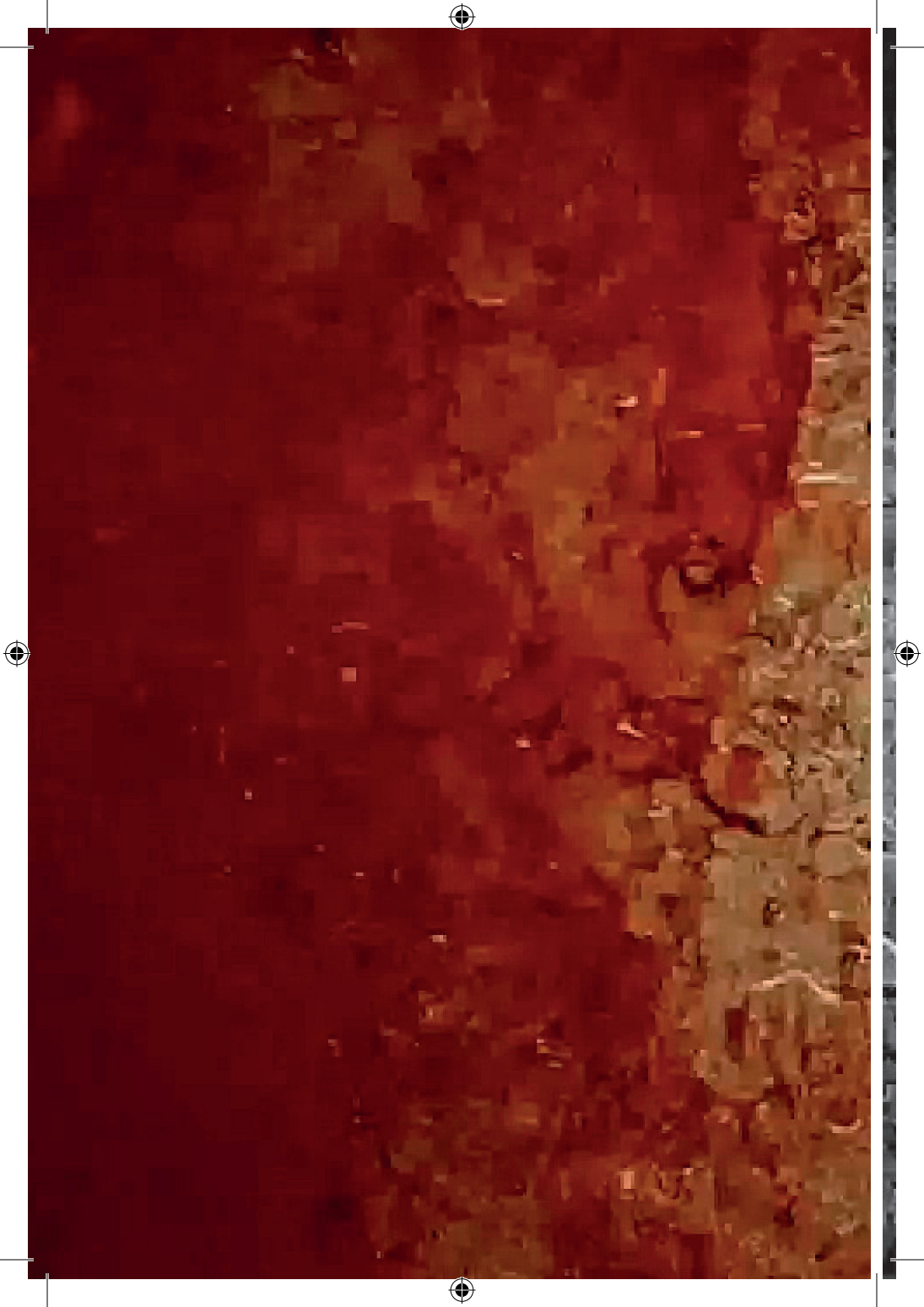
Before the mountain gorilla does anything more it is captured and eaten, used as bushmeat.

Every organ of its body, even its heart, is extracted for nourishment.

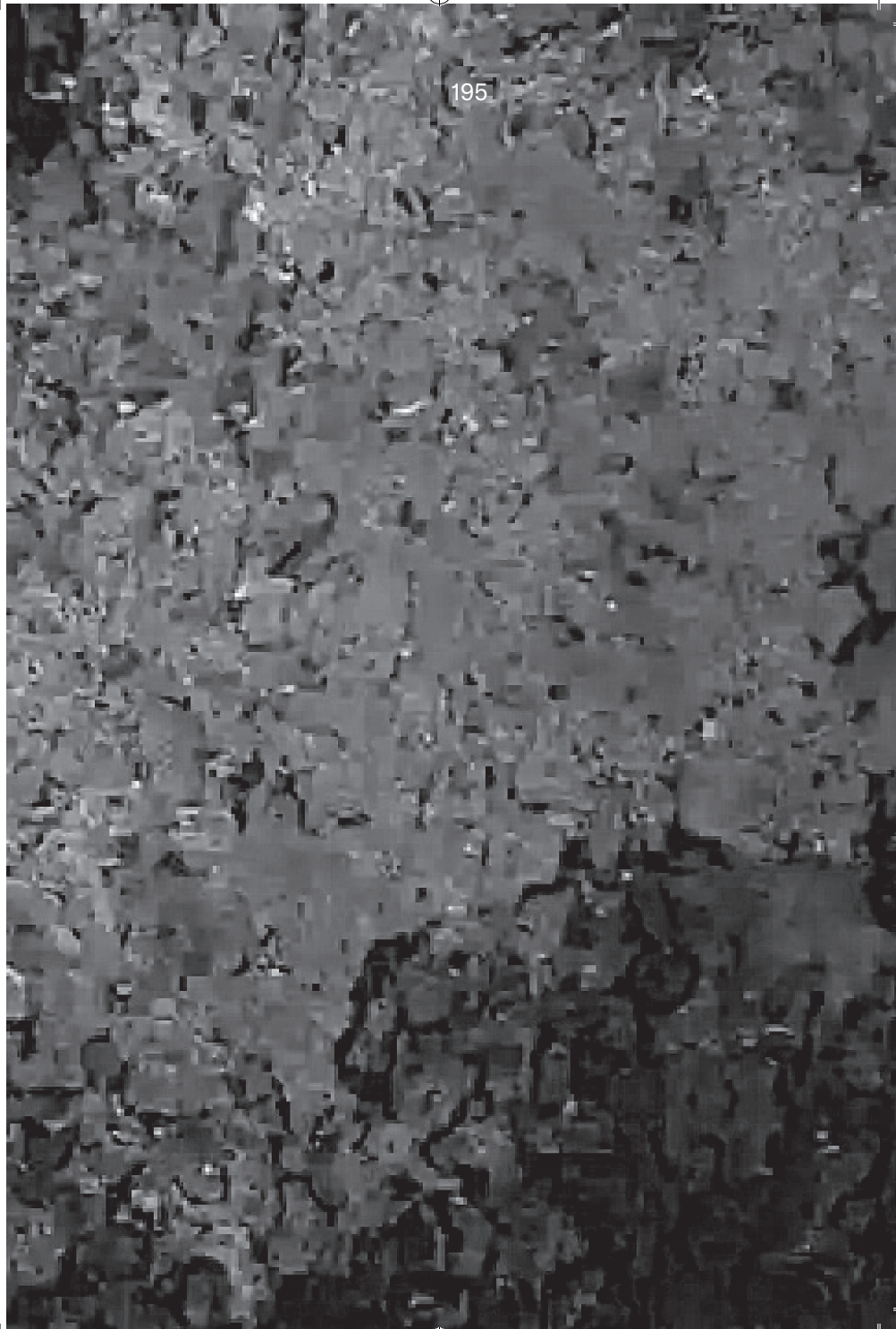
Creating nutrients that act to power the miners as thermodynamic machines.

*Pause*

- 88 Gold is the most malleable of all metals; a single gram can be beaten into a sheet of 1 square meter, or an ounce into 300 square feet. Gold leaf can be beaten thin enough to become transparent. The transmitted light appears greenish blue, because gold strongly reflects yellow and red.









RESEARCHER 1  
(CONTINUED)

The Columbite Tantalite is smuggled  
to smelting companies in China,  
Malaysia, Thailand and India  
where it is refined.<sup>89</sup>

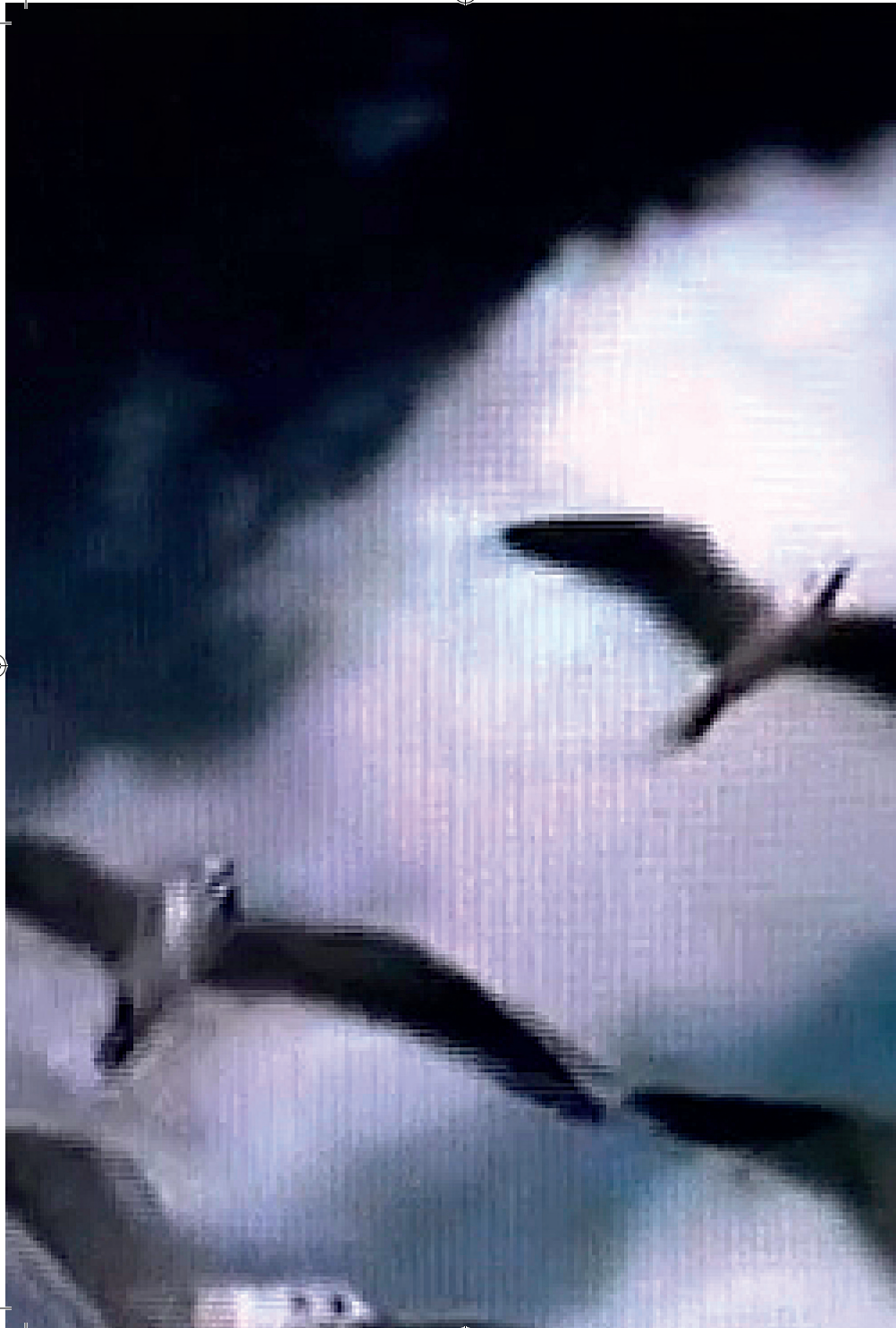
Here it is mixed with other minerals  
from around the world.

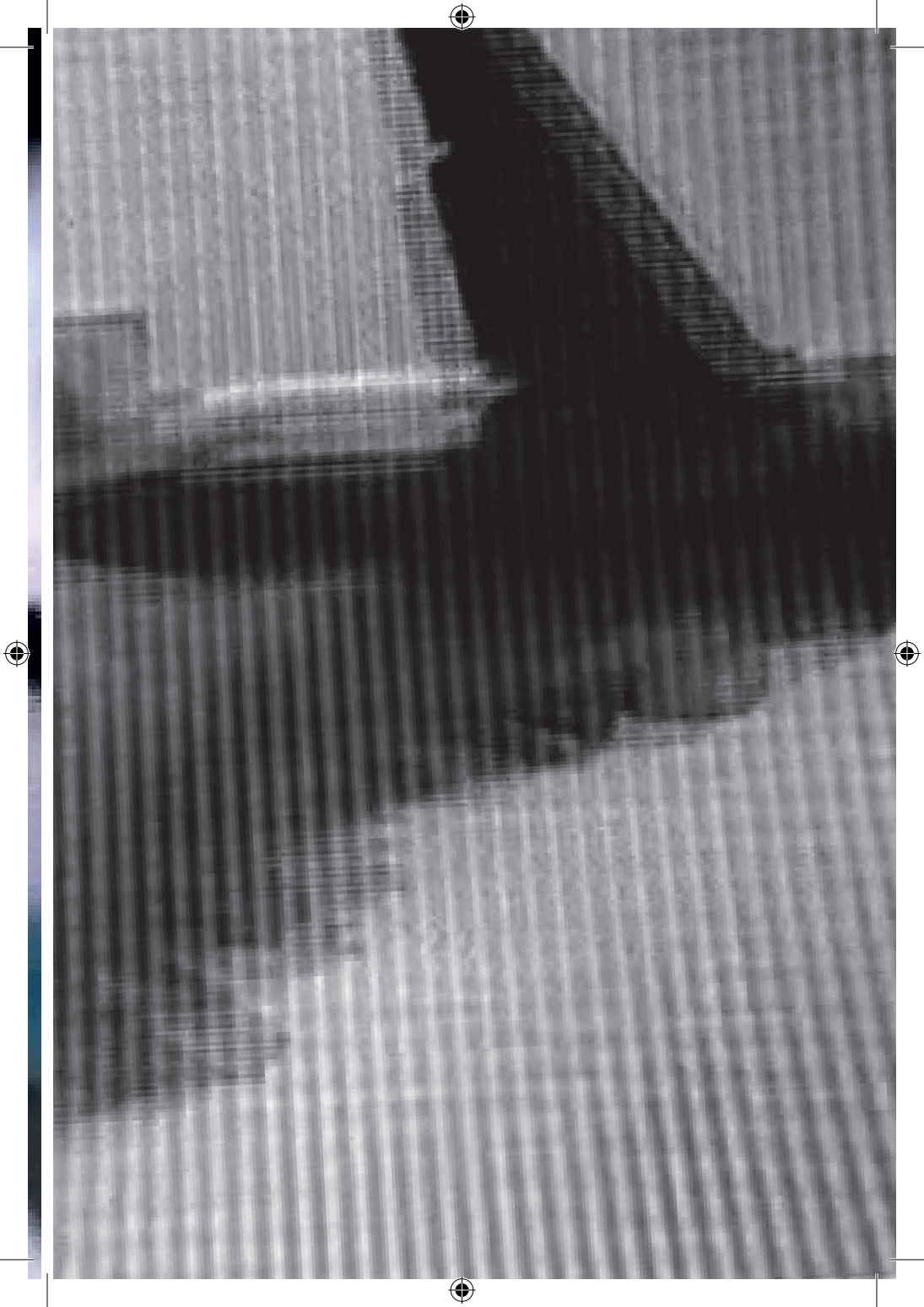
As a result its origin becomes difficult  
to trace, its history is erased.

*Pause*

- 89 Kelly elaborates on the network as factory idea: 'a factory made widget once followed a linear path from design to manufacturing and delivery. Now the biography of a flexibly processed widget becomes a net, distributed over many departments in many places simultaneously and spilling out behind the factory so that it is difficult to say what happens first or where it happens.'

(Gabrys, 2011: 61)





RESEARCHER 1  
(CONTINUED)

The refined materials like the Tantalum  
are shipped to factories, many  
of which reside in Asia.

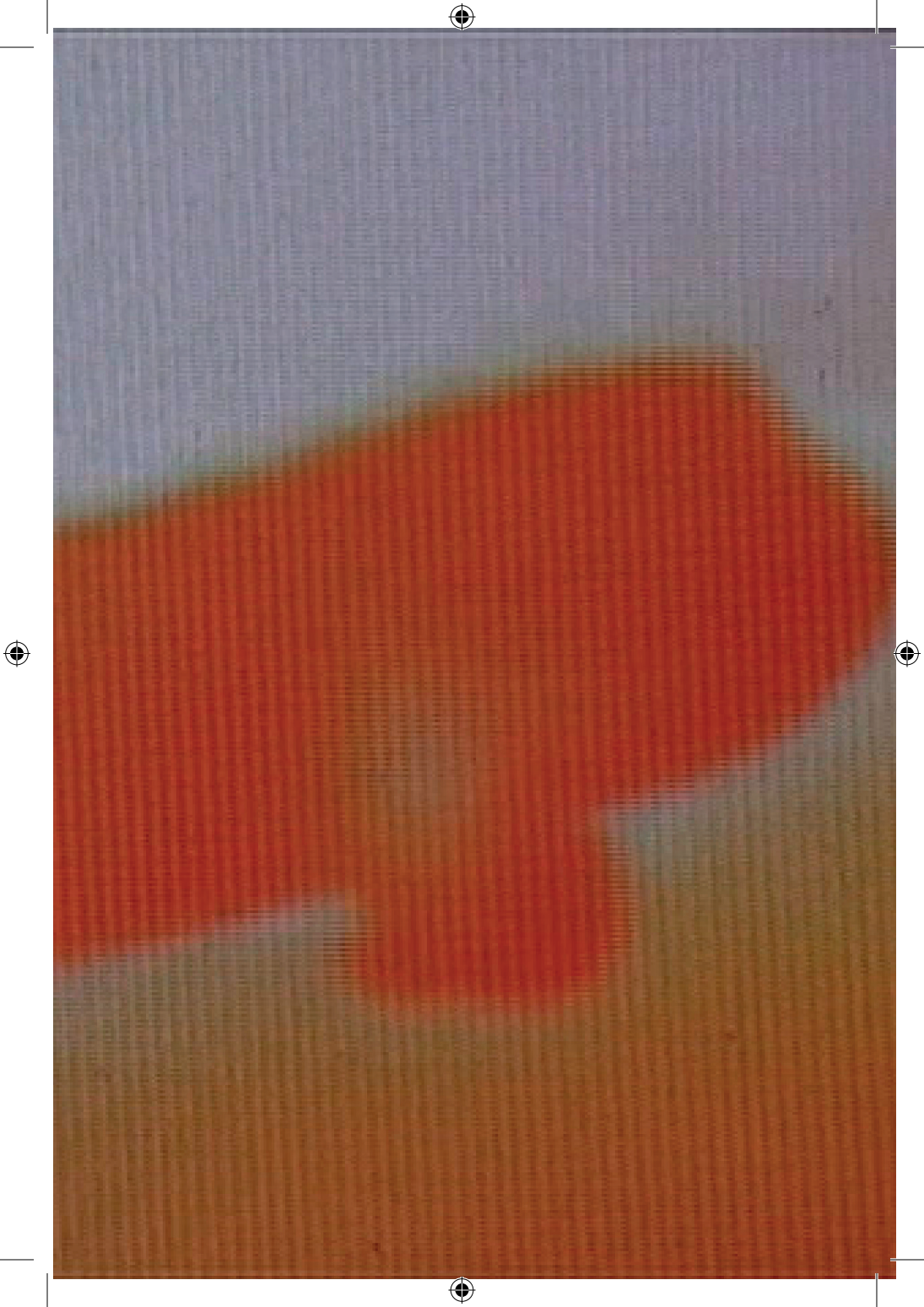
Here they're processed into components  
which themselves are concealed  
black boxes uniting a set of objects.

