

"Soil is the source of all life. Sadly, many people in the world are losing their connection with the soil. Soil Culture is a timely celebration to remind the world that we are all children of the living soil"

Satish Kumar, Resurgence and Ecologist magazine, Schumacher College

"We are delighted that CCANW have chosen to highlight the wonder, fragility and plight of our soils through the Soil Culture project. We feel that culture should be at the heart of agriculture."

Helen Browning, CEO, Soil Association



SoilCulture



CCANW



Gaia Project

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Centre for Contemporary Art and the Natural World

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Soil Culture has been a three year programme devised by the Centre for Contemporary Art and the Natural World to inspire a deeper public understating of the importance of soil; a topic that has never captured the level of attention devoted to the conservation of 'charismatic megafauna' such as the giant panda or the humpback whale.

Initiated in 2013 through a partnership with Falmouth University it has been delivered in three stages: Soil Forum, Young Shoots and Deep Roots with its main activities coinciding with the United Nations International Year of Soils in 2015.

CCANW

SoilCulture

Bringing the Arts down to Earth

Centre for Contemporary Art and the Natural World

A nation that destroys its soil destroys itself

Franklin D. Roosevelt



SoilCulture

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Left: 'Down to Earth I',
photographic print,
Daro Montag, 1993.

Right: 'Great Piece of
Turf', Albrecht Dürer,
1503. Watercolour, pen
and ink, Albertina,
Vienna.
Image courtesy of
Google Art Project.

Introduction

Putting Culture back into the Soil

Clive Adams and Dr Daro Montag, Directors, CCANW

The aim of the Centre for Contemporary Art and the Natural World (CCANW) is to explore new understandings of our place within nature through the arts. Soil Culture has been a three year-long programme devised to inspire a deeper public understanding of the importance of soil - a topic that has never captured the level of attention devoted to the conservation of 'charismatic megafauna' such as the giant panda or the humpback whale.

Just as the first landscapes were painted on the walls of Roman villas in the 1st century BC at a time of over-cultivation and deforestation, so new art forms evolve today to provide us with valuable tools to raise eco-consciousness. The arts can help people appreciate the importance of their everyday surroundings and relationships, and of the resources and abilities we share but frequently take for granted or otherwise abuse. They can touch people in ways that science and conventional advocacy are unable to reach.

The linking of the words 'soil' and 'culture' may seem strange, but it should be remembered that the word 'culture' was originally used in the 'agri-cultural' sense, and it was only from the 16th century that it increasingly came to be used figuratively; as the soil was improved by good husbandry, so the mind was improved by education and the arts. Perhaps it is now time to help put culture back into the soil?

Although CCANW had initiated smaller scale programmes linked to United Nations initiatives before, such as *Tree Culture* organised during the International Year of Forests in 2005, the concept of Soil Culture originated from research undertaken in preparation for an exhibition three years earlier.



The programme is the first since we moved from the Haldon Forest near Exeter, and it reflects a new way of operating based on extensive partnership working and cooperation.

Research developed in earnest when, in early 2013, we entered into a partnership with Falmouth University who secured funding from the Arts and Humanities Research Council. In turn, this was

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followed in September by the UN's announcement of the International Year of Soils and culminated in a forum in Falmouth in July 2014, bringing together over 90 artists, writers and environmentalists.

A second phase lasting a year from August 2014 involved CCANW supporting twelve Soil Culture artist residencies with different hosts across the South West of England and at the Royal Botanic Gardens, Kew, together with a commission in Bristol. Nine of these residencies were advertised internationally, attracting 655 applications from 39 different countries; a strong indication of the increasing number of artists becoming involved with environmental issues.

During the Summer of 2015, *Young Shoots* an exhibition and film based on the residencies was shown at the Create centre in Bristol as a contribution to the city's year as European Green Capital, before touring to five further venues in the region. In Bristol, this was accompanied by a programme of activities organised by Touchstone collaborations and the showing of the exhibition *Dirt Dialogues* curated by Dr Alexandra Toland.

A final phase involved our curation of *Deep Roots*, launched at Falmouth Art Gallery in September 2015. *Deep Roots* exhibited groups of work by six important international artists who had engaged with soils, sometimes over several decades, alongside individual works by seven British artists. The production of this publication coincides with the second showing of the exhibition in Plymouth and documents all phases of this ambitious programme.

We would like to thank all of the artists involved in Soil Culture, together with our staff and of all the participating galleries, along with the funding we have received from the Arts and Humanities Research Council, Arts Council England, the Heritage Lottery Fund, and the British Society of Soil Science.

Left: From the House Book of Melchior, Zwölfbüchlein, Volume 1. Nuremberg 1426-1549. Courtesy of Nuremberg City Library

Right: Patrick Holden at his organic dairy farm in West Wales, 2014. Photo: Steph French

Foreword

Homage to Soil

Patrick Holden CBE, Chief Executive, Sustainable Food Trust



There is a verse of a well known hymn which reminds me of the soil: "Immortal, invisible, God only wise, In light inaccessible, hid from our eyes". Although these lines were written as a homage to a Christian God, they could also be understood metaphorically, in relation to the dark, mysterious world of the soil beneath our feet, with which we have an intimate daily connection each time we eat, yet at the same time from which we are separated.

How interesting, that I might come to a better understanding of the mystery of soil through the insights contained in the words of a hymn which is sung every week in Anglican churches! If one can find such revelations buried in the texts of spiritual traditions, surely the same is likely to apply to art? Yet where soil is concerned, we live, or at least we have lived until recently, in a world restricted to reductionist science, in which only the measurable has any traction.

Thankfully this is now changing, not least because of extraordinary new evidence that has recently 'come to light' (here we go into the

land of metaphor again), about the parallel relationship between the human and soil micro-biomes and the way in which we can better understand soil by likening its function to being analogous to the 'stomach' of a plant. It is only quite recently that I have come to see just how much microbiology permeates every aspect of the soil.

Strangely, this process of enlightenment was accelerated when I heard a remarkable lecture by Patricia Quinlisk, Head of Public Health in Iowa, about the dramatic recovery rate – up to 80% – of patients with 'untreatable' digestive infections after they had received fecal microbiota transplants. Whereas antibiotics had been detrimental to their health, partly because they wiped out all the stomach bacteria, good and bad, introducing healthy bacteria, from the stools of their spouses, had restored their colonic microflora.

This simple concept, that the human digestive organ is unable to function effectively without the presence of a vastly complex community of symbiotic organisms which play a central and dynamic role in maintaining my health, has been a revelation. Now I understand that the body breaks down the food I eat using mainly, but not exclusively, processes which involve symbiotic communities of bacteria, which occupy the stomach, small and large intestines. In the human gastrointestinal tract, there are approximately 1.5kg–2kg of non-human life forms, mostly beneficial bacteria and also other microorganisms, which help with the process of digestion, enabling the subsequent absorption of short-chain fatty acids.

Seen in this light, there is something utterly compelling about the digestive process. It is a beautiful cycle of nature taking place inside our own bodies. But of even more significance to me has been the way in which it has opened up a new dimension of understanding in relation to the connections between the organisms in my body and

Foreword

those that live in the soil. I now see that the soil surrounding a plant's root zone is effectively its digestive system, or externalised 'stomach', with the process of digestion mirrored in the plant, although with plants the absorption is outside-in rather than inside-out. The soil and its bacterial and fungal community surrounding the plant root zone include a network of mycorrhizal fungi, which play a central role in breaking down organic matter into absorbable nutrients, which are thus made available to plants through their large surface area of root systems.

Soil microbial communities are considered the most biodiverse in the world and it is estimated that a single teaspoon of garden soil may contain thousands of species, a billion individuals and one hundred meters of fungal networks. However, only 1% of microbes that live in the rhizosphere have so far been identified by scientists due to difficulties in getting them to grow in the laboratory. Paraphrasing Leonardo da Vinci, US microbiologist Elaine Ingham says "We know more about the stars in the sky than about the soil under our feet".

This 'new world' of soil biology is only now beginning to emerge into the daylight of public understanding, perhaps because of an assumption that such complexity should be the reserve of in-depth investigations by soil scientists, who ironically didn't actually understand much of this stuff, as they were preoccupied with chemistry and physics. But even mainstream soil scientists are now saying that microorganisms are crucial for soil health. A new emerging scientific consensus sees topsoil from a biological perspective, potentially thriving with microorganisms, especially the rhizosphere, or root ball, the 'gut' of the plant. This is the zone where plant roots and soil organisms interact, with plants using a significant proportion of their photosynthetic energy to produce exudates through their roots including carbohydrates and proteins, which attract and stimulate the growth of bacteria and fungi, and weak acids, which dissolve minerals in the soil and are subsequently drawn back up in solution.

This soil system, of refinement and transformation, takes material from one organism occupying a lower place in the food system, to nourish another, further up the chain. Through digestion, organic materials are broken down and transformed into new life forms: the soil biome nourishes the plant tissue and the plant matter in turn becomes animal flesh, as it is transformed through another biome, in this case an internalised gut. The sum of all these interconnected organisms constitutes a biome – by definition, a large, naturally occurring community of flora occupying a major habitat. And the soil, the 'mother' of all biomes, acts as a vast digestive system, the collective stomach of all terrestrial plants. What a beautiful thing this is. It is actually art, of course!

Even without the presence of microorganisms, both soil and the digestive systems can still function to a certain degree. However, although bypassing the soil ecosystem using chemical fertilisers will still maintain plant growth, in the long-term, purging our soil or intestines of microorganisms will diminish health and vitality.

These insights have drastically changed my perception of how my interventions as a farmer can have a similar effect on the soils over which I have temporary stewardship. Every action, from crop rotation and feeding soil bacteria and fungi with composts or manures, to aeration and careful timing of grazing and cultivation, has the capacity to enhance or diminish soil life.

As a long-standing organic farmer of course I knew much of this, at least theoretically and mechanistically, many years ago. I was aware of the importance of soil biology and mycorrhizal fungi, but it was only through this new and very personal educational journey that it really began to dawn on me how understanding the intimate, biological and symbiotic processes involved in my own digestion could shed light on the equivalent processes taking place in the soils of my farm.

As a foreword for a book on soil art, this may seem a little technical, but I am hoping that this short tribute to the incredible complexity, diversity, wonder and beauty of the world beneath our feet will be a stimulant for continuing nourishment and communication for all artists engaging in the world of the soil.

It remains the sobering fact that even in the
age of global communications and the
Internet, civilisation continues to depend on a
few inches of topsoil for its very existence.

Graham Harvey, *The Killing of the Countryside*, 1998

What is Soil?

**Left:**

Soil cultivation in preparation for potato crop.

Photo: Bruce Lascelles

What is Soil?

And why should we care?

Dr Bruce Lascelles, Director of Environment, Arcadis Consulting (UK) Ltd and Fellow of the British Society of Soil Science

Introduction

What is soil? And why should we care? Everyone has a vested interest in our soils being healthy and fit for purpose. Our food is grown in soil. We grow fuel in our soils. Soils soak up rainfall and slow its progress to rivers, reducing the risk of flooding and filtering and purifying water. Carbon is stored in our soils, reducing the amount of carbon dioxide going into the atmosphere. Soils contain and allow to thrive an immensely diverse biodiversity. Soils support the landscapes we see, giving us aesthetic, spiritual, cultural and educational benefits.

To answer the question “What is soil?” requires detailed investigations across numerous disciplines. To answer the question “Why should we care?” we need to translate the outcomes from these investigations into conversations that are relevant to everyone and are relevant from a wide range of perspectives. We need to place soils in context; it is so much more than dirt in isolation.

The benefits we gain from our soils all have value. It is easy to place a value on the crops or fuel grown. But the benefits from clean water, reduced flood risk, stored carbon and our wellbeing are all equally important; much of this is however difficult to directly value (and perhaps shouldn't be valued simply in monetary terms). Only by understanding, engaging with and looking after our soils can we continue to realise these.

If we understand our soils then we can put in place measures to repair, protect and enhance them. If we can communicate what this means to everyone then we can engage and generate a sense of responsibility for this vital resource.

As Franklin D Roosevelt said, “a nation that destroys its soils

destroys itself”. We all need to understand our soils and take individual and collective responsibility for their future. We all need to make our voices heard.

What is soil?

Soil can be defined very simply and factually as a combination of minerals (which come from the rocks or sediment from which the soil has formed), organic material (dead plants and animals) and living organisms, along with air and water. These components all occur in differing proportions depending on the soil type, the season, the weather conditions and how they are being managed.

When looking at more detailed definitions of soils, we need to consider the user of the soil. A farmer growing crops will want to maximise yields and minimise inputs. They will want a soil that is highly fertile, easily workable, good at retaining moisture and forming flat ground. In contrast, an ecologist looking to create heathland will want a soil that is nutrient poor, possibly very freely draining, acidic and will be happy if there are lots of small-scale changes in slope steepness. They say beauty is in the eye of the beholder, and this is very true of soils.

Soils develop from the rocks and sediments that make up the earth. With time, these materials are broken down by a mix of physical and chemical processes, both of which can include a biological element. This is called weathering.

An example of physical weathering occurs as water expands as it freezes within cracks in rocks. When this ice thaws the wider cracks allow more water to enter which freezes and expands. These repeated cycles of freezing and thawing break up the rock into small and smaller fragments. In hot environments, the cycle of

What is Soil?



heating and cooling of rocks can have the same effect. Plant roots, as they grow through cracks, can also physically break up rocks.

Chemical weathering involves the effect of chemicals from the atmosphere or those produced biologically altering the minerals found in rocks. For example, rainfall is slightly acidic as a result of the combination of carbon dioxide with water, producing carbonic acid. This acid can dissolve minerals, and is particularly effective on rocks such as chalk and limestone which are made from calcium carbonate. Chemicals can also be produced biologically. Lichens growing on the surface of rocks increase the rate of weathering due to the production of organic acids.

Physical, chemical and biological weathering occur together, and can accentuate each other. As rocks are physically broken down into smaller and smaller fragments, so their surface area increases, allowing chemical weathering processes to act on a larger proportion of the material. These processes combine to form the soils we see, and importantly cause the release of nutrients which sustain life.

It is important to realise that these processes are not simply

things that have happened in the past. The soils we see today are not the end result. These are on-going processes which continue to shape the soils and continue to ensure the release and cycling of nutrients.

Many of the physical and chemical weathering processes can operate without the need for inputs from living, or dead, material. These processes will produce sediment; broken up rock material. However, as soil is defined as a mix of mineral and organic material, life is needed to create soil. Conversely, soils are needed to support and sustain life. This does raise the interesting 'chicken and egg' question; do soils make plants or do plants make soil?

The story of these processes can be read by digging down and exposing a section of soil; this is called the soil profile and a number of distinct layers, known as horizons, may be visible. Two very different soil profiles are visible in the images above and the different histories of these soils can be understood from this.

The material the soil is formed from is described as the parent material. This can be solid rock, as in the podzol profile shown above on the left, or can be sediment as in the right-hand example where the soil has formed within old beach sands.

The horizons above the parent material can be broadly defined as either subsoil or topsoil. Subsoil comprises mainly rock fragments that have been altered in some way, physically or chemically. It contains some plant material, often deeper plant roots, and some plant and animal life will be present. The processes which form soils will be active within this layer, reorganising material and releasing nutrients.

Topsoil, as the name suggests, lies at the top of the soil profile. It is usually darker in colour than the lower horizons as a result of the

Far Left:

*Upland soil (Podzol),
mid-Wales. Photo:
Bruce Lascelles*

Left:

*Floodplain soil
developed in sand,
North Wales. Photo:
Bruce Lascelles*

Right:

*Peat cutting, Ireland.
Photo: Bruce Lascelles*

Far Right:

*Buried horizons
depicting past phases
of soil formation and
erosion. Photo: Bruce
Lascelles*

accumulation of decomposed plant remains mixed with the mineral material. The proportion of organic material will differ between soils, from low quantities in dry soils to soils which are nearly 100% organic in nature, such as peat soils. It is this layer that contains most life, and which is also most affected by the activities of living things, including ourselves.

In places, the profile can tell very clearly the history of the landscape within which it sits. The image below shows a series of dark layers in the profile; these are topsoil horizons which have been buried by soil erosion, each one depicting a period of stability and soil formation before being buried by a catastrophic erosion event.

The processes described above, and the combination and character of the horizons which make up the soil profile, give rise to the wide range of soil types we see. There are resources available to find out what sort of soils occur where you live; for England and Wales look at <http://www.landis.org.uk/soilscapes/>; for Scotland look at <http://www.soils-scotland.gov.uk/data/wrb>.



What is Soil?

Our soils can broadly be described as brown soils (brown earths), waterlogged soils (known as gley soils), podzolic soils (generally acidic and nutrient poor) and organic soils (which can be thin soils overlying the parent material or deeper peat soils) ¹, although in total the UK has around 700 soil types ². The UK has a remarkable and renowned diversity of soils which can be seen on the soil maps, and this results in an equally diverse range of landscapes and native biodiversity.

However, soil as a resource is so much more than the sum of its parts and how these are put together to produce different soil types. Soil is a habitat, an ecosystem in its own right. A teaspoon of soil supports more living organisms than there are people on this planet. A single gram of soil can contain several billion bacteria from thousands of different species. Soils support life from large mammals, such as badgers and moles, down to earthworms, nematodes and microorganisms such as bacteria and fungi.

These organisms interact and are interdependent, just as life interacts and is interdependent above the surface. They enable nutrients to be cycled and made available for plant growth. They compete for resources (which includes each other) and, in healthy soils, balance each other just as, for example, pests are kept in check in a healthy above ground ecosystem.

Soil, alongside air and water, is one of our three critically important natural resources. The soil strategy for England ³, published by the government, states in the opening paragraph "Along with air and water, soil is one of the building blocks of life". And whilst a huge amount of work is undertaken to study our soils, because of their complex and microscopic nature, there is a huge amount we still don't know. For example a large number of the most

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commonly used antibiotics have originated from soils; Penicillin came from *Penicillium*, a fungus found in soil. And just this year new antibiotics have been found in soils ⁴. What else do soils contain that we will have need of in the future but are just not yet aware of?

Why should we care?

Soil is central and critical to key global issues which affect peoples' livelihoods, health and welfare. Quality of life and, ultimately, the sustainability of the environment are contingent upon our soils. The reality we face is that society must learn to use and manage the world's soil resources in a sustainable manner to secure a healthy, wealthy and sustainable future for generations to come.

Soil performs several globally important functions, as stated in a recent briefing note produced for the UK Parliament ⁵:

- Around 95% of food production relies on soil. The global nature of the food system makes soil health (or quality) an international concern.
- Soils are home to a quarter of the Earth's biodiversity; organisms such as bacteria, fungi, and earthworms. These support plant growth, and cycle carbon, nitrogen and other nutrients. Soil microbes are a source of antibiotics and may provide future drug discoveries.
- Soils absorb and store water; their capacity to do so relies on good soil structure, which is maintained by soil organisms, organic matter and appropriate management.
- Soils store three times as much carbon as is contained in the atmosphere; degradation of carbon-rich soils releases significant quantities of CO₂.

However, our soils are, and have been for some time, under intense pressure from a number of directions, and their ability to perform these functions is affected when they become degraded in some way.

Soil erosion is washing away our soils, filling ditches and rivers with sediment which causes its own problems in terms of smothering of plants and animals, damaging property and so on. Around 2.2 million tonnes of soil is eroded annually in the UK at an estimated annual cost of £45 million.

This soil erosion, combined with cultivation and drainage of soils, in particular peaty soils, is reducing the amount of carbon stored in soils. The carbon that is released is entering the atmosphere as carbon dioxide, exacerbating effects resulting from greenhouse gases. UK soils store in excess of 10 billion tonnes of carbon in the form of organic matter ⁶.

Soils are being compacted or totally sealed (i.e. built on), reducing the amount of rainfall which can be absorbed, increasing flood risk. Pollution also affects soils, and all these effects may be magnified by climate change.

There are often trade-offs in the delivery of the functions soils provide to us. Maximising crop yields is needed as populations expand. However, the increased use of fertilizers and heavy machinery along with increased soil cultivation can alter the characteristics of a soil, reducing its biodiversity, reducing the carbon stored within the soils and resulting in soil compaction, reducing the amount of rainfall it can absorb.

It has been estimated that the cost of soil degradation in England and Wales, in 2012, was between £0.9 and £1.4 billion, mainly as a result of compaction and soil organic matter loss ⁷.

The wide range of benefits we get from our soils and the wider

Right: Large scale construction works can lead to soil damage.

Laying the South Wales gas pipeline.

Photo: Bruce Lascelles



environment, from food production to clean water and the well-being benefits from our landscapes, are often referred to as 'ecosystem services' ⁸. These are all soil dependant and if our soils are healthy these services are renewable.

To solve these problems and realise the economic benefits from looking after our soils we need to understand our soils and find ways of communicating the importance of soils in every aspect of our lives to as wide an audience as possible. The UK science community has been, and continues to be, at the forefront of many of the developments in soil science and related disciplines. These developments are helping in solving the global challenges of food, water, energy, biodiversity securities alongside climate change and pollution issues.

This community is supported by the British Society of Soil

What is Soil?

Science, founded in 1947. Today it is one of the leading and most vibrant societies in Europe, supporting soil science research and actively disseminating this growing knowledge and understanding to as wide an audience as possible.

There is also a growing community of soil science practitioners in the UK, taking the research and evidence from the scientific community to develop specific strategies for protecting, restoring and sustainably re-using soils affected by our activities or disturbed or displaced to make way for development.

The work undertaken by this community forms an important source of evidence for policy makers and other decision makers, from farmers and conservation bodies to industry, commerce and government. Soil science in the UK is helping to shape and focus policy decisions and changes on the basis of long-term and robust data and needs on-going support. This exemplifies the vision, influence and leadership that the UK soil science community has.

We have a number of initiatives and policies in place, from the State of the Natural Environment report published in 2008 ⁹ through to the Soil Strategy for England ⁶ and the Soil Policy Framework for Scotland ¹⁰. Much work has been undertaken through, for example, the Global Millennium Ecosystem ¹¹ Assessment and the UK National Ecosystem Assessment ⁸. These, along with related policies and initiatives, provide the bones of a framework within which our soils can be protected. However, we do not yet have an overarching European legal framework for soil protection, as we do for air and water. Proactive and global action to promote good soil management is likely to be cheaper than action to tackle the impacts of poor soil management (greater flooding, higher levels of greenhouse gases, difficulties in disposing

What is Soil?

of 'compost mountains,' higher costs of treating water to remove contaminants, and a reduction in the ability of soils to produce food, fibre and fuel); an overarching framework will be invaluable in helping achieve this.

This is all perhaps summed up in the Government's White Paper entitled *The Natural Choice: securing the value of nature*¹² which states:

"Together, our society must act on all the evidence we now have. We must protect the essentials of life: our air, biodiversity, soils and water, so that they can continue to provide us with the services on which we rely. We must repair the damage done to our natural environment by restoring natural connections that have been broken. We must improve the quality and diversity of environments in both town and country, so that they are better able to respond to future pressures. We should set our sights on a vision that inspires us to act now and in the longer term: by 2060, our essential natural assets will be contributing fully to robust and resilient ecosystems, providing a wide range of goods and services so that increasing numbers of people enjoy benefits from a healthier natural environment."

In order that we continue to push soils up the agenda we need the forums and mechanisms to promote all aspects of soils. In 2022, The British Society of Soil Science will host the World Congress of Soil Science in Glasgow. This is the premier forum for bringing together the world's leading soil scientists and will be used to present, discuss and debate the wide range of issues and also to promote the

scientific, technical and social challenges relating to the achievement of sustainable soil use and management around the world. This will not be an event present only at a single point in time. From the 2015 International Year of Soils there will need to be a journey towards and beyond 2022, bringing together of all those who work with soil in its many forms and who draw inspiration from soils and the environments they support with a unified and strong voice.

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We know more about the
movement of celestial bodies than
about the soil underfoot.

Leonardo da Vinci

Speaking
of Soil...



Left: Ulrike Arnold 'The
Luna Mesa' 1994.
Photo: Anselm Spring

Speaking of Soil...

... for Soil thou Art

Dr Daro Montag, Associate Professor of Art & Environment, Falmouth University

Language of soil

The way we talk about something tells us, and other people, what we think about it. Speech, including the tone of voice and the words we use, gives form to our ideas. The language, or languages, we are born into and acquire at an early age help to shape our thinking. Talking is, quite literally, thinking made into sound.

If we don't have a word for something it is hard for us to imagine it. Try, for example, to think of something in the world for which you do not know the word. Without language, which can be written, spoken, or performed in some other way, it is not just communication that falters, but thinking itself.

This relationship between words and the way they give meaning to the world has been brought into focus by Robert Macfarlane's recent book *Landmarks*.¹ In this he shows that, as we lose words from our language, so we lose the capacity to notice the features to which they refer. The point he eloquently makes isn't just about the size of our vocabulary – it is about the magnitude of our perceptions.

As our perceptions shift in step with our language, the culture within which we exist gradually erodes and is reformed. This erosion loosens the ties with our previous culture, our heritage. As populations have continued to migrate towards cities, cultural knowledge, and associated language, shifts towards a more urban dialect. Even the word 'culture' itself slowly changes context. Originally rooted in the Latin word which concerned tilling and tending the land, it wasn't until the 16th century that it began to be associated with the cultivation of people through education. Then in the early 19th century the word began to be used to define the collective customs of a people. The link between 'culture' and 'civilisation' is therefore a relatively recent concept. With the word

taking on a more metropolitan connotation its roots in agriculture and horticulture are slowly eroded.

Although the Dust Bowl of the 1930s provides one of the most vivid examples of how attitudes towards the land have resulted in environmental degradation, it is not the only case where healthy soil has been destroyed by poor agri-culture.² Throughout the 20th century global soils have faced a continued decline, both physically and culturally. Soils are no longer accorded the same respect and esteem of a more agrarian culture. Many now would argue that our thinking about soil, and the place it holds in our culture, has reached a critical level. Now, perhaps more than ever, soil is in need of rebranding. Indeed this is the conclusion reached by the United Nations, and in particular the Food and Agriculture Organisation (FAO), who have labelled 2015 as the International Year of Soils.

To expose this, often hidden, relationship between words and meaning consider how it would sound if the UN had labelled 2015 as the International Year of Dirt. For most English speaking audiences this would bring to mind very different connotations, and the importance of the year would start to decline in most people's imaginations.

So what do the words associated with soil lead us to think? The word 'soil' itself is an Anglo-Norman word that entered our language sometime in the 14th century. Its roots go back to two Latin words with different meanings, 'solium' meaning 'seat', and 'solum' meaning 'ground'. As a noun that seems harmless enough, but what happens when the same word is used as a verb? When something becomes 'soiled' it has become 'dirty'. The moment this happens we are led, almost without noticing, into a conception that equates soil with contamination. And in America these two words have become

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largely synonymous.³

Many would, of course, argue that soil is indeed dirty, but this depends on definitions – it only becomes dirty when we define it as such. If, as is normal in some cultures, we were to cover our faces and bodies with various earth pigments, we would think differently about this activity. Even in societies where this practice no longer happens, children still naturally play with soil and are prone to use it as face and body paint. Perhaps dirt, like beauty, exists only 'in the eye of the beholder'.

Similarly, the fact that English uses the word 'earth' both to name our planet and to speak of soil, should not surprise us. When the word evolved over 1,000 years ago from Anglo-Saxon versions of

the Old English terms 'eor(th)e' and 'ertha', and the German 'erde', these words simply referred to the ground. There would, back then, have been no conception of Earth as a blue planet floating in space, and no words to describe this concept. The rocks and soil which formed the ground were synonymous with what we now perceive as our home planet. The ground was both physical and metaphysical – the matter from which life emerged and the place to which everything descended.

Aesthetics of soil

Perhaps the first thing one notices about soil is that it has a colour. To many people soil is the simply colour of mud; indeed that would be an entirely accurate observation. It is this colour, combined with the absence of any discernible form that strikes the viewer upon encountering Walter de Maria's *New York Earth Room* for the first time. Constructed in 1977, and maintained by the Dia Art Foundation, the loft full of soil has been on public view since 1980. Weighing just over 127 tonnes, the installation consists of rich, dark brown soil and nothing else; at least nothing else visible. Like most healthy soils, it contains untold numbers of micro-organisms, just waiting for the correct conditions to burst into visible life.

Although this indoor earthwork is almost monochrome in its minimal palette, the colours of mud are many and varied. Even in the UK the variety of soil colours is more diverse than most might imagine. In Scotland, where the soils have been thoroughly mapped by the Macaulay Land Use Research Institute⁴, 37 different soil types are recognised.

The most extensive colour system for classifying soils is provided by the *Munsell Soil Color Charts*.⁵ These are derived from

Left: Walter De Maria, *The 'New York Earth Room', 1977. Long-term installation, 141 Wooster Street, New York City. © 2015 The Estate of Walter De Maria. Photo: John Cliett. Courtesy Dia Art Foundation, New York*

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the colour theories of Albert H. Munsell, the American artist and inventor. His 1905 book, *A Color Notation*, paved the way for the colour charts which have since become the universal standard for soil classification. Using a system based on hue, value and chroma, a three dimensional coding is ascribed to each colour. In the small soil chart handbook there are 322 different standard chips, or swatches of colour, which allow pedologists to consistently classify any given soil sample⁶.

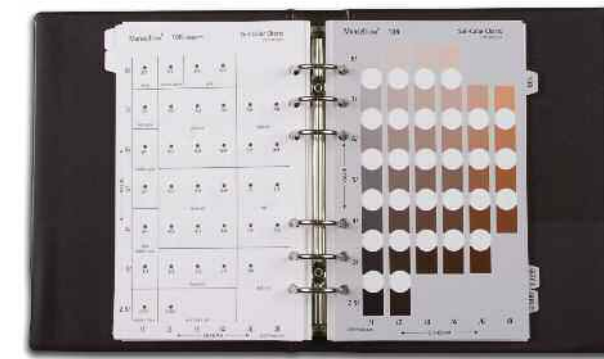
In addition to a numbering system the groups of colours are given names offering a compressed but detailed spectrum; from the green and bluish greys and blacks through to the red and yellowish browns. Although this system allows for scientific precision something of the poetic is lost. The handbook makes clear that, "names like 'rusty brown,' 'mouse gray,' 'lemon yellow,' and 'chocolate brown' should never be used." Similarly the benefits of a universal nomenclature take us away from the specifics of place which are well known for the colour of their soils. For example, a traveller on the section of the English railways that is still

sometimes referred to as the Great Western Railway, cannot fail to notice the colour of soil as the train passes along the South Devon coast. On one side of the train the English Channel gradually washes away the coast, and occasionally the railway track; while on the other are cliffs of the distinctive red soil which has helped support the fertility of South Devon's pastures. This Devon Red, caused by iron oxides in the sandstone, signifies that the passenger is passing through a different place, going back in time, for these deposits were laid down in the Permian and Triassic periods over 200 million years ago.⁷

The mineral content of soils has provided artists with an extensive palette of earth based colours. One of the artists featured in the *Deep Roots* exhibition, herman de vries, who initially trained in horticulture has built his artistic career on collections of plants and soils. His recent work, shown in the Dutch pavilion at the Venice Biennale in 2015, includes *from earth: everywhere* which is made using soil samples gathered from locations around the world. Framed as a grid, the eighty four individual rubbings of soil on paper show a huge range of colours. In contravention of the scientific attempt at accuracy of naming, these colours include rusty orange, forest green, dusty rose and a mustard yellow collected from the Ormiston Gorge in Australia. By simply presenting the materials themselves, and applying minimal intervention, de vries aims to instill a heightened awareness in the viewer.

Whereas de vries is content to let the materials speak for themselves, the German artist, Ulrike Arnold, uses earth colours to speak of locations and even herself. Using ground minerals either as raw colour for rock paintings or mixed with a binder and used on canvas, her work has taken her around the world, often to remote

Right: Munsell Soil Color Charts.



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sites. She refers to these paintings, or perhaps they should be termed 'soilings', as 'travelogues' and 'visual diaries', but also as 'psychograms' of the artist herself.⁸

In addition to soil colour being generated or influenced by the minerals in the parent material, the colour also provides a good indication of its organic content. A soil that is rich with decomposed or decomposing plants will usually be very dark brown or black from the carbon contained in the living matter. A good example of such soil is the Bideford Black which again speaks of a distinct location in Devon, and the particularities of the place. In this case the colour is derived from the deposits laid down in the Carboniferous period 350 million years ago.

Bideford Black has a long history of use within the local community and beyond. Traditionally it was used as a protective



paint in the boat industry and then incorporated as camouflage for tanks in the Second World War. The density of its blackness combined with its smooth texture made it ideal for use in mascara produced by Max Factor. Although the commercial production ceased in 1969 a number of contemporary artists have come to appreciate it as a readymade material for drawing and colouring. Probably the most committed to the cause of Bideford Black has been Pete Ward who has produced a prodigious number of paintings and installations using the colour. As an artist local to the region he has also been instrumental in raising awareness of the history of this prehistoric medium through educational workshops and museum displays.⁹

Taste of soil

Every keen gardener knows that the pH of their soil will influence what will grow successfully. Whilst nowadays this can be tested relatively easily with a small kit purchased from the garden centre, this was not always so straightforward. It wasn't until the concept was introduced by the Danish chemist, Søren Peder Lauritz Sørensen, in 1909 that the notion of pH was established. A few years later the scale we use today was defined, with pure water designated at pH7 (neutral). On this numbering system acids are placed on the scale below 7 and alkalis above. The majority of food crops prefer a slightly acidic soil, with an optimal range being pH5.5 – 7. Although some plants are adapted to thrive outside this range, pH levels as low as 4, or even 5, will be too acidic for the majority of them.

Given the variations in soil types one might well wonder how farmers produced abundant food in all of those centuries before Sørensen came along. This was probably a combination of luck,

Left:

Pete Ward crushing rocks to make pigments at Beaford Arts 4Rs environmental art workshop, 2009.



Above: *The Harrisons, 'Feeling and Crumbling' and 'Smelling and Tasting', 1969. Photographs from 'Making Earth then Making Strawberry Jam' 1969-1970, Pepper Canyon Outdoor Studio at University of California San Diego*

good fortune and a deep knowledge that was handed down through the generations. One of the methods used by traditional farmers to test whether to soil was acidic or alkaline was to taste it. As William Bryan Logan, the gardening writer and soil enthusiast, states "It used to be that a good farmer could tell a lot about his soil by rolling a lump of it around in his mouth."¹⁰ This can still be done today although our cultural sensitivities, combined with the potential for industrial pathogens, makes this seem distasteful and unwise.

According to Logan an acid soil fizzes in the mouth: "a very acid soil would crackle like those sour candies that kids eat, and it had the sharp taste of a citrus drink."¹¹ This is perhaps what one would expect. By contrast an alkaline soil tastes chalky and coats the tongue. Neutral soils taste neither sour nor sweet but tend to take on the flavour of the soil's humus content.

Amongst the first contemporary artists to respond to the growing awareness of the problems facing soil was the partnership of Newton and Helen Mayer Harrison. Influenced by Rachel Carson's *Silent Spring*, the artists began *Making Earth* in 1970. Using sand, clay, sewage sludge, leaf material and manure from

chickens, cows and horses the ingredients were mixed and watered over a four month period. At the end of this time the new soil smelt like the humus of a rich forest floor, and was fresh enough to be tasted by the artists.

The relationship between the smell of healthy soil, and the resulting successful crops, must have been apparent to the earliest farmers. Even today this association is much discussed under the concept of 'terroir'. This French word refers to the specific influence of the land, or the sense of place. To a gastronome the unique balance of elements that feed the land impregnate the food grown there, and contribute discernible qualities and flavours. It is argued that the specific combination of geology, soil and climate will produce quite distinct qualities to meat, cheeses and especially grapes grown for wine. The concept of 'terroir' is particularly recognised, and hotly debated, amongst wine producers and connoisseurs. However, the tasting of wine and the connoisseurship associated with it is an obscure subject, even a dark art, to those less versed in its subtleties. It is this practice and ritual that has inspired the work of American artist Laura Parker.

In 2001 Parker worked with communities of farmers to produce a project called *LandScape: The Farmer as Artist*. The gallery installation included soil samples and some very healthy onions and beets. This project led to her 2006 installation entitled *Taste of Place*, which extended her focus on the soil.¹² Borrowing the form from a typical wine tasting, the artist displayed a row of glasses filled with soil from organic farms alongside various foods grown in it. Participants were invited to smell the soil and share experiences and memories through conversation. This creative practice has been developed, with Parker's permission, by Charlotte Rathbone at

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two million years ago. Nor is it one confined to humans, in addition to earthworms, larger animals such as elephants, chimpanzees and parrots have all been observed getting their 'peck of dirt'.

In some circles eating soil has recently become fashionable. The Michelin trained Japanese chef, Toshio Tanabe, has pioneered 'soil cuisine'. At his exclusive Tokyo restaurant *Ne Quittez Pas*, he serves soil specialties alongside the more conventional delicacies of oysters and truffles.¹⁶ His restaurant is booked up three months in advance – it seems there is money to be made from dishing the dirt and serving the soil.

Left: Laura Parker,
'Taste of Place'
2006. Photo: David
Matheson
Photography.

Below: Charlotte
Rathbone at
Dartington Food Fair.
Photo Martyn Windsor.

Touch of soil

In addition to taste, soil also has a texture. The texture of soil provides an immediate and effective method for soil analysis, which is often used to assist identification and classification. Using the haptic sense of touch the experienced handler will be able to ascertain the relative proportions of clay, silt and sand within any given sample. The smallest particles constitute clay, the next smallest, silt, and the largest are sand, which can be fine, medium or



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Right: Hikaru
Dorodango workshop
by Emma Saffy Wilson
during the Soil Culture
Forum in July 2014.
Photo Martyn Windsor

coarse. Different soils will feel granular, smooth or slimy depending upon the relative proportions of these three components. The texture of soil can provide information about its physical and chemical properties – for example, how it will compact or hold water.

Perhaps the most immediate way of testing the texture of soil is by taking a small amount and rolling it into a ball, or bolus, in the hands. The way it sticks together or falls apart is dependent upon the proportion of clay it contains. Further methods include squeezing out a ribbon and measuring the length before it breaks, or making it into a paste and feeling its granularity on the tips of the fingers. This activity, which children seem to love doing, is usually only continued into adult life by pedologists, farmers or others who have a professional interest in soil.

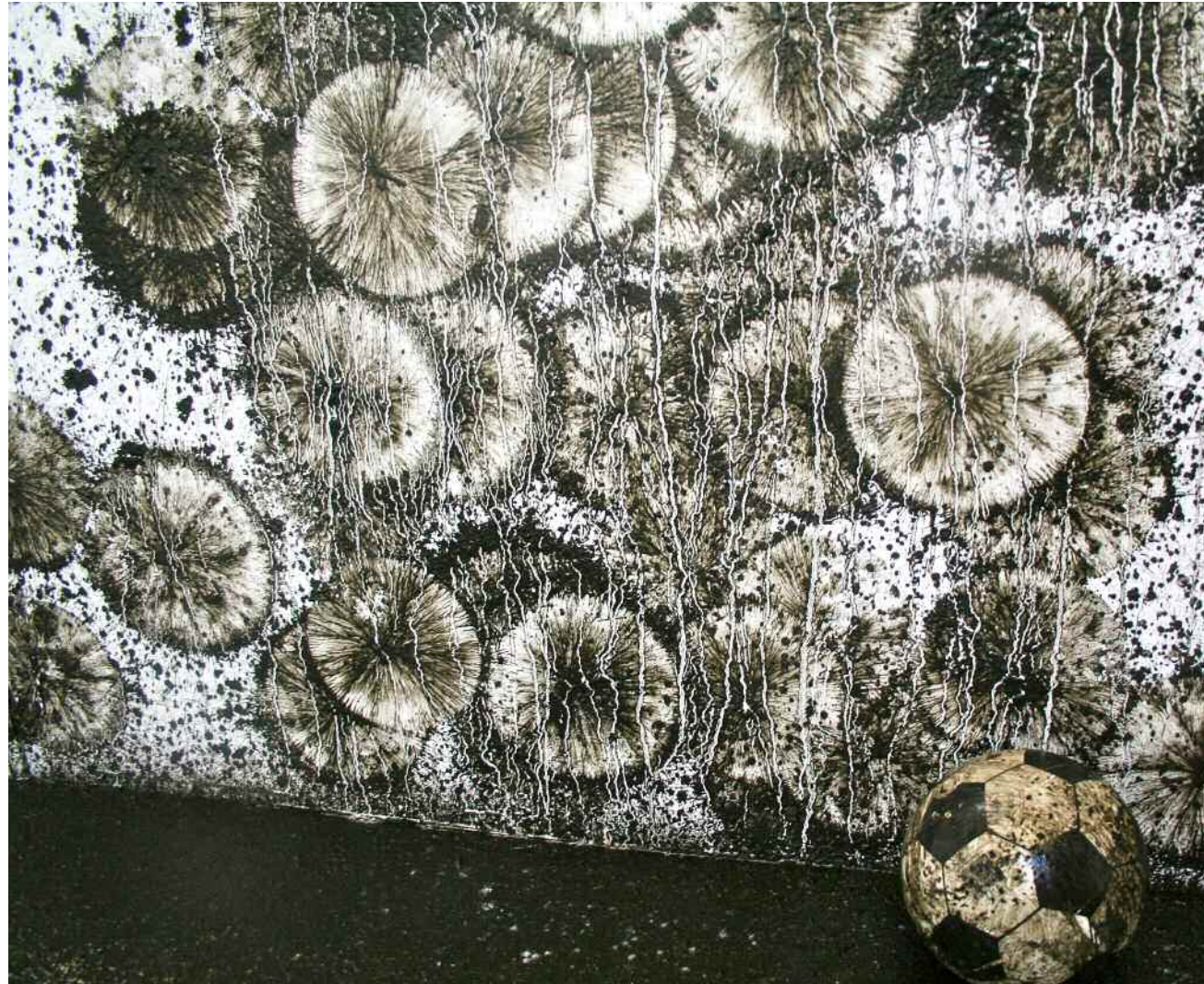
The moulding of soil by the hands has resurfaced as a cultural activity, especially in Japan where making soil balls has become a fashionable craze. The schoolchild's rough mud ball has been reworked into a small shiny globe known as *hikaru dorodango*. As a traditional children's pastime it was in danger of dying out until it was rediscovered by Professor Fumio Kayo, from Kyoto University of Education, who found it a useful means for studying the psychology of play. Cutting across the realms of art, play and meditative practice, *hikaru dorodango* have now become a global phenomenon. The idea of turning mud into something that is so pure and elegant led the novelist William Gibson to refer to the *hikaru dorodango* as an, "artifact of such utter simplicity and perfection that it seems it must either be the first object or the last, something that either instigated the Big Bang or awaits the final precipitous descent into universal silence. At the very end of things waits the *hikaru dorodango*, a perfect three-inch sphere of mud. At its heart: the



unthinkable."¹⁷ In conjunction with the Soil Culture project the artist, Emma Saffy Wilson, has been leading workshops where participants learn to make their own *hikaru dorodango*.

The texture of mud has been a vital ingredient in a number of artworks by the British artist, Richard Long, who is included in the *Deep Roots* exhibition. Although he has made works around the globe he regularly returns to his home clay found in the tidal reaches of the River Avon. For an artist who has famously turned walking into an art form, the connection with his roots in Bristol is important. He also enjoys working with the Avon mud because of its colour and 'squidginess'.¹⁸ Applying the mud by hand directly to gallery walls, with large gestural splashes, allows gravity to complete the work with rivulets and drips. These deceptively simple works, which have an overriding form, contain ever finer detail in the monochromatic clay particles. More restrained are the prints made by repeating the act of touching wood or paper, with fingers dipped in clay. The clay takes on its own form each time that

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Left: Andy Webster, '1 gallon of Fal river mud redistributed by foot over 90 minutes + 6 minutes extra time', 2010.



Above: Marianne Greve, 'Eine-Erde-Altar' (detail), 1994. Photo Alexandra Toland.



Long's muddy finger touches the surface. The uniqueness of each mark is the exact opposite of our usual association with fingerprints which are repeatable and identify the originator of the print. And yet, within the world of contemporary art, the muddy fingerprint is a motif readily associated with Richard Long.

Partly in response to Long's extensive catalogue of works with Avon mud, Falmouth based artist Andy Webster produced a wall drawing using his local river mud. Instead of using his fingers or hands Webster used his foot to kick a mud soaked football at a goal marked out on the gallery wall. The resulting piece, entitled *One gallon of Fal river mud redistributed by foot over 90 minutes + 6 minutes added time*, produces a surprisingly beautiful set of muddy ball prints on the white wall. Each dripping, textural print bears strange similarity to primitive life forms such as amoebas or circular animalcules.

Perhaps the artist who was most associated with the texture of soil was the French painter and sculptor, Jean Dubuffet. In a series

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of paintings produced in the late 1950s, called *Texturologies*, and in particular, *The Exemplary Life of the Soil*, he sought to portray both the rich textures of soil and, at the same time, suggest galaxies and nebulae. His emphasis on the texture of soil and its earthy qualities reflects his interest in raw matter and building a new palette from the ground up.

Collections of soil

There are many reasons for collecting soil samples. One of the most extensive collections is surely that which is held by the James Hutton Institute, an international research centre based in Scotland.¹⁹ Its national soils archive provides a reference to the state of the soils in the past and a benchmark to monitor changes in soil over time. Begun in 1934, the collection now houses over 43,000 samples gathered from 13,000 locations. Each small sample is catalogued and stored on shelves extending to 2.4 kilometres. The resource provides valuable information about managing the land for sustainable crop production and carbon storage.

In contrast to the archiving of soil for scientific research a very different collection of soils was created for the One-World-Church in Schneverdingen, Germany, by the conceptual artist, Marianne Greve. Her *Eine-Erde-Altar*, commissioned in 1994, consists of a steel and perspex shelving unit, over 4 metres high and 7 metres long, which contains 7,000 'earth-books'. Each 'book' is a perspex container which holds soil from significant locations from around the world. Designed to raise awareness about our common dependence upon the life giving properties of soil, and its spiritual connotations, the samples are unique and different yet speak about one earth.

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Another collector of soils, Paolo Barrile, whose work forms part of the *Deep Roots* exhibition, also makes a connection to the spiritual aspect of his materials. Deeply concerned about pollution and the impact of paving over the world's soils he set out to save healthy soils. With the assistance of hundreds of volunteers he collected samples in what he referred to as 'good' action – an act of recovery and love. Starting from this desire to protect the earth he drew attention to the connection between our bodies and soil, "Earth is important because we are earth. One day we become earth".²⁰ His work reminds us that the early Hebrew word 'adamáh' which was subsequently incorporated into the symbolic first person, Adam, combines the concepts of 'soil' and 'man'. Continuing the biblical thread, the name Eve comes from a similar Hebrew source meaning 'living' or 'to give life'. The coming together of Adam and Eve is nothing less than the marriage of soil and soul.

A more highly charged perspective on soil collection was provided by the German-born artist, Hans Haacke, whose work frequently deals with social and political issues. An early work of his, *Grass Grows*, which was first exhibited in New York in 1966 demonstrated an early interest in systems and natural processes – in this case the simple fact that grass grows, even when placed in a gallery on a conical mound of soil. More controversial was his commission for the Reichstag, the German seat of parliament, which was installed in 2000. This floor sculpture required members of the German Bundestag to each bring 100 pounds of soil from their home district.

The soil was then deposited around a neon sign that spelt out the words *Der Bevölkerung* (*To the Population*). This dedication updates the original, and politically potent one on the facade of the

building, *Dem Deutschen Volke* (*To the German People*). Much of the soil in Haacke's work, delivered from all over Germany, contained small creatures and seeds. These soon turned the symbolic gesture of bringing earth into parliament into a living act of reconciliation. Without shying away from the loaded history of the building, and the Nazi connection with soil and homeland, Haacke's artwork confronts the divisive past by mixing together soil of the nation via the representatives of the entire population.

A less controversial gathering of soil was initiated by the artist collective, Future Farmers, who had previously developed an architectural and social intervention entitled *Soil Kitchen*. In their 2015 *Soil Procession* they created a movement of soil, from the country to the city. Building on their previous project, where the collected soil was exchanged for soup, this project encouraged farmers to bring barrows of soil to Oslo as a ceremonial procession and celebration. The procession culminated in a feast where the sharing of traditional flatbread drew attention to the relationship between soil and the grain that sustains the people.



Below: Futurefarmers,
'Soil Procession' 13
June 2015. Photo Svein
Kjode.

Right:
Hans Haacke,
'Der Bevölkerung' (*To
The Population*), 2000.
Reichstag, Berlin
Photo: (Status 2008)
Stefan Müller
© Hans Haacke / VG
Bild-Kunst. Courtesy
the artist and
Paula Cooper Gallery,
New York
Photo: Stefan Müller



Life of soil

Whilst it did not escape Leonardo da Vinci's attention in the 16th century, that "we know more about the movement of celestial bodies than about soil underfoot", it wasn't until the 19th century that the study of soil and its organisms became established. Charles Darwin, best known for his theory of evolution by natural selection also wrote one of the most enlightening books on earthworms which he studied at great length, and with a good deal of creativity. At one point he tested their ability to hear by playing them music. Darwin was in no doubt about the important role soil creatures, and earthworms in particular, play in maintaining a healthy tilth. It is now recognised that, beyond the visible organisms that make up the soil community, such as worms, centipedes, insects and various other invertebrates, there are an unimaginable number of invisible ones; these include nematodes, mites, tardigrades and rotifers. Even more numerous are the protozoa, fungi and bacteria that help support this microscopic ecosystem. So numerous are these micro-creatures that estimates

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suggest a handful of healthy soil may contain more individual organisms than there are people on the planet. Their populations are mind-boggling; we cannot hope to estimate how many might exist in the average vegetable plot or allotment let alone an organic farmer's field. Although these organisms help to maintain the health of soil, and consequently the plants that grow there, they remain largely invisible and are, for the most part, ignored. Even though the World Wildlife Fund has recognised the threats facing global soils, its soil campaign has received little attention. The charity is still viewed through the motifs of iconic species such as pandas and tigers.

The important role of soil creatures in maintaining the ecological balance has informed and inspired much of my own work (documented elsewhere in this publication). For twenty years this practice has been concerned with revealing the intricate and seemingly infinite complexity of life in the soil. Through the art of *Bioglyphs*, which record the traces of soil microbes and larger soil organisms, the artistic process incorporates the activities and energies of living matter into the creative production of the actual work. Colourful images bring to light this hidden, yet vital, world.

Loss of soil

Despite this evidence of a growing cultural awareness of soil, we are still losing it at an unprecedented rate. Rivers around the world are washing tons of good topsoil into the oceans every second. But in addition to this direct loss through erosion, soil is also lost through compaction, salination, pollution or simply being paved over and built upon. Estimates suggest that, in the past 150 years we have lost half of the world's topsoil and the rate of loss is

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increasing. If we continue to lose soil at the current rate, we have approximately sixty years of it left. That is, or at least should be, a sobering figure – sixty years left to grow our crops.

But it is not just food shortages that will be brought about by loss of soil. The reducing levels of organic matter in many soils is a cause for major concern. Degraded soil will hold significantly less water than one rich in organic matter. This results in farmers having to increase irrigation, which in turn leads to water shortages and conflicts over ownership of water rights.²¹

This eroded soil, which is flushed from the land and washed downstream, has been utilised by artists. Both Stephen Turner in the UK, and the German artist Mario Reis, have independently collected the sediment from streams and rivers to create natural watercolours on canvas. In both of these artists' works the residue of passing silt is allowed to accumulate on blank canvases, which have been submerged in rivers and estuaries. When carefully lifted out and dried the colour of the resulting works reflects the



surrounding fields and pastures where the soil had previously been formed. In the case of Turner, who produced a body of work in the post-industrial tailings around Bissoe, Cornwall, much of the residue was highly toxic as his subsequent analysis revealed.

One of the earliest works that aimed to remediate damaged soil was Alan Sonfist's *Pool of Virgin Earth* created at Lewiston, New York in 1975. In a site where the soil was toxic and sterile, Sonfist placed healthy topsoil within a circular impression that was lined with protective clay. Seeds that were naturally blowing in the wind settled on the virgin earth and germinated whereas they had not been able to do so in the toxic soil. Photographs of the work show an island of healthy yellow flowers growing in a barren landscape. Inspired by the artist's method the rest of the site was subsequently treated in the same way by the park authorities.

Toxic soil also constitutes the base material of sculptures by the American artist Mel Chin and the German, Georg Dietzler. Both artists have used sculptural strategies to cleanse highly polluted soil. Chin, whose *Revival Field* features in the *Deep Roots* exhibition, tested the ability of plants to grow in heavily polluted soil. These plants, known as hyperaccumulators, not only thrive but, at the same time, help to cleanse the soil in which they grow. A

Above: Alan Sonfist, *'Pool of Virgin Earth'*, 1975.

Left: Georg Dietzler, *'Self-Decomposing Laboratory'*, 1992–.

Right: Amy M. Youngs, *'Machine for Living Interdependently'*, 2012. Photo: Amy M. Youngs.

Far Right: N55, *'Soil Factory'*, Switzerland 2002.

similar approach was taken by Dietzler in his *Self-Decomposing Laboratory* of 1999. Instead of using plants to neutralise the toxic elements of polluted soil, the artist employed oyster mushrooms. Not only does this culinary delicacy render the PCBs harmless, it also produces edible mushrooms.

While Chin's work, like Paolo Barrile's shown in the *Deep Roots* exhibition, drew attention to the need to protect healthy soil, other artists have sought to recreate soil through the generation of compost. Amy Youngs, for example, has produced sculptures that produce compost by the addition of organic matter including coffee grounds, vegetable scraps and waste paper. One such work, entitled *Machine for Living Interdependently* is linked to a rocking chair that waters a chain of composting cones through its motion. The tall steel construction reminds us of the benefits of composting waste through the production of healthy soil ecosystems, and suggests that the aesthetics of worm composting can comfortably align itself with contemporary living. A similar work by the Danish art collective, N55, also uses the actions of worms and micro-organisms. Appearing like a chic filing cabinet that can be tucked into the corner of an eco-friendly office, the fully functioning sculpture is more minimal than Young's exuberant cascading cones. N55's *Soil Factory* is utilitarian; it even comes with a list of technical details and instructions for looking after the system and its livestock.

Future of soil

Whatever soil is to all of the trillions of creatures that live in it, to us it is essentially a non-renewable resource. The speed at which the soil is being lost varies from ten to forty times the speed at which it is



being replenished. This is clearly not sustainable and has serious consequences if we intend to continue using it for growing our food.