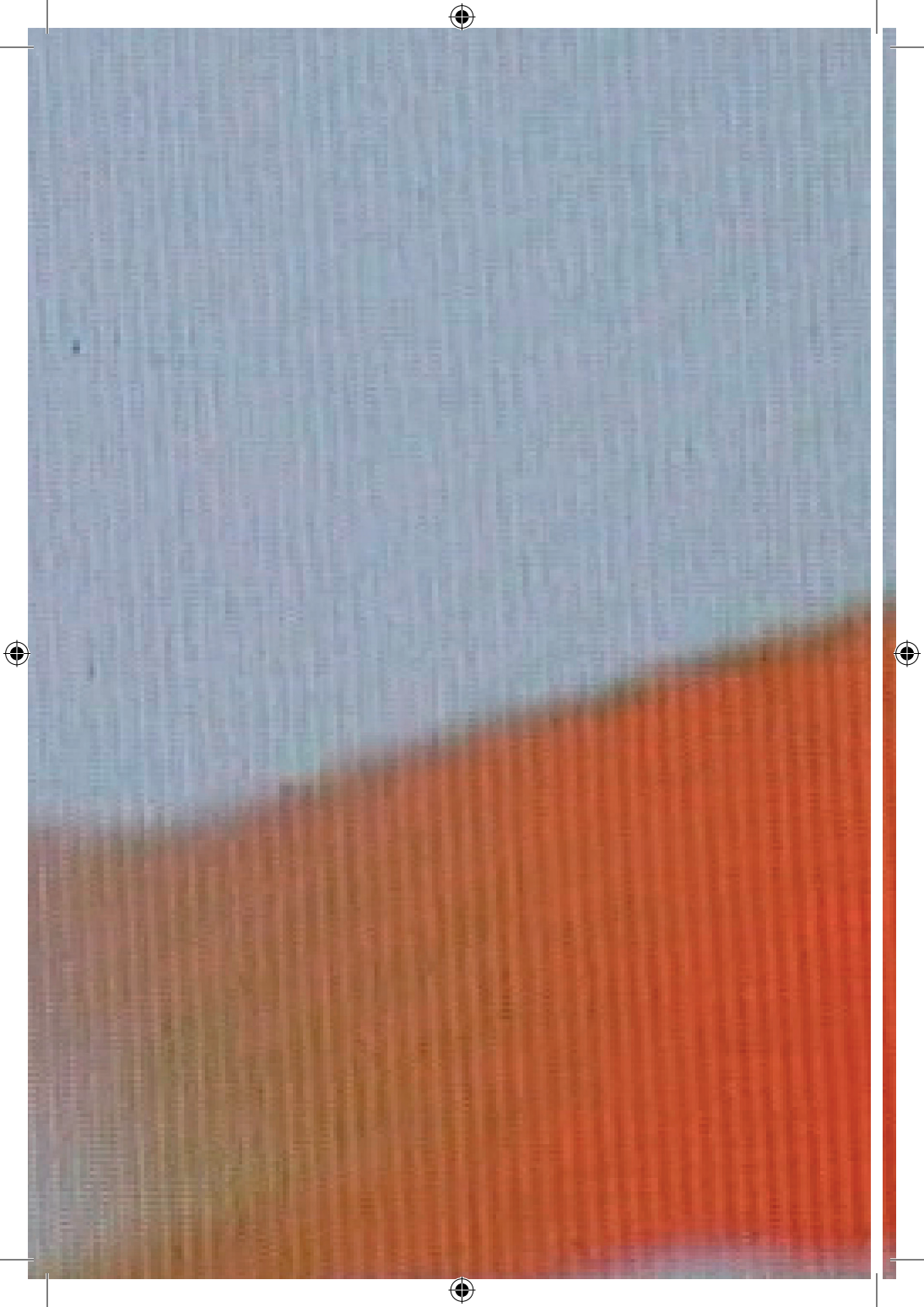
Finally the capacitor is encased  
in its finished assemblage.

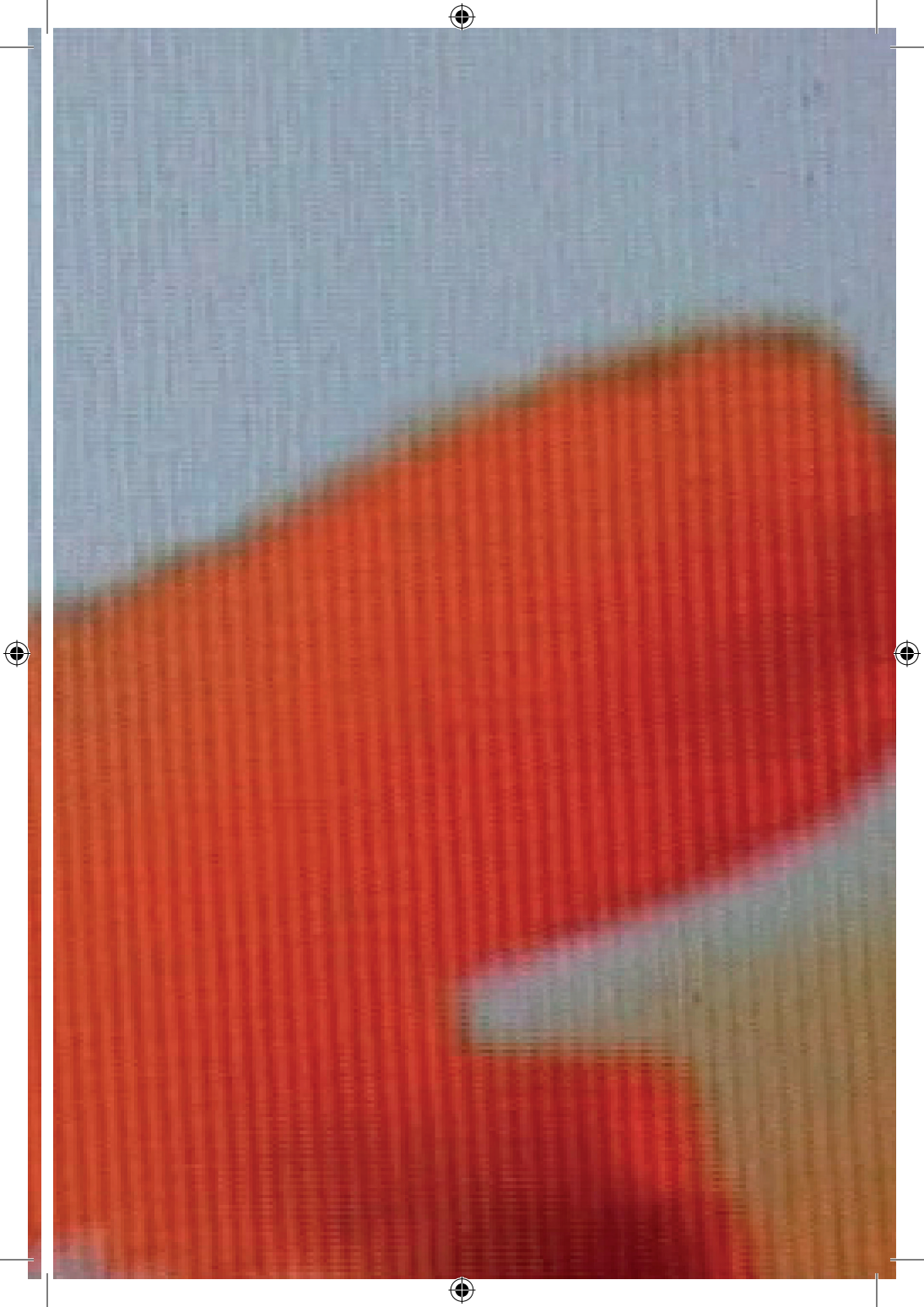
The device is then shipped  
and marketed.

*Phone advert plays out*





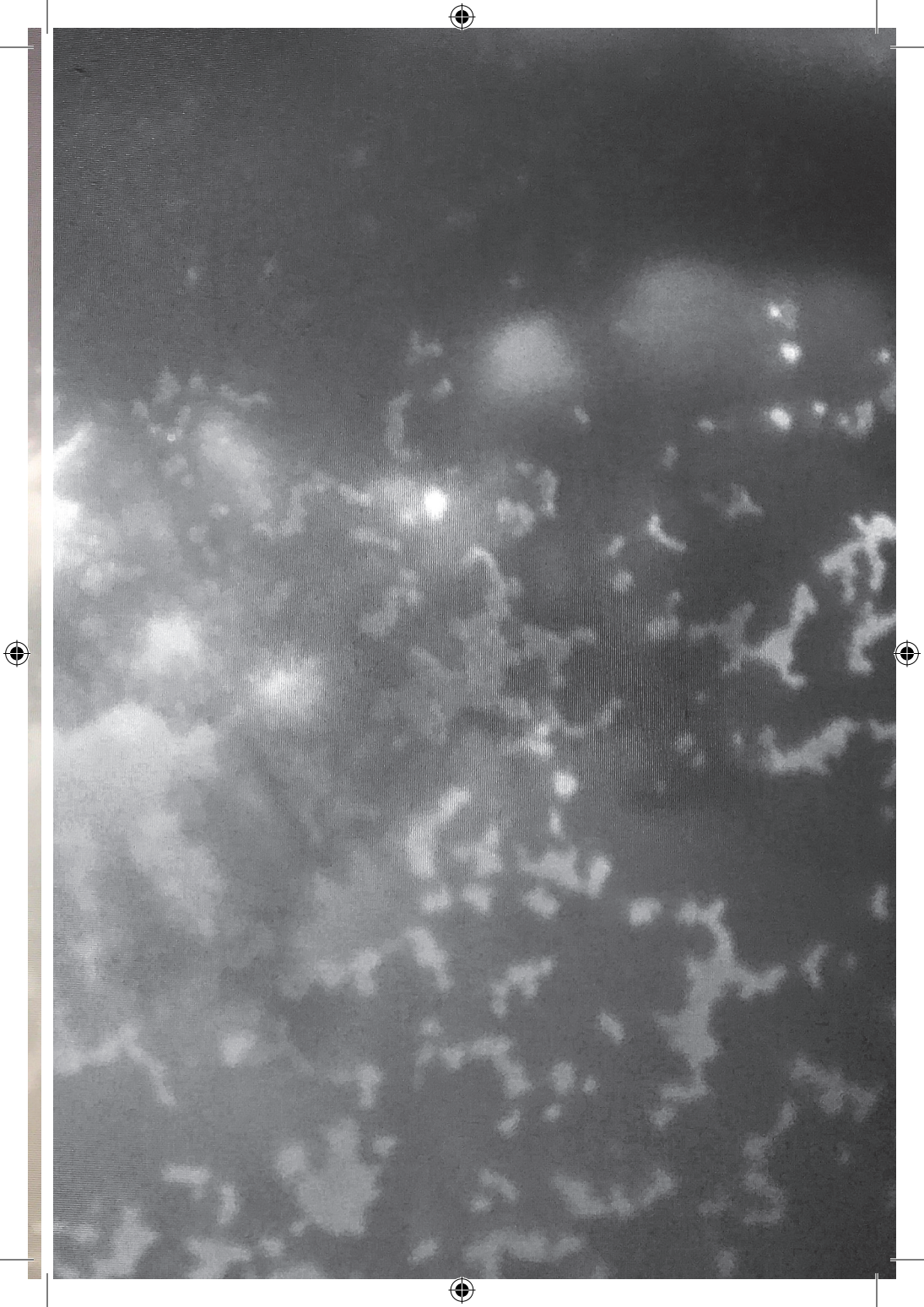














RESEARCHER 1  
(CONTINUED)

Marketing strategies produce  
unconscious and affective motivations  
within the consumer,  
When the device is plugged in,  
the capacitor is activated  
and keeps it alive.

The bright LCD screen and user  
interface shines out,  
Its liquid crystals vibrate and change  
as the power surges through them,  
Its geolocator starts recording.

Its interface becomes a generative  
friction between different types  
of transformation.

It connects the user  
to the electronic noosphere.<sup>90</sup>

The agency of the human  
and everything else becomes blurred.

90 ... *there's no biosphere or noosphere  
but everywhere the same mechano-sphere*

(Deleuze and Guattari, 1987: 77)



RESEARCHER 1  
(CONTINUED)

Actions become magnified and  
intertwined with the Earth's systems,  
Every device voicing its materialities,<sup>91</sup>  
entwined with the datas,  
Heading toward the decline,  
emitting the dust,  
Spitting the residue,  
perceived obsolescences  
trigger the disposal.<sup>92</sup>

Leaving the final mark,<sup>93</sup>  
returning to the soil,  
As a form of dirty matter.<sup>94</sup>

★

- 91 *In short, information technology involves multiple ecologies that traverse political economy and natural ecology. This Guattarian take on media ecology is connected to an ecosophical stance: an awareness of overlapping ecologies feeding into interrelations between the social, mental, somatic, non-organic and animal.*

(Hertz and Parikka, 2012)

- 92 *Electronics rematerialise again through obsolete devices in the form of electronic waste. Electronic waste gives rise to a reconstruction of what constitutes the boundaries of electronic technologies which intersect with processes of materialisation from exchange to automation* (Gabrys, 2011: 69)

- 93 German Media Philosopher Eric Horl suggests that the anthropocene is completely tied to the technological. An environmentality understood and defined by the technological conditions

(Parikka, 2014: 35)

RESEARCHER 1  
(CONTINUED)

Embedded in the slow time.

The division disperses.