Perhaps it is not too late to hope that the rapid loss of healthy soil can be slowed down, and even reversed. With the UN International Year of Soils, and a number of related events including the Soil Culture programme, there has been a significant and growing level of interest in this life-giving medium. Indeed the cultural contribution made by artists over the past forty years has not escaped the attention of the World Soil Congress. At the 2014 gathering of this scientific community the arts made a significant appearance through the efforts of Dr Alexandra Toland. Toland, who has worked tirelessly to bring the arts and the sciences together on this issue, instigated an exhibition of posters featuring many of the artists discussed in this essay. This comprehensive survey of many of the key works of eco-art was also shown as part of Soil Culture at Create.

The works surveyed here, as well as the many other works that have been omitted due to lack of space, point to the fact that the

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future of soil is not purely a question for science or politics. It is not a lack of knowledge that prevents us from caring for global soils; the methods for restoring and re-building soil are well known. Nor can it be the economic cost that prevents this from happening; for the cost of doing nothing far outweighs any financial implications associated with rebuilding global soils. The question of how we address this situation is also a cultural one. Could the revival of concern about our dependency upon soil lead to a return to a deep-rooted relationship with it? Given the precariousness of the situation it is hard to imagine a more important issue.

1 Robert Macfarlane, *Landmarks* (Hamish Hamilton, 2015).

2 For a thorough examination of the relationship between civilisation's impact on soil erosion see: David R. Montgomery, *Dirt: The Erosion of Civilisations* (University of California Press, 2012)

3 For more on the language of soil see: Daniel Hillel, *Out of the Earth: Civilisation and the life of the soil* (London: Arum Press, 1992)

4 This is now the James Hutton Institute: <http://www.hutton.ac.uk/>.

5 For information on the Munsell Color System: <http://munsell.com/>.

6 A pedologist is someone who studies soils, including their formation, characteristics, properties and distribution.

7 A brief and accessible introduction to the geology of Devon can be found at: <http://www.devon.gov.uk/geology-in-devon-2013.pdf>.

8 <http://www.ulrikearnold.com/>.

9 <https://intimBecology.wordpress.com/>

10 William Bryant Logan, *Dirt: the ecstatic skin of the earth* (W. W. Norton & Company, 2007), p.20.

11 Ibid.

12 Further information about these projects can be found at:

<http://www.lauraparkerstudio.com/HTML/>.

13 A peck is a dry measure of two gallons.

14 *Eat White Dirt*, Dir. Adam Forrester (2015)

15 Sera L. Young, *Craving Earth: Understanding Pica, the Urge to Eat Clay, Starch, Ice, and Chalk* (Columbia University Press, 2011).

16 <http://nequittezas.com/>.

17 William Gibson, *Shiny Balls of Mud: Hikaru Dorodango and Tokyu Hands* TATE, issue 1, September/October 2002. p.108.

18 Robert Butler, *In the Mud with Richard Long*, (INTELLIGENT LIFE magazine, Autumn 2008).

19 <http://www.hutton.ac.uk/about/facilities/national-soils-archive>

20 http://www.paolobarrile.it/paolobarrile/sito/pdf_pagine/13commiato.pdf

21 Interview with Professor John Crawford conducted by the World Economic Forum Risk Response Network (*What if the World's Soil Runs Out*. Time Magazine, 14.12.2012).

For all things come from earth, and all
things end by becoming earth.

Xenophanes of Colophone, Greek philosopher circa 570-475 BC

Deep Roots



Left: Works by Claire Pentecost at Falmouth Art Gallery.

All photos on pages 34–37 were taken at Falmouth Art Gallery by Martyn Windsor

Deep Roots

Exhibition Introduction

The exhibition *Deep Roots* marks the final phase of the Soil Culture programme. Launched at Falmouth Art Gallery in September 2015, it went on to be shown at Peninsula Arts Gallery, Plymouth University in January 2016.

As *Young Shoots* had provided a platform for younger and emerging artists who had participated in Soil Culture residencies, this new exhibition focussed on groups of work by six more established International artists who had engaged with soils for many years, shown with individual works by seven mid-career British artists which explored something of the science behind soils.

Curating an exhibition to do justice to this subject would have required resources ten-times larger than ours, and so my selection is inevitably partial. It includes work reproduced in books and catalogues but not previously exhibited in Britain, such as Mel Chin's *Revival Field* and Claire Pentecost's *Soil-erg* projects, alongside *Message Earth* by Paolo Barrile; an artist barely known outside of his native Milan. *earth rubbings* by herman de vries are shown in the year that he is representing the Netherlands at the Venice Biennale, work by Richard Long in the year that Arnolfini, Bristol is celebrating his 70th birthday, and films by Ana Mendieta just a few years after her major exhibition at the Hayward Gallery in London.

As well as being the UN International Year of Soils and Bristol's year as European Green Capital, 2015 was also the bicentenary of

William Smith's publication of the first geological map of England and Wales; a map that fundamentally changed the way we view the ground beneath our feet. So, in addition to work by other better known British artists, I have included a new map by Adam White which adds radical new layers of meaning to Smith's work, a work on paper by Sandra Masterson using soils from CCANW's former home in the Haldon Forest, and a painting by Peter Ward using earth pigments from North Devon.

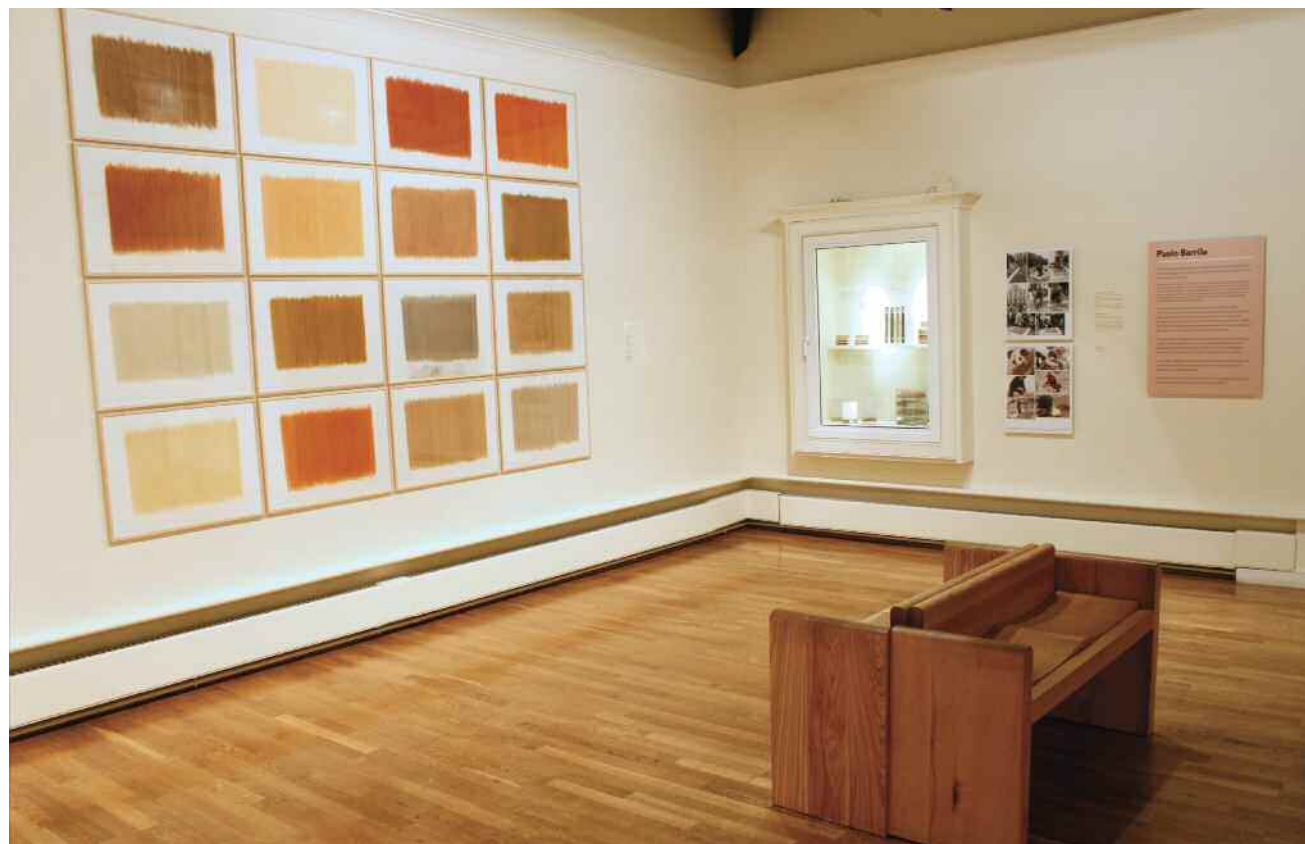
Paolo Barrile, Mel Chin, herman de vries,
Richard Long, Ana Mendieta, Claire Pentecost,
Chris Drury, Andy Goldsworthy,
Sandra Masterson, Daro Montag, David Nash,
Peter Ward, Adam White

In making my International selection, I have benefitted hugely from knowledge gained from Dr Alexandra Toland's SoilArts resource and from Dr Sue Spaid's recent exhibition

catalogue, *Green Acres*. Both curators were keynote speakers at our *Art of Soil* event at the Create centre in Bristol, where Alexandra's exhibition *Dirt Dialogues* was also shown alongside *Young Shoots*.

My thanks go to the artists, families, estates and galleries who have lent work, to my staff and those of the participating galleries, and to Arts Council England whose grant to Falmouth Art Gallery made this exhibition affordable. Through everyone's generosity we have together created greater public awareness of soils and made progress towards other exhibitions in the future on this important subject.

Clive Adams, Curator



Left: Works by herman de vries and Paolo Barrile



Left: Works by Andy Goldsworthy and David Nash.



Far Left: Works by Adam White, Daro Montag, Sandra Masterson, Peter Ward and Chris Drury



Right: Works by Mel Chin and Claire Pentecost (foreground)



Right: Works by Richard Long

Far Right: Films by Ana Mendieta



Paolo Barrile

Paolo Barrile (1925-2008) spent most of his life in Milan, interspersing his studies in architecture and engineering with an early involvement in cinema. From 1952 he started to produce paintings, exhibited his work for the first time in 1957, and continued to paint throughout his life.

In 1961, he started to take an interest in earth colours and to collect samples from different parts of Italy. In 1969 his collection of earths and examples of extremely old soils began and his *Message Earth* manifesto was announced in 1975. It developed into several phases of activity.

The first involved the collection and classification of “untouched, uncontaminated earth and paleosols* by groups all over the world”. Between 1975-78 such earths were salvaged through friends and supporters, the press and posters. Starting in 1977, the next phase involved the transfer of this earth onto polluted areas. In 1982, 153 artists from 36 countries redistributed paleosols from Northern Italy and were asked to scatter it on polluted land and waterways.

Other phases involved pressure group activism, consciousness-raising initiatives and 'amplified' actions. Between 1979 and 1982 this involved Barrile in the sending of 200 acorns to children and young couples for planting on derelict ground, arranging ecological outings for people wanting to lay their 'organic residues' in nature, and a

proposal for the installation of a colony of earthworms in an art gallery.

A phase from 1983 to 1986 involved the formation of the Message Earth Company with the aim of redistributing earth from every single place to every other place on the planet. Although about five thousand 'expositors' were sold in 89 cities the project was not a financial success.

Unlike the now well known earthworks of his near contemporaries in the States; Robert Smithson, Michael Heitzer, Dennis Oppenheim and Walter De Maria; Joseph Beuys, Hans Haacke and Herman de Vries in Europe; Paolo Barrile's own earth works have been rarely exhibited or reproduced internationally. The 2005 monograph on his work notes that he was not invited to exhibit in the exhibition *From Nature to Art, from Art to Nature* at the 1979 Venice Biennale and it seems likely that this will be the first time his work has been seen in Britain.

“MESSAGE EARTH. When the last square metre of earth will be covered by the last square metre of cement, of asphalt or by the last discharge of industrial waste; when man-by his own hand-will have made our planet uninhabitable; when the last surviving inhabitant will get on the last space-ship leaving for other galaxies, this message he will take with him to prove the consistency and colours of that idyllic refuge which, in other times, had been OUR MOTHER EARTH.”
– Paolo Barrile, Milan 1977. Translated from the poster text in the exhibition.

List of works

- *Ciao Italia*. 1974-84, mixed media 7x9.5x3cm
- *Espositore di terre con certificato di autenticità*. 1978, mixed media 14.5x10x3cm
- *Espositore di terre con certificato di autenticità*. 1978, mixed media 14.5x10x3cm
- *Le mie raccolte*. 1983, mixed media 15x14.5x3cm
- *Messaggio Terra-Terre d'Italia*. 1975-84, mixed media 15x14.5x3cm
- *Espositore di terre con certificato di autenticità*. 1976, mixed media 16x10.5x3cm
- *Espositore di terre con certificato di autenticità*. 1979, mixed media 23.2x16.7x23.2cm
- *Messaggio Terra*. 1977, poster 104x75cm
- *Messaggio Terra*. 1977, mixed media 83x63cm
- *Messaggio Terra*. 1978-84, mixed media 7x9.5x3cm
- *Messaggio Terra-quattro provette*. 1983, mixed media 25x18.5x5.5cm

Private collection, Milan. Courtesy Galleria Antonio Battaglia.



*A 'paleosol' is a stratum or soil horizon that was formed as a soil in a past geological period.

Right:

Paolo Barrile with his 'Messaggio Terra' poster during an action in the Cathedral Square of Milan 1979.



Left:

'Messaggio Terra', 1997, mixed media, 83cm x 63cm. Photo: Cartel.

Mel Chin

Mel Chin (b.1951) grew up in Houston, Texas, where he self-produced his first exhibition in a storefront space in 1976. During his career he has worked in a vast range of media, creating work that involves research, community engagement and collaboration. With long-term projects such as *Revival Field*, and *Operation Paydirt* begun in 2006, Chin has shown that art can engage with science, popular culture and social activism.

In 1983, he moved to New York City and in 1989 read a postulation on the use of plants to remediate toxic soil; *Revival Field* became the project for which he is best known. Devised co-operatively with Rufus Chaney, a senior research agronomist from the United States Department of Agriculture, its primary goal

was to prove the potential of hyper-accumulator plants to extract toxic metals such as zinc, cadmium and nickel from contaminated land through a replicated field test. Previously, soil remediation involved the removal of contaminated soil to waste landfill, and its replacement by clean soil.

The first implementation of *Revival Field* was at the Pig's Eye Landfill in St. Paul, Minnesota between 1990 and 1993. Chin designed the field tests in a mandala-like shape. A square chain link fence defined its 60 by 60 foot perimeter, with another demarcating a circle within. Known hyperaccumulators, metal tolerant grasses and food crops were planted within this circle, whilst existing vegetation was allowed to re-propagate between these zones to act as a control. The circle was divided into 96 smaller plots, for which Chaney

provided the plants and seeds, and advised on procedures. For three years, Chin and his team harvested the plants and sent them to Chaney to test in his laboratory. From the five plants selected for the field tests, Chaney found that *Thlaspi caerulescens*, commonly known as Alpine pennycress, was the most effective for removing zinc and cadmium. It is significant that *Revival Field* was not only one of the first two replicated field tests in the world, but it confirmed scientific technology

Chin conceived *Revival Field* as a sculpture, with the final work of art represented by healthy, remediated soil. On a symbolic level, the circle and square, ancient Chinese symbols for Heaven and Earth, are quartered by paths that form a crosshair target aimed at the contaminants. Each metal targeted for extraction, represented by bars of zinc and lead, and balls of copper, was enclosed in a glass jar that hung from the top of each plot marker.

Chin and Chaney created two further *Revival Field* projects, at Zoetermeer in the Netherlands in 1992 and at Palmerton in Pennsylvania in 1993-97. Chin also made drawings using metal extracted from the soil to draw a species of hyperaccumulator. Chaney went on to work on other contaminated sites, including one in Thailand where agronomic practices to maximize cadmium removal using *Noccaea caerulescens* were demonstrated.

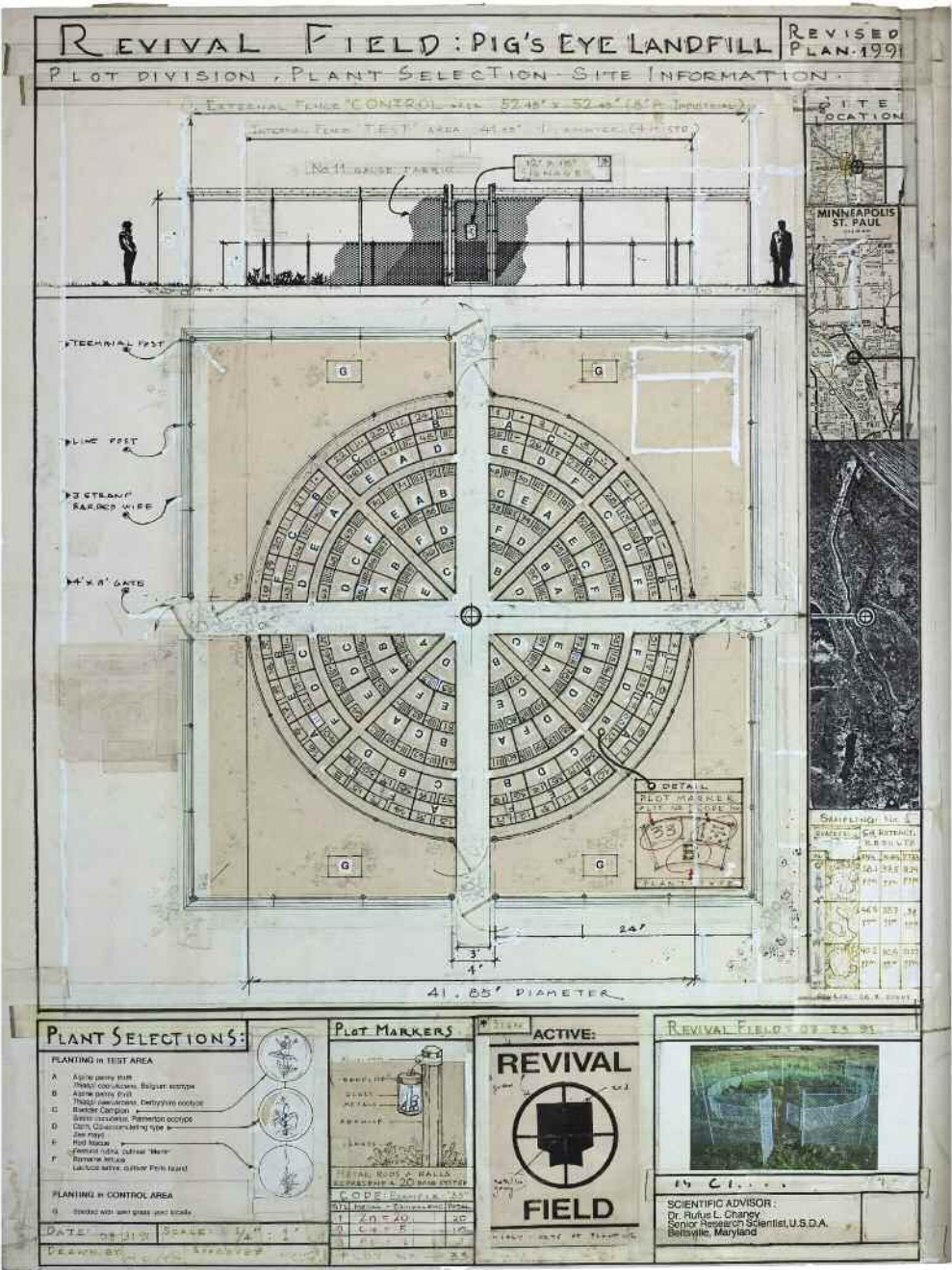
Mel Chin's work was the subject of a major exhibition and publication *Mel Chin: Rematch* organised by the New Orleans Museum of Art in 2014.

Right:

'Harvest: Revival Field', 1993, Pig's Eye Landfill, St. Paul, Minnesota. Photo: Walker Art Centre.

Facing Page:

'Revival Field Revised Plan', 1991, mixed media on paper, 76cm x 58cm. Photo: Anne Glick.



List of works

- Revival Field Revised Plan, 1991, Mixed media on paper, 76.2 x 58.4cm
- Revival Field Soil Treatment Plan, 1991, Mixed media on paper, 61 x 45.7cm
- Selected Photo documentation of Revival Field 1991-93 Pig's Eye Landfill, St. Paul, MN, 1992-1993, Archival inkjet on photo prints, 30.5 x 44.5cm
 - Zinc/Cadmium Hyperaccumulator: *Noccaea caerulescens* (Formerly *Thlaspi caerulescens*). Photograph Walker Art Centre
 - Revival Field 1993: Aerial view. Photograph David Schneider
 - Revival Field: Soil sampling 1992. Photograph Walker Art Centre
 - Harvest: Revival Field 1993 Pig's Eye Landfill St. Paul Minnesota. Photograph Walker Art Centre
- Study for Revival Field: *Festuca rubra* (Metal tolerant grass) 1992-1993, Cast zinc / cadmium; zinc and cadmium point on prepared ground on blotter paper, artist designed 'oxidation' frame, 69.9 x 69.9 x 9.5cm
- Revival Field Biomass Accumulation Study, 2015, organic and Inorganic material collected from Revival Field sealed/mounted on glass, 40.6 x 30.5cm
- Documentation of metal hyperaccumulation from Revival Field samples. Courtesy of Dr R.L. Chaney, Senior Agronomist, United States Dept. of Agriculture 1993, Archival inkjet on photo paper, 30.5 x 44.5cm
- Revival Field Plot Marker No. 86, 1991-1993, Artifact from Revival Field, St. Paul, MN in sealed case, 17.8 x 17.8 x 66.7cm

herman de vries

herman de vries (b.1931) was born in Alkmaar in the Netherlands and has been working for over sixty years in a way that combines art, science, philosophy and the reality of nature. Having attended horticultural college and conducted research in natural science, his earliest works date from 1954; non-figurative paintings, drawings and collages of found materials.

During 1959-60, his paintings became increasingly monochrome, then exclusively white. In the early sixties, when conducting biological research in Arnhem, he took random series of numbers to create abstract geometric white-on-white works, in the spirit of the international artists' movement ZERO.

From this time de vries chose only to use lower case letters, and this extends to writing about his work. This was inspired by Zen Buddhism and his experiences in nature, where a tree is just as important as a bacteria or a fungus in the soil. It is therefore a statement of social equality.

In 1967, he made his first journeys to Eastern Europe and Russia, followed by long journeys in Asia, India and Africa. Since 1975, de vries has made his artistic media subservient to the artwork of nature. Many of his works are the result of finding, collecting and showing materials and plants, from his home in Eschenau on the edge of a forest in Northern Bavaria where he has lived and worked since 1970, to the many

places that he visits on his travels.

de vries made his first earth rubbing in 1983. Firstly, an earth sample is collected in a specific area, a note is made of the location, preferably on a map, the date of the sample is recorded and it is then stored in a small bag. These earths, if necessary pulverised in a mortar, are strewn onto paper and rubbed up and down by his fingers. This vertical presentation is intended to block any association with landscape. Some sheets are of one colour, others of many collected from the same landscape. The place where the earth was collected is written at the bottom of each sheet. These places range from Aboriginal sites in Australia, to those at Chernobyl and the Buchenwald concentration camp.

In 1999, de vries was invited to explore the ecological and geological richness of Digne-les-Bains in the Haute-Provence region of France and he has now created works in the surrounding mountains and valleys. His collection of around 8,000 earth samples is now in the *earth museum* in the Musée Gassendi in Digne.

de vries was chosen to make a presentation in the Dutch pavilion at the Venice Biennale in 2015. This comprised mainly of new works, using materials gathered from a number of uninhabited islands in the lagoon, together with a *sanctuary: natura mater* located on one of the islands. 84 rubbings of many different coloured earths from the *earth museum* were also presented, displayed in a grid formation but at random, as is his practice.

List of works, from left to right

from earth: everywhere 1997-2000, earth rubbings, each 50x70cm

- hereroland, near otjiwarango
- enganei, veneto
- island, ámaskand
- gomera, lomo loco
- cabeza de toro, la gomera
- equador, cuyabeno
- waldenburg, near schwäbischhall
- steigerwald, löcher
- oberschwappach, rheinhardswinden
- rheinhardswinden
- rheinhardswinden
- raratonga
- daylesford, victoria australia
- urquhart bluff, victoria australia
- agadir
- großer knetzberg



Right:

herman de vries
collecting earth,
montana colorada, el
hierro (canaris) 1994.
Photo: susanne de
vries.

Facing Page:

'from earth:
everywhere', 1997-
2000, earth rubbings,
each 50cm x 70cm.
Photo: Joana
Schwender.

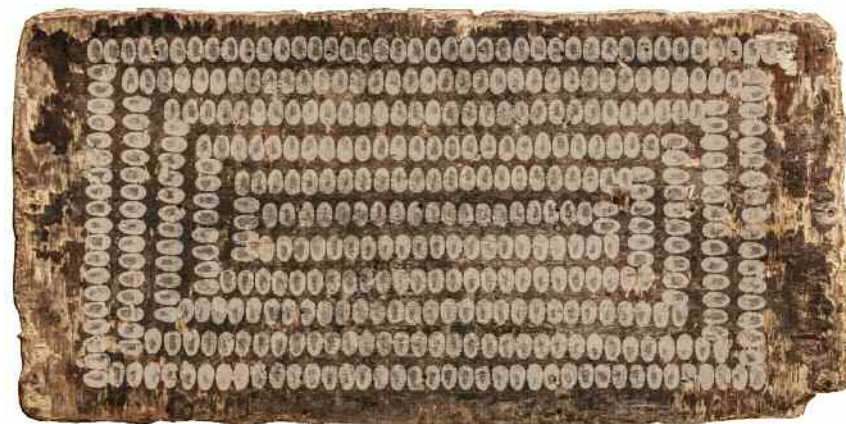
Richard Long

Richard Long (b.1945) was born in Bristol where he still lives and works. He studied at the West of England College of Art, then at St. Martin's School of Art, London 1966-68. Long was amongst students that included Gilbert and George, Bruce McLean and Hamish Fulton who opposed the industrial metal assemblage approach to sculpture promoted by tutor Anthony Caro.

Their approach often incorporated elements of performance, found or natural materials, and impermanence. Whilst at St. Martin's, Long produced one of his most iconic works, *A Line Made by Walking*, made by walking back and forth along a straight line across a field; creating a link between an activity and sculpture through a simple black and white photograph.

Within a year of graduating, Long was associated with the emergence of a new art form *Land Art*. He also participated in the first international manifestations of both *Arte Povera* in Italy and *Earth Art* in New York, and had a series of exhibitions in prestigious galleries in Germany, France and Italy. His first solo exhibitions in Britain were at the Whitechapel Art Gallery, London and Museum of Modern Art, Oxford in 1971. He also represented Great Britain at the Venice Biennale in 1976.

Early work involved him recording simple but precise walks on Dartmoor, where his grandparents lived, and on Exmoor; his



Above:

'Untitled', 2014, River Avon mud fingerprints on board, 60cm x 120cm. Photo: Stephen Jackson.