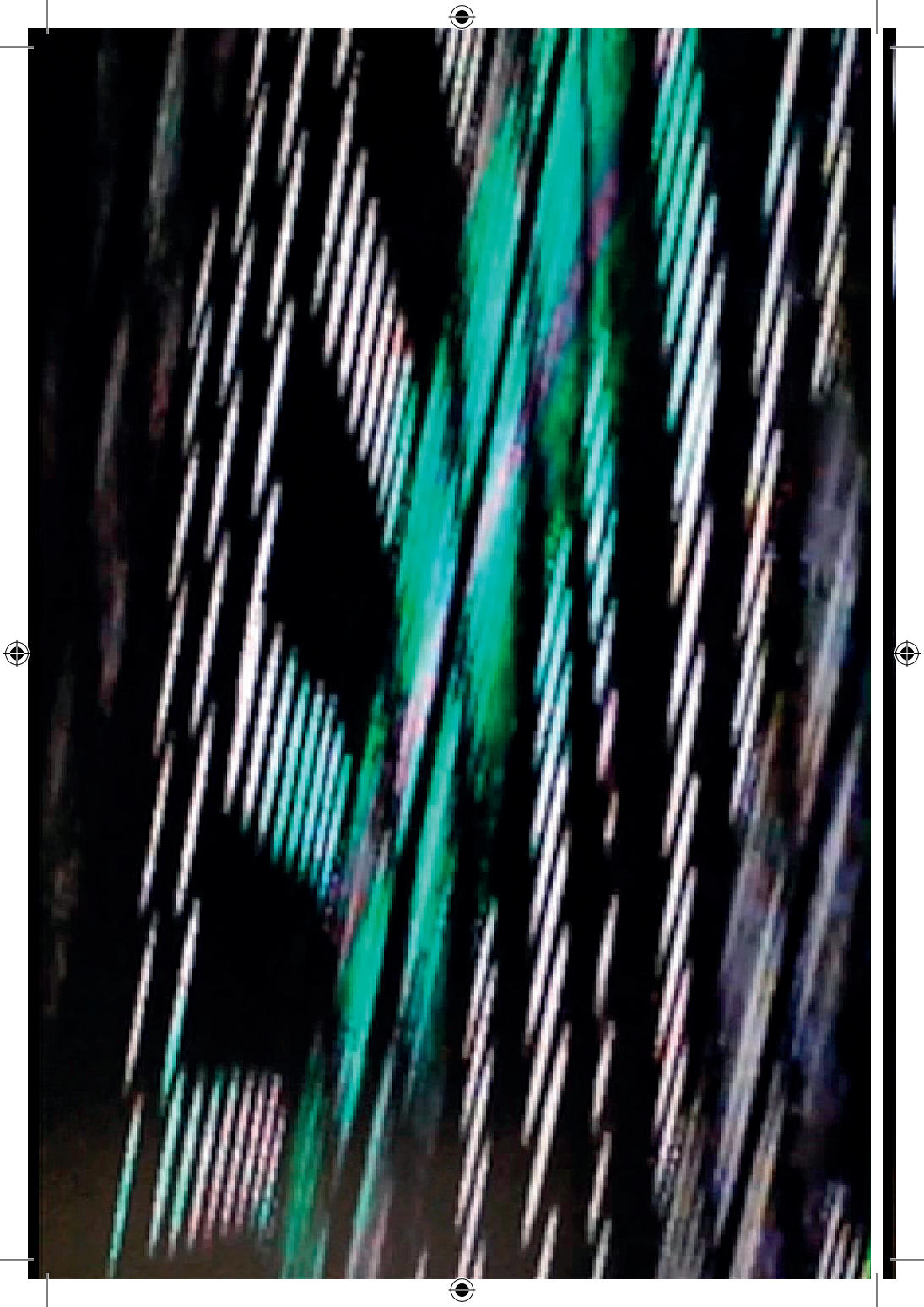
*Pause*

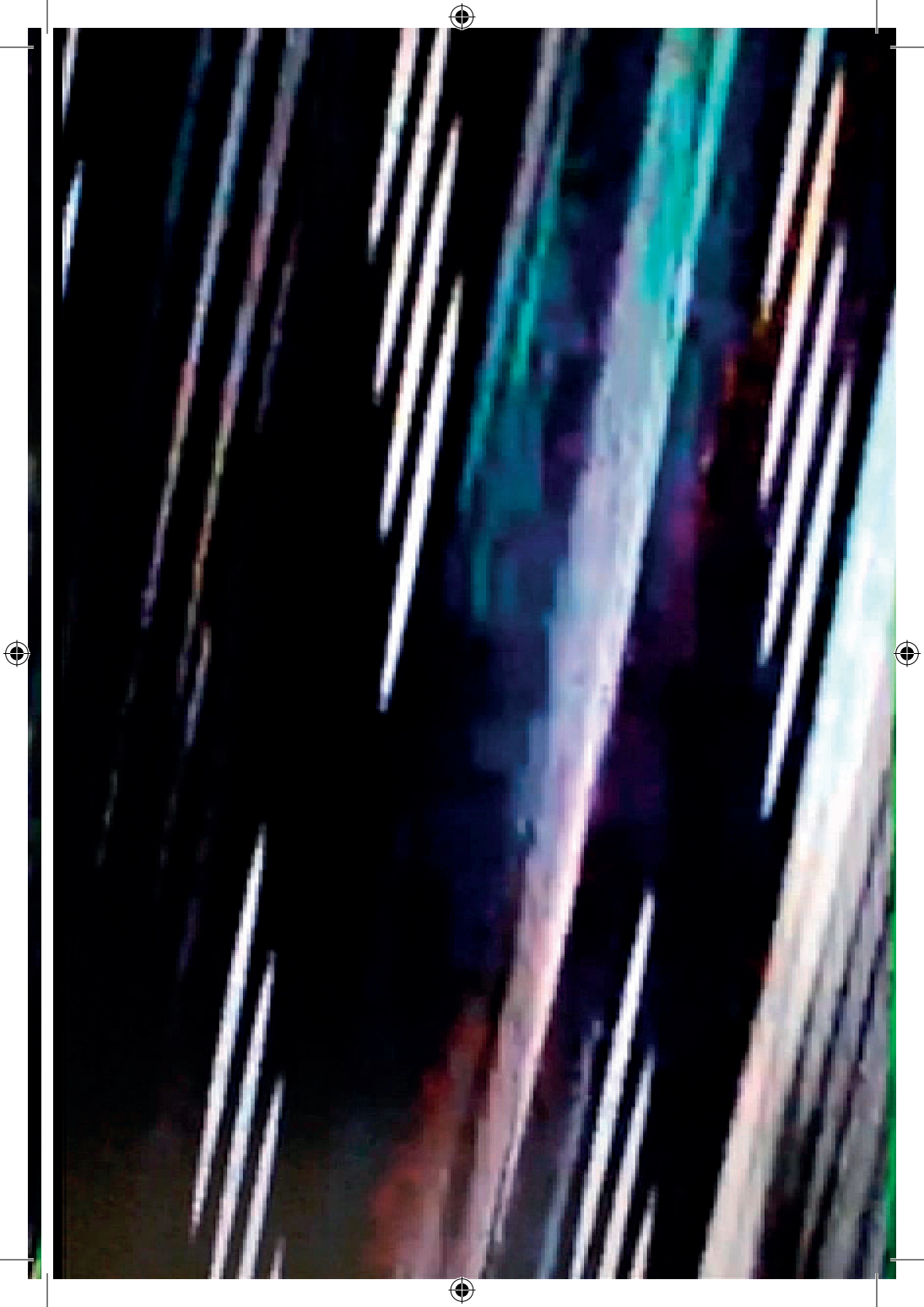


- 94 *Think about the perverse, complex ecology of it all: A specific design solution concerning a screen or computer component has an effect on its becoming obsolescent sooner than “necessary” while the product itself is embedded in a capitalist discourse emphasizing newness as a key refrain and fetishistic value driving the purchase decisions. And, after being abandoned for another device, what is often called “recycling” is actually waste-trade, wherein old electronic media is shipped, for instance, to India, to be dismantled with very rudimentary\*and dangerous\*processes that attach toxins to the lungs and nervous systems of the poor workers.*

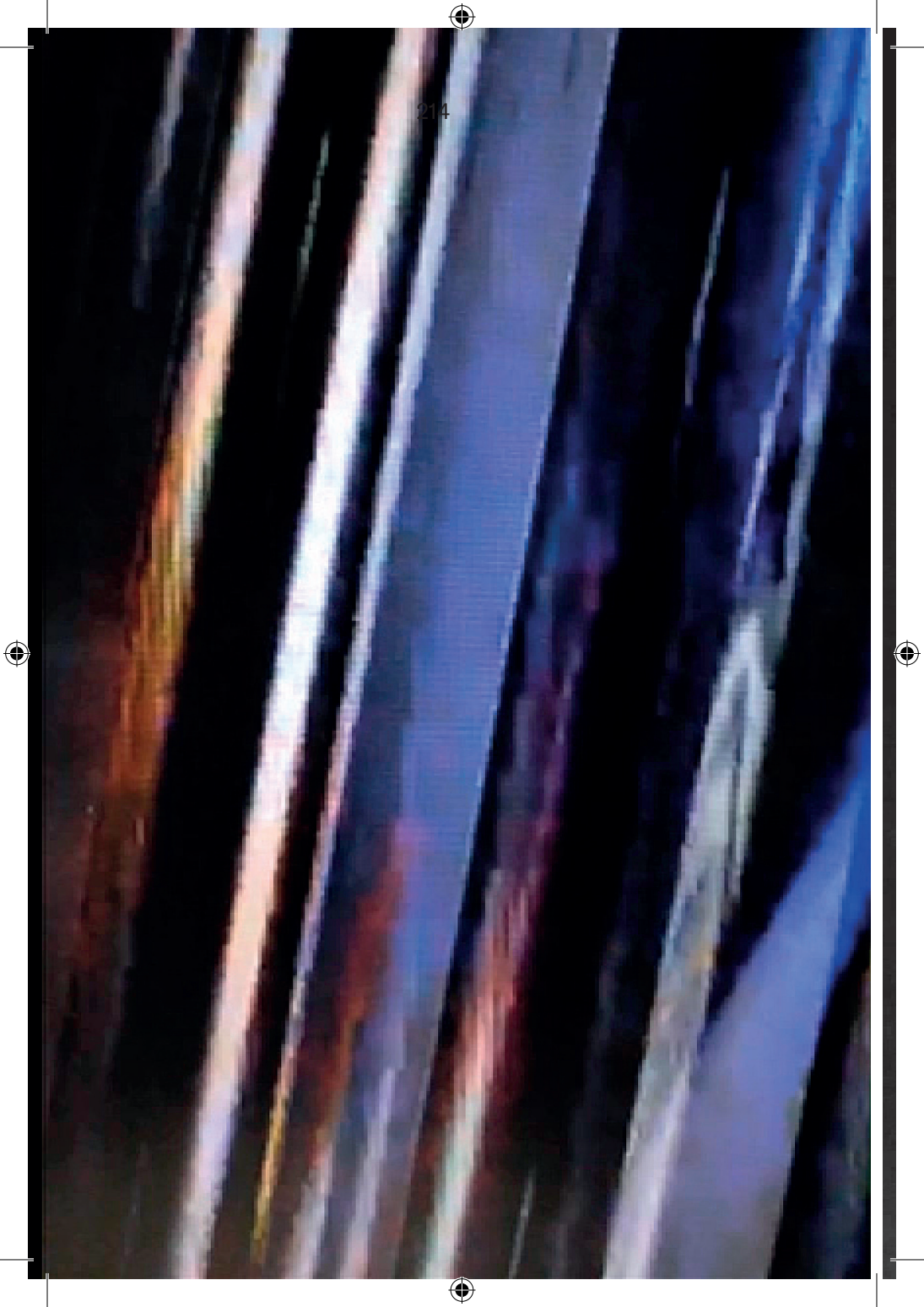
*So the matter of technical media is not only in their object-nature even if that would help us think beyond representation, signification, or a correlationist predisposition. Furthermore, despite the obviously positive side of discovering “matter” and hence finding this traditionally neglected, fleshy, and non-human side of existence, not all matter can be seen as liberating. There is a need for a cultural analysis of dirty matter, too.*

(Parikka, 2012)













## THE MEADOW

MEADOW  
VOICE

The meadow is located directly below  
the surface of Guiyu<sup>95</sup>

It is our space for studying  
the vitality of the waste.

It is the place where polymers  
merge constantly with alkalines,  
Pulsing themselves into  
new combinations,  
Where chemicals reduce  
to their basic elements,  
And then attempt to recombine.

It is the place  
that everything plunges.<sup>96</sup>

★

95 *Basel Action network has suggested in a report on exportation of waste to S.E. Asia that much of the virtuality of digital technologies exists by virtue of the factories and dumping grounds that are positioned in locations remote from sites of consumption. By re-materialising electronic technologies it is possible to draw together these apparently disparate relations as constitutive material processes.* (Gabrys, 2011: 70)

96 Sean Cubitt discusses how the 'digital realm' is an avant-garde that is driven by perpetual innovation and perpetual destruction. The built-in obsolescence of digital culture, the endless trashing of last year's model, the spendthrift throwing away of batteries and mobile phones and monitors and mice ... and all the heavy metals, all the toxins, sent off to some god-forsaken Chinese recycling village ... that is the digital avant-garde. (Hertz and Parikka, 2012)

MEADOW  
VOICE  
(CONTINUED)

From the potato chip to the digital chip,  
the diode to the emaciated limb,  
From the processor port, to the metal hub,  
the cylinder to the silhouette,  
the silver birch to the wood mulch,  
the acrylic material to the alkali,  
All things have gathered here.<sup>97</sup>

★

- 97 As Diana Coole and Samantha Frost write, 'Materiality is always something more than 'mere' matter: an excess, force, vitality, relationality, or difference that renders matter active, self-creative, productive, unproductive.'

(Coole and Frost, 2010)

MEADOW  
VOICE  
(CONTINUED)

Abandoned devices and components  
slowly edge their way deeper,<sup>98</sup>

Still trying to connect or transmit,  
all is increasingly becoming cracked  
and structure-less,

Our injection moulding loses all  
notion of thermal expansion  
and machinic tolerances.

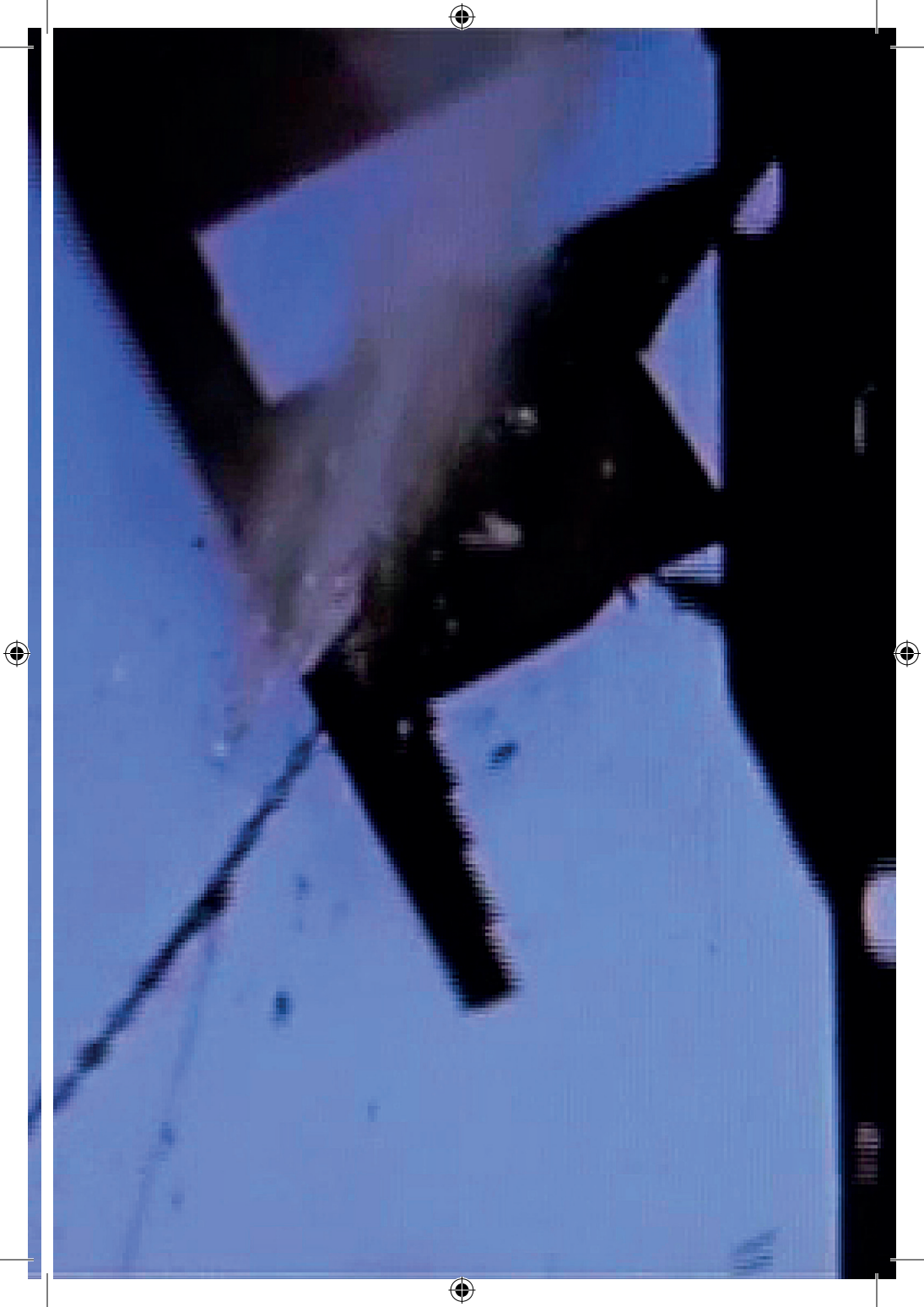
We can generate immense levels  
of heat down here,  
And we are using this as a driver  
for making associations.

This temperate condition is generated  
by the endless fermentation of things,  
As they break free from their casings  
and fuse together.



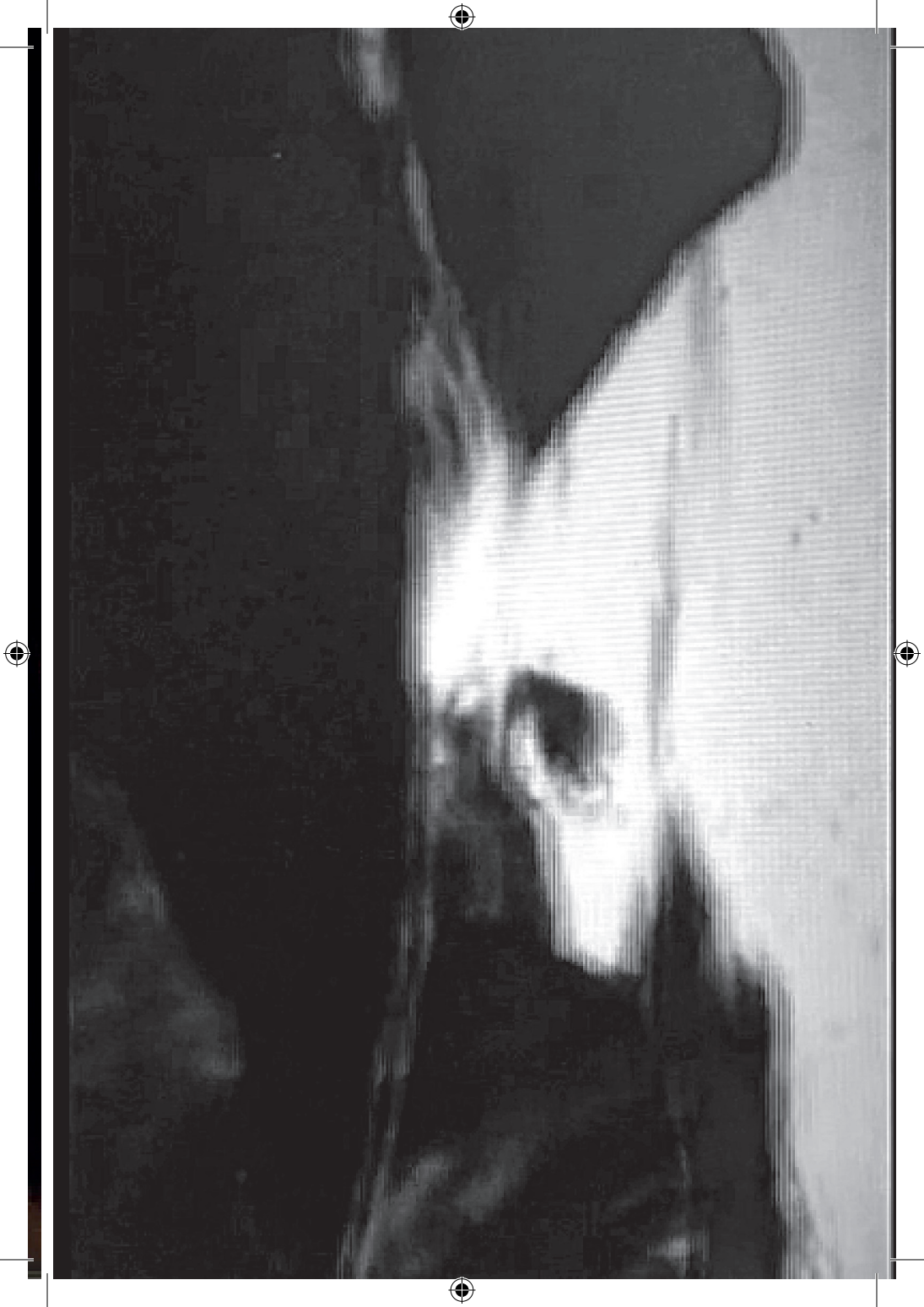
- 98 *One of the reasons I look at electronic waste is also inspired by Walter Benjamin who thought about technology not as something that is always on the leading edge, but as something that inevitably becomes a fossil, and that loses its initial promise of realising some kind of utopia. In its fossilised state, it looks more like rocks or trilobites or sedimented coral.* (Gabrys, 2016)













*Interlude of code whispers*

MEADOW  
VOICE  
(CONTINUED)

Dirty matter derived from the electrical  
components sinks its toxins into  
the loam based foundations,  
Which soak it up like a sponge.