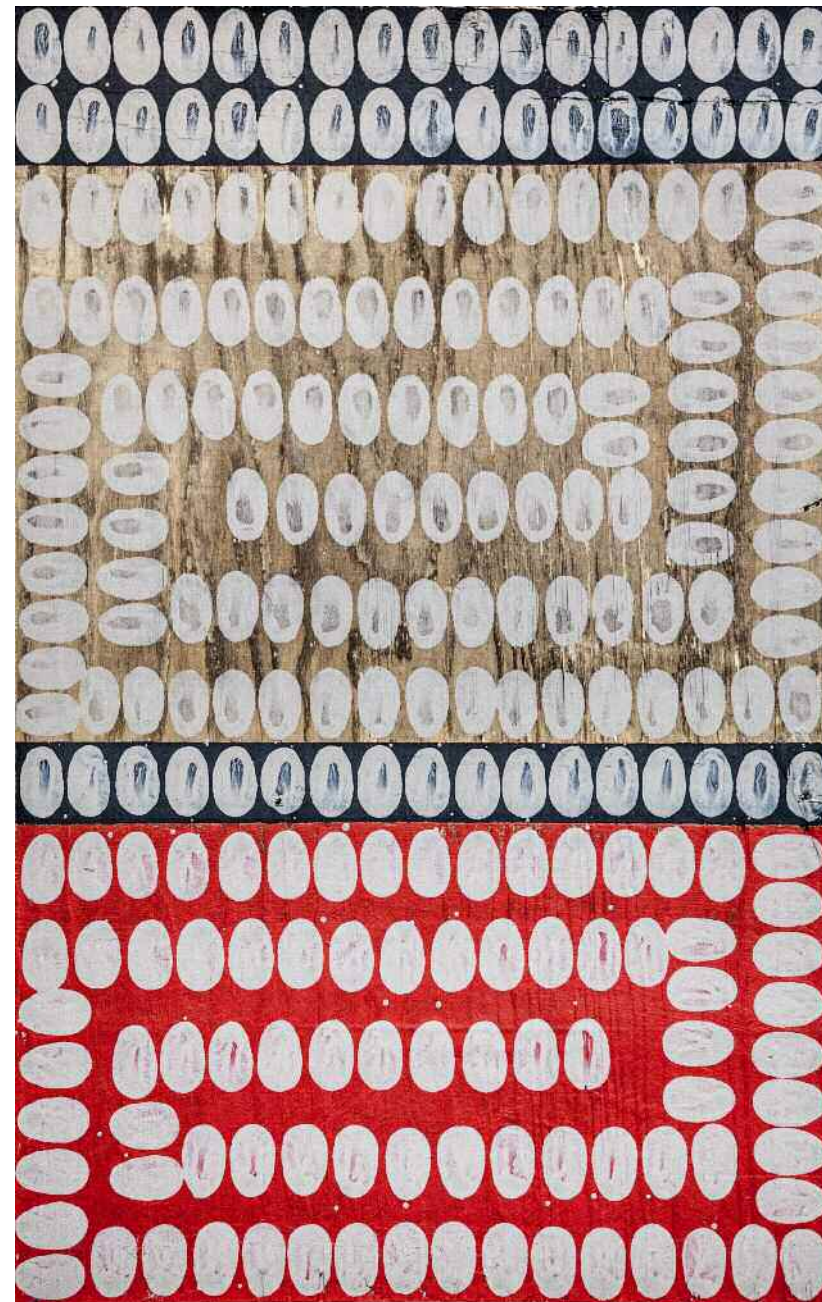
intention being to "make a new art which was also a new way of walking: walking as art". These were recorded in photographs, maps or texts. Simple archetypal shapes, mostly circles, lines, crosses and spirals were most noticeable in his work.

Guided by a great respect for nature, Long never makes significant alterations to the landscapes he passes through. Instead he marks the ground or adjusts the natural features of a place by, for example, up-ending stones, or throwing water; temporary works that are then photographed. Unlike many of the American 'land artists', such as Robert Smithson and Michael Heizer, he does not shift quantities of earth or make permanent monumental works.

Long also works inside galleries with indigenous materials such as stone, wood

and mud. Slate from the Delabole quarry in Cornwall has frequently been used, as has driftwood and mud gathered from the banks of the River Avon near the Clifton Suspension Bridge in Bristol. From 1981, he started to apply liquid mud onto walls, throwing it, drawing with his fingers or using the imprint of his palms; such works were usually temporary. For the first time, in 2000, he presented discrete, modest-sized mud fingerprint drawings on driftwood, such as those in our exhibition.

During his career, Long has made works in all seven continents, with recent walks in Antarctica, Argentina and China, and is widely acclaimed as one of the most important, influential and original artists of our time. His most recent solo exhibition in Britain was at Arnolfini, Bristol in 2015.



List of works

- *Untitled* 2014, River Avon mud fingerprints on River Avon driftwood, red paint. 56X17cm.
- *Untitled* 2014, River Avon mud fingerprints on wood, black and red paint. 66X42cm.
- *Untitled* 2014, River Avon mud fingerprints and black paint on board. 42.5x74.5cm.
- *Untitled* 2014, River Avon mud fingerprints on board. 60X120cm.
- *Untitled* 2013, Cornish china clay fingerprints on board. 120X82cm.

Collection of the artist

Left:

'Untitled', 2014, River Avon mud fingerprints on wood, black and red paint, 66cm x 42cm. Photo: Stephen Jackson.

Ana Mendieta

Ana Mendieta (1948-85) was born in Cuba into a family opposed to the Castro government and, with her sister, was sent as a child to live in a series of foster homes in Iowa. Much of the work produced during her brief but productive career, which ranged over performance, sculpture, drawing, photography and film, reflects upon a sense of displacement and exile. At its core lay the use of her own body and a concern for the spiritual.



Right:

Stills from *Alma Silueta en Fuego* (*Silueta de Cenizas*), 1975, Super-8 colour, silent film transferred to DVD. Photo: The Estate of Ana Mendieta Collection.

Facing Page:

Still from *'Birth'*, 1981, Super-8 black and white, silent film transferred to DVD. Photo: The Estate of Ana Mendieta Collection.

Haacke. Distancing herself from Robert Smithson and the American male-dominated land art movement, Mendieta came to identify more closely with the work of Richard Long and his approach to nature.

Mendieta describes her first performances and earth-body sculptures as being an urge to "return to the maternal source". These were followed by performances which involved transformation of her own body using facial hair, blood and feathers which tapped into the rituals of Santería, the Afro-American religion practised in Cuba. Her first solo exhibition was

to the UK and visited Stonehenge.

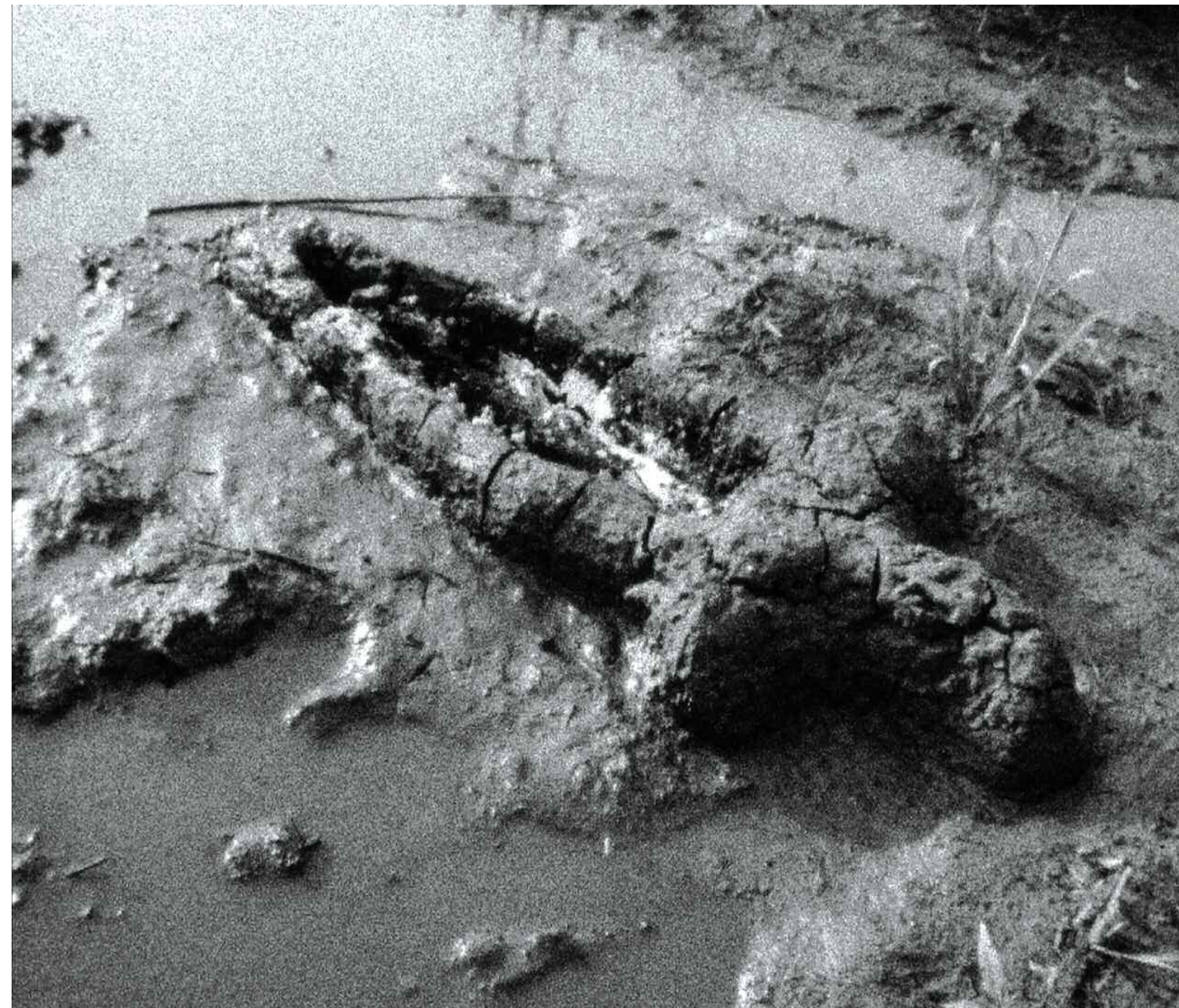
In 1978, Mendieta moved to New York and exhibited in a solo exhibition there in the following year. At the opening she met minimalist sculptor Carl Andre. They married in Rome in 1985 and visited the ancient sites of Egypt. Later that year Mendieta fell to her death from the window of Andre's fourth floor apartment.

In 2013 the Hayward Gallery in London presented the first comprehensive survey of Mendieta's work in the UK; *Ana Mendieta: Traces*.

List of works

- *Alma Silueta en Fuego* (*Silueta de Cenizas*), 1975, Super-8 colour, silent film transferred to DVD. Running time: 3 minutes, 30 seconds
- *Burial Pyramid, Yagul, Mexico*, 1974, Super-8 colour, silent film transferred to DVD. Running time: 3 minutes, 30 seconds
- *Birth*, 1981, Super-8 black and white, silent film transferred to DVD. Running time: 2 minutes, 03 seconds

Courtesy The Estate of Ana Mendieta Collection, Galerie Lelong, New York and Alison Jacques Gallery, London. Copyright: The Estate of Ana Mendieta Collection



Claire Pentecost

Claire Pentecost (b.1965) grew up in Atlanta, Georgia where her grandparents owned a farm just outside of the city which she describes as a “neglected rambling playground full of enchanted abandoned places”. Her earliest years coincided with the Civil Rights movement and after college she became a community organiser in North Carolina, an experience she describes as being a “formative, engrossing experience”. She studied at the Pratt Institute in Brooklyn, New York, and participated in the Whitney Independent Study Programme between 1988-89.

Since the late 90s, Pentecost has sought to use art as a tool with which to create awareness around the production, distribution and consumption of food. This research project engages what she calls the ‘Public Amateur’, whereby artists adopt the role of amateurs and hobbyists in order to reveal and demystify our everyday relationships with techno-scientific processes. Instead of maintaining art’s value as a commodity, her work takes on a socio-political role.

In early projects, such as *Plastic Greenhouses by the Sea* (2005), she explored how labour practices and tourism interact through the industrial agriculture of Southern Spain, where much of Europe’s greens are cultivated. *Expochacra* (2005) was an investigation into how the US system of



industrial agriculture has been rapidly integrated into the economy of Argentina, one of the world’s largest food producers. *The Grub Heap Kernal* (2006) was a newspaper with a significant twist, full of cartoons, poetry, obituaries and Adbusters-style anti-consumerist messages.

The works in our exhibition are selected from *Soil-erg*, first shown in 2012 in the Ottoneum Museum at dOCUMENTA (13) in Germany. The artist had been invited to participate in a section of the exhibition organised under the idea of the seed. Thinking beyond the brief, she decided to focus on soil as the medium on which the seed depended. She then explored how corporations attempt to ‘commodify’ soil, through the use of

synthetic fertilizers, pesticides and herbicides, as well as the use of genetically modified seeds.

The works divide into several related sections. Presented on gilded glass-topped tables are piles of ingots made of composted soil which represent units of new currency, the *Soil-erg*, proposed as a replacement of the petro-dollar. These are accompanied by wall-mounted soil discs, and then a series of different drawings for paper currency depicting either historical figures who have made contributions to the ecological understanding of agriculture, non-human creatures of the soil-food web or writers, philosophers, anthropologists and artists (including one of Ana Mendieta) who have broadened our understanding of our place within nature.

Claire Pentecost acknowledges the work of artists that has helped enrich her own practice, including Mierle Laderman Ukeles, Agnes Denes, Betsy Damon and Mark Dion, and she is now Professor in the Department of Photography at the School of the Art Institute of Chicago.

List of works

- *Soil-erg (ingots)* 2012. Moulded soil on 2 gold-leaf surfaced glass topped tables. Table top 200x80cm
- *Soil-erg (discs)* 2012. Moulded soil, 17, 24 and 26 cm dia.
- *Soil-erg (drawings)* 2012. Graphite and soil on paper, 33x41 cm

Collection of the artist.



Above:

Installation of ‘Soil-erg’ at dOCUMENTA (13) in Germany 2012. Image courtesy of artist.

Chris Drury

Chris Drury (b.1948) was born in Sri Lanka and studied sculpture at Camberwell College of Arts 1966-70. His first major solo exhibition *Shelters and Baskets* toured extensively in Britain in 1987.

Drury is an environmental artist who makes site specific, nature based sculpture and frequently collaborates with scientists and technicians from a broad range of disciplines. His work falls into two main categories: large scale installations and commissions for inside and outside spaces such as *Wave Chamber* (1996) made beside the Kielder Reservoir in Northumberland, and 'mapping' works on paper, photoworks and videos.

The work in this exhibition *The Methane Eater* is one in a series of ongoing works on paper which look at organisms living in situations hostile to life. Here, we see the gene sequence of *methylocapsa acidiphilia*, a microorganism living in the acid conditions of peat bogs and burning methane for energy, stencilled into the peat. Its activity helps to regulate the presence of this potent greenhouse gas.

Other recent projects include a Cape Farewell research project with Kay Syrad based on three farms in Dorset (2015), a residency at The Nirox Foundation in South Africa working with paleontologists, geologists and anthropologists (2011), and a British Antarctic Survey residency in



Antarctica (2006). He has also been working with clinicians to make links between systems in the body and those on the planet.

Drury lives in Lewes, Sussex and his work was included in *Walk On: 40 years of Art Walking*, touring to several Plymouth galleries in 2014.

Andy Goldsworthy

Andy Goldsworthy (b.1956) was born in Cheshire and studied at Preston Polytechnic 1975-78. He moved to Cumbria in 1981, where his first large scale environmental sculptures *Spires* and *Sidewinder* were commissioned for Grizedale Forest between 1984-85.

The *Lambton Earthwork* was created by Goldsworthy in 1988 for an abandoned railway track between Consett and Sunderland and was commissioned by Northern Arts and Sustrans. Having echoes of *Sidewinder*, the work is a quarter-mile-long earth spiral lying in a cutting, looking much like an excavated object exposed just below the surface of the land.

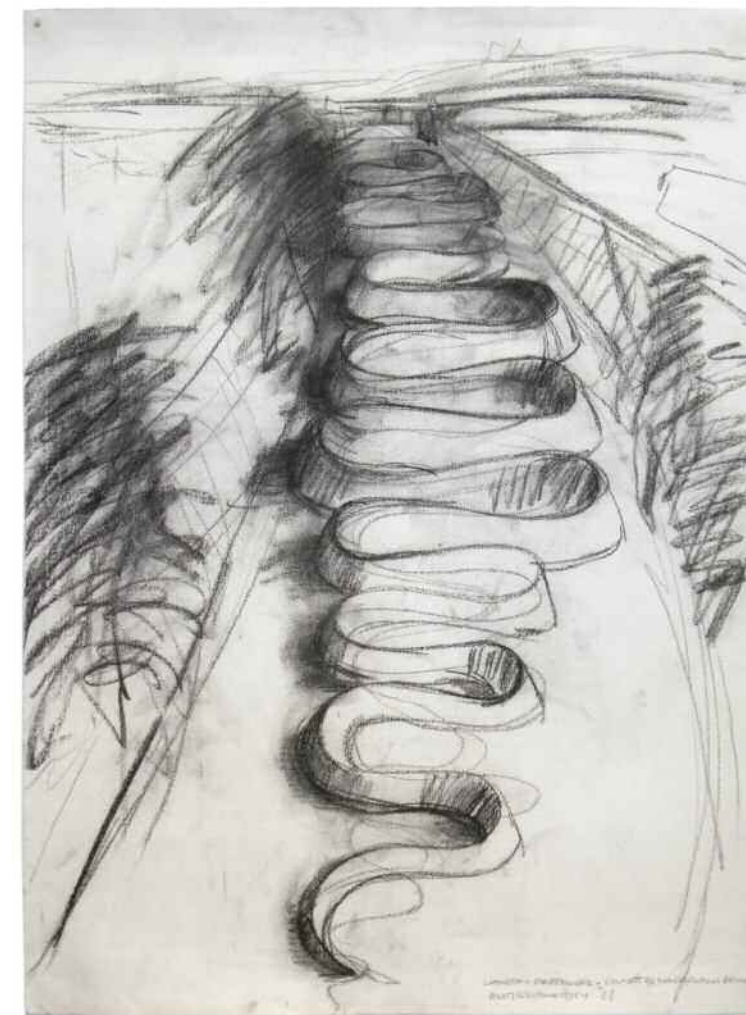
The work can be viewed from the cycleways that flank it or from bridges at either end. It starts narrow and ends wide, giving it the snaking quality of a river in motion. Only after its completion did the artist become aware of the legend of the Lambton Worm, which many still believe was the inspiration for the work.

A second commission on the same cycle track at Leadgate in the following year resulted in an earth maze. These large earthworks were unusual in England at the time but bear comparison with the work of American artists of the Seventies, particularly Robert Smithson's *Spiral Jetty* and Robert Morris's works involving concentric circles.

Because Goldsworthy works during all seasons with many natural materials which are ephemeral and transient, such as flowers, icicles and leaves, many other works are created specifically to be seen through his photographs. He has made work in many parts of the world, including the North Pole.

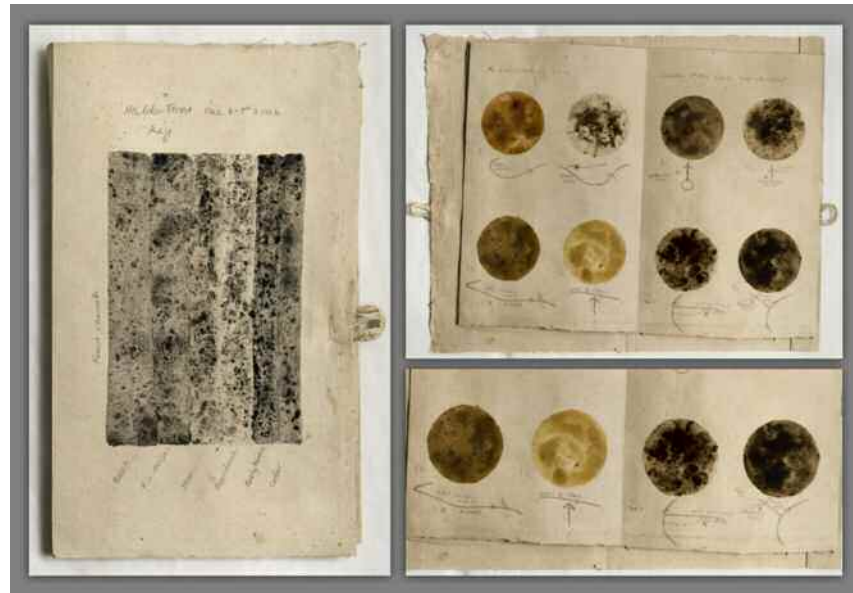
Below:

Proposal for 'Lambton Earthwork 3', 1988, charcoal on paper, 77cm x 57cm. Private Collection.



Right:

'Life in the Field of Death 3, The Methane Eater', 2010, peat on paper, 126cm x 100cm. Collection of the artist.



Above:
'Key to Haldon Forest'
2006. Booklet
containing diagrams
of the path at the point
soil was collected.
Munsell colour
notations for each soil
on Indian Hemp paper.
34X20cm;
*'Haldon Forest Munsell
Chart'* 2006, 30 soils
collected from Haldon
Forest, Exeter, on hand
made Indian Kahdi
paper. 140X100cm.
Collection of the artist.

Sandra Masterson

Sandra Masterson grew up in Stanmer Village, Sussex and studied fine art at Wolverhampton and Birmingham Polytechnics between 1973-77.

As a painter with a special interest in landscape, since 1998 Masterson has made works that explore the relationship between place, space and people through the visual language of the soil. Her work is as much about the act of walking and collecting soil and plant materials during journeys made along rivers, hills and borders, as it is about the creation of finished pieces. Falmouth Art Gallery were the first to exhibit such work in a solo exhibition *Fragile Earth* in 2000.

The work in our exhibition was made for the *Forest Dreaming* exhibitions at the Centre for Contemporary Art and the Natural World when first based in the Haldon Forest. The soils were collected along forest paths and arranged in the form similar to that of a Munsell Chart; an international standard of colour identification devised by the American artist Albert H. Munsell in 1905 and subsequently used by soil scientists to determine the colour of soil.

Masterson's *Earth Mapping* work takes on a variety of forms and scale and includes independent and commissioned projects. *The Two Rivers Dore Project* 2003-6 involved the production of maps, booklets, prints and photographs which linked rivers of the same name in Herefordshire and in the Auvergne in



France. A European Geopark Residency was based in Abberley and Malvern Hills in 2006-7.

In 2013 Masterson moved from Malvern in Worcester to set up a studio and gallery in the heart of a working rural environment in the Auvergne. Her current projects continue to explore the relationship between soil, place and people.

Daro Montag

Daro Montag (b.1959), is an artist, researcher and lecturer at Falmouth University. He was born in Hertfordshire, lived in London for many years before relocating to Cornwall at the turn of the century.

His creative concerns have largely focused on the question of how best to represent living matter. Interests in process and organic philosophies led him to develop methods for enabling other species to generate images – most significantly in a series of works known as 'bioglyphs'. These works use pre-processed colour film as a medium within which miniature ecosystems are established. The resulting images are highly coloured, indexical traces of micro-organic events.

Buried 10 Days East Dulwich is one of his earliest bioglyphs. Made while studying at the Royal College of Art, the title refers quite literally to a roll of film that was buried for 10 days in South London where he was living at the time. The activities of microbes, that are abundant in garden soil, have left their imprint in the coloured gelatin. The film, illuminated on a lightbox, serves as a register that reveals the hidden energy of living matter at work beneath our feet.

Daro is Associate Professor of Art & Environment at Falmouth where he leads the RANE research group. He is also Head of the Marine and Natural History Photography course.



Left:
*'Buried, 10 Days, East
Dulwich'* 1993.
Lightbox with
photographic film
buried vertically in
garden soil. 100 x 21 x
14 cm. Collection of
the artist. Photo:
Cartel.

David Nash

David Nash (b.1945) born in Esher, Surrey, spent much of his childhood in Ffestiniog, North Wales. Having attended art schools in Brighton and Kingston, he took a postgraduate course at Chelsea School of Art 1969-70.

In 1967 he had moved to the slate mining town of Blaenau Ffestiniog, buying a chapel the following year in which to live and work. His first exhibition *Briefly Cooked Apples* (1973) revealed a belief that his activity was a collaboration with nature; largely expressed in sculptures 'quarried' from fallen trees, others grown from saplings and fletched into domes and other shapes, and durational works such as *Wooden Boulder* begun in 1978.

The work in our exhibition *Sod Swap* was a response to an invitation to exhibit in Kensington Gardens, London in 1983. In order to truly engage with the site, Nash's idea was to exchange soil and plants (sods) between land at Cae'n-y-Coed and that of Kensington Gardens. Eighty-three strips were cut from a circle 6 metres in diameter and sent to London, the displaced sods from Kensington went back to Wales. A botanist identified 28 plant species in the Welsh sod, but only 3 in the London sod; these are listed on the drawing.

The plan to return sods to their original locations was thwarted by lack of funds. The Welsh 'sods' however found a home for 10

years at Kenwood House. The London 'sods' were maintained in their circle in Wales until 20 years later the environment was only allowing moss to grow there and the circle was absorbed into the general ground cover.

Nash's most recent major exhibitions have been at the Yorkshire Sculpture Park (2010-11) and the Royal Botanic Gardens, Kew (2012-13).



Above:

Photograph showing 'sods' being cut at Kensington Gardens.

Left:

'Sod Swap' 1983, Pastel on paper, 105x76.5 cm. Collection of the artist.



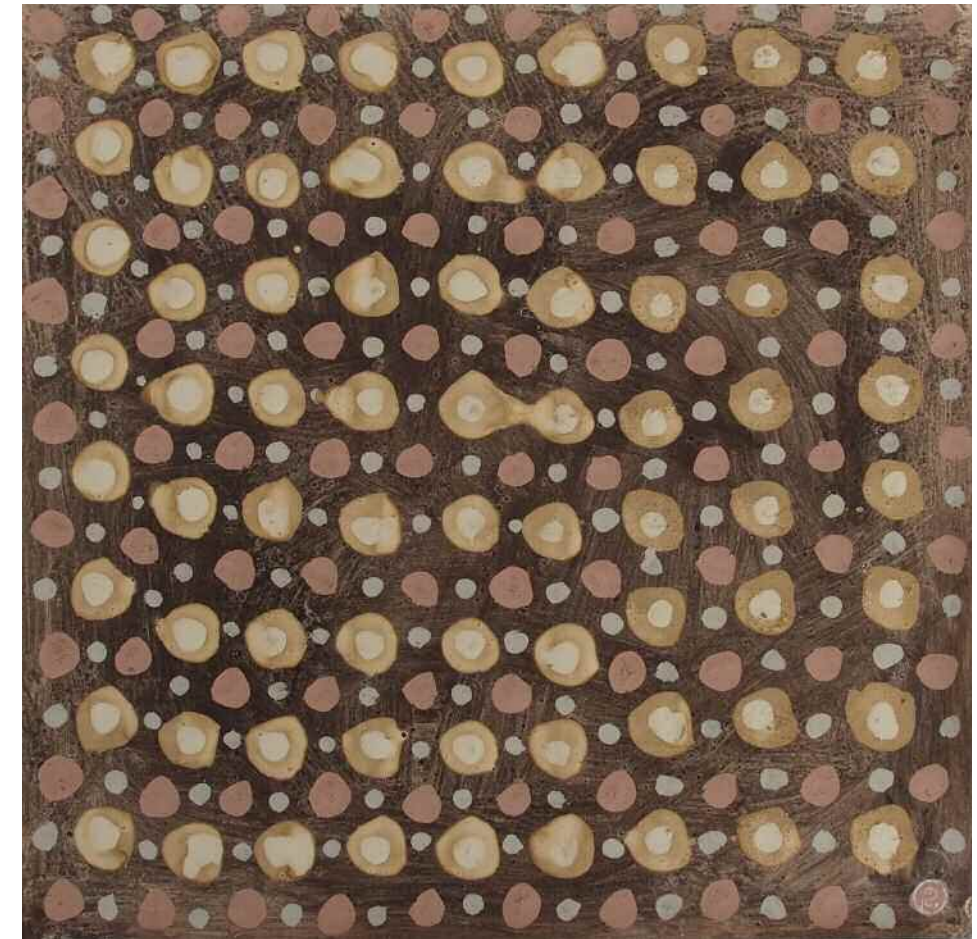
Peter Ward

Peter Ward (b.1967) studied at Bristol Polytechnic 1986-89, completing an MA in Art & Environment at Falmouth University in 2012. Between 1992-2003 he lived in Co. Clare, Ireland, where he spent time attuning his work and lifestyle to nature and its cycles, using soil as part of his paintings.