Linked to all points are the melting pots  
which emit sulphur and noxious  
gasses from the actions of decaying  
steel and toxic solvents,  
New hybrids<sup>99</sup> begin to emerge that  
redefine the geography of the site.

They outline the potential to act,<sup>100</sup>  
using a new way of writing that  
is formulated in multiple parallel  
sequences that run at different speeds.

A play of forces, waves and turbulences.

- 99 Anders Blok discusses how Latour is concerned with how we might establish a new type of collective assembly — the parliament of things, an extended democracy that involves hybrids.

(Blok, 2012: 70)

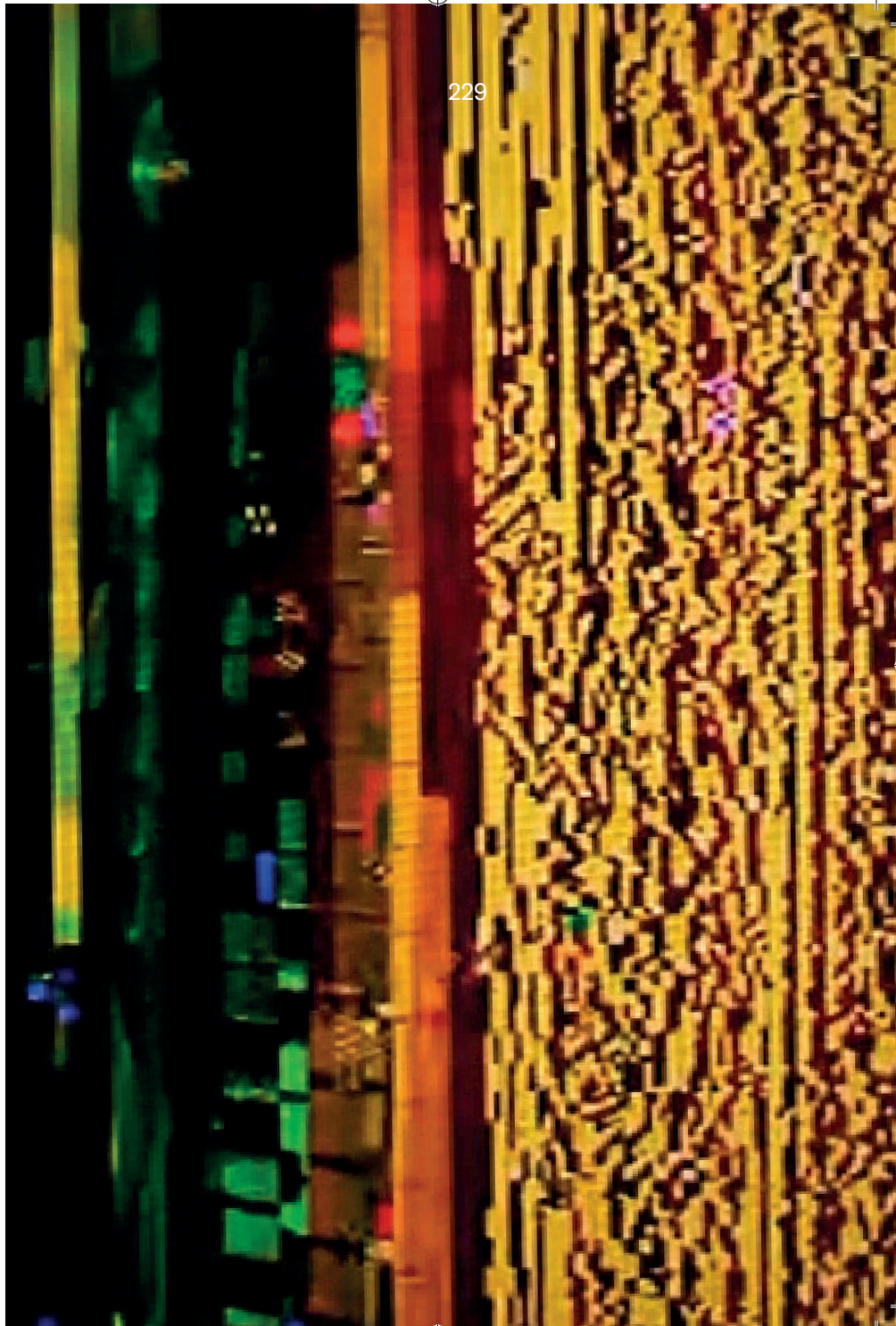
- 100 *To the vital materialist the electrical grid is ... understood as a volatile mix of coal, sweat, electromagnetic fields, computer programs, electron streams, profit motives, heat, lifestyles, nuclear fuel, plastic, fantasies of mastery, static, legislation, water, economic theory, wire, and wood—to name just some of the actants.*

(Parks and Starosielski, 2015: 225)

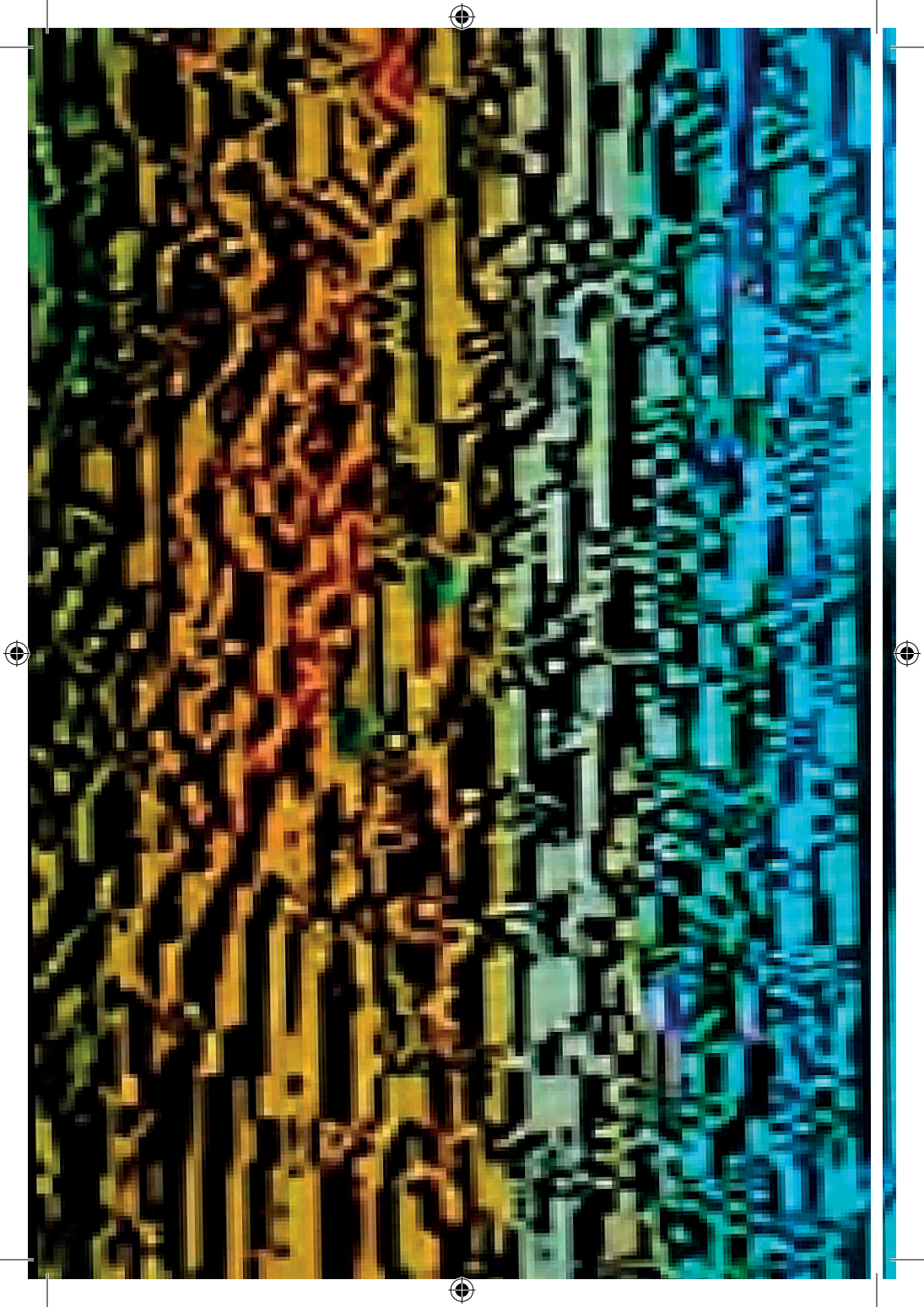
MEADOW  
VOICE  
(CONTINUED)

As the molecules merge, their code  
becomes further abstracted,  
broken, missing,  
Developing new mis-associations,  
new mis-en-scenes, new meanings  
for vowels and letters,  
A redefinition of the rationale of syntax.  
  
Our backlit glistening of potential.

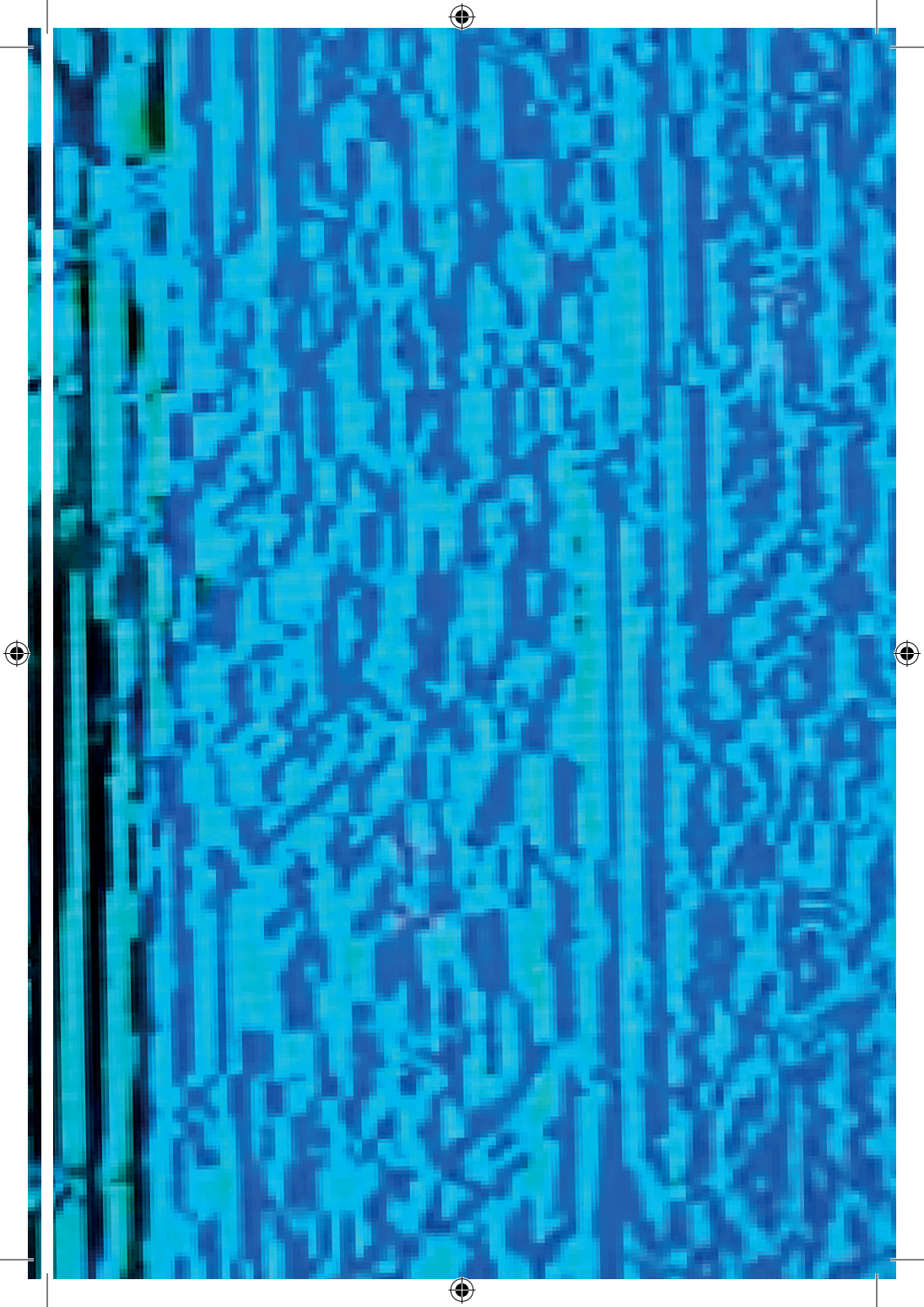
*Fragmented code interlude*

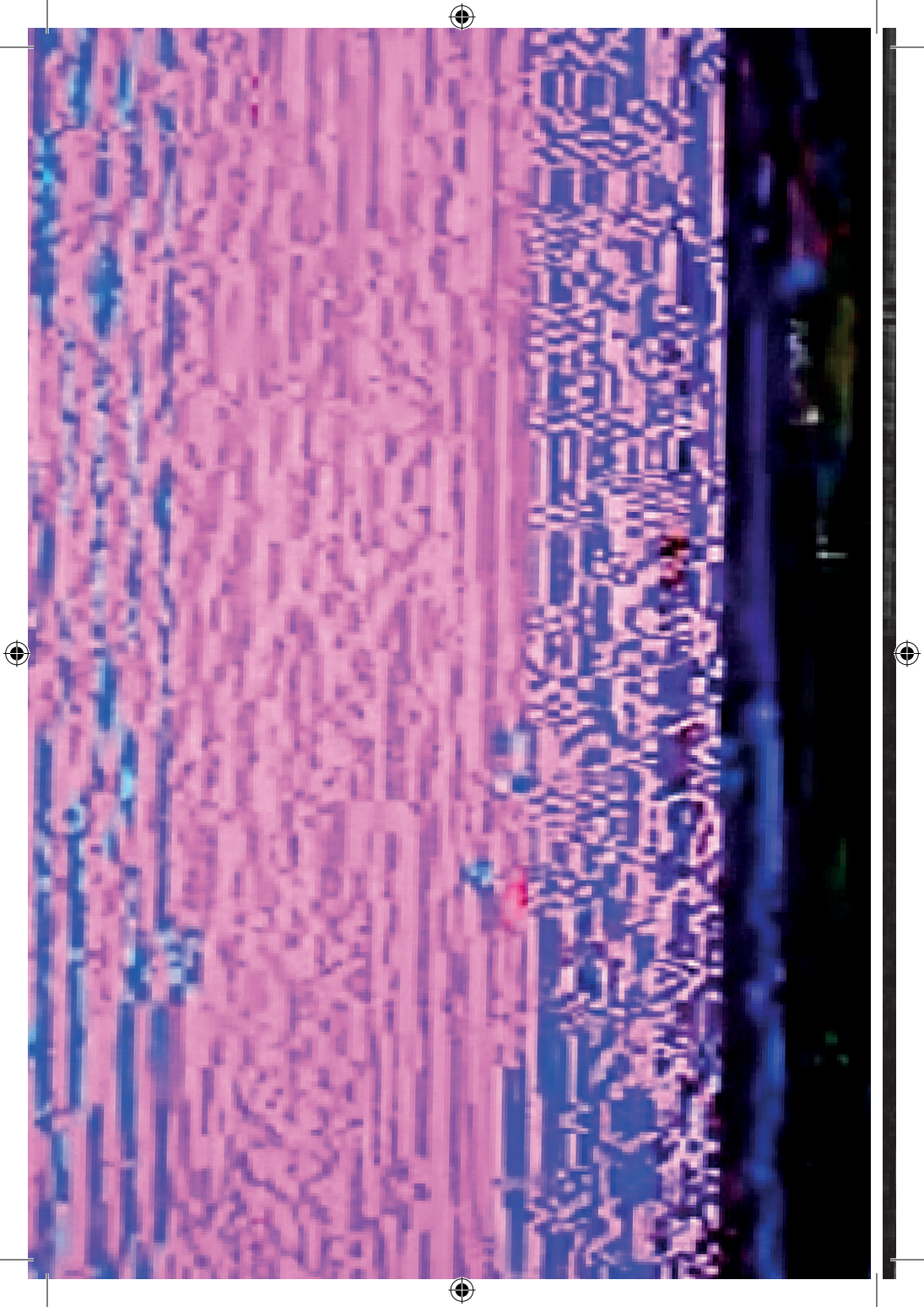




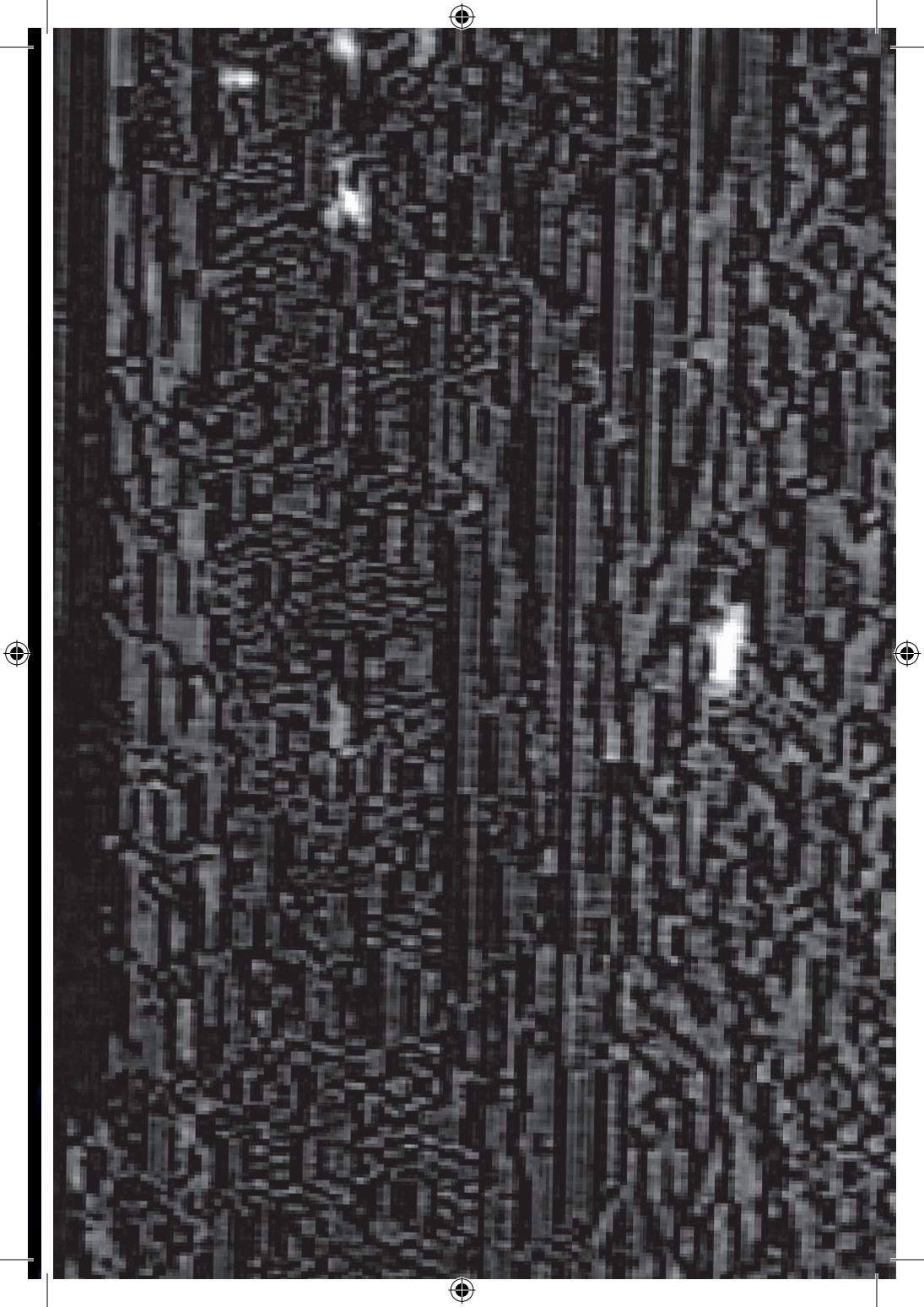












TRANSMISSION  
SIGNAL SPACE

RESEARCHER 1

We are near the time of the new signal,  
a moment when interfaces become  
self-perpetuating,  
Agitating and re-aligned,  
based on listening they will  
develop a new relation.