In 2008 Ward was invited to research North Devon earth pigments, including the locally significant Bideford Black. He has since investigated the geology, social history and uses of rocks, soils and clays along with traditional methods of paint making. He has worked on paper and canvas as well as on cliff faces, beaches and his own body.

Potential II responds to the intrinsic resonance of hand-gathered and hand-processed materials as simple marks and pattern. Through his research the artist has recognized the significance of process and materials and their influence on form of expression, deeply rooted in provenance and place, linked to the concepts of both contemporary art and aboriginal cultures from around the world. He sees his work as a starting point for further creative action.

In 2013 Ward led research for a Heritage Lottery Funded project, *The Story of Bideford Black*, at the Burton Art Gallery documenting the memories of ex-miners along with gathered artifacts through



Above:

'Potential II' 2009, Earth pigments on paper, 56x56cm. Collection of the artist.

walks, workshops and a permanent interactive display.

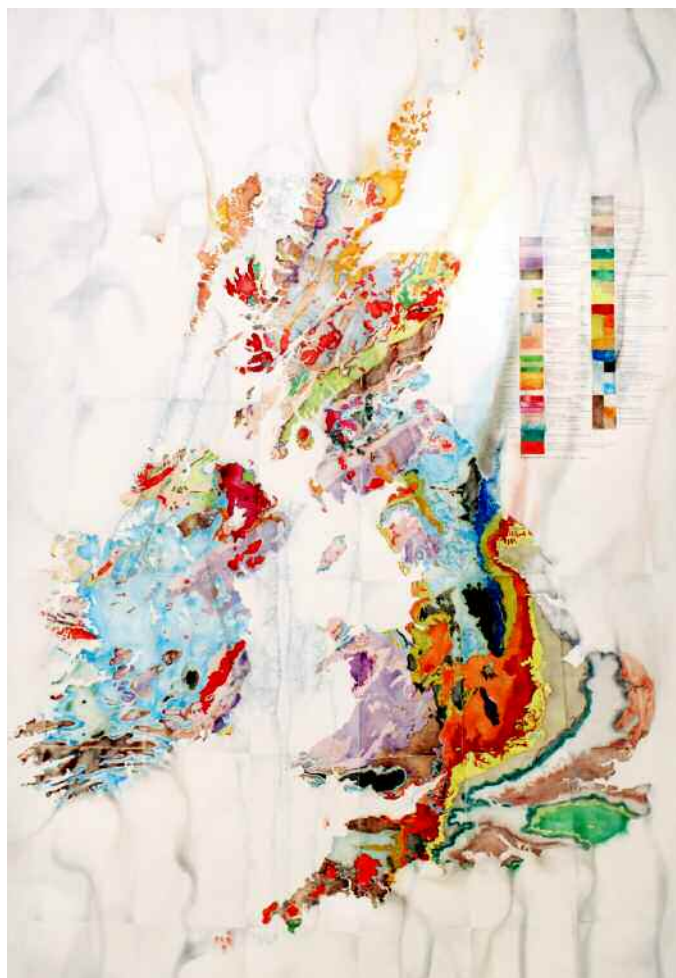
He has been involved with development of Soil Culture since 2011 and contributed to *Dirt Dialogues* in 2013. His latest project *Painting Together*, exhibited at the White Moose gallery, Barnstaple in 2015, explores creative collaboration through painting.

Adam White

Adam White (b.1968) was brought up in Staffordshire and studied fine art at the University of Gloucestershire. Since 1994 he has specialized in watercolour on a giant scale. An interest in the 'scientific method' and the politics of evolution led to a solo exhibition at Oxford University Museum of Natural History in 2005.

White's study of mineralogy and palaeontology led to extensive collecting; finds included an almost complete *Ichthyosaur* in Gloucestershire from the early Jurassic period. With special access through The Russell Society to active and inert quarries, he found an extensive range of earth colours in the Forest of Dean, malachite and azurite from mineral veins in the Welsh borders, manganese colours from the Mendip Hills and black tourmaline from Cornwall.

In the work *Petrifaction by Numbers* the artist aimed to take a direct route into geology through the use of mineral pigments, whilst choosing to radically reinterpret William Smith's and subsequent geological maps with misleading keys to interpret the geology; notably mining layers of 19th century social, biological and humorous strata. 2015 is the bicentenary of William Smith's publication of the first geological map of England and Wales. The figure overlaying the map places the viewer in the map,



becoming fluorescent in the dark under UV light because of the use of the mineral apatite.

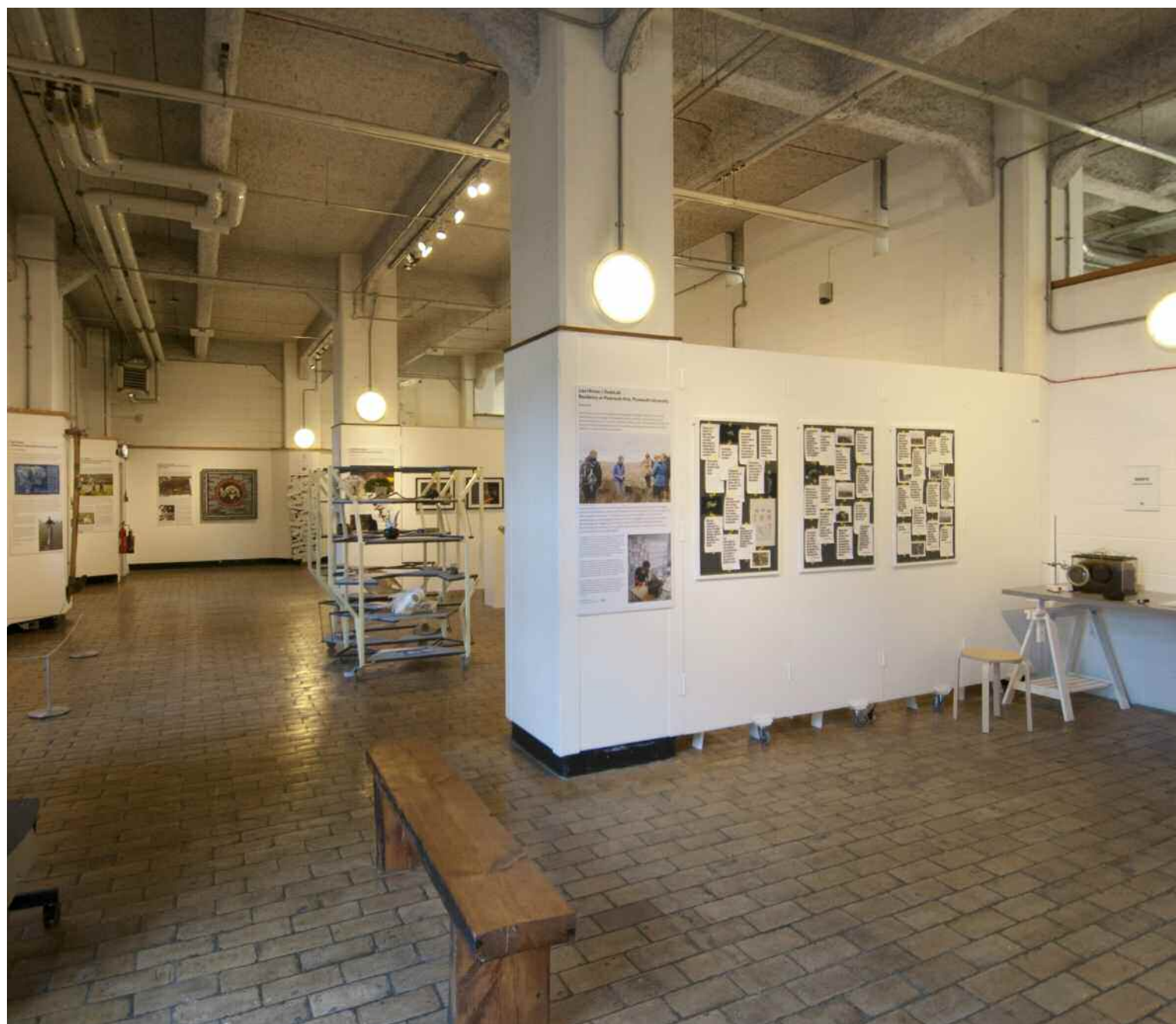
White is currently a resident artist at Stroud Valleys Artspace where he is making work that questions our relationship with the rocks and fossils that lie beneath the soil's thin mantle.

Above:
'Petrifaction by Numbers' 2015, Mineral pigments on paper 240x152cm. Collection of the artist. Photo: Martyn Windsor.

The thin layer of soil that forms a patchy covering over the continents controls our own existence and that of every other animal of the land.

Rachel Carson, *Silent Spring*, 1962

Young Shoots



Left: Installation of part of the 'Young Shoots' exhibition at the Create centre in Bristol. Photo: Clive Adams.

Right: Viewing 'Young Shoots' documentary film by Zoe Young at Hauser & Wirth Somerset. Photo: Clive Adams

Young Shoots

Residency Artists

Between August 2014 and August 2015 the Centre for Contemporary Art and the Natural World initiated 12 Soil Culture artist residencies. In the lead up to and coinciding with the United Nations International Year of Soils 2015 the short residencies were aimed at encouraging an exploration of the importance of soil.

Working in partnership with a diverse range of organisations across the South West of the UK and in London the residencies provided dedicated time for experimentation, research and the development of new work as well as unparalleled access to facilities, expertise and unique working contexts. The host organisations, which helped to support the residencies, included universities, galleries, working organic farms and botanic gardens.

The briefs, developed in collaboration with each host organisation, were distinct and wide-ranging. They included invitations to explore the role of soil in carbon sequestration, peat in national parks in the South West, the production of soil, soil from an holistic and ecological perspective, growing in soil and soil cultivation.

Of the 12 residencies nine were selected through an open call process that attracted 655 applications from 39 countries. We were astounded by the level of interest in the residencies, which reiterated to us the importance and pertinence of the subject of soil.

The following artists were selected for the nine open call

opportunities; Marissa Benedict, Environment and Sustainability Institute, University of Exeter; Jonny Briggs, White Moose, Anton Burdakov, Eden Project; Sarah Ciurysek, Daylesford Organic Farm; Karen Guthrie, Hauser & Wirth Somerset; Lisa Hirmer/DodoLab, Peninsula Arts, Plymouth University; Something & Son, Royal Botanic Gardens, Kew; Debra Solomon, Schumacher College, Dartington; and Karen Wydler, Hannahs at Seale-Hayne.

CCANW also helped to support residencies by Paul Chaney at

Kestle Barton in Helston; Anne-Marie Culhane at the University of Exeter; and Touchstone collaborations working with The Blue Finger Alliance in Bristol. CCANW also worked in partnership with Willis Newson to commission Sophie Mason and Simon Brown to develop a roof garden at Dolphin Primary School in Bristol.

The outcomes of the residencies, which are touring to a number of venues across the South West, are just a snapshot of some of the explorations that the artists carried out, inevitably the full scope and breadth of their research and investigations cannot wholly be conveyed. For many of the artists the connection with soil is enduring in their practice. As Anton Burdakov, artist-in-residence at The Eden Project, reminded us, 'soil is a universe'. A universe that we are only just starting to understand.

Sally Lai, Residency Co-ordinator



Marissa Lee Benedict

*Residency at the Environment and Sustainability Institute (ESI)
Loss on Ignition*

Marissa Lee Benedict is a visual artist and writer based in Chicago, USA. Her work is motivated by a sense of critical wonder that is rooted in processes of research and experimentation: her projects range from growing algae under fluorescent lights to taking core samples in the California desert.

Marissa was selected to undertake a residency at the Environmental Sustainability Institute (ESI), University of Exeter. Working alongside Dr Gabriel Yvon-Durocher, Senior Lecturer in Natural Environment, Marissa was able to connect with Dr Yvon-Durocher's research on the carbon cycle, learning about

his work on carbon sequestration in soil, its potential impact on modeling climate change and land use management practices. Dr Yvon-Durocher's research aims to identify agricultural practices that promote carbon sequestration, improve soil carbon storage and maintain viable yields, creating strategies to mitigate future climate change. During her residency Marissa observed Dr Yvon-Durocher's carbon flux tower and assisted him in setting up an additional carbon monitoring kit at Lynher Dairies, a 250-acre organic dairy farm.

Working with a specialist, and being embedded at an academic institution, gave Marissa new insights into the research practices of an ecologist and afforded her unprecedented access to scientific tools and equipment. While in residence, she learnt how to analyse soil samples on a molecular level (using a 'loss on ignition' process to measure

carbon sequestration in soil), and how to contextualise these findings within a global conversation about climate change, carbon cycling and land management.

During Marissa's residency she occupied a public studio, enabling students at the ESI to see her work, and hosted a visit from students on the MA Art & Environment programme at Falmouth University. She also connected with other artists that have previously collaborated with scientists at the ESI.

The dialogue between Marissa and Dr Yvon-Durocher led to a better understanding of the potential for collaboration between artists and scientists. Marissa was fascinated by the overlap in artistic and scientific methods of observation, while noting the distinctions filtered through the respective practitioners' disciplinary lenses.

The resulting work presented in the exhibition, titled *Loss on Ignition*, comprised of a case containing: soil samples produced from a loss on ignition process carried out by Marissa and Dr Yvon-Durocher; an artist book developed from their conversations; and a stereoscopic viewer, on which can be viewed a montage of clips taken at ESI and at the research facility Biosphere 2, Arizona, USA. The works collectively ask the viewer to observe an immaterial processes -- the carbon cycle -- via its material and physical effects, meditating on the difficulties of visually experiencing these seemingly simple, and yet incredibly complex, environmental processes.

www.marissaleebenedict.com
www.exeter.ac.uk/esi/



Right: Carbon Dioxide Flux Chamber. Photo: David Rueter.

Facing Page: Marissa Lee Benedict with Dr Gabriel Yvon-Durocher and a Flux Tower. Photo: David Rueter





Facing Page: Anton Burdakov's 'Soil Map' at the Eden Project. Photo: Anton Burdakov

Right: Young person adding object to the soil map. Photo: Anton Burdakov

Anton Burdakov

Residency at the Eden Project, Cornwall
Soil Map

Anton Burdakov is based in London and Berlin. He studied neuroscience at the University of Cambridge before studying sculpture at the Royal College of Art, London. Through object-making and site-specific installations, his work explores transitions between spaces and states, focusing on the spatial dimensions of personal relationships and goals.

Anton was selected for the residency at the Eden Project, which invited an artist to work with the team to re-engage Eden's diverse audience with the many facets and functions of soil. These included soil's mineral make-up, its role as a food, the life contained within it, its importance in feeding the global population and its role as a carbon sink. The residency's aim was to provoke curiosity and ultimately create a love affair between humanity and soil. It was also an opportunity to communicate the unique process of creating soil at Eden in just 18 months, a process that usually takes 200 years.

In advance of the residency Anton created a mobile sculptural unit, based on the molecular structure of china clay, mined in the quarry on which the Eden Project is built. During his residency the structure functioned as a tool for engagement, display and research – a kind of three-dimensional soil

'map'. It was gradually populated with stories, images, natural and human-made artifacts that emerged from a dialogue with the Eden community (including soil scientists, horticulturalists and cultural programmers) and visitors. During his residency at the Eden Project he also hosted a visit from students on the MA Art & Environment programme at Falmouth University.

Anton was particularly interested in the way in which 'soil life', the myriads of tiny organisms, the complex machinery of nature with its cycles and structures, ultimately translates to cycles and narratives of human

life, individual and communal.

The structure he created, *Soil Map*, was a three-dimensional map exploring cultural and emotional associations with soil. It brought to the fore latent narratives and sets up new connections between the displayed objects, stories and images. Within the exhibition it focused on soil as a living archive. Throughout the tour, members of the public were invited to share their associations and to contribute to the collection of objects, which were presented on *Soil Map* as it evolved.

www.antonburdakov.com

www.edenproject.com



Jonny Briggs

Residency at White Moose, Barnstaple
When Your Words Came, I Ate Them

Jonny Briggs studied at Chelsea College of Art and Royal College of Art. He is a London based multi-disciplinary artist whose work explores the constructed reality of the family in conjunction with the artifice of lens-based media. Often involving staged installations, the cartoonish and the performative, his work creates jarring situations between adult/child, self/other, nature/culture and desire/disgust.

The brief for the Soil Culture residency at White Moose was to engage and work with Barnstaple residents in the gallery vicinity to explore the universal importance of soil. Jonny was selected for his proposal to work with the local community to create a scene for a photograph made out of local soil, which connected with his ongoing interest in the entwining of desire and disgust. For Jonny soil both appeals and repulses. He is at once repelled by the montaging of decomposed plants, animals and filth, and yet drawn to the use of it to fertilise new growth.

Working out of the Penrose Almshouses allotments in Litchdon Street, Barnstaple, Jonny created a long table feast, reminiscent of the Last Supper, with billowing bowls of fruit, vegetables and voluptuous desserts within an opulent setting with curtains and



candelabras but made entirely from local excrement. Taking 'soil' as both a noun and a verb, the work alludes to universal childhood memories of playing in soil and the contrast between that and the presentation of pristine flowers, fruits and vegetable in domestic interiors; devoid of their roots, cleaned of soil and detached from the earth from which they came. During Jonny's residency at White Moose he also delivered three interactive artist talks, two at the local Further Education College, Petroc College, and one for the local community.

Presented as a photograph, the finished work, *When Your Words Came, I Ate Them*, reminds us that what we put in to the soil, shapes what we grow from it, which in turn informs what we eat, which in turn shapes

what we are. It explores how soil, 'the skin of the Earth', is a transition between life and death and acts as a montage of decomposition and the foundation from which new life emerges.

www.jonnybriggs.com

www.whitemoose.co.uk

Above: Jonny Briggs at

Penrose allotments.

Photo: Zoe Young.

Facing Page: Jonny

Briggs *'When Your*

Words Came, I Ate

Them', Lambda

photographic print, 78

x 208cm





Right: Paul Chaney
with 'Breast
Plough'o'metric'.
Photo: Kateryna
Bieliaieva.

Paul Chaney

*Residency at Kestle Barton,
Helston, Cornwall
Breast Plough'o'metric*

Paul Chaney currently works between UK and the Czech Republic. Until 2012 he led FIELDCLUB - a micro-farm designed using bespoke computer software. His work is concerned with researching, through a mix of participatory and durational art practices, how humans and nature interact on both a local and global scale.

Paul's residency sat within a larger project that he was invited to do at Kestle Barton. The wider project examined the resources available to the population of the Lizard Peninsula, and identified the practical survival skills, knowledge and a philosophy that could be useful in a post-apocalyptic society that is no longer part of the global economy. It looked at connections between environmental politics, site-specific art and site-sensitive architecture, and explored the narrow separation between what Paul describes as the 'green ideology' and 'survivalist fantasy'.

The key element that connected Paul's



Above:
Detail of 'Breast
Plough'o'metric'.
Photo: Martyn
Windsor.

work with CCANW's Soil Culture programme was his research into man's cultivation of soil and particularly the metrics of direct human interaction with the land. In order to investigate the 'tyranny of labour' and the resistance of soil against human effort, Paul created an accurate replica of an ancient breast plough, a primitive agricultural hand-tool used to pare surface vegetation, found at the Helston Museum. The breast plough, *Breast Plough'o'metric*, is fitted with a series of digital strain gauges and a small on-board computer that allows the operator to record the exact amount of effort needed to plough some land by human power alone. *Breast Plough'o'metric* was designed to allow the calculation of the co-efficient of human labour - the amount of calories that can be gained from the cultivation of a given tract of land compared to the amount of calories burned during effort exerted.

Paul's *Breast Plough'o'metric* was demonstrated and trialed by the public at a workshop at Kestle Barton during his residency.

www.paulchaney.co.uk

www.kestlebarton.co.uk

Anne-Marie Culhane

*Residency at the University of Exeter
Singing to the Trees*

Anne-Marie Culhane is an artist, activist and performer living in Devon, UK. Working in a range of media she designs frameworks that offer different ways of doing and being – creating events, performances and long term projects that draw people closer to each other and the land.

Anne-Marie's residency sat within a longer-term project at the University of Exeter. She has been exploring the campus of the university through a year of observation, making connections and crossing boundaries between staff, students, local people and the campus. Her discoveries have been shared through site-specific events and the on line

Campus Almanac.

One of the things that Anne-Marie devised during her work at the university was a creative and participatory response to the changing seasons on campus. Anne-Marie commissioned poet James Crowden and musician Tim Hill to work alongside her and student volunteers to create an event that took the form of a wassail for 2015. The new wassail, entitled *Singing to the Trees*, was a response to a young orchard on campus.

The wassail referenced older traditions while also creating a new form that spoke of the impacts of shifting seasonal rhythms caused by the changing climate on regional orchards. Its development was informed by interviews with orchard holders and orchard experts in the South West, academic research and the orchard itself. Anne-Marie's aim was to demonstrate the value of a creative and

intimate connection to locality and place as a route to genuine sustainability and to unearth the possibilities for transformative learning and connection.

The wassail took place in January 2015 and was attended by over 70 people, including students, university staff and the general public.

Within the *Soil Culture: Young Shoots* exhibition Anne-Marie presented the *Singing to the Trees* wassail bowl designed and made from wood from a cherry tree felled in 2014 on the campus. The bowl was used as a communal drinking vessel as part of the wassail and made under the supervision of wood turner John Fells. The bowl was accompanied by three photographic images of the *Singing to the Trees* wassail event.

www.amculhane.co.uk

www.exeter.ac.uk



Left: Anne-Marie Culhane with wassail bowl. Photo: Robert Darch.

Facing Page: 'Singing to the Trees' wassail event. Photo: Robert Darch.





Right: Sarah (right) talking to participants on the audio walk, and the pavilion in the kitchen garden. Photos: Martyn Windsor.

Left: View from the soil pavilion studio overlooking the kitchen garden. Photo: Sarah Ciurysek.

Sarah Ciurysek

Daylesford Organic Farm, Near Kington, Gloucestershire
Grounded, Leaping

Sarah Ciurysek is a Canadian artist working mainly in photography, video, audio and installation to examine our relationships with the ground. She lives in Winnipeg and is an Assistant Professor at the School of Art at the University of Manitoba.

Sarah was selected for the residency at Daylesford Organic Farm, a working organic farm located in over 2000 acres in the Cotswolds. The residency brief invited an artist to engage with the notion of 'terroir', a sense of place based on the soil, and to respond to the diversity of the soils at the farm.

Sarah spent the beginning of the residency familiarizing herself with Daylesford and its

surrounds by touring the farm, meeting staff and locals, and walking the farm trails and nearby footpaths. Working out of a base in the Chelsea Flower Show award-winning kitchen garden and pavilion space in the Market Garden at Daylesford, Sarah then interviewed Daylesford staff as well as local community members about their experiences of, and relationships to, soil. This included the Head of the Market Garden, a beekeeper, a groundsman, the Head Cheesemaker, a woodworker, a nutritionist, an environmental scientist and farm shop staff. Taking selected segments from the interviews, she edited the audio tracks and constructed an overall audio story that loosely follows the human life cycle, and which provides an audio portrait of Daylesford. She then mapped a trail through the farm's Market Garden that corresponded with the content of the stories told. The result was a site-specific audio walk at Daylesford that was initially presented during their

summer festival on 16 May 2015, for which there were around 6000 visitors. Sarah's aim was to encourage the listeners to piece together what they were hearing with what they were seeing, feeling, and smelling, and also with what they needed to imagine.

The work presented here in the *Soil Culture: Young Shoots* exhibition, *Grounded, Leaping*, was an edited version of the audio piece and accompanying photographs. The 8 audio tracks are recordings of people of varying ages, from aged 4 to their late 60s, speaking about their relationship with soil. They were accompanied by images of sites along the original audio walk at Daylesford.

Special thanks go to the interviewees: Steve Brown, Chelsea Callahan, Rhys Davis, Tim Field, Toby Harris, Ingrid Harris, Tanya Hawkes, George Hyatt, Rhaya Jordan, Annabel Kirkland, John Longman, Richard Smith, Jez Taylor.
www.sarahciurysek.com
www.daylesford.com



Karen Guthrie

*Residency at Hauser & Wirth
Somerset, Bruton
Somerset, October 2014*

Karen Guthrie lives and works in the rural Lake District. She often works collaboratively, in particular with Nina Pope as 'Somewhere', making films and large-scale public art. Her work is deeply rooted in history – official and unofficial, subjective and objective. Karen was previously Head Gardener for Grizedale Arts at Lawson Park, a fellside smallholding.

Karen was selected from an open call for applications to undertake a residency at Hauser & Wirth's new gallery and arts centre

in Bruton. Drawing on Hauser & Wirth Somerset's rural location, its local community, the emphasis on locally sourced food, sustainability, education and conservation, the brief invited an artist to explore the soils around local food production. It was Karen's past projects, interests and approach that resonated strongly with the Hauser & Wirth brief.

During her residency Karen worked with Hauser & Wirth staff and met their associates, especially those working on the farm and gardens. This included Martin Davies, Estate and Farm Manager, who gave her a tour of the working organic farm, Durslade Farm, which forms part of the Hauser & Wirth estate. A key meeting was with Saskia Majoram, a florist,

medicinal herbalist and gardener at Iwan and Manuela Wirth's private garden.

Karen was interested in how her work could embody the essence of a place without being visible. She wanted to capture the intrinsic qualities of soil, to find out what happens when earth is distilled instead of the usual plant / organic material and to find out what soil really 'smells like'. Borrowing Saskia's copper still, Karen distilled some subsoil sourced from the grounds of Hauser & Wirth Somerset.

The result was a colourless, pungent and enigmatic liquid. It was presented in the exhibition, together with a distillation still, for the audience to smell and experience.

www.somewhere.org.uk

www.hauserwirthsomerset.com

Left: Karen Guthrie
speaking at Hauser &
Wirth Somerset.

Photo: Sally Lai.



Above: Karen Guthrie
with the copper still.
Image courtesy of
Hauser & Wirth
Somerset.

Lisa Hirmer / DodoLab

*Peninsula Arts, Plymouth University
Peak Peat*

Lisa Hirmer is a multi-disciplinary artist based in Guelph, Canada. Her work is positioned in the overlap of visual arts, design, criticism, social practice and experimental forms of research. She often works under the pseudonym DodoLab, an experimental creative practice focused on exploring contemporary issues in relation to public beliefs about them.

Lisa Hirmer, working as DodoLab, was selected for the residency at Peninsula Arts and was invited to engage with Dr. Rob Parkinson, Associate Professor in Soil Sciences, and his colleagues on their research



Right: Visitors examining samples.
Photo: Lisa Hirmer.

Above: Dr Rob Parkinson leading the field trip. Photo: Lisa Hirmer.

Facing Page: Lisa Hirmer with a visitor completing the survey. Photo: Clive Adams.

into peat. The residency activated the gallery as an informal learning space, encouraging student and visitor engagement and participation, developing knowledge of peat in the context of the South West moorlands. By situating the residency in the gallery the processes of research and artistic production were also made public.



Working with Dr. Parkinson and his colleagues in the Geography and Biological Sciences departments, Lisa learnt about the ecology of peat, its critical role in reducing atmospheric carbon and the processes that cause stored carbon to be released. As well as speaking to academics, Lisa also visited peatlands at Fox Tor Mires on Dartmoor and Shapwick Heath in the Avalon Marshes of the Somerset Levels and connected with members of the South West England Soils Discussion Group, a regional branch of the British Society of Soil Science.

In order to engage the audience, Lisa designed a survey to function as a conversation and thinking tool, and worked with visitors to the gallery to explore how we

measure the value of carbon sinks, which have significant long-term global benefits and yet are difficult to register or visualize in our everyday lives. Ideas from both areas of exploration were posted up in a gallery installation that grew over the course of the residency.

The resulting work, *Peak Peat*, was a series of bulletin boards with postings that capture the wealth of ideas surrounding peat as a carbon sink gathered during her residency from both the researchers and the public, a hardback book containing the completed surveys from the residency as well as blank surveys that visitors were able to complete. www.dodolab.ca
www.peninsula-arts.co.uk





Right: Working designs for the roof garden. Sophie Mason and Simon Brown.

Sophie Mason and Simon Brown

*Roof garden commission,
Dolphin Primary School, Bristol
Soil*

Sophie Mason is a community grower and artist and Simon Brown is a landscape architect. They are interested in using living systems to foster stronger connections with the natural environment and to each other.

Sophie and Simon were selected for the roof garden commission located on the roof of the new building of Dolphin Primary School in Bristol, which will open in 2016. Developed in partnership with Willis Newson, a Bristol-based arts consultancy that specialises in using the arts to support wellbeing, the brief invited an artist and their collaborators to design and create an outdoor learning space that connected with science, ecology and horticulture. CCANW advised on the brief and supported the recruitment process. There was a particular focus on how the garden might be used over time, which necessitated an understanding of organic growing education.

During the development of their design Sophie and Simon actively consulted teachers and organised a series of workshops involving children and parents. Further down the line they will also be hosting planting workshops with children and making a plastic bottle greenhouse. In developing the design they drew on their knowledge of and passion for functional plants, particularly edible and

medicinal plants, and took inspiration from forest gardens including the forest garden of Martin Crawford, a leading forest garden expert and the forest garden at Reading International Solidarity Centre. Sophie and Simon were also supported in developing an understanding of educational needs by the school, and built on links already in place with the Soil Association to strengthen knowledge of organic growing and ecology.

The final design will function as an educational, creative and therapeutic space. Some of the ideas explored include food systems and organic growing, biodiversity, sensory planting, rainwater harvesting and ecology, composting and up-cycling materials. Sophie and Simon also envisage that the garden will produce food for the school's kitchen, which in turn will be composted and create a closed loop system to inspire the children.

In the touring exhibition Sophie and Simon presented the working designs of the roof garden and a drawing by Sophie, *Soil*, that explores soil and the growing of plants in relation to drawing as a medium.

www.sophiemasonart.co.uk

www.dolphinschool.bristol.sch.uk

www.willisnewson.co.uk

Debra Solomon

Residency at Schumacher College

En necromass: an optimistic, fungal perspective on death and production

Debra Solomon is an Amsterdam based artist and founder of URBANIAHOEVE Social Design Lab for Urban Agriculture. Urbaniahoeve (which translates as 'the city as our farm') which has developed food-system infrastructure at several public space locations in the Hague and Amsterdam, transforming the existing landscape architecture, whilst prioritising eco-system health, and implementing in situ topsoil production.

Through an open call selection process Debra was selected to be artist in residence at Schumacher College where, in keeping with the Schumacher ethos, the residency was an invitation to look at soil from both a holistic

and ecological perspective.

Debra's practice has involved exploring the role of fungi as transformers of organic materials and as soil builders. Her residency placed particular emphasis on the soil rhizosphere; where plant roots, microbiota and soil fungi interact. During her residency she closely observed soil building in the diverse living locations of the gardens and woods at Schumacher and within the Dartington Estate. She was also able to engage with horticultural experts, including the Head Gardener at Schumacher (Jane Gleason), the Head Gardener at Dartington (Ian Gilbert) and the Forest Garden expert Martin Crawford, in a conversation about the value of soil compared to mainstream agricultural practice.

From this experience she developed a series of screen-prints about soil from the perspective of fungi called *En necromass: an*

optimistic, fungal perspective on death and production. The works referenced the vast communication and exchange that takes place in around the root zone. Here there is the most life and nutrient production as well as the death and decay of organic matter, as nutritious necromass transforms into soil. The rootball of a recently storm-felled tree, mycelium feeding on a dead leaf, a leaf's skeleton, and spore prints that appear as ghosts, tell a myco-centric story of materials becoming soil. The silkscreen prints were produced with the well-known Amsterdam printmaker, Kees Maas.

During her residency Debra also presented an *EarthTalk: Merging garden city heritage with a food forest in Amsterdam*, which was open to the Dartington community and the general public.

www.urbaniahoeve.nl

www.schumachercollege.org.uk

Left: Debra Solomon with one of her silkscreen prints. Photo: Martyn Windsor.

Facing Page: Debra Solomon investigating the forest garden, North Wood on the Dartington Estate. Photo: Jaramil Rojo for Urbaniahoeve.



Something & Son

Residency at Royal Botanic

Gardens, Kew

A Recipe for Soil

Something & Son is a London based practice founded by Andrew Merritt and Paul Smyth working across art, design and architecture. Their work is rooted in an inquisitiveness and experimentation, reflecting their backgrounds and shared passion for socially driven and environmental projects that tackle the challenges of our time.

Something & Son were selected for the residency at Kew, which invited an artist to work with Kew to deepen knowledge and understanding of soil and its vital role in supporting their internationally renowned plant life. The brief also encouraged engagement with two key aspects in relation to soil at Kew, including the compost heap, one of the biggest non-commercial heaps in Europe, and the role of soil in food growing. The residency brief also stressed the importance of communicating with Kew's audience, who are predominantly recreational visitors and non-specialists with limited knowledge of science but with an active interest in better understanding nature and our relationship with the environment.

The starting point for Something & Son's residency was the EU's categorisation of soil as a non-renewable resource and that, according to many scientists, there are as few as 50 harvests of soil left in some parts of the



world. Their residency led them to talk with some of the world's leading scientists at Kew about soil and in doing so learn that soil is one of the most complex substances on earth, and essential for the planet and human's survival. Scientists, botanists and horticulturalists that they spoke with during their time at Kew included Gwilym P. Lewis, Research Leader, Integrated Monography, Laura Martinez-suz, Career Development Fellow, Comparative Fungal Biology and Tim Utteridge, Assistant Head of Identification and Naming.

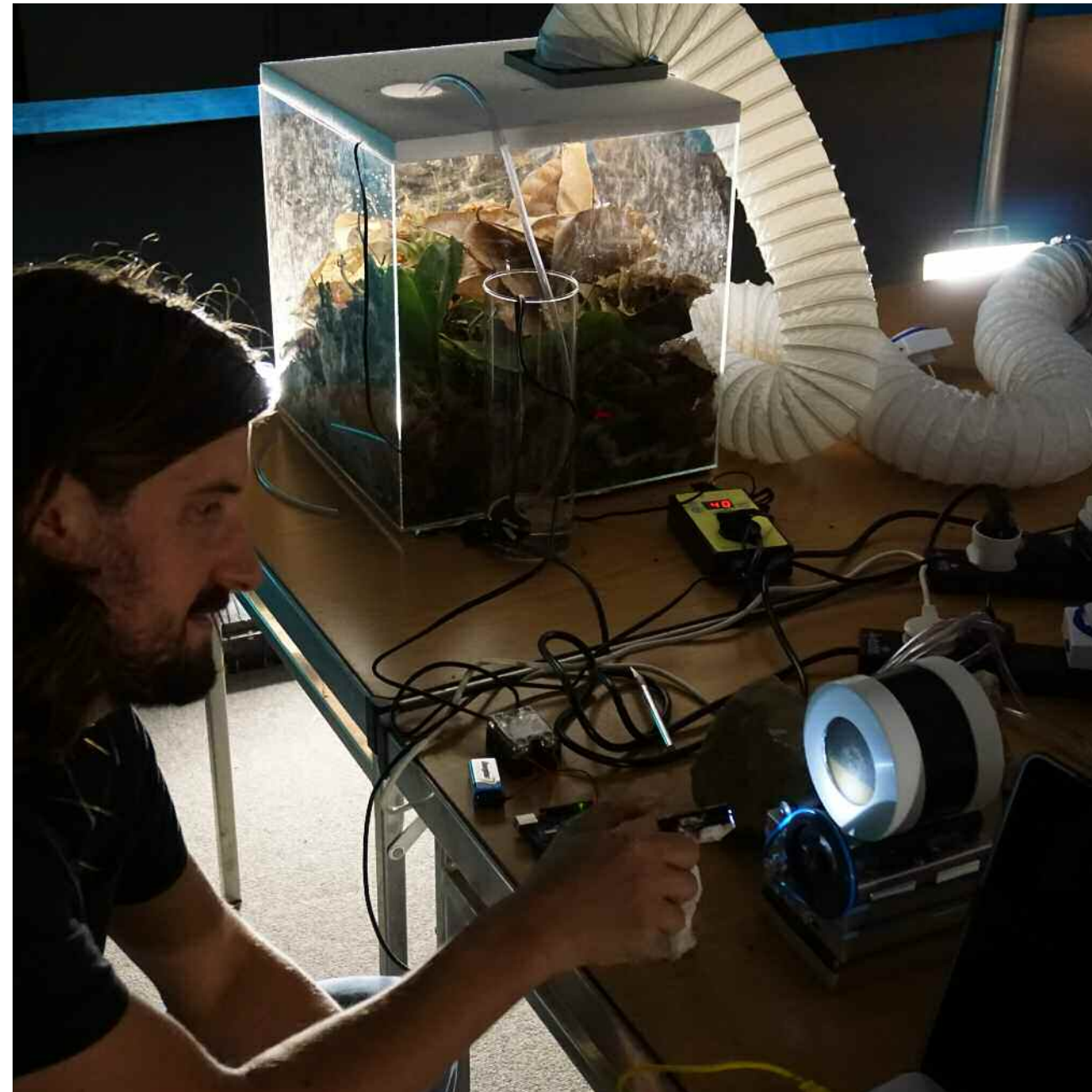
Working from a soil kitchen-come-lab in the Princess of Wales Conservatory, Something & Son explored what soil really is by attempting to make it artificially from scratch. They

copied and accelerated the complex systems that take place in nature, using hacked together machines. The five machines were; a rock tumbler, freeze and thaw, aerobic ecosystem, anaerobic ecosystem and a mycelium incubator. Part genuine experiment, part satire, the artists were prepared to fail in their attempt to create a substance so complex that we're only just beginning to understand it.

Thanks go to the staff at Kew: David Barnes, Lydia Cole, Gwilym P. Lewis, Laura Martinez-suz, Sophie Shillito and Tim Utteridge.

www.somethingandson.com

www.kew.org



Touchstone Collaborations

*Collaborative Residency with
The Blue Finger Alliance
Blue Soil Shrine*

Miche Fabre Lewin and Flora Gathorne-Hardy of Touchstone collaborations are artists dedicated to re-connecting culture and agriculture through food, soil and ritual practices. Respecting the 'genius loci' of place and remembering the ecological self, their co-created installations are convivial environments that awaken the imagination, intuition, and enliven the senses inspiring everyday actions to restore and protect healthy soils.

The Blue Finger Alliance is a network of people campaigning to safeguard a stretch of fertile, Grade 1 agricultural land adjacent to the M32 motorway extending through North

Bristol to south Gloucestershire.

Working closely with Maddy Longhurst from the Blue Finger Alliance, Miche and Flora's site-specific installation grew out of a respect for the land's history of market gardening and exchanges with geographers, growers and campaigners at Feed Bristol community growing project.

The collaborative residency between Touchstone collaborations and The Blue Finger Alliance was a response to the call of UN International Year of Soils to protect and restore living soils for resilient communities. Through art, food and conversation as transformative practices, new stories and actions have emerged to enliven the Blue Finger Alliance's vision and dedication to an urban agriculture renaissance.

Blue Soil Shrine spanned the urban and the rural geographies and the durational installation and residency created listening spaces for older generations of gardeners to share experiences with young people who are interested in local food and food sovereignty. It inspired the co-evolution of *Soils of Bristol* Soil Saturday with a *Walk and Talk for Soil* leading to a citizen-led City-region Soil Policy Forum for the crafting of a *Bristol City-region Declaration for Soil*. This declaration for soil will be embedded within the *Bristol Good Food Plan* and the legacy of Bristol 2015 Green Capital.

Blue Soil Shrine within the *Young Shoots* exhibition highlighted the relationship between the city and its food hinterland. It was a place to honour the presence of living

soil, its bounty of food and to celebrate the activism of Bristol Citizens to protect their soils. The elements within the gallery's installation included a large-scale map of the Blue Finger and a map showing grades of agricultural land in England and Wales, a glass vessel filled with Blue Finger soil, freshly unearthed vegetables with soil-rich roots, a blackboard documenting responses from City-region Soil Policy Forum, a 'conversation table' for *Art of Soil* symposium, pallet boards photomontages from the Rising Up and Blue Finger Alliance campaigns, as well as offering space for the forum *Whose Soil?* and the ritual *Coming Home to Soil* by Miche Fabre Lewin.

As part of the residency to the Blue Finger soil Touchstone collaborations co-hosted a convivial thanksgiving *Deep Soup Ceremony* at *Feed Bristol* in celebration of the dedication given to the courageous and active safeguarding of blue soil.

"This collaborative residency between Touchstone collaborations and the Blue Finger Alliance has injected refreshment, wise energy, beauty and sensuality into the campaign work. The Alliance has always been about celebrating and cherishing the source of life and finding ways, like soil, to transcend the things that divide us. This Soil Culture collaboration is bringing heart-centred arts into popular and political consciousness and making new ground for policy making" – Maddy Longhurst, The Blue Finger Alliance. www.Touchstonecollaborations.com www.bluefingeralliance.org.uk

Right: 'Blue Soil Shrine' at Create.
Photo: Touchstone Collaborations.

Facing page: Miche Fabre Lewin, Sara Venn, Sara Zaltash, Richard Spalding with maps of Blue Finger Soil.



Karen Francesca Wydler

Hannahs at Seale-Hayne
Affective Landscapes

Karen Francesca is an environmental artist whose work blurs the boundaries between social action and art/ garden making. She has a degree in Fine Art from Leeds University, a Masters in Art Psychotherapy from Goldsmiths University and has been involved in public, social and therapeutic art projects for two decades.

Karen Francesca was selected for the residency at Hannahs at Seale-Hayne. The organisation was interested in an artist drawing on the history of the Seale-Hayne site as a former agricultural college and engaging its users and visitors, many of whom have a range of disabilities, with this history. The residency was also an invitation to access the archives, which includes material from its association with the Land Girls and Women's Land Army during the War years.

Working collaboratively with the Trust, which provides education, therapy and care for people with profound disabilities, Karen Francesca was keen to develop a tangible



artwork that explored our relationship to land. During her residency she worked with staff and guests at Hannahs and visitors to various events including the Contemporary Craft Fair in Bovey Tracy, Respect Festival in Exeter and Blues Festival at Hannahs, to make a sheltered seating structure. Utilising various materials from the vicinity, such as clay, goat manure and straw she involved people in the collaborative making of hand-formed clay tiles, sweet chestnut shingles for the roof and three mosaic partition panels.

Through the making and the end use of the earth seat Karen was aiming to get people in direct contact with the ground and earth. The finished seating structure will be located as a preamble to the footpath and is intended as a way of encouraging visitors and users of Hannahs to explore beyond the buildings and to connect with the wider landscape.

In the touring exhibition Karen Francesca presented *Affective Landscapes*, one of the three mosaic panels that form the walls of the earth seat that she made during her residency at Hannahs. Shown alongside it were individual hand-formed clay tiles. Transferred onto the tiles in the mosaic are historical materials from the archive, words and images from current users of the site as well as current environmental theory and changes to farming policy. The resulting images were a comment on the quality of our relationship with the natural world, both cautionary and celebratory.

www.touchwoodtrees.co.uk

www.discoverhannahs.org/seale-hayne



Above: Karen Wydler, *'Affective Landscapes,'* mosaic panel.

Left: Karen working with the public on a mosaic panel. Photo: Martyn Windsor.

Facing Page: 'Earth Seat' at Seale-Hayne. Image courtesy the artist.



Soil Culture: Dig-it

Peninsula Arts, 13 April – 30 May 2015

The exhibition *Soil Culture: Dig-it* was developed in response to the Soil Culture artist residency scheme. Based in a multi-disciplinary university on a city centre campus, directly opposite the Plymouth City Museum and library, the exhibition provided Peninsula Arts with an opportunity to link to some of the latest research developments relating to soil across both art and science subjects. The intention of *Dig-it* was to open up the often-perceived private spheres of the artist studio and science laboratory by recreating these spaces within the public arena of the gallery. As part of this a number of artists and scientists working with soil were invited to undertake their daily research, study and development of ideas within the live exhibition space. In discarding the formal modes of display, where objects and ideas within a gallery or museum are commonly presented in a static, unchanging and highly controlled environment, *Dig-it* sought to make visible the processes of idea generation whilst also challenging the traditional experience of the white cube gallery.

At a time when the concept of the white cube space is being challenged in many interesting ways to encourage more participation with contemporary art, it is



perhaps of equal importance to mount a defense for the traditional context of the gallery in providing a contemplative space for audiences to experience new ideas and perspectives. It is between these two positions that the context of a university gallery can provide a different space to disseminate and present artworks and associated ideas. In a recent conversation with Roger Malbert, senior curator for Hayward Touring, he reflected how, contrary to the

traditional museum or white cube gallery, the university gallery presents a different environment associated with production and making, where ideas are challenged, reconsidered and importantly produced.

Unlike the pared down and hushed minimalism of the traditional white cube gallery the studio/lab is often messy and disordered – not as a Baconesque paint splattered studio – but as a place where ideas are forming until ready for public disclosure.

Above: Emma Saffy-Wilson (second from left) leading a session on the making of hikaru dorodango mud balls. Photo: Plymouth University.

Right: Esme Stewart's working studio. Photo: Plymouth University.

Nor is the studio/laboratory necessarily an isolated environment, rather they become conduits for collaboration, shared conversation, argument and disagreement, all essential for the development of ideas. The process of transforming the gallery into an active place of cultural production for *Dig-it* included, locating open studio spaces alongside a live scientific research project, and displaying a selection of scientific measuring tools used for analyzing and studying soils within the field.

The Tullgren Funnel experiment was conducted within the gallery by Robert Donnelly and Jane Akerman from Biological Sciences (Faculty of Science and Engineering, Plymouth University) and provided a daily measure of the number of insects found within soil taken from the local vicinity. Visitors were then invited to view the hidden, microscopic world of soil through microscopes at a viewing station set up in the gallery. Accompanying the live laboratory were intricate pen drawings by Fergus McBurney (School Biological Sciences), which documented the most common bugs found in the local environment.

As the Soil Culture artist in residence Canadian artist Lisa Hirmer (DodoLab) worked alongside Dr Rob Parkinson, Associate



Professor in Soil Sciences and colleagues (School of Biological Sciences, Plymouth University) to examine the ecology of peat and in particular its critical role in reducing atmospheric carbon. Lisa set up her practice within the gallery and invited visitors to undertake a live survey Peak Peat that explored public understanding of carbon sinks, the results of which were posted on the gallery walls and revealed how knowledge and understanding of moorland wilderness and

ecological issues are often bound up with value judgments. Lisa also developed links with members of the South West England Soils Discussion Group, a regional branch of the British Society of Soil Science, and joined a number of artists and scientists to visit local peatlands at Fox Tor on Dartmoor and Shapwick Heath in the Avalon Marshes of the Somerset Levels.

The artist Emma Saffy-Wilson added an interesting perspective to the construct of

Soil Culture: Dig It

moral viewpoints, by exploring through her provocative and beautiful earth paintings and sculptures how the language of soil, as used in common parlance, is associated with the passing of judgments, as seen in the terms 'dirty war', 'dirty rascal' or 'dirty laundry'. Whilst artists Esme Stewart and Jamie Morrison re-constructed a working studio within the gallery, testing out and developing new artwork, with Esme making pigment from local soils and Jamie conducting an experiment that examined the productivity of soil taken from a brown field site within the city and soil from a more rural location.

Accompanying the live aspects of *Dig-it*, the exhibition explored the importance of soil from an architectural perspective, with an installation of earth bricks and materials, a practice of building used across the world and seen more locally in the construction of cob buildings. The exhibition continued to change with live public workshops within the gallery on how to make paint pigment from soil led by artist Pete Ward, as well as sessions with Emma Saffy-Wilson on making the jewel-like Japanese hikaru dorodango mud balls. The gallery hosted a mini garden growing vegetables as part of *Growing Futures* – a Secret Garden project on campus, which



Left: Visitors viewing the microscopic world of soil. Photo: Martyn Windsor.

Facing page: Outdoor sign featuring part of Emma Saffy-Wilson's 'Dirty War' installation. Photo: Plymouth University.

similar to guerrilla gardening encourages vegetable growing in unlikely urban spaces.

Reflecting on the exhibition and the role of the university gallery within the wider cultural landscape, I am struck by Richard Wentworth's comment on the gap between the way artist's work and produce and the formal presentation of these ideas within the gallery "There is an interesting gap between the correctly curated show – with its very punctilious hanging – and the space that artists operate in ... Our lived experience of the world, is after all, of everything overlapping and constantly colliding"¹ As a hot house for new cultural ideas

and thinking, and belonging to a larger network of knowledge production and exchange, perhaps the distinct space occupied by the university gallery can contribute to presenting new and alternative ways of how we experience and understand the formulation and interconnectedness of culture, within and through the public sphere.

Dr Sarah Chapman
Director of Peninsula Arts

1. Richard Wentworth in *History Is Now: 7 Artists Take on Britain*, (Hayward Publishing 2015), p18.



Soil Culture at Create

Soil Saturdays and Food Happenings, 4 July – 26 August 2015



Soil Culture at Create in Bristol arose from a partnership between CCANW and Miche Fabre Lewin and Flora Gathorne-Hardy of Touchstone collaborations. This summer celebration of soil took place at Create, Bristol City Council's environmental centre

on Spike Island. It featured two exhibitions – *Young Shoots* curated by CCANW and *Dirt Dialogues* organised by Dr Alexandra Toland of Soilarts. There was also a final residency, *Blue Soil Shrine*, between Maddy Longhurst of the Blue Finger

Alliance and Miche and Flora.

In response to Clive Adams' call to animate the exhibitions, Miche and Flora devised Soil Saturdays, a diverse programme of soil-inspired events that spanned eight Saturdays in July and August. Given limited funding their working mantra was 'trust and exchange'. This generated an atmosphere of enthusiasm, goodwill and the sharing of ideas, skills and resources, giving rise to a diversity of transformative experiences that amplified themes within the exhibitions.

Soil Saturdays evolved from a process defined as 'curating the convivial'. This approach invites the intuitive, emergent and collaborative. Each day was spacious and encouraged responsive self-organisation, experiential learning, and an awakening of the senses. Integral to Soil Culture at Create was Soil Sisters, a culinary collaboration between Miche, Flora and Daphne Lambert of Greencuisine Trust. Together, they brought the soil's bounty of food to the table through food sharing and thanksgiving rituals, including fresh, nourishing and colourful dishes prepared from the harvests of Bristol soils and its hinterland.

"... it is the body, the feeling, instincts, that connect us to the soil". Carl Jung

Left: 'Hands in Soil' from *Cradle of Humankind, South Africa* 2012. Photo: Touchstone collaborations.

Right: 'Soil is our Gold' shrine, lit at every Soil Saturday. Photo: Ruth Davey.

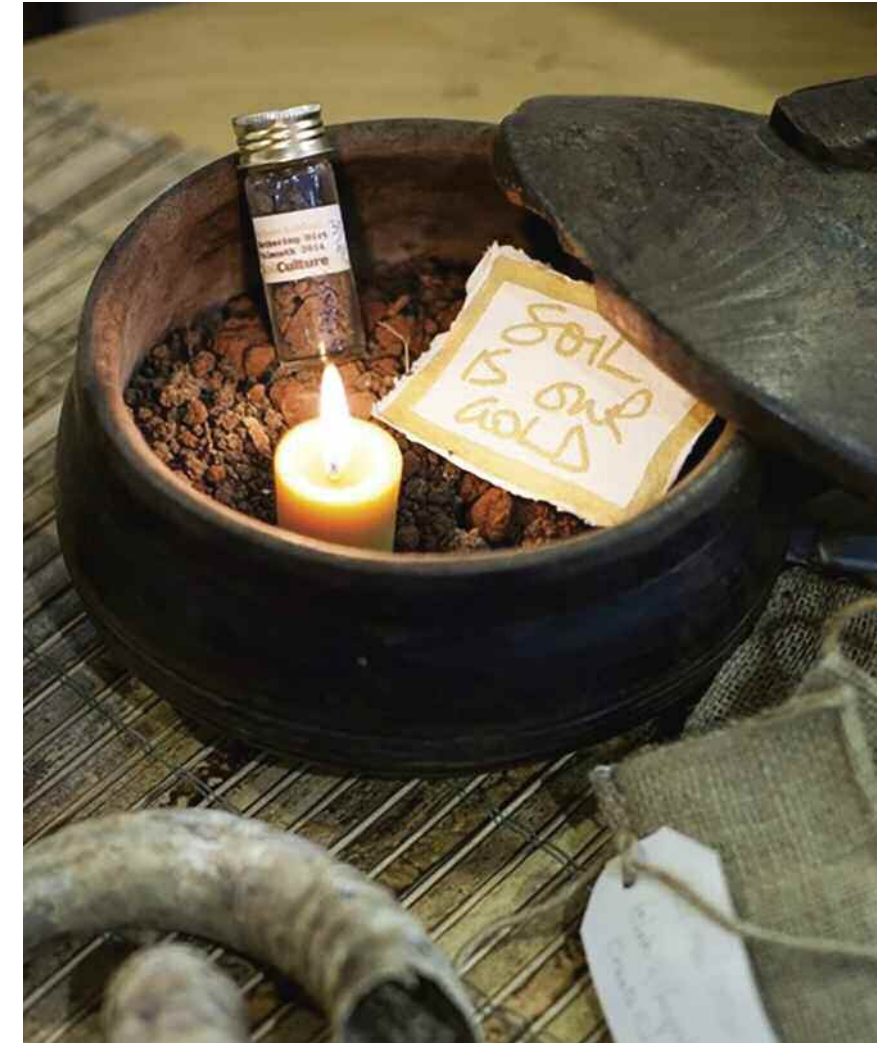
This respect for the geography of a place and its diverse communities was explored through this ecological gastronomy, building on existing soil and land initiatives and the dynamic food networks within Bristol, the UK and beyond.