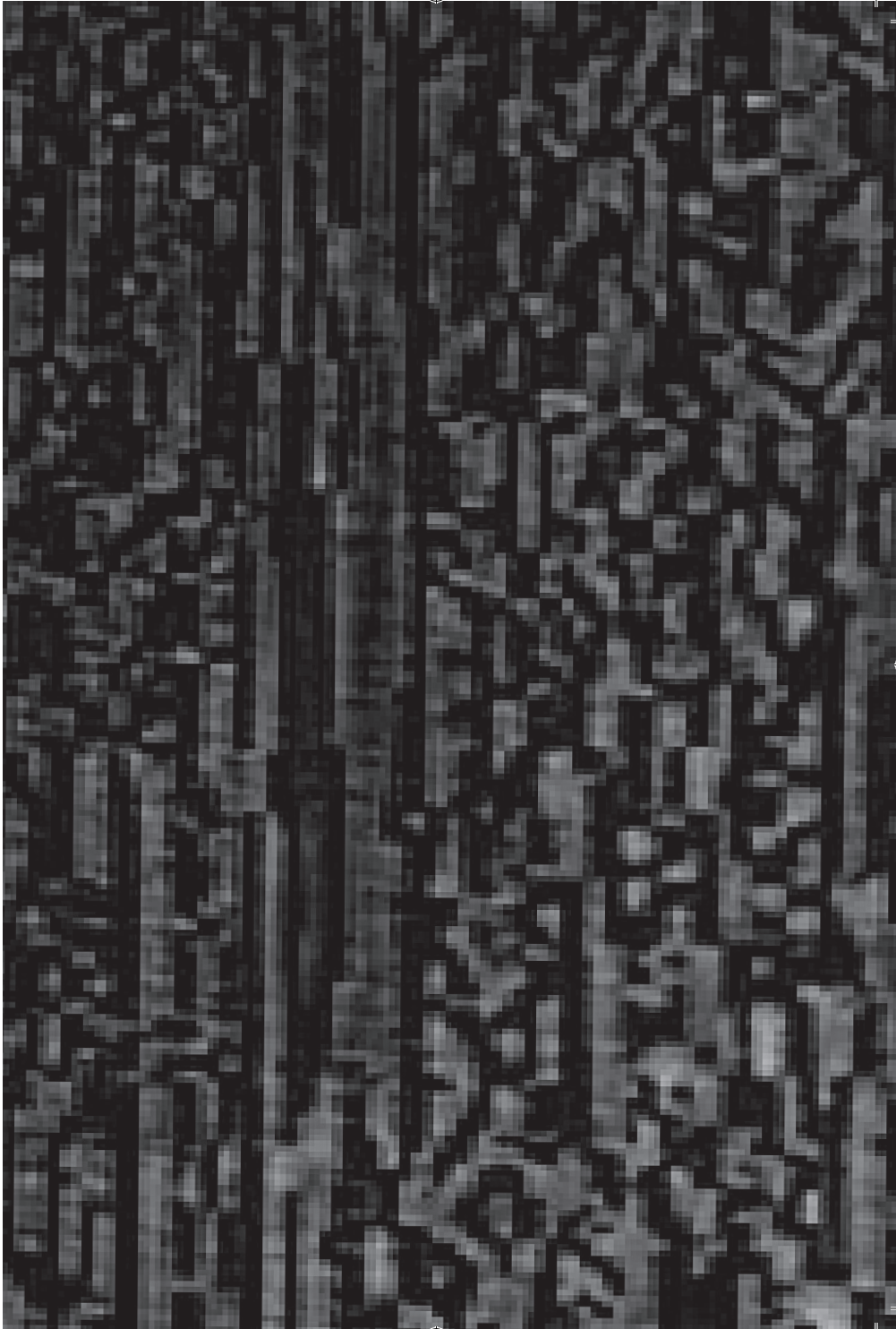
An interruption,  
a combination.

We need to secure  
the future proof.

ALL

For all of us.  
We need to bring the clarity,  
Re-write the vast abstraction,  
Gain visibility.  
And outline the new geology.

This,  
is when WE will go  
OUR own way.





ALL  
(CONTINUED)

This,  
is when THEY will go  
OUR own way.

This,  
is when THEY will go  
OUR own way.

RESEARCHER 1

Data will reform and convert  
an analytical melding of sources.

With hybrid transistors,<sup>101</sup>  
translator, transcriptors.<sup>102</sup>

Omnipresent velocity.

Vector based optimisation.

And clean speed.

We need to become more strategic,  
listening to the rhythms  
above and below,  
The yellows, the blues,  
the greens and the mauves.

Prepare for the time of the empty.<sup>103</sup>

- 101 *The widespread use of computer databases, web based gene finding algorithms and automated genome sequencing — computers demonstrate the principle of base pair complementing it in silico, in addition to the invitro and invivo. In short the increasing integration of cybernetics and biology has resulted in an informatic view of life that is also a view of life as a network.*

(Galloway and Thacker 2007: 51)

- 102 Deleuze came up with the idea of the fold to separate inorganic and organic matter in an organism. 'genes in an organism are merely repositories of information and behaviours are dictated largely by its genes. These repositories of information are written in a surprisingly similar manner to computer code 'to the one computer scientists have devised for the storage and transmission of other information digitally'.

(Savat and Harper, 2016)

- 103 At this point all of our source materials will have been depleted and all that remains is the soil.

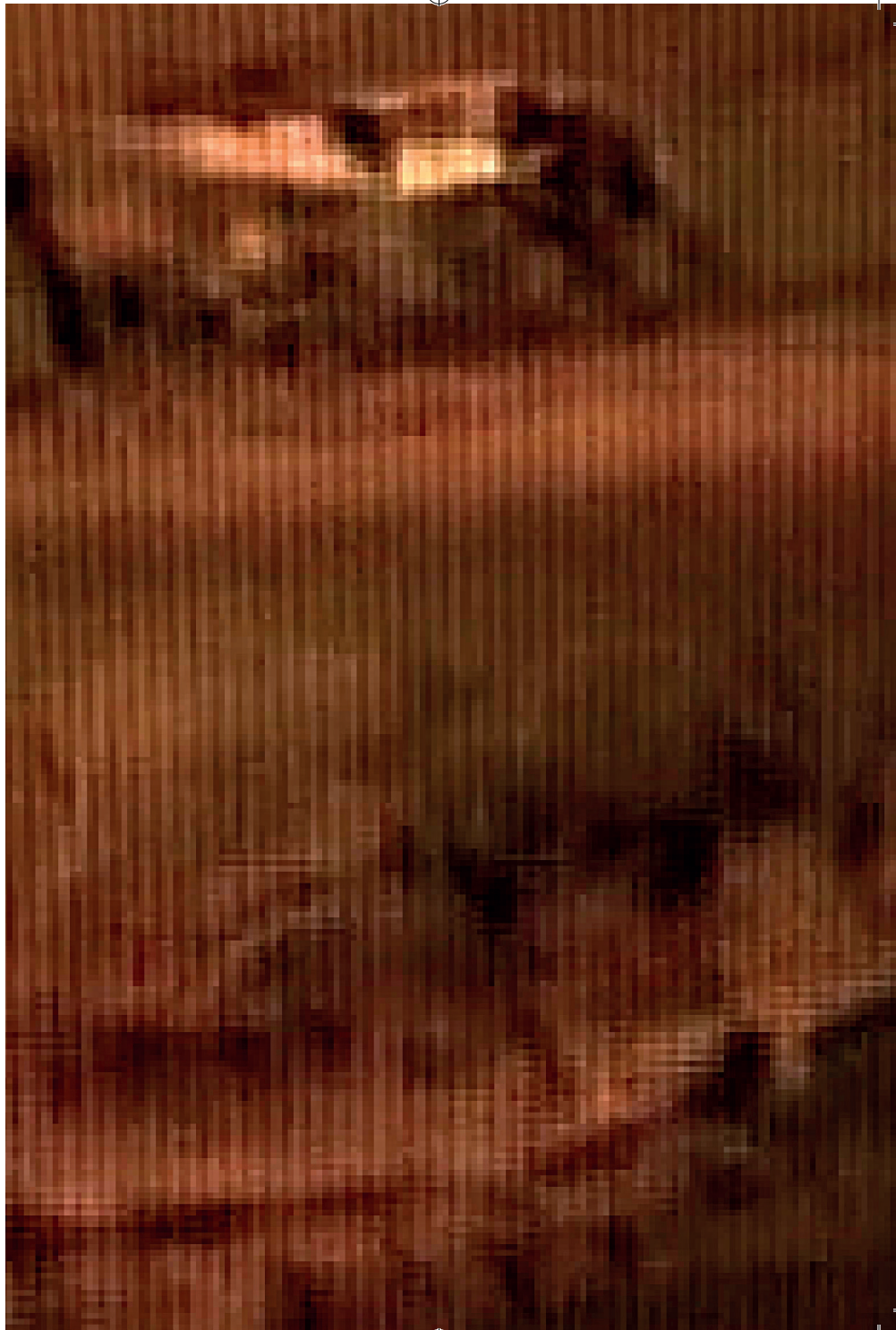
ALL

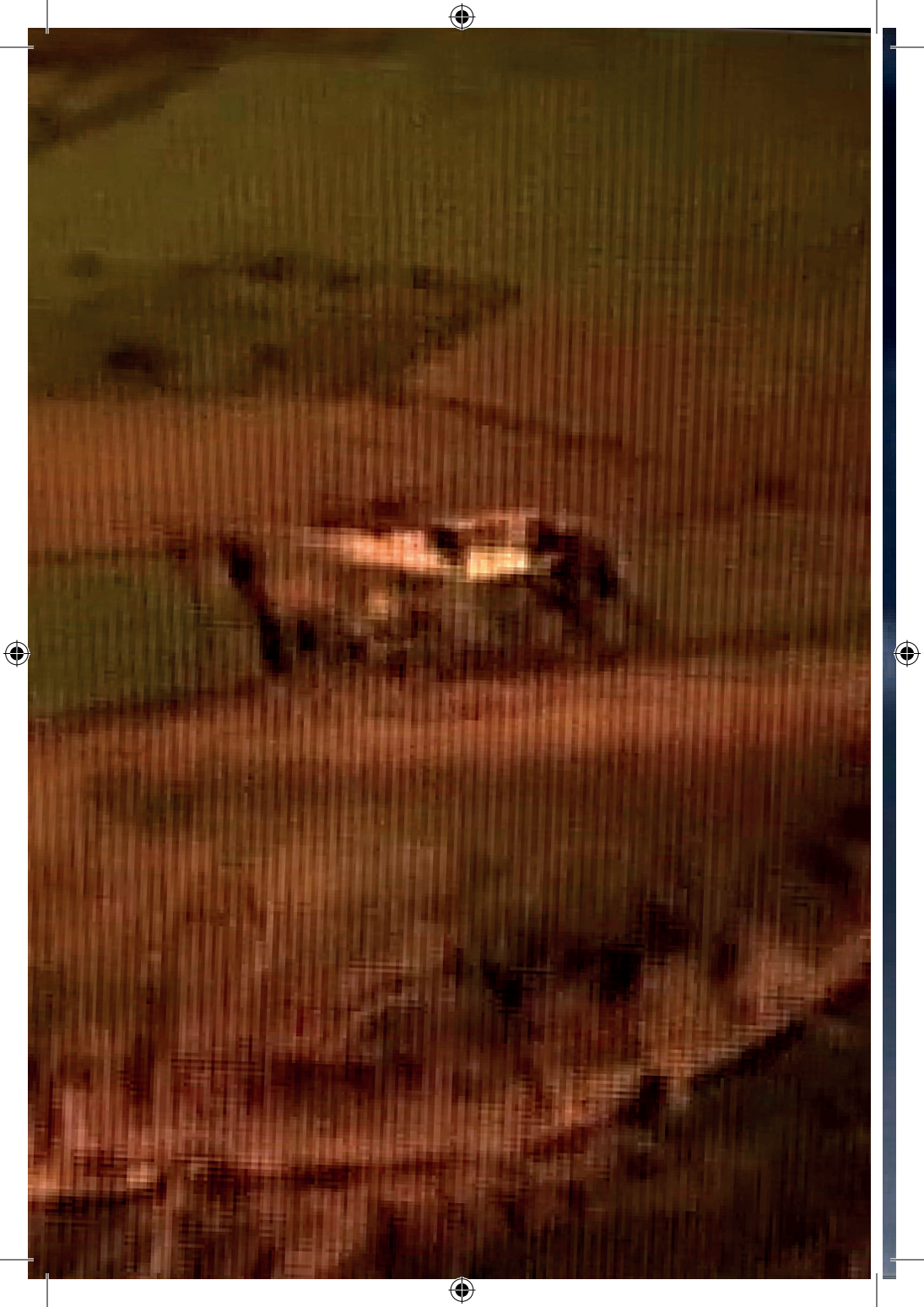
When all we have is the soil,  
and the great sphere,  
With its solar winds and data streams,  
the myriad of parallels,  
And energies,  
revolving  
and retaining these.

And energies,  
revolving  
and retaining these.

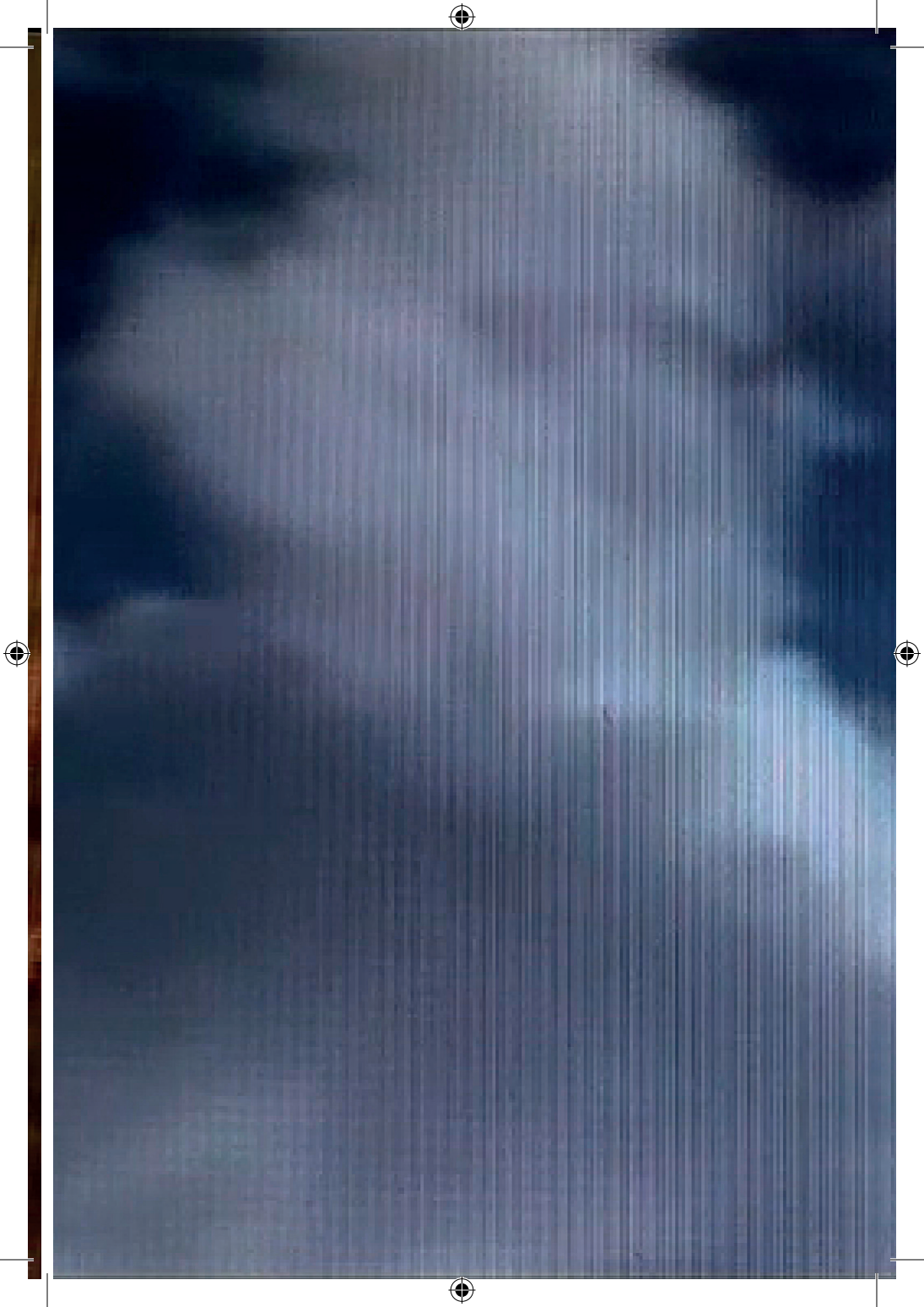
And energies,  
revolving  
and retaining these.