"Curating the convivial" recognises and deeply engages with the matter of food and soil as agents of change to inspire, nurture and cultivate food citizenship as key to caring for our soils and promoting community resilience. The opportunity to become soil guardians is potential, every day, every mouthful."
Miche Fabre Lewin

Soil Saturdays

Exploring the soil's significance for the health of body, community and planet

Soil Saturdays took place from 10am to 10pm each weekend during July and August 2015. Each day was co-hosted with local and national partners to interweave different perspectives and experiences of the life-giving matter of soil through a convivial medley of activities. These included food happenings, films, talks, music, poetry and forums.





Soil Interdependence Day

Launch of Soil Culture at Create

Saturday 4 July

Soil Culture at Create began with the recognition of the interdependence between soil, water, and community. In partnership with Arnolfini's *Talking Soil* project, we journeyed by boat to Bristol's *Floating Ballast Seed Garden* for conversations on soil and seed heritage. Following this, visitors walked to Create, where they were welcomed with seasonal canapés and botanical cocktail *Soil is Our Gold*, prepared from Ballast Seed Garden figs, marigolds and fenugreek. During the gratitude ceremony, cake and brews made from Blue Soil herbs were enjoyed alongside the premiere of *Young Shoots* film. Alys Fowler opened the evening celebrations and guests enjoyed a sparkling wine accompanied by artisan breads and Daylesford cheeses, all savoured to the sounds of Earth Music.



What is Soil?

Discovering the living matter of soil through food, art and science

Saturday 11 July

What is Soil? brought together artists, scientists, compost-makers, soil philosophers, growers and cooks for a day of hands-on explorations with soil. Visitors of all ages encountered buckets of soil and worms, the teeming life in soil seen through a digital microscope, compost methods, and a conversation about the philosophy of soil. In the Create centre garden, people were offered experiences with beeswax, soil and time, and shared wildflower seed planting. A Soil Sisters *High Tea* with fruit compote, cakes, salad leaves and frittata followed the tour of the Community Farm. The Better Food Company shared *Soil Cooking* and the day ended with *Tasting Terroir* – the chance to savour seasonal cocktails created by the Ethicureans and St Werberghs Café from garden and foraged plants.



Soils of Bristol

Walk and Talk for Soil leading to a Declaration for Soil

Saturday 18 July

This day was dedicated to Bristol and its vibrant soil and food communities. The ground-making day began with a *Walk and Talk for Soil* from the city-centre Cascade Steps to Create to share a planet-friendly, packaging-free picnic in the parkland. This was followed by a citizen-led, *City-Region Soil Policy Forum*, facilitated by the Bristol Food Policy Council. Contributors, including senior city planners, sustainability officers, food and land campaigners, a Bristol MP, farmers, allotment holders, artists and cooks shared their beliefs, values and desired actions around soil. The responses were collected to form a draft *Declaration for Soil*. This was celebrated with a thanks-giving ceremony and toast with a botanical rhubarb cocktail followed by an *Allotment Banquet* created from fresh vegetables donated by local allotment holders.

Far Left: *Talking Soil* on Bristol's Floating Ballast Seed Garden.
Photo: Touchstone collaborations.

Centre: Bruce Lascelles of the British Society of Soil Science sharing life in the soil.
Photo: Touchstone collaborations.

Left: *Walk and Talk for Soil* from Bristol city centre to Create.
Photo: Sophie Laggan.



Right: Daphne Lambert preparing Living Food Feast in the Ecohome kitchen.
Photo: Martyn Windsor.

Centre: Craig Sams sharing the story of biochar during Growing Soil Saturday.
Photo: Touchstone collaborations.

Far Right: *Sharing Food Traditions* with 91 Ways.
Photo: Touchstone collaborations.

Living Soil, Living Food

Vital soil feeds living foods for body, mind and soul

Saturday 25 July

The fourth Soil Saturday explored the themes of feasting on the season's harvest as a recipe for well-being. It celebrated *Living Food: a feast for soil and soul*, a book on nutrition that highlights the vital connections between healthy soil, healthy bodies and a healthy planet. *Grow, Cook, Share* presented a project initiated by Greencuisine Trust in Devon where school children designed a school vegetable garden and cooked a community feast from the harvests. Later, visitors were given demonstrations of fermentation methods, celebrating cultural biodiversity with kimchi, gundra and sauerkraut. The evening's *Living Soil Feast* began with a thanks-giving ceremony at the *Soil Shrine* with guests savouring botanical brews and living food inspired by the colour and season of organic and biodynamic produce grown within Bristol and its region.



Growing Soil

Sharing experiences that care for and restore living soils

Saturday 1 August

This Soil Saturday celebrated holistic experiences with nature-based approaches to nurturing soil, seed and bees within a lively mix of bookstalls and installations. *Dawn to Dusk* film following a day in the life of a biodynamic, community farm was premiered at midday. In the afternoon, a forum focused on how to maintain healthy soils featuring intuitive, organic and biodynamic methods, biochar, pasture-fed livestock and ecological water management. *Living Soils: a call to action* Soil Association report was launched. Interwoven with a dance in remembrance of our bodies and nature we toasted the living soil with a biodynamic wine grown in biochar accompanied by charcoal biscuits. The day closed with a *Deep Soup* made from biodynamic vegetables of the season and the sharing of locally baked bread.



Whose Soil?

Soil and social justice – art-inspired dialogue between local and global

Saturday 8 August

This day brought alive soil as homeland and addressed themes of social and environmental justice. *All Wrapped Up* included artworks and musical instruments made from food-packaging waste plastics. *Eradicating Ecocide* invited the writing of *Community Love Letters* to the Soil using earth-based inks. *Rising Up* campaign and Blue Finger Alliance created an installation to share stories of the land protection camp. Presentations of Ken Saro-Wiwa, the Ogoni struggle against Shell and the *Soil Not Oil* campaign in Nigeria were followed by *Claiming Soil and Sky* in honour of Sutherland Reflections, a South African arts project in the Karoo. *Sharing Food Traditions* provided a feast with 91 Ways, who celebrate Bristol's 91 language groups through food. The day closed with *Three Acres and a Cow* political theatre.



Fallow Field

Emergent day for reflections on actions, research and legacy

Saturday 15 August

Fallow Field was an opportunity for spacious reflection and conversation on the diverse themes and rich experiences of Soil Culture at Create. It brought people together around a sequence of three main reflective happenings. The first was *Soil Searching*, a participatory co-inquiry with blackboards that invited us to explore the question “what is our soil culture?” and deepen our relationships with soil. This flowed into an invitation to be outside and to *Look Again* and observe more closely the soils around Create. This was followed by *PRESENCE: an invocation to soil* – a sound and image projection within the gallery space. The event began with a hand-washing ritual leading to a soil and food ritual within the *Blue Soil Shrine*, and closed with people sharing reflections over hot chocolate and figs.



Art of Soil

Ecological and cultural diversity through soil, art and food

Saturday 22 August

This final day celebrated the power of the arts to communicate new visions and inspire social change. Within the auditorium international presentations were made by Dr Sue Spaid and Dr Alexandra Toland. The Mayor of Bristol offered his appreciation of *Soil Saturdays* and dedication to supporting legislation for living soils. After an *Artists Lunch Table*, *Conversation Tables* were hosted by *Young Shoots*’ residency artists and other practitioners. At each table, people exchanged their experiences and inspirations. The evening *Coming Home to Soil* ritual was followed by a *Soil Sisters Rainbow Feast* of the season. This final convivial food sharing was uplifted by songs from Nathaniel Mann. We closed Soil Culture at Create with a circle of appreciations and farewells.



Why Soil Matters? A European perspective, conference in Brussels.

Touchstone collaborations were invited by Molly Scott Cato, Green MEP for South West of England to bring an artistic intervention into the Greens in the European Parliament and the European Free Alliance conference, *Why Soil Matters? A European perspective*, on 18 November 2015, Brussels. Miche and Flora created a soil shrine and showed a short film montage *Soil Saturdays: the art of reconnecting to soil*, both conveying the simple message of soil interdependence – “become a soil guardian everyday every mouthful.” They were part of the afternoon’s Strategic Discussion and as one of the actions, proposed designing and hosting TOUCHSTONES, a resource sharing good practices around the protection of soils and the cultivation of resilient communities to be launched on Touchstone collaborations website.

Far Left: *Soil Searching* with Charlotte von Bulow as part of Fallow Field. Photo: Ruth Davey.

Centre: Sue Spaid sharing inspirations during Art of Soil. Photo: Chloe Scholefield.

Left: Miche Fabre Lewin outside the European Parliament before presenting at the ‘Why Soil Matters?’ conference. Photo: Flora Gathorne-Hardy.

The thin layer of soil covering the earth’s surface represents the difference between survival and extinction for most terrestrial life.

J. W. Doran and T. B. Parkin, 1996

Soil Culture Forum



Facing Page
and Below:
Deck of 'Top Soil
biodiversity' cards
created for the Soil
Culture forum.
Illustrations by James
Gifford. Photo: Robin
Hawes.

Soil Culture Forum

A Fertile Ground

The wide range of activities spawned, to date, by the idea of Soil Culture includes within it the three-day *Soil Culture Forum*, convened by RANE at Falmouth University in July 2014.

This event was, in the agreement of all those I've spoken to about it since, quite unlike any other of its kind. The first two days focused on the contribution of the visual arts to an awareness of what soil is, to why we might wish to learn more about this life-sustaining mystery under our feet, and to why we would do well to prioritize its welfare. This was followed by a third day, *Narratives of the Soil*, curated by Dr Jude Allen, which was dedicated to a literary take on that same territory. The result was a highly eclectic mixture of voices: organic farmers, scientists, artists, pedagogues and soil advocates; live performances, cob-building, poetry, fiction, and formal academic papers; all of these and more rubbed shoulders to create a highly eclectic and unforgettable three days.

Likewise, the forum itself now sits within a diverse series of Soil Culture exhibitions, residencies, public workshop and associated projects - and finally, the publication that you hold in your hands, which brings together these various threads.

Or rather, not so finally: as if this were the end of the matter. As Richard Kerridge puts it, quoted in this closing chapter, each of the practices, encounters and events that have made up this first wave of Soil Culture constitute a slow 'turning of the soil' - for those involved in co-creating them, to be sure, but no less so for those who come upon them later.

This closing chapter contains a few examples of that ongoing turning. It offers a range of creative responses to Soil Culture, some of which formed part of the events themselves, and some

of which meditate on impressions left in those events' wake. As a small, diverse sampling, this selection of work claims no overview. Nor do these reflections pretend to an imagined 'impact assessment', unless we reclaim that over-used phrase for a more honest, first-hand account of those impressions we're left with.

What all these responses do offer, I think, is a witnessing to the ongoing turning - of thought, priority, direction - that Soil Culture continues to foster, as one filament within a web of connections that spreads across many lives, cultures, continents.

**Mat Osmond, Senior Lecturer,
Falmouth University**



The Intimacy of Soil:

Dr Jude Allen

This is the story of how I became involved with soil and hence, why the written word day of the Soil Culture Forum came into being.

Coming from an eco-critical and literary background, my personal interest in soil and culture has itself been an organic process, and it has emerged and grown in direct response to my own soil experience. Three years ago we moved to a rural property in South Devon. Having left behind a beautiful and thriving allotment, lovingly tilled for the previous five years, I was bereft. Just a hedgerow away, however, was a twenty-five acre field that, in the July we took up residence, was planted with swedes. After a particularly wet autumn, the winter became diluvial. Just before Christmas, in yet another downpour, one man in his tractor slipped and span through the gate and began to harvest the swedes. Over the next month I saw what I later discovered was the result of the previous ten years' intensive barley cropping. Years of mono-cropped compacted soil that had been made less water retentive through lack of organic matter meant that the late harvesting of swedes in particularly bad weather was nigh on impossible. The gently sloping shelf of verdant green that just a few weeks previously had provided a somewhat pleasant outlook from our kitchen window was now a huge, besmirched, churning mass of slurry, some three feet deep in places, worsening each time the tractor and trailer battled past

to access the rest of the field. The area by the gate became impassable, so they bulldozed down about thirty metres of old Devon hedge to enable the tractor to enter further up the hill and to turn without getting stuck. Hour after hour, and even at night the harvest continued, digging and wrenching the roots from the ground as if it was engaged in some sort of relentless assault. The lovely Devon field was rapidly morphing into a battlefield and the headlamps of the tireless tractor had become the lonely eyes of an unforgiving tank glaring out across a sea of carnage until nothing living remained.

Several months later, spring tiptoed in and the field slowly dried out. Hollowed carcasses of passed-over swedes pushed up from the crusting mud, wafting remnants of their persistent brassica stench - a pungent reminder of the red-brown porridge that was only recently walkable. Despite the slowly warming sense of relief and recovery, deep sculpted tyre marks shaped and scarred the soil-scape, like modern fossils etching the history of the oh-too-recent tumult.

The farmer was furious. It was the first time he had rented out the field, and now it was ruined. In order to get purchase for the turning tractor, the entrance to the field had been covered with several tonnes of sharp stone. Now bulldozed back, the hedgerow remained a heap of mud and rock. The plants that were not crushed had probably drowned. Never again, said the farmer. Back to barley it would be.

The next years' ploughing began, and the field lost its battle scars. The memories of the



recent events slipped away, tucked beneath the surface of the neatly laid out furrows and new beginnings beckoned.

It was at this point that I convinced the farmer to lend me a small piece of that field for a vegetable plot.

I was so excited – The soil in this field, and my patch, looked much better now. The hard work was done and it was perfectly ready for planting. No weeding. Almost shutting my eyes, I was warmed with the first caress of balmy sunshine and as my muscles began to shed the tension of winter I envisioned a future cornucopia of new potatoes, tasty carrots and crispy succulent mange-tout. Ready for action, I climbed over the fence with my fork and several neatly labelled trays of chitted potatoes.

I was horrified... What had I had taken on? Surely this could not be right? Even from the short distance over the fence, the field had looked lovely - the epitome of South Hams farmland – rural England. However, the rich welcoming loam that had called me enticingly

was not gentle, pliant and caressing. As I stepped onto the soil - instead of gently melting in to a warm crumbly and receptively mothering substance, my feet met something little short of rock face. I replaced my fork with a pick axe.

Having now been here for two years and met the neighbours, I realise that – apart from the one year of swedes that we had just experienced – the field, along with my plot, had grown nothing but barley for ten or more years. Every year it had been – and still is - subject to approximately a dozen sprayings a year of fertilizers, pesticides and a final spray at the end of the season to decimate, wither and blacken any remaining life left after harvest. A seasonal Armageddon. The gathering realisation that a huge proportion of crops are grown this way frightened me to the pit of my stomach. It still does.

The unyielding soil I dug through relinquished no secrets. No worms. No seeds, no roots, no little fungi things, no humus. Just



dust. Just dirt. In the same way that the disconnected totem poles have lost the traditional cultural stories that maintained them as meaningful pieces of art, this soil too had – through absence of any sense of story – become not only culturally worthless, but also had lost physical value as soil. Exhausted and devoid of life, it was (and in the field, still is) merely a substance to hold up the plants. It has been rendered meaningless. The life and workings of the soil and any intimate connection between soil and ourselves has been dispensed with and replaced with chemical or mechanical intervention. Any sense of culturally significant connection with humanity has gone. The story of the field I have told is not a story of intimacy. It is a story of havoc and destruction and of antagonism.

In his talk at the forum, Patrick Holden from the Sustainable Food Trust proposed that we need to either reinstate a traditional narrative or to come up with a new narrative that can sustain a connection between humans and the soil. We need to find stories in the soil and also stories that can reconnect us to the soil, and we also need to rewrite the story of our intimacy to the soil. The only way this can be done is through the reinstatement of a multiplicity of connections which link our very way of being with the soil. The holistic scientist Stephan Harding finished his talk with the suggestion that we need to love the soil. The soil needs to be cherished. The Soil Culture project has been part of this.

What else can we do? Perhaps we can all start to re-establish the intimacy by caring for

a small piece of soil. Three years on, despite being surrounded by barley, my veg plot has absorbed several trailers full of horse manure and seaweed. It has also eaten a lot of comfrey. It is teeming with worms, and as I write I can see dusky-pink flutters of long-tailed-tits darting between the bean poles and the birch tree. What if we cannot garden? Returning to my above suggestion that our digestion is part of a much larger process which operates outside as well as inside of our bodies, perhaps we can buy organic vegetables and meat. Nourishing our bodies with organic food ensures healthy, organic soils as a prerequisite. Whatever we do, we have to understand that we cannot just do nothing.

Sustainability: Regeneration

Mat Osmond

“Our need for an ecology movement, animal rights advocacy, and a world wildlife fund begins in our dreams” James Hillman, *Dream Animals* (Chronicle Books 1997)

One year on, I'm still turning over the many impressions left by last summer's Soil Culture Forum. An image that's kept recurring, both during the forum itself and within that year-long composting, is that of mycelium: both as an ecological entity, and as a metaphor that might prove valuable for steering arts practice. What follows here are transcription notes taken during three of the Soil Culture Forum talks, followed by some of the questions that each talk provoked. With

regard to the transcriptions, I'm not always sure, now, which parts of the material are the speakers' own words, and which are my embellishments. On the whole it's the former, but both these selections and my comments reflect an unapologetically personal bias – one that will, I think, speak for itself.

1. Richard Kerridge

Around eco-criticism lurks the idea of the poem that will save the world: the artwork that will change us, that will bring about a shift in perception, one which will in turn enable us to change our behaviour. Has art, poetry, literature ever achieved this? Perhaps very rarely, possibly not at all. The general case is rather that our work is borne along by cultural trend, but in going with that current it forms a small part of it, one that contributes to its strength, momentum. The heroic notion of the artwork as a driver of cultural change is both a distraction, and an insupportable inflation, one that places a weight of expectation on creative practice that it can never live up to. We need to set aside the notion of the artwork as monumental icon of the paradigm-shift we seek, and look instead to creative practice as a quiet turning of the soil: to the artwork, poem and story as micro-organism, as connective mycelium - the manure that feeds and renews the myriad invisible life of that soil.

What might we make of mycelium, of micro-organism, of turning the soil, as metaphors for arts practice, and for communities of practice? Culture imagined as a subsoil fungal web: a

connective matrix that fosters and sustains living communities through a process of reciprocal nourishment. An example from biology: isolated redwood saplings grown in conditions otherwise equivalent to the interior of a forest, will die for lack of light. They survive to adulthood within the forest only because fungal mycelium conducts nutrients from the surrounding mature trees to the young, until they are able to reach the light themselves. Ecosystems: a dry word for the Lifeworld, whose core principle, reciprocity, reframes the pseudo-Darwinian fantasy so beloved of end-stage capitalism, 'nature red in tooth and claw'.



2. Stephan Harding

We've tried an environmentalism based on information. Strangely, that didn't work. We thought if we gave people the information about what was happening, they'd be changed. But no, they weren't. Then we tried fear, but that didn't work either. Frightening people

doesn't change their behaviour. What's left? The only way that we can address these problems is through love. We have to re-learn, as a culture, to love the earth. Nothing else will do. We have to learn what it means to love the earth, because it is only if we love the earth that we will not be willing to see it destroyed.

So far, so Schumacher College. Great. But if we agree with and celebrate every word of that - which I do - what of it? What are the practical implications of this, for arts practice? Deep Green Resistance, for instance, have framed a campaign of disruptive sabotage, one whose stated intention is to 'bring down civilization', in exactly these terms. Their version of that question: "How does love behave, faced with the ongoing murder of the loved by one's ambient culture?" On a quiet summer day in Falmouth, that sounds like melodrama.

Is it? I meet many at gatherings such as this who reject DGR's solution, but far fewer who question their diagnosis of the problem. If we're not making art in that militant spirit, then what, exactly, are we proposing? What do art, poetry and storytelling have to offer, as we stand facing an accelerating anthropogenic mass-extinction, besides more green message-dissemination and 'awareness raising'? For those of us who find ourselves persuaded that what DGR et al say about the current trajectory of our culture is broadly true, how else might art and poetry respond to that news, if not as a call-to-arms? And why?

3. Sam Bower

Sam begins his talk with two images. The first: an aged sepia photo of a Haida village, which includes a cluster of totem poles standing at the village boundary. The second: a single totem pole, standing alone outside the British Museum.

Our culture venerates the art object, but what is art, as de-contextualized object? The British Museum pole stands as the empty husk of absent stories that once infused and sustained a living culture of inhabitation. To the people who lived with the pole within its original context, the faces it bears were known to them by name, as part of their shared history. Those same beings, stories might appear in a tattoo, on the side of a boat, within a song sung whilst working, a festival, taboo. Outside the museum at the heart of this dying culture of occupation, those faces have fallen silent – they tell only of absence.

What we need is a renewal of cultural expression, rather than a renewal of artistic expression: to see that the artwork – of whatever kind – is only the visible shoot emerging from the living soil of culture. Renewing that soil is our real challenge, one that doesn't necessarily require vast amounts of money. As with environmentalism, in our search for cultural adaptation we look in vain to charismatic mega-fauna within the arts, when in fact it's the underlying soil that we need to attend to, to nourishing that connective culture of relationships, shared stories, communities.

Mycelium, again. Or at least, it seems near at hand. Sam shows us a film: the *Casa de Paz* project in Oakland CA, where he lives. An extraordinary experiment in socially-engaged, spiritually-attuned communal living. A project based on something Sam refers to as giftivism: the unfathomable power of acts of gratuitous generosity to change the world. Within the house's kitchen, we glimpse a pinned-up list of five principles that steer this experiment in choosing a better way to live. The last principle has been crossed out, and replaced: 'Sustainability. Regeneration'. Is regeneration a good word for what art might have to offer, in the face of these radically unsustainable systems of living that we currently inhabit? I like it, both for its inclusivity, and for its unconditionality. A work that all of us micro-organisms can, and do feed: arts practice as a call-to-arms, a eulogy, a prayer, a thought experiment; as a slow turning of the soil that we can all lend our hands to, at any time. No 'too late' here.

Artists in Conversation

Rachel Hindley

Artists in Conversation has evolved as a legacy of the Centre for Contemporary Art and the Natural World's Soil Culture project. Running in parallel with all the CCANW residencies, it sought to pay homage to the United Nations International Year of Soils, whilst promoting the widening debate around the potential of soil and what it represents.



Artists in Conversation, based in Redruth, Cornwall, has and is informing the basis of a body of research, which starts with the notion of soil as a common denominator of both ownership and authorship, which in the context of the Soil Culture project, constitutes both a microcosm of land and a medium and tool of the artist. One of the fundamental questions that emerges out of these ideas, is how important or necessary is it for society and artists to relinquish ownership and authorship, for the sake of social change? Drawing upon the socio-cultural and political concerns surrounding the participatory arts and social change, *Artists in Conversation* has sought to provide an open platform for debate, to which the Soil Culture artists in residence have contributed, with reference to their own art practice and broader cultural concerns challenging capitalist land divisions and socio-cultural divisions, which have depleted both soil and society of their well-being and good health.

The sociologist, Anthony Giddens proposes that we construct our society and society constructs us and in this pattern of being, we can perpetuate the status quo, quite happily, but what about social change? Giddens suggests that through innovative acts of human agency social structures, such as government policy, might be reconfigured. And in a sense the coming together of the arts and sciences, is an example of innovative human agency, manifest within ventures like that of the CCANW Soil Culture project, which hopefully disrupt the complacency that surrounds soil and its future.

Patrick Holden, once director of the Soil Association, and founder of the Sustainable Food Trust, who now continues to manage his organic farm in Wales, after 41 years, made a poignant statement at the Falmouth University Soil Culture Forum in July 2014, when he proposed that we need to engender a more spiritual and emotional connection with the biological. He referred to the 'soil as the stomach of a plant' so if the soil is unhealthy, the plant is unhealthy, and as a consequence we as the consumers of those plants are also unhealthy. This symbiotic relationship with soil, has been neglected by humans for too long, but it is initiatives like the CCANW Soil Culture project, and its legacies, like that of *Artists in Conversation*, which aim to enhance an appreciation of soil and develop a common language and critical discourse around the health, wealth and ownership of soil.

In the end it is not about command and control, it's about humility. Relinquishing

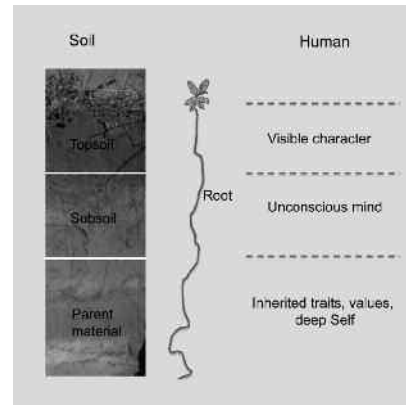
ownership and authorship becomes part of that humility, thus creating a common ground, which is neither state or privately owned, but one that allows for the sharing of both economic and cultural capital.

Soil Connection: A key to sustainability?

Bruce Ball

Soils form a finite resource that is being lost and degraded and therefore needs to be conserved and restored to sustain our culture. The introduction to the forum reminded us that although the word 'culture' has its metaphorical roots in the improvement of soil, we have lost that fundamental connection to it. The objective of the forum was to inspire people through the arts on environmental issues and to kindle the imagination in a programme of exhibitions and socially engaged activities. At the forum people clearly expressed a need to connect physically with the soil, to understand the life within it and to nurture a deeper cultural understanding of it.

My presentation compared soil degradation with societal breakdown and proposed that the comparison of soils with people can lead to a greater understanding of the function and care of both soil and of society. The life of the soil was seen as analogous to the life of the human mind and spirit. In order to change our mindsets and behaviour to increase the stability of society, we need to develop deeper, more holistic



thinking that can be learned from contemplation of and inspiration by the soil. Soil porosity was compared to connection, wholeness and diversity, seedbeds were related to vulnerability and creativity and soil humus was related to humility and resilience. Restoration of soil functions and individual or community functions were considered to depend on developing a greater awareness of our soils. This is possible by using a visual spade test in which a spit of soil is dug out, broken up and scored by observation, touch and smell. This allows a better understanding of and relationship with the soil. Increasing awareness of the soil enables us to become conscious of its power to produce and of its vulnerability to abuse. Since the forum, I have co-edited a book summarising such methods of visual soil evaluation and how these can be applied to realise potential crop productivity.

The year after the forum, 2015, was the International Year of Soils so there have been many activities related to developing public

awareness of soil. For example, I contributed to the *Camp Breakdown Break down* based at the Scottish Sculpture Workshop, Lumsden, Aberdeenshire. Here environmental artists, activists and writers shared in making a vision of a civil culture to prepare for and survive climate chaos and breakdown. There was an emphasis on developing mindfulness by deep listening. Delegates brought soils to the meeting, mixed them in the field and planted a tree in the mixture.

In developing the comparison of soil to people, the soil profile can be seen as a metaphor of the human psyche. At the surface the topsoil represents the visible character of the person. The second horizon or subsoil is similar to the unconscious mind where hidden potential is stored. The bottom or third horizon (parent material) is the bedrock or ground of being; it contains hidden traits and core values inherited from parents and ancestors. These are the fundamental shared properties of communities. This metaphor provides a clue to how we can adapt our relationship with the soil. We need to use more of what is stored deep in the soil and, by analogy, deep within us, by increasing awareness of and connection with others. This enables a bringing together of the three types of self that can allow development of the awareness for the growth of 'grass roots' movements to heal our society. Literally, a radical change is needed. In 2015 I published a book *The Landscape Below* which tells the story of the soil and develops these ideas simply in prose

and poetry.

On a recent trip to study soils in the field, a student produced a ball of soil that he held in his hand that reminded me of our vulnerable Earth and which helped to develop a vision of a soil-based society. This society acts as a whole and is based on soil properties where we:

- Live frugally with inward richness like soils dark with organic matter.
- Develop intentional, diverse community like soils aligned and interconnected through pores.
- Promote 'us' rather than 'me' like soils deepening together.
- Grow love and respect from within like fungi around roots causing increased release of nutrients in low fertility soil.
- Ease conflicts by developing humility like humus.
- Improve life quality like soil quality under organic farming.
- Become aware that every action, no



matter how small, affects the wholeness of society.

For a better future, we not only need to conserve our soils, we need to become more like them.

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Soil and Community East Pool Mine

Val Ashby and Andrew Bird

This collaborative art-based remediation project at East Pool Mine is intended to explore ways in which we might use art practices to reactivate both the soil and human relationships to it within Cornwall's historic mining landscape of Redruth, Pool, and Camborne. This area is one of the ten World Heritage designated sites. Most of the regeneration of this post-industrial landscape has currently involved importing topsoil to carpet over and replant the contaminated landscape of 'overburden', rather than addressing the deeper harm to the land.

Sitting behind a shopping centre car park and housing estates, East Pool Mine is marked by a towering pump house and chimneys, one vertebra on the spine of Cornwall's Great Flat Lode engine houses. As a heritage site, EPM presents a particular set of considerations. There is an on-going tension between the present protection, conservation and celebration of a historic monument (buildings and machinery) and an

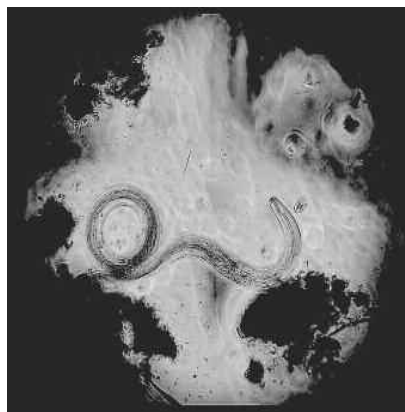
archaeological site (land) and the past destruction of the natural environment. It can also be seen to occupy an interesting transitional space, suspended between a past of intense mining activity, and a present in which human engagement is generally restricted to passive distant viewing. By offering our active participation in the natural environmental processes of the site, we hope to bring the environmentally damaged site into a future with a more respectful and connected set of relationships around the land and the vital earth.

EPM's particular story of tin and copper extraction has left it with top soil that is depleted rather than contaminated, and this has led us to pursue methods of soil regeneration through composting of waste materials, rather than decontamination. The main focus over the past year has been to establish a physical presence on site.

Rather than disturb the overburden, we are using green waste from careful site clearance to create composting systems. The composting systems are sited in structures based on land art 'Hugelkulture'-style mounds and composting 'sculpture plinths', which are essentially raised beds using 'lasagne' systems for layering waste. Onto these, sculptural forms are being constructed which will allow the composting process to be experienced by the visitor and form supports for future planting. Over the next year, these will decompose into soil beds that can be planted by the site volunteers and local community. We hope they will be used as the

basis for community based activities and the sharing of information and practice about a sustainable future for the land.

We see this as a form of environmental art around social action, intervention and reclamation of land; one that is not about extraction, which uses the landscape to create artefacts and culture to be consumed by tourists, but one which gives back to the earth and offers some form of 'cure'. It is about art to make soil and not soil to make



art. In pursuing this, we hope to offer the local community the opportunity to re-establish a connection with their own place through getting their hands in the dirt.

We would like to thank Jo Warburton and the National Trust at EPM, and students and graduates of the BA (Hons) Contemporary Creative Practice course for their collaboration, and Cornwall College for the award of a Research and Scholarship grant with which to pursue the project. soilandcommunity.com.

Soil

Dr Richard Povall

"Soil is the great connector of lives, the source and destination of all. It is the healer and restorer and resurrector, by which disease passes into health, age into youth, death into life. Without proper care for it we can have no community, because without proper care for it we can have no life"
Wendell Berry, *The Unsettling of America: Culture & Agriculture* (Sierra Club, 1977)

It's the smell I first notice. It's March, and the urge to grow – something, anything at all however futile – has become overwhelming as the darkness begins palpably to lift and the soul begins to feel just a little lighter. It's an absurd time to be planting seeds, even on a warming mat that gently raises the temperature of the soil to the point of germination. It's absurd because although artifice may be able to provide heat, the light available at this time of year is simply not sufficient to nurture and embrace and grow these artificially-birthered seedlings. English springs are cruel indeed, offering promise and colour and delight, but never the warmth to bring the soil to its happy place.

I love the language of soil, too. A wide range of synonyms – dirt, loam, ground, terra firma, dust – reflects an ambivalence in our relationship with this most elemental of substances. Everything on the planet, except for the things we humans make through artificial means, is somewhere in the cycle of

emerging from or returning to soil. We are all organic matter, after all, taking a very temporary form as complex, intelligent beings capable of much greatness and much baseness and much violence not only on our own kind but on the base substances from which we are all made. But ultimately we must all return to dust. How much more sensible were the Elizabethans and Jacobean who celebrated this than the more recent denial and the invention of the 'forever casket'. We are as afraid now of death as we are of nature.

Soil is variously described as light, clay, sandy loam, volcanic, silty, peaty, saline, fertile, fallow, acid, crumb, grain, granular, blocky, platy, prismatic, and we can contaminate, sweeten, sharpen, degrade, desecrate, taint and pollute it. How rich these words are, how laden, how immanent.

But the smell, that earthy rich loamy smell of dampened potting soil, despite its underlying aroma of death, is the absolute harbinger of a new year to come. We may celebrate new year in the darkest depths of winter, but our bodies and souls know that it is the return of the light in early spring that is the real turning point. The reminder of death is overcome only by the positive, almost eucharistic rite: pouring compost into plastic cells, dampening it, dabbing a small hole (or not), and placing seed, one-by-one. The poetic impossibility of a tiny seed becoming an overbearing plant still seems total, year upon year, age upon age – our failure of faith in the certainty of transubstantiation. That first time each year when soil gets caught under fingernails, and the minerals and

roughness in the soil gently sandpapers the skin, leaving behind an honest roughness that our modern age has long since eschewed for utter smoothness and perfection.

"Gardening is not a rational act. What matters is the immersion of the hands in the earth"
Margaret Atwood, *The Year of the Flood* (Nan A. Talese/Doubleday 2009)

I have seen relatively little of the tour de force that is Soil Culture, but what I have seen has gloriously avoided the dead-eyed stare of contemporary art. Walking into the exhibition space I feel assaulted, overwhelmed almost by the earthy physicality of this work. There is a life-force in this room that is so often absent, and I'm moved by it. In a time when we have become so alienated from, well, everything, I seek always an artistic voice to rescue me rather than alienate me further. This work feels messy, honest, authentic. The room smells of soil and of people's connection to it. Instead of being irritated by a pile of dirt, I'm moved by it and feel some meaning is within my grasp. I am at home here.

This is emergent practice. The Centre for Contemporary Art and the Natural World has been a leader in giving voice to artists whose work connects with the natural world, and to life. For a while, just a few years ago, this field of practice became on-trend, embraced just for a fleeting while by the art world in all its absurdity and overweening power. But that is over, and we can get back to re-learning our connection to things away from the spotlight.



A slightly dimmer light shining on the work does not diminish its importance or significance. An age of alienation yearns for connection, for love, for transformation, for a rootedness, for a real sense of home, for a meaningful way to be in the world. I begin to understand more and more what 'ecological practice' means when talking about making art or living art. This is not a type of work, or even a field of expression: it is a way of being from which art and creative expression emerge. A way of working with a deep connection to place and the world around us. A crucible unafraid of beauty, spirituality, simplicity, poesy and honesty -- but perhaps just a little cautious about cleverness and arrogance. Work that understands how we live and why we live and how the earth responds to the crushing weight of our (in)humanity. I'm happy to challenge the supremacy of Man (remembering Aquinas), to revel in the rich emotional lives of our companion animals and the extraordinary intelligence and symbiosis

with the land of animals, birds and insect life. I'm unmanned by the beauty and intelligence of some of this work and its understanding of the planet we share.

And now, it's summer.

schumachercollege.org.uk/arts-ecology

Building with Cob

Tom Ingate

There is something disarmingly simple about building with straw bales and mud. It's a building site like no other. A site that encourages experimentation depends on trial and error engineering, and certainly runs counter to the precise large scale concrete and steel that surrounds us. The shed came to symbolise the separation people feel from the making of their built environment, an environment that is left to the planners, structural engineers and specialist building contractors. The contrast couldn't be greater between the heavy plant in the next door field preparing to build a world class research centre, and our piles of clay, straw bales and hazel pins.

The ambition was to build an allotment shed as a community, that community was going to be the Soil Culture Forum delegates, but getting elbow deep in cob has a certain beauty and attraction to it. Soon, we had delegates, non-delegates, staff, students, non-students, passers-by, dog walkers and their children getting involved. An eager community illustrating our instinctive ability to build a

home hewn from the environment in which it sits. To build from the ground is the childhood of mud pies, den building and sand castles, an engineering playground.

The building grew, so did the community that built it and the building grew into a classroom. As the volunteers stamped, rendered, smeared and slapped the walls they shared ideas, experiences and stories. Inspired by what they achieved some have designed their own cob and straw buildings, there is talk of cob bus shelters on campus and a straw bale wellbeing centre built by the students that will use it. The field in which the new classroom sits is now a hub for growing your own veg, of composting all the kitchen waste from the 250 student kitchens, festivals and a climate conference that will send delegates from the field to COP21 in Paris. Courses from different departments on campus have come forward to work together to use the space for Drawing, Architecture, Renewable Energy, Performance and Art and Politics.



As the communities that use the space grow and diversify so too does the building, an extra seat here an extension there even an orchard and a stone circle have appeared, but it is the sharing of ideas that is the most important. From a conversation in a field with straw and cob, to a global conversation in Paris to inspire new conversations, new actions will emerge, and hopefully more cob.

Building in Earth

Matt Robinson

Earth is a fascinating building material, which like timber can be used in a number of different ways according to the climate of the place and the traditions of the people who live there.

It is a surprisingly forgiving material to use, and has a proven track record of survival that industrial materials can only envy so long as two simple design rules are adhered to: 1. it is built off a masonry plinth and 2. it has a good roof.

Earth as a building material is found below the black subsoil and needs to contain a proportion of clay or fines that will bind the sands and aggregates (small stones) together. In my experience you usually have to add aggregate/sand and to sieve the soil to relieve the mix of the larger stones.

A good mix depends on the way you are going to build. For Northern Europe its 'cob' walling – the wall is built in two-foot (600mm) lifts, two-foot wide over a summer season, hand forked on with a coarse mix that can



include biggish stones, plenty of straw but not too wet. After a lift has dried off for a week or so, you trim the wall true with a garden spade and then beat it with a club. The next lift can then be applied. For hotter countries such as the Arabian peninsula or Central America (or Norfolk!) it's earth bricks or adobe – the mix will contain straw but the earth can be much more clay-rich but has to have no stones in it. The bricks are laid in a mortar of the same earth material, and the walls can be built very rapidly, just like modern fired bricks or concrete walls. Earth is also combined with other materials to form charismatic, textured walls such as in the mortar between stone or in woven wattle and daub panels or in Lincolshire 'mud and stud'.

There are three traditional building methods. The cob wall (as there is no formwork, you can build any shape you want); rectangular adobe bricks; and the 'sausage roll' method. A more modern method of earth building favoured by university educated

architects is 'rammed earth': here you have to build rectilinear formwork as you would for concrete and then you get a dampish, low clay mix of earth, and ram it between forms with sledge hammers, more likely using industrial machinery. Ironically this is the least robust method of building with earth.

Earth is a material that has defied industrialisation and has never achieved an economic value or importance in a developed economy. For some it is the symbol of the peasant, the crime of people living in 'mud huts'. For me it is a uniquely sculptural building material that simultaneously connects me with the Earth in a spiritual way and with my ancestors in an anthropological way. There is no other material quite like it.

www.MattRobinsonArchitecture.co.uk

Composting Poems

Lucy Mercer

A year has passed since the exciting and vital RANE Soil Culture Forum took place at Falmouth in the summer of 2014. Since then, I myself have been undergoing the very process of composting and recycling that I introduced in my workshop *Ancient Mesopotamia – Digging up and Composting Poems* – both in the sense of composting insights divulged by the Forum and by other projects last year, and – as with everyone else – my own ever-changing physical and mental body.

In my clay workshop at the Forum participants explored how ancient texts such

as the two-thousand-year-old poem Epic of Gilgamesh have been recycled and composted down by modern poets such as Louis Zukofsky and Charles Olson. We looked briefly at the concrete poetry of Ian Hamilton Finlay and then made our own terracotta clay tiles with letterpress sets, makeshift cuneiform chopsticks and other clay tools. The participants responded beautifully, creating an incredibly varied response in their composted tiles. In particular, the artist Jonny Briggs created a small clay tile with rows of small marks, armies of dots that – like civilians stratified in Mesopotamian society – seemed to be bound to linear movements across his tile, but were somehow alive, creating their own narrative. This was for me an unexpected but welcome response to the materials I had provided.

The aim of that particular project was to see which elements from antiquity had remained 'hot', and this is an area I have continued to investigate in my own practice: I'm now writing a chapter for a forthcoming book on how traces of antiquity reinvigorate medieval emblems, and am in the process of firing and glazing modern clay-tile poems for an emblem poster-poem project.

If we think about how tablets were produced from wet Mesopotamian clay at the same time as the society suffered agricultural problems due to rising levels of salinity and a need to administrate surplus, an interesting dichotomy arises between the land and writing. The land grows words on its pliable surface rather than wheat, and the words document the loss of the

old harvest. Surplus also produces poetry. Surely this is a collective process that we too are undergoing – and perhaps the fruits of the Soil Culture Forum; its documents, poems, and this book, may yet become further composted to somehow enrich our thinning and endangered topsoils.

For me, the transformation of ancient soils into images into signs continues on to be the most invigorating terrain for academic and creative work.



Getting Dirty in Falmouth

Marina McArthur

I stand on one foot, bare toes sensing the damp grass, arms reaching to the sky. These my roots and here my branches. Around us loom sombre evergreens, puzzling over these strange folk below pretending to be trees. It's yoga in the gardens and there's earth between my toes, a fitting way to start the day at the Soil Culture Forum.

Earth is on my hands too as I fashion a strange little head from clay, a guardian to cradle a pepper seed. There it sits to harden alongside other curious beasts. From the puzzled faces of some other makers it's a new thing for them too. Later, I craft a clay tablet, Mesopotamian-style, using words taken from an ancient text: "Facing the sun they dug a well." I've been to a few conferences in my time but none so earthy.

This last day of the Forum is dedicated to the written word. The blend of presentations, literary explorations and hands-on workshops, interleaved with poetry, engages me emotionally as well as intellectually. It's my first time at a hybrid event of this kind. I'm at the Forum to read my *Triptych of Return*, three linked pieces I've created for the event, which explore the generosity of the soil in taking matter back into itself and allowing, in differing senses, redemption.

In the first 'panel' of the triptych a woman heals herself from the pain of a long-ago love affair through composting her lover's letters. She shreds them and mixes them into her garden waste: "First for the sweetness we once shared, fresh grass mowings". As bitter memories well up, she throws in "nettles for the sting, for promises undone". Once the letters are all consigned to the compost bin she lets time pass. In the spring she looks in and finds that "our love is crumbled, brown and sticky and threaded with tiny ruby-red worms... an altogether richer treasure".

In the second 'panel' the story is told from within an ancient kurgan tomb, preserved in

the Siberian permafrost. Its occupants reflect on their long-lying underground and how the afterlife has not fulfilled their expectations: "We do not cook or eat or hunt or hug our grandparents in a mirror world, but only lie here in perpetual ice. We long for something, though we know not what." Their chance of release comes with the gradual melting of the tundra, happy perhaps for the trapped souls but eco-disastrous for us the living, and those to come, as it releases its methane.

The final 'panel' explores guilt and helplessness in the face of that too-big-thing that is climate change. You, the listener, dreaming, are punished for "the mark you have left on the land" by being eaten by a man-eating tiger. Within a day, "this dark, odorous lump on the ground is tiger shit. It's you... You think the end fits. It's right you should become a pile of shit that stands for every smudge you've made upon the land". But the tiger has not finished with you. "Look again between my paws". You, the dreaming ghost, look down and see the dung beetles at work, rolling what's left of your matter back to the earth. "Only a day and the land's letting you back in. That seems like forgiveness".

The Forum's call for papers led me to write these pieces, which are somewhere in between prose and poetry and would almost not fit any other type of gathering. I'm grateful to have had the opportunity to share writing that explores my own deep concerns for the earth as a grower, master composter, parent and human being.

My question now, a year on, is how can Soil

Culture hybridise with other agendas? Where is the cultural dimension in the programmes of, say, the mainstream farming conferences, to engage the practical minds and hearts of those who look after the bulk of our land? Could a creative fringe be woven in alongside the main programmes to offer alternative ways of thinking about the soil? My own idiosyncratic pieces may not engage the average farmer as they require quite a head shift from the practical concerns of yields per hectare, but it raises the question of what writing genres or media might work. Full credit, of course, to Radio 4's *The Archers*, where soil conservation has become a theme in recent months.

Back to the Forum: it was inspiring to meet and learn from so many interesting and creative people, with a care for the soil in common. And it pushed my boundaries: can you go into a conference with dirty hands? Yes you can!

Compostable Writing

Tom Scott and Mat Osmond

The connections between soil and poetry are probably as old as poetry itself. Certainly, the very first known writing was intimately connected with the products of the soil: Sumerian cuneiform texts made to aid the accounting of crops in the third millennium BC, which were themselves inscribed on tablets formed of hardened clay.

In the ancient Mesopotamian epic Gilgamesh, the world's oldest recorded poem,

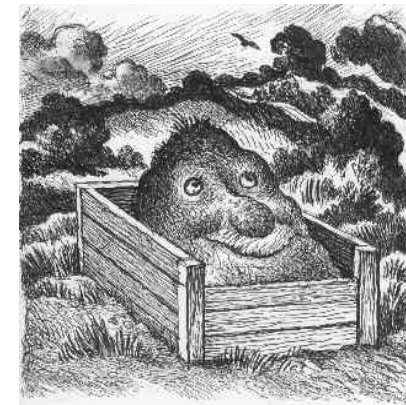
Gilgamesh's initial adversary and later companion, the wild man Enkidu, is formed from clay and saliva by Aruru, the goddess of creation. From a more pragmatically agricultural perspective, the Latin poet Virgil devoted a long passage of his *Georgics* to "the genius of soils, the strength of each, its hue, its native power for bearing".

Soil, of course, features at many points in the two texts with which the people of Britain were most familiar for many hundreds of years: the King James Bible and the Book of Common Prayer, not least in the latter's sombrely poetic rite for the burial of the dead: "Earth to earth, ashes to ashes, dust to dust".

More recently, poets as diverse as Walt Whitman, Wendell Berry, Seamus Heaney and Denise Levertov have been drawn to the soil as a metaphor for creativity and regeneration, and – as in Heaney's famous poem *Digging* – to the cultivation of the soil as a process akin to the working of language and memory that go into the making of poetry.

So many and so deep-rooted are the literary and cultural associations of soil, in fact, that they can perhaps get in the way of any direct experience of the substance itself, especially in a contemporary world in which many people have little or no contact with this in the course of their day-to-day lives.

In our workshop for Soil Culture Forum, we wanted to encourage participants to focus in a very direct way on the materiality of soil, rather than on its cultural or personal associations. To do this, we equipped them each with a trowel and sent them off into Fox



Rosehill Gardens, next to Falmouth University's Woodlane Campus. Their instructions were simple: firstly, to find a piece of ground and there spend twenty minutes closely observing what they experienced of the soil with their senses – sight, smell, touch, hearing. We asked them to record their observations in writing (on paper) during this time.

The second part of the exercise ran quite contrary to the usual course of such writing exercises, where the aim is typically to preserve and elaborate on any such 'field' observations, with the ultimate aim of creating a shaped and finished piece of writing to share, either immediately with the workshop group or after further working-up at some later point. Instead, participants were asked to shred whatever they had just written and (using their trowels) to bury it in the soil somewhere in the gardens.

Having completed this private interment, participants regrouped to talk about their

experience. One thing that immediately emerged is that the second part of the exercise had come as something of a surprise to several participants, and not necessarily a pleasant one. For writers who are used to thinking of their notes as valuable raw material for their work, to be carefully hoarded for future reference and exploitation, such an act might seem as something like wanton destruction and wastage.

Others reported feeling a sense of liberation from the act of committing their writing to the earth, and a sense of closer connection with the substance on which they had just been focusing their attention. Several felt that this experience would – along with their memories of close sensory contact with the soil – feed into their writing at a later date. If – as we hope – it has done so, then our somewhat unorthodox approach to a field observation exercise may be counted as a success.

Compost

Nicky Scott

There is nothing quite as satisfying as plunging your hands into a pile of freshly sieved, homemade, mature compost. Knowing that it derives from that bucketful of peelings, tea bags and coffee grounds mixed with hedge trimmings, weeds etc, and is pretty miraculous. The alchemy of combining materials full of water, all those peelings and grass cuttings, with those full of air, those tough plant stems, twigs and so on

create the ideal environment for the microbial life to flourish and generate that steamy heat, a bacterial bonfire, is always exciting. Completing the cycle of the elements by creating earth, or at least, providing humus and life to the soil, is a rich, rewarding experience.

I had the great fortune to have as a teacher the late and great Dick Kitto, who was the owner of *Powling's Compost*. He collected all the organic matter he could locally including, fruit and vegetable waste from Totnes shops and market, and even the blood and hair from the bacon factory. This was all mixed up in huge steaming piles with spent mushroom compost. I was paid a pittance to bag up the compost but it certainly taught me not to waste anything compostable.

Being a 'no-dig' gardener I always want plenty of organic matter to mulch and compost, and I rarely have a problem finding what I need as there are so many people that want to rid themselves of it. We started our community composting project over twenty years ago in the early 1990s based on the amount of lovely compostable garden clippings being put in council skips every month in our town. This project, *Proper Job* is now a thriving re-use, compost and recycling site, with a cafe in the town centre. Back in the mid 1990's I had the idea that if all food, and other biodegradable waste was excluded from the dustbin, then everything else would be more pleasant to sort through for recycling. So we started a pilot project in Chagford collecting food waste, everything, including



cooked food, which was very successful and lasted until the foot and mouth outbreak put a stop to it.

In Devon we have a network of groups across the county and there is also a national network. Composting can act as a kind of social 'glue' bringing people together socially and with economic benefits with so many environmental benefits. Instead of wastefully disposing we can compost building healthy soils, growing healthy plants and people.

Devon Community Composting Network has been helping schools compost all their food waste for many years using equipment and systems tried and tested to be rat proof and as trouble free as possible. Going around schools and sharing the knowledge we have accumulated with teachers and children is very satisfying. So much can be written about compost that I have already written three books which I hope you will be inspired to search out. See www.dccn.org.uk for more on Devon's community composting work.

The Enfolding Earth

Yuli Somme

Walking in a French cemetery, I was struck by the lack of anything remotely natural. Paths were heavily gravelled, tombs, gravestones and other monuments were made of stone or concrete. There was an implicit nod towards nature reflected by ceramic flowers and carvings of a bird or ivy climbing up a cross, but this was definitely a place where 'Real Nature' was not welcomed. Although this was a large cemetery surrounded by a high wall, I was alone for most of the time I was there and the place seemed very dead; no birds, no growing plants, no voices, no children.

Over the wall was a beautiful park, full of abundant life - birds singing, insects humming amongst flowers and trees, children playing, people enjoying the sun, nature. Charles Cowling of the Good Funeral Guide elegantly puts things in perspective for me:

"With the honourable exception of those cultures which cleave to ancient customs (some Jews, Muslims, Tibetan sky burialists), our corpse disposal practices define humankind's disconnection from the Earth; they seem to assert that we are not of it. Call it fastidiousness, call it aloofness, call it squalid squeamishness, we do not behave in a way which acknowledges that we are in debt to it and have a duty to return to it in the most useful way we can. We'll never save this beleaguered planet of ours until we get real and embrace our oneness."

Humans are the only species that cremate their dead. Some cultures have been doing it for thousands of years; in the UK, it's only since the 1950s that we have favoured cremation over burial.

There are a few reasons why the trend has tipped that way, but in the last decade or so a new approach has been welcomed by those of us who want to see more environmentally benign funerals. 'Natural' burial (i.e. no embalming or synthetic materials) is making a come-back and many landowners all over the country are opening burial sites, often within an established farming system.

For instance, combining livestock with natural burial is a perfect combination. Animals can be allowed in for short periods to keep the grass down and as there are no headstones, hay can also be cut from the site. Other sites are part of tree planting schemes, thus eventually turning into woodland. Orchards or 'sylvo pasture' (combining tree crops with livestock) are



another possibility.

Dirt (American word for soil) indicates that soil is dirty; likewise we talk of something dirty being 'soiled'. However, I know that if I bury something in the soil, the life in the soil will immediately set to work to clean it away, transforming it magically into nutritious humus. Far from soil being dirty, it is a complex series of interlocking systems containing all the kingdoms of life which can metabolise or sequester greenhouse gases and a vital part of Gaia's self regulating mechanism.

As a maker of woollen shrouds and 'soft coffins' (made from locally sourced wood and wool) my business on Dartmoor is reliant on the trend of returning to burial. In my ideal world I'd like everyone to consider natural burial as an option, even for those living within large cities. We are beginning to see the seed bombing (guerrilla gardening) movement growing food in small spaces within urban areas, and we know that humans need green things growing around them for their mental, as well as physical, health. There is no reason why new, natural cemeteries cannot be incorporated into town planning, places that embrace human life and nature and allow us to bury our dead, should we so wish. You don't have to look far in London to find huge natural cemeteries, visited by so many of us as a place to walk and commune with nature, if not the dead.

The choice between burial and cremation is always personal and often people feel quite strongly about which way they would

like to 'go'. However, it's worth considering the 'sausage factory' approach to UK cremation which takes place in anonymous, characterless buildings, usually in 20 minute slots, ending with a great blast of fossil fuels and a gasp of smoke. That's all, and it's over!

Compare this with the possibility of a slower approach in a beautiful natural place where you can take half a day or more to remember someone loved. And then the body is allowed gently, slowly to return to something rich, universal and nourishing for this abundant Earth. Then Satish Kumar's mantra for the planet; 'Soil, Soul and Society