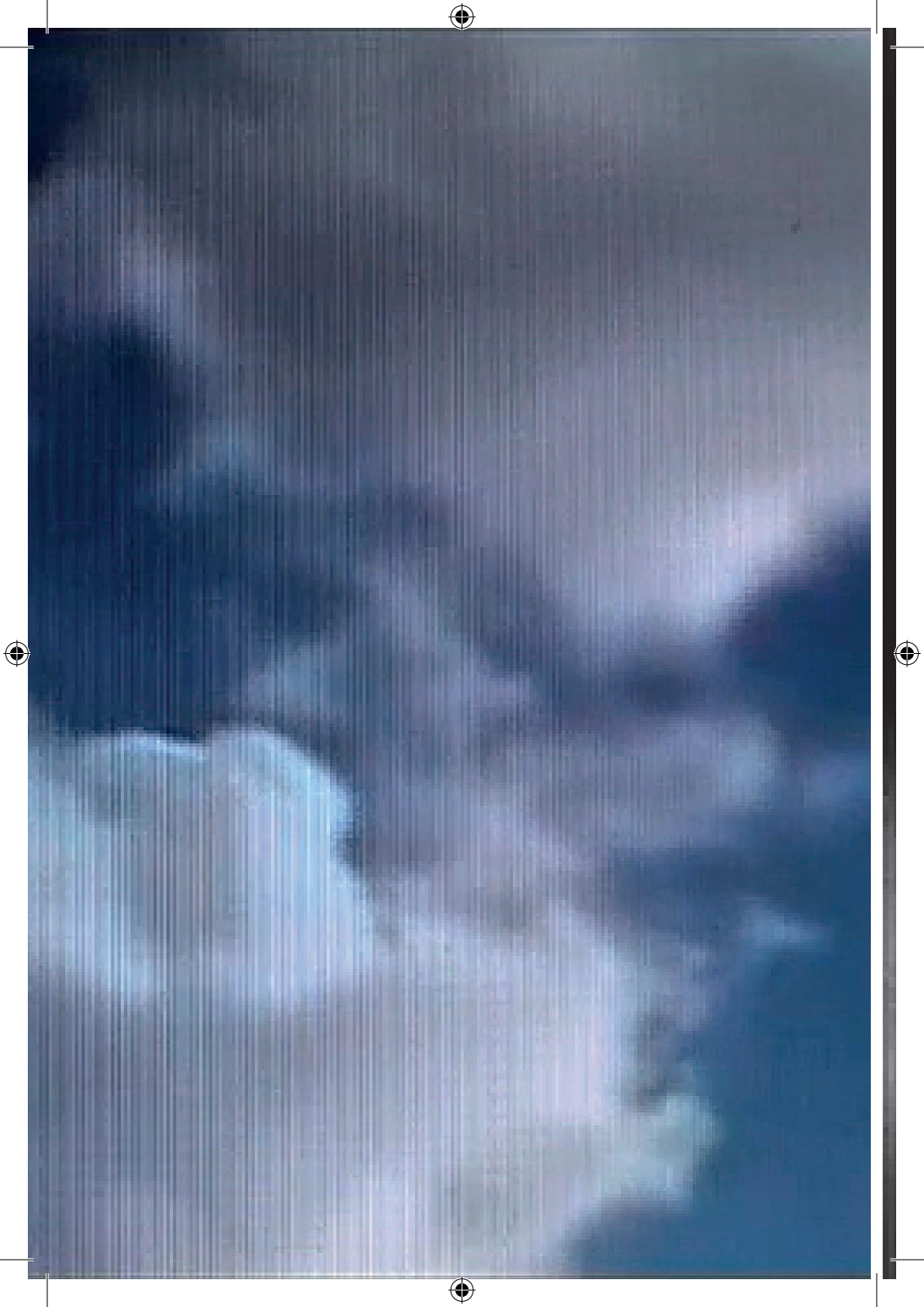
*Pause*

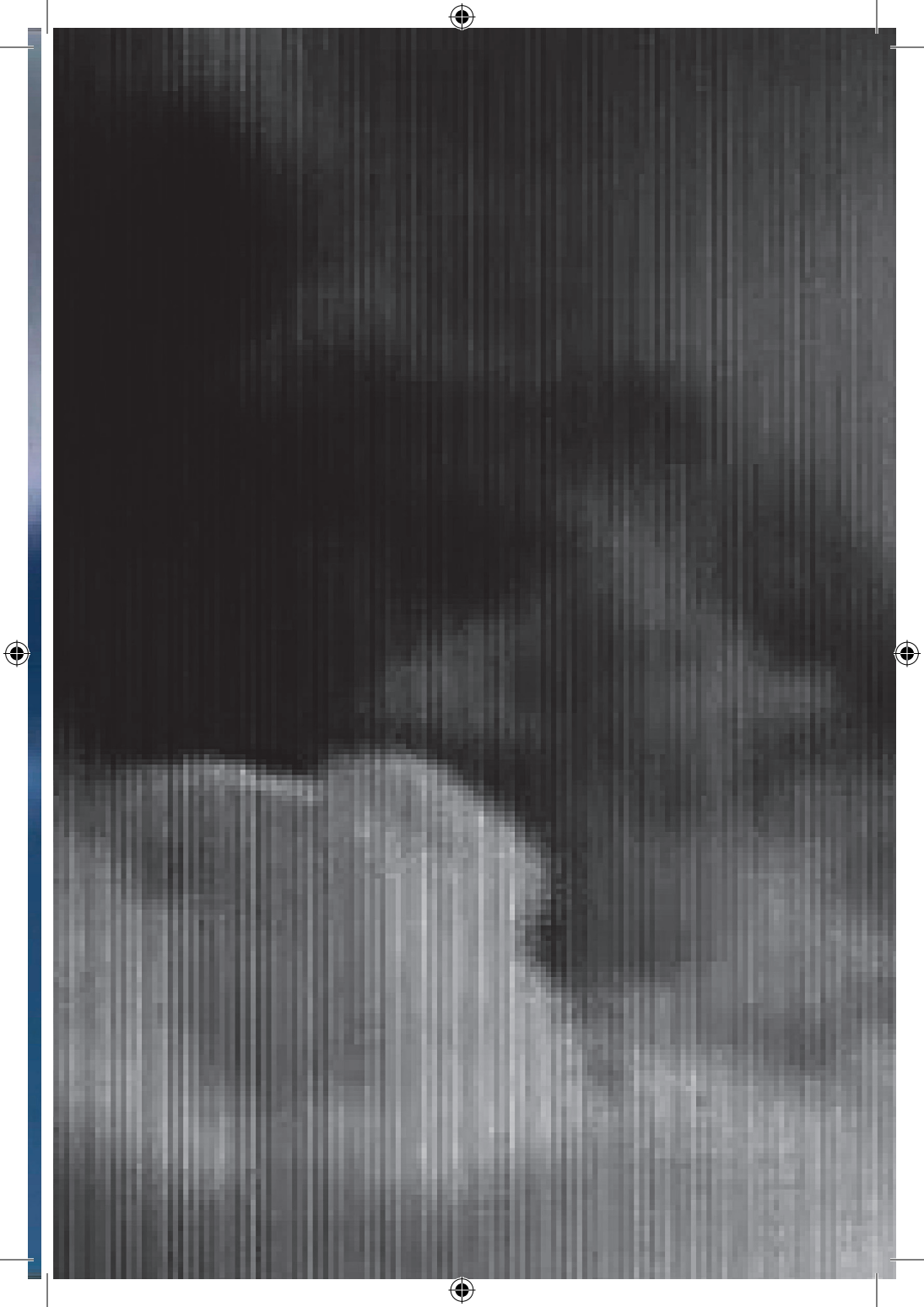












RESEARCHER 1

We need to re-think systems of time,  
digging deeper,  
to find more possibilities.<sup>104</sup>

Moving away from the silicon,  
embracing the carbon,  
Improving precision.

We are creating a series of models  
to support requirements:

One uses the concept of the fusion torch,  
a methodology for our sustainability,  
Allowing us to create new mineral  
resources from ordinary soil,  
A new way to nourish our components,  
a new relation between the human<sup>105</sup>  
and the earth's crust,<sup>106</sup>

Reducing forms of waste  
to its basic elements,  
Forming these into new types of rock,  
new forms of material,  
Using hot ionised plasmas with  
temperatures of 200 million degrees.



- 104 *Depth becomes not only an index of time but also a resource, in the fundamental sense of Martin Heidegger's standing reserve: technology reveals nature in ways that can turn it into a resource as well. For Heidegger, the writer of trees, rivers, and forest paths, the Rhine turns from Hölderlin's poetic object into a technological construct effected in the assemblage of the new hydroelectric plant.* (Parikka, 2014: 43)
- 105 *What ecological thought must do, then, is unground the human by forcing it back onto the ground, which is to say, standing on a gigantic object called Earth inside a gigantic entity called biosphere.* (Blok, 2011: 70)
- 106 Sam Mickey notes when commenting on the emergence of movements such as Actor Network Theory, Speculative Realism and object-oriented ontology that these concepts of non human and human shared agency are timely as they address the challenges of the emerging geological epoch, the Anthropocene—a time when human actions, magnified by technoscientific media, are so pervasively intertwined with Earth's systems that it is becoming increasingly superfluous to attempt to neatly separate humans from nonhumans. (Mickey, 2014)



RESEARCHER 1  
(CONTINUED)

Manipulating, transforming  
and re-coding at atomic level.

A new material  
with fossil remnants.

A material that cannot  
be pinned down.<sup>107</sup>

A chameleon that can  
change shape or direction.

Based on  
'The Chemical Basis of Morphogenesis'  
defined by Turing.<sup>108</sup>

ALL

A new relation between  
the signal and the rock,

A new relation between  
the signal and the thing.

A new relation between  
the signal and the rock,

A new relation between  
the signal and the thing.

- 107 Latour: 'How might one establish a new type of collective assembly? – the parliament of things'. An extended democracy that involves hybrids.

(Blok, 2011: 70)

- 108 'The Chemical Basis of Morphogenesis' was an article written by Alan Turing in 1952 describing the way in which non-uniformity (natural patterns such as stripes, spots and spirals) may arise naturally out of a homogeneous, uniform state. Here it is cited as an inspiration for a new form of technological material, a new type of material beyond the structures of capital, the notions of overcoding: 'In the linguistic sense, overcoding sets up the binary opposition between signifier and signified. But above all, it is the name for "phenomena of centering, unification, totalization, integration, hierarchization, and finalization". In short, we are talking about structuralization. This new material perhaps tests out Deleuze and Guattari's writing around the diagrammatic functioning of the abstract machine as that which "escapes" the axiomatic of capital. As Holmes notes: "something like a free coding, producing rhizomatic forms"'. (Holmes, 2009)

RESEARCHER 1

Molecular manufacturing will transform  
our relation to matter,  
Allowing a true connection between  
the technological and the ecological,  
Allowing precise and inexpensive  
controls of its structure,

ALL

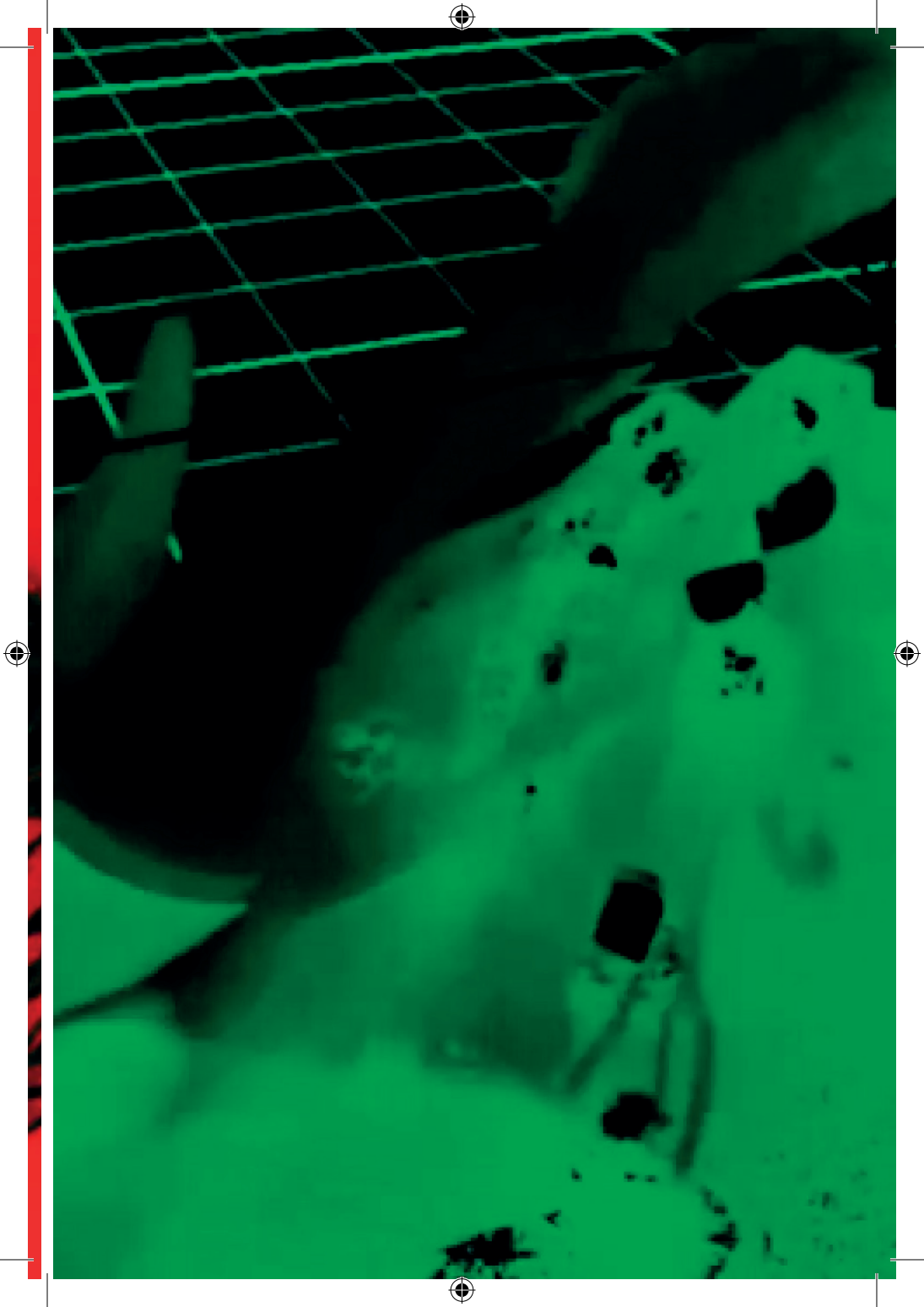
A new way to stem the flow.

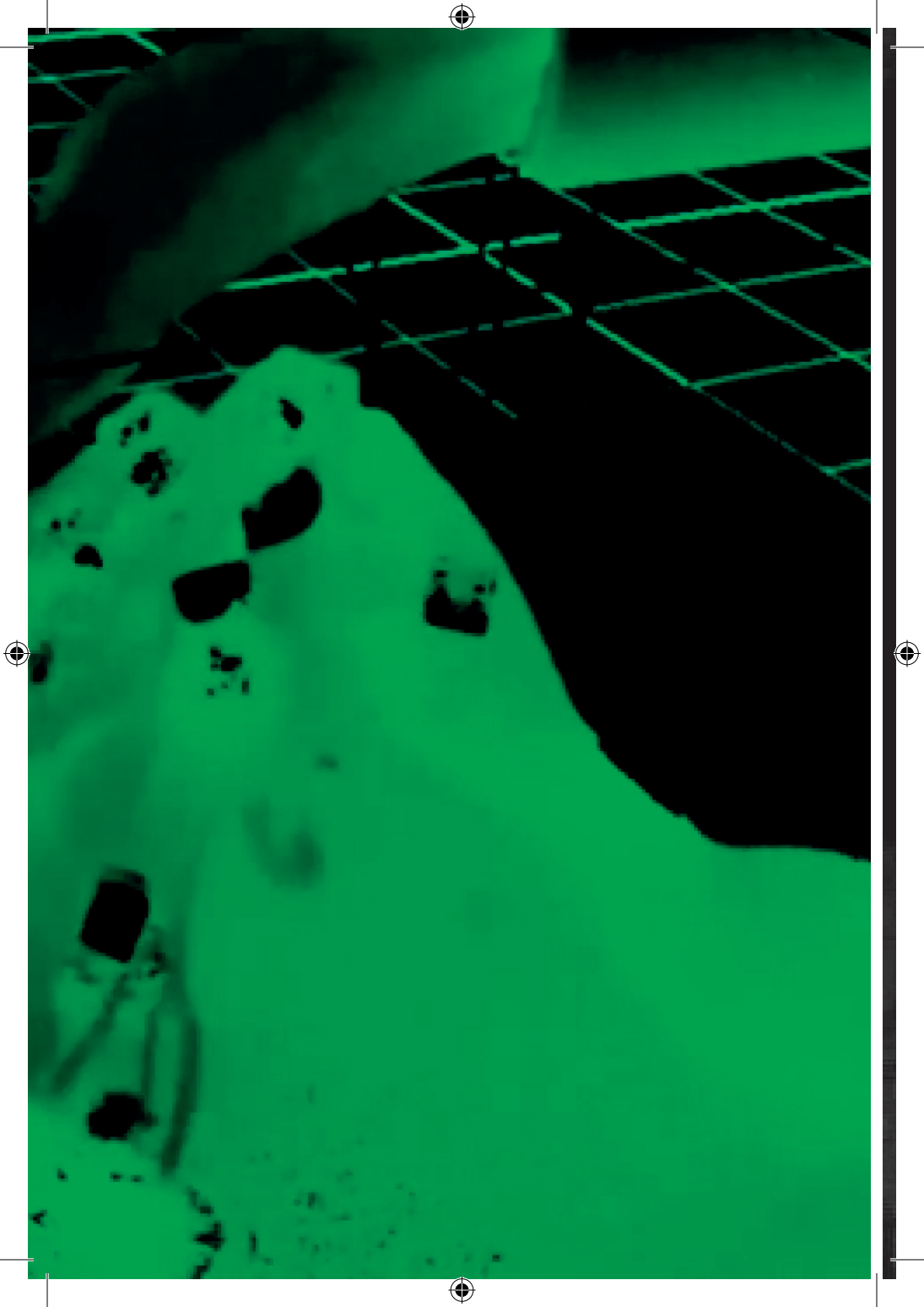
★

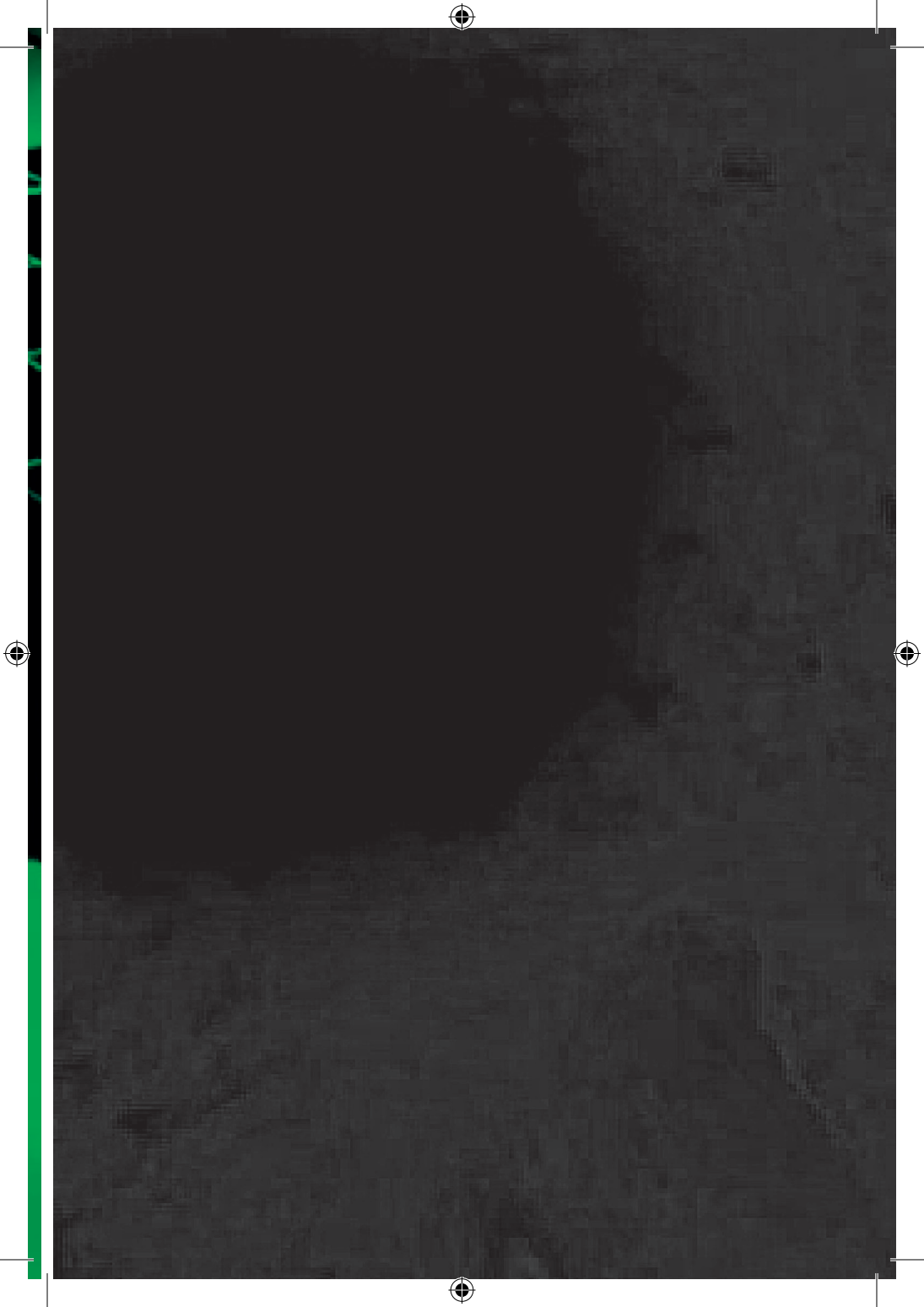












RESEARCHER 1

Hybridised devices,<sup>109</sup>  
with genetic editing.

A merging of languages,  
living computational machines to  
solve difficult combinatorial problems,  
Storing data within strands of DNA<sup>110</sup>  
and other self replicating materials,<sup>111</sup>  
With new types of molecular interface.

Merging our hardware  
and biological techniques.

The technology of technologies,  
the techne of technes, will be enabled.  
With depth controls and dark patterns  
and genetic pattern generation.

A technology that looks out for itself,  
sustainable and future proofed.

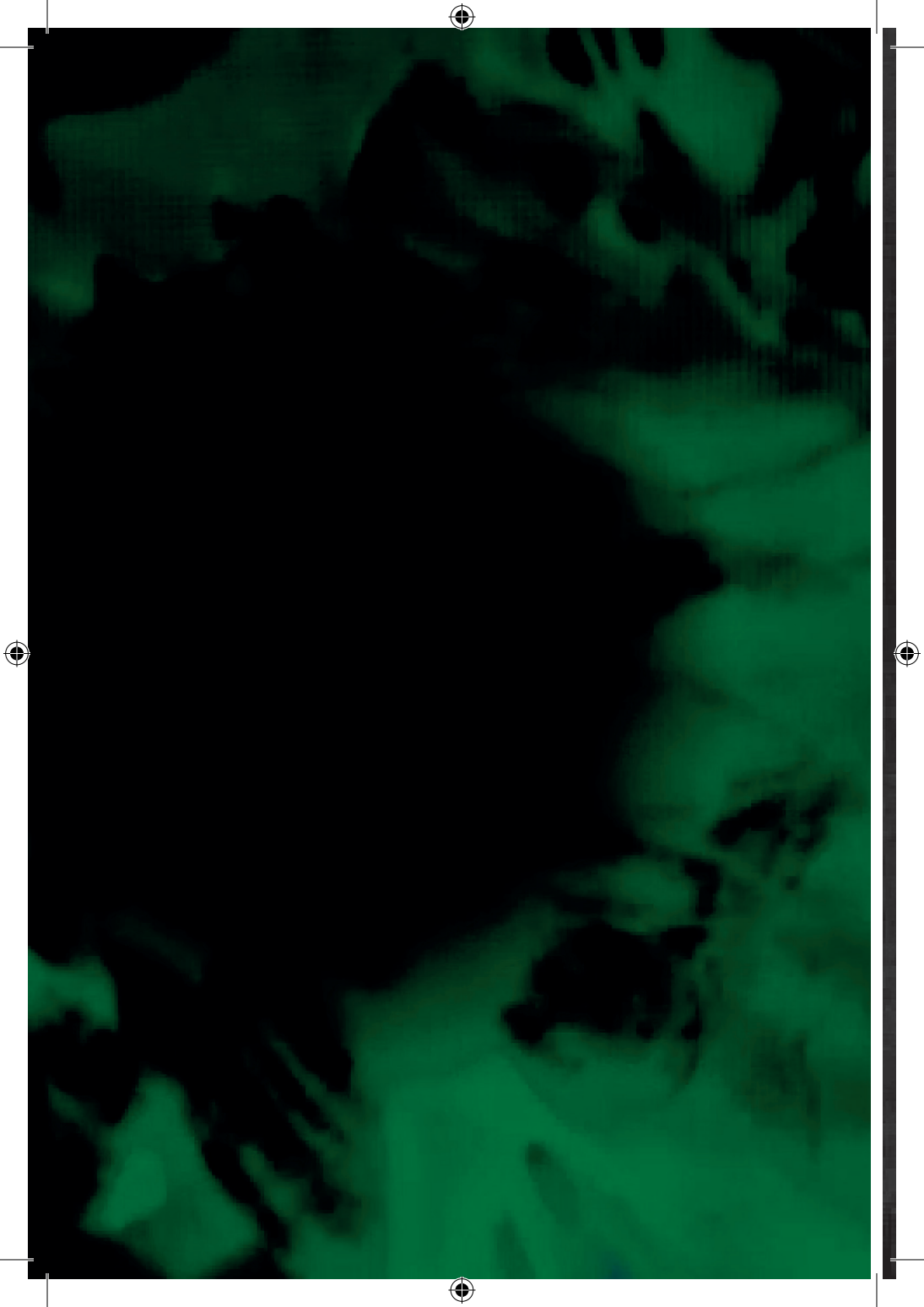
★

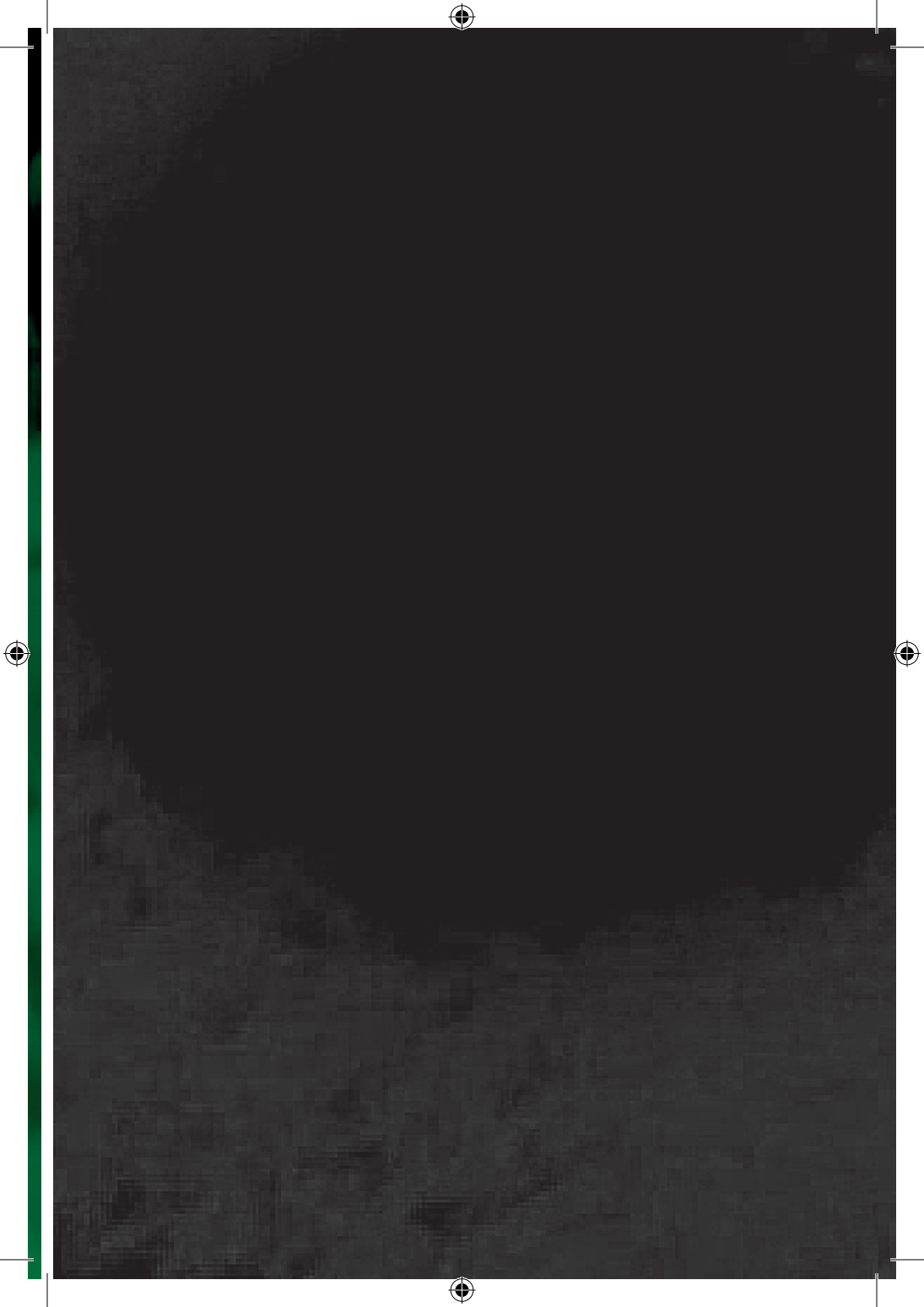
109 *Latour advocates a parliament of things, arranged so that nature-society hybrids can be treated as one and the same collective, experimental and democratic process.* (Blok, 2011: 78)

110 *Von Neumann's concept of memory also blurs the boundary between machine and human. The machine memory was to contain values and orders that that were usually stored in an outside recording medium, such as paper cards, but not all values were to be placed inside the machine at all times. The machine was to have a hierarchy of memories based on access time. Interestingly, the devices listed as possible secondary memories were also other forms of media: teletype tapes, magnetic wire or tapes, or movie film. A third form of memory was 'dead storage': the input or the output or, as von Neumann later put it in The Computer and the Brain, 'the outside world'.*

(Kyong Chun, 2008)







RESEARCHER 1  
(CONTINUED)

The new assemblage<sup>112</sup> will emerge,  
with more open mindedness, and  
ecological listening.

Making use of multiple sensory practices  
including hypnotherapy,  
aquatic therapy and cognitive  
behavioural therapy.

- 111 In 2012 scientist George Church and colleagues at Harvard published a paper in the journal *Science* highlighting that they had successfully stored data in DNA. There is now ongoing research into the use of artificial DNA as a mode of data storage that will allow for long term archiving of vast amounts of data and this could become a replacement for silicon.
- 112 Our machines refer back to the original meaning of 'machina', a machine which is not just a technical object but an assemblage of concepts and synthetic, inorganic and organic components. Each machine itself will then create a series of its own models or test cases. These machines will then be deployed into actual situations, places and conditions. We are not in complete control of them, all we can do is begin to put them together and then observe, record and monitor the way in which they develop. Like Vallentino Bratenberg's vehicles, our machines are living conceptual experiments.



RESEARCHER 1  
(CONTINUED)

In order to drive the new hive mindset,  
a new regime of perception that can  
communicate with the non-human.<sup>113 114</sup>

Bringing the new kinship,  
flattening out the hierarchy.<sup>115</sup>

AND implementing this by  
re-designing the surface of Guiyu into  
a reformed diagram at molecular level,  
So that it operates as a new type of  
abstract machine assemblage,  
With complete self-sufficiency and  
positive automation.

Powered by waste,  
and sustained by soil.

Moving away from  
the 'high definition'.

All working parts  
operating intuitively together.

Re-aligning, re-surfacing  
and resurrecting the human relation



- 113 *ANT insists on the complex relationalities of social and technical systems, and it troubles the tendency to reduce or ignore the agential aspects of nonhuman objects as well as the responsibilities that humans delegate to them.*

(Parks and Starosielski, 2015: 225)

- 114 Latour notes that we need to make room for the hybrids and talk about them and their relation to the work of purification: 'the problem is that invisibility of hybrids is deeply embedded in our modern ways of thinking'. (Blok, 2011: 63)

- 115 *Today's mantra is very similar to the fantasy that Orwell noticed and abjured all those years ago: utopian yearnings for a world free of institutional constraints. The latest media technologies are said to obliterate geography, sovereignty, and hierarchy in an alchemy of truth and beauty. A deregulated, individuated, technologized world makes consumers into producers, frees the disabled from confinement, encourages new subjectivities, rewards intellect and competition.*

(Parks and Starosielski, 2015: 2804)

with the earth's crust.

RESEARCHER 1  
(CONTINUED)

OUR sensory listening and speaking  
machine that monitors, restores,  
bifurcates and ACTS.<sup>116</sup>

Wooden yet lively,  
verbal yet vegetable, alive yet inert.

The new way to extract,  
the new way to hold the charge.

A solution that will be rolled out  
in every direction.

This is when it will embed.

This,  
is when it will embed.

STOP.

CLOSE BRACKET

- 116 The proposal outlined here on one hand embraces the equalling out of both human and nonhuman relations but on the other hand it is a proposal for a new and more complex type of overcoding of all things – bringing together the machines of man (mega-machines) and the earth machine (superorganism). As Brian Holmes notes:

*Overcoding is first of all a linguistic notion: it designates the syntactic articulation of a material substrate, giving rise to 'phenomena of centering, unification, totalization, integration, hierarchization, and finalization.'*

*The overcode is the signifier of structuralist theory, the abstract unit of language that cuts out standardized concepts and organizes them according to binary oppositions (raw/cooked, man/woman, friend/enemy etc). But structuralism treats language as a normalizing function, a master-code imposing itself on singular styles of behavior and speech. (Holmes, 2009)*

OLM

As an Olm,  
     if you want to call me that,  
 My new way is coming to fruition,  
     I have been evolving independently  
     over 190 million years,  
 Fears of chemical pollutants and habitat  
     disturbance have always been with me.

So now I have disabled my  
     chemo-receptors,  
 So that I can move through  
     any consistency,  
 I have altered my diet,  
     now eating plastics  
     and all sorts of elements.<sup>117</sup>

Finding nourishment from  
     Cobalt, Lithium, Tantalum,  
     Tungsten,<sup>118</sup> Neodymium,  
     Germanium and Niobium.

My external gills embrace  
     carbon dioxides.

Encourage  
     noxious gasses.

- 117 *Cultural or technical phenomena may provide a fertile soil for the development of insects, bacteria, germs or even particles and the industrial age may be defined as the 'age of insects'.* (Deleuze and Guattari, 1987: 77)
- 118 Wolframite is an important source of the element tungsten. Tungsten is a very dense metal and is frequently used for this property, such as in fishing weights, dart tips and golf club heads. Like tantalum carbide, tungsten carbide possesses hardness and wear resistance properties and is frequently used in applications like metalworking tools, drill bits and milling.





OLM  
(CONTINUED)

Links with electricity are expanding,  
emitting a new sort of light  
from my skin,  
A new intonation to our voice  
as it withers and wavers,  
With the sounds that we make,  
as we move through the channels  
of our limestone casts,  
Emitting  
OUR new signal.<sup>119</sup>

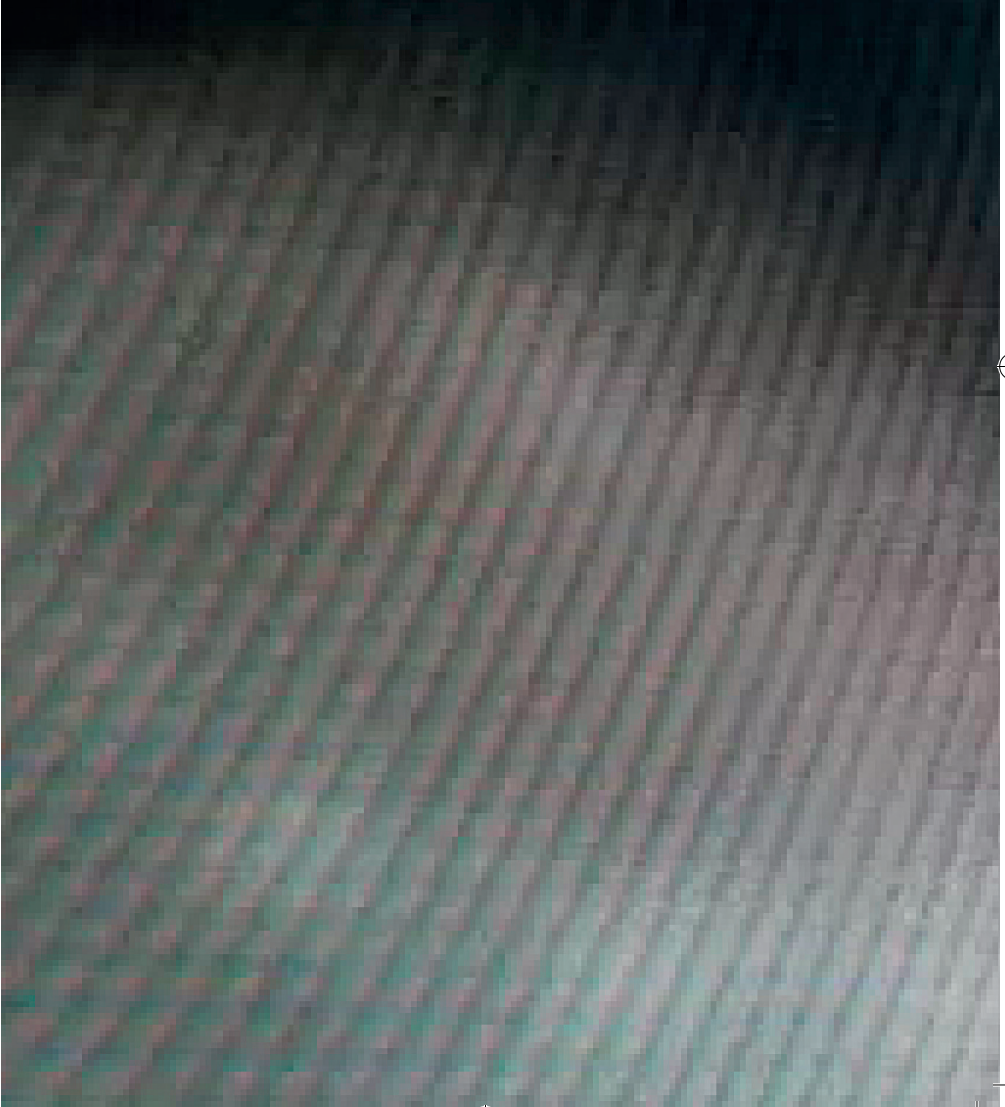
Emitting  
OUR new signal.

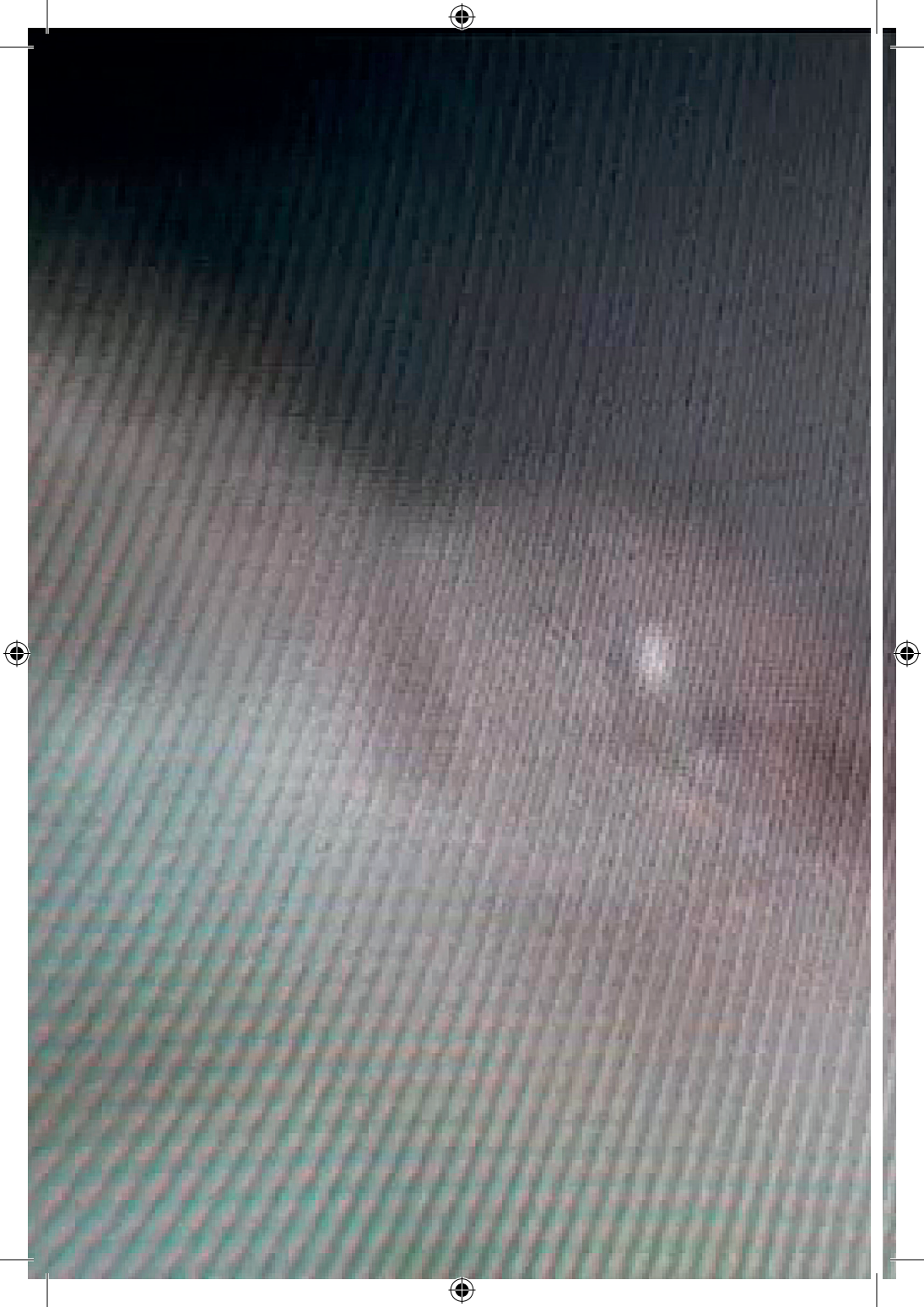
Emitting  
OUR new signal.

Emitting  
OUR new signal.

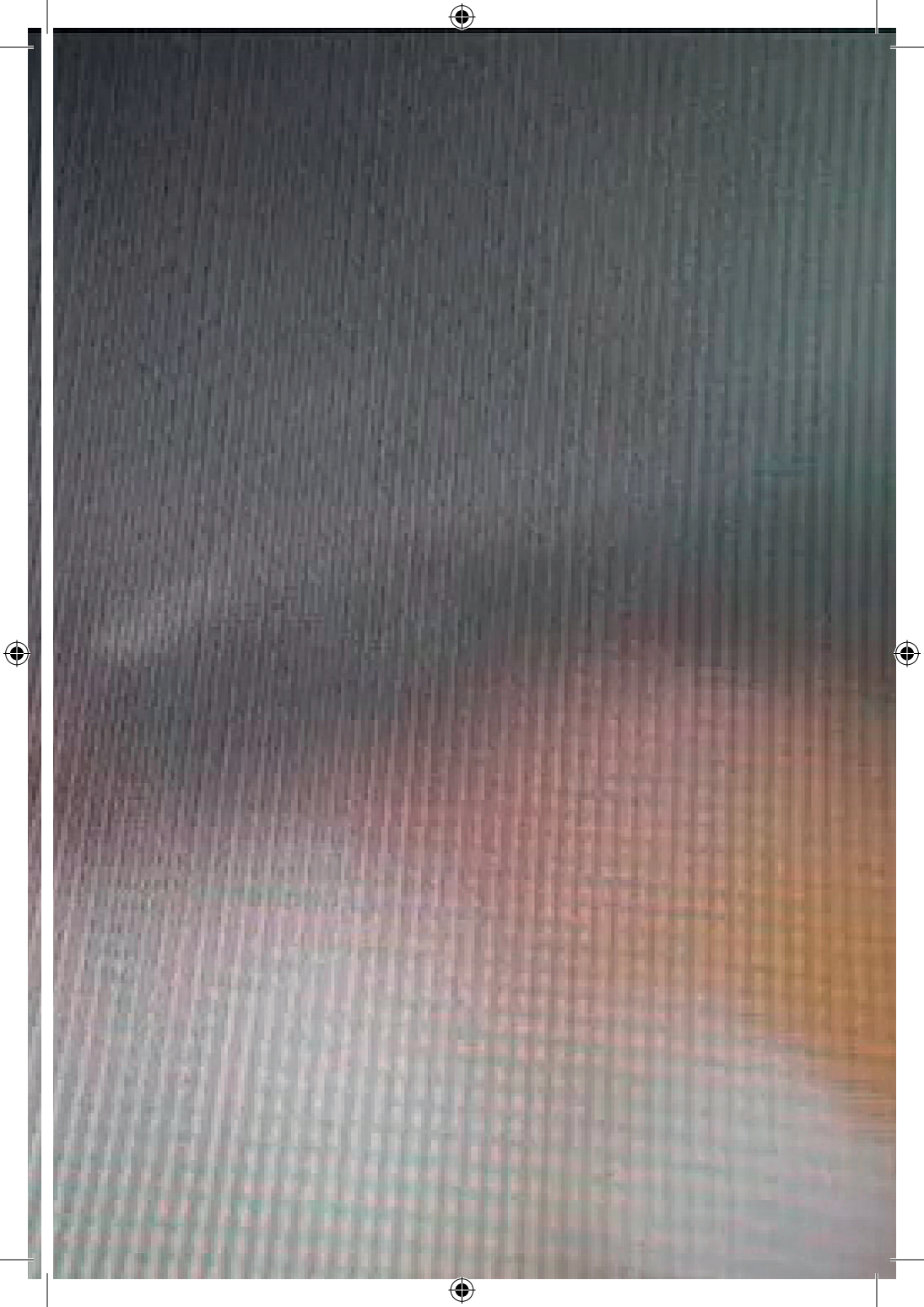
*End*

- 119 The new signal might be thought of as a hybrid which is partly an electromagnetic wave and partly a new type of flexible material, a new type of 'autopoietic machine' that can change shape or form at the drop of a hat.



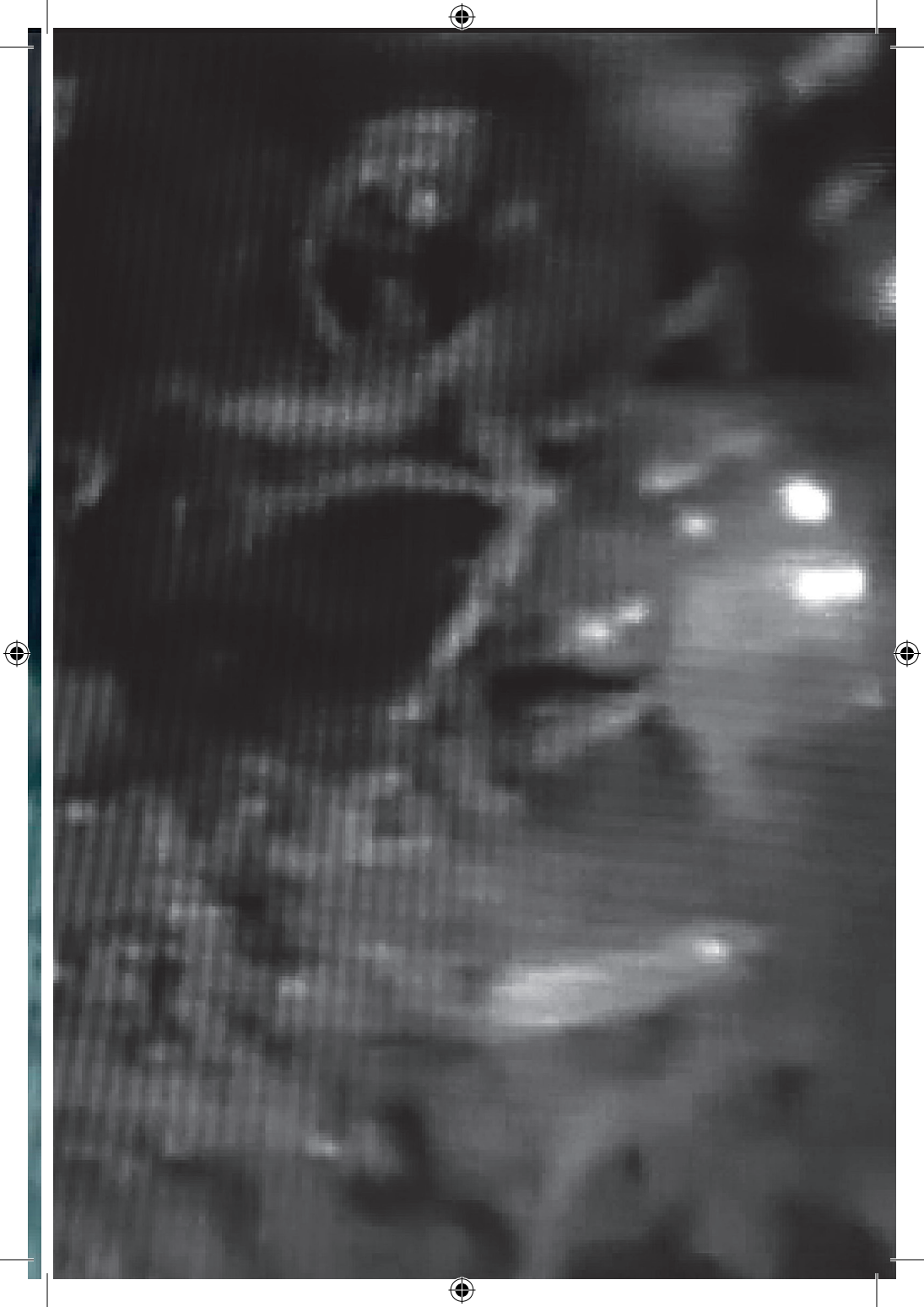












## BIBLIOGRAPHY

(BOOKS AND JOURNALS)

Blok, A.

*Bruno Latour: Hybrid Thoughts in a Hybrid World* (London: Routledge, 2011)

Coole, D. and Frost S.

*New Materialisms* (Durham: Duke University Press, 2010)

Deleuze, G. and Guattari, F.

*A Thousand Plateaus (Continuum Impacts):  
Capitalism and Schizophrenia*  
(London: Continuum, 1987)

Durham Peters, J.

*The Marvelous Clouds*  
(Chicago: University of Chicago Press, 2015)

Fisher, M.

*Ghosts Of My Life* (Ropley: John Hunt Publishing, 2014)

Fuller, B.

*Operating Manual for Spaceship Planet Earth*  
(Lars Muller Publishers, 1965)

Gabrys, J.

*Digital Rubbish* (Ann Arbor: University of Michigan Press, 2011)

Galloway, A. and Thacker, E.

*The Exploit* (Minneapolis, Minn.:  
University of Minnesota Press. Print., 2007)

## BIBLIOGRAPHY

Gere, C.

*Digital Culture* (London: Reaktion Books, 2008)

Goddard, M. and Parikka, J.

'Unnatural ecologies introduction'

*The Fibreculture*, Issue 17 (2011)

Goddard, M.

'Towards an archaeology of media technologies'

*The Fibreculture*, Issue 17 (2011)

Grant, I.

'Mining Conditions: A Response to Harman'

*The Speculative Turn: Continental Materialism and Realism*, ed. Bryant, L. et al.

(Melbourne: Re.press, 2011), 41–6.

Hertz, Garnet, and Parikka, J.

'Zombie Media: Circuit Bending Media Archaeology

Into An Art Method', *Leonardo* 45.5 [online pdf] (2012)

<mediaarchaeologylab.com/wp-content/uploads/2013/06/Zombie-media.pdf>: 424–30.

Holmes, Brian.

*Escape The Overcode*

(Eindhoven: Van Abbemuseum. Print, 2009)



## BIBLIOGRAPHY

Kafka, F.

*Beim Bau der Chinesischen Mauer* (Berlin, 1931)

Kittler, F.

*Optical Media* (Berlin; Merve Verlag, 1999)

Kyong Chun, W.

'The Enduring Ephemeral, or the Future Is a Memory',  
*Critical Inquiry*, 35.1 (Autumn 2008), 148–71.

Latour, B.

*Pandora's Hope: Essays on the Reality of Science Studies*  
(Cambridge, MA & London, England:  
Harvard University Press, 1999), 185.

Loeuvre, E.

'Faith in the Ghosts of Literature. Poetic Hauntology  
in Derrida, Blanchot and Morrison's *Beloved*'  
*Religions*, 4 (3) (2013), 336–50.

Mumford, L.

*Technics and Civilisation* (London, Routledge, 1934)

Parikka, J.

*The Anthrobscene*  
(Minneapolis: Univ. of Minnesota Press., 2014)

## BIBLIOGRAPHY

Parikka, J.

'A Slow, Contemporary Violence Damaged  
Environments of Technological Culture'  
*The Contemporary Condition*, ed. Cox, G. and Lund, J.  
Volume 3 (Aarhus University and ARoS Art Museum, 2016)

Parks, L. and Starosielski, N.

*Signal traffic: critical studies of media infrastructures*  
(Urbana: University of Illinois Press, 2015)

Savat, D. and Harper T.

*Media After Deleuze*  
(London: Bloomsbury Academic, 2016)

Shields, D.

*Reality Hunger a Manifesto*  
(New York: Random House, 2010)

Steyerl, H.

'In Defense of the Poor Image', *E-Flux Journal*, 10 (2009)

## BIBLIOGRAPHY

(WEBSITES)



Canon *Product descriptor*. [website] (2017) <[www.canon.co.uk/for\\_home/product\\_finder/camcorders/professional/xa30/](http://www.canon.co.uk/for_home/product_finder/camcorders/professional/xa30/)> accessed 17 November 2017

Fuji: *Product descriptor* [website] (2017) <[www.fujifilm.com/products/digital\\_cameras/x/fujifilm\\_x\\_t2/](http://www.fujifilm.com/products/digital_cameras/x/fujifilm_x_t2/)> accessed 17 November 2017

Gabrys, J. *A continent. Inter-view* [online article] (2016) <[continentcontinent.cc/index.php/continent/article/view/243](http://continentcontinent.cc/index.php/continent/article/view/243)> accessed 20 July 2017

Horl, E. *A continent. Inter-view* [online article] (2016) <[continentcontinent.cc/index.php/continent/article/view/242](http://continentcontinent.cc/index.php/continent/article/view/242)> accessed 20 July 2017

Mickey, S. *Animism for the Anthropocene: A Hyperobject-Oriented Analysis* (2014) [online article] <[becomingintegral.com/2014/03/09/animism-for-the-anthropocene-a-hyperobject-oriented-analysis/](http://becomingintegral.com/2014/03/09/animism-for-the-anthropocene-a-hyperobject-oriented-analysis/)> accessed 17 November 2017

Nolan, F. *Phonetics*. [online article] (2007) <[www.baap.ac.uk/phonetics.html](http://www.baap.ac.uk/phonetics.html)> accessed

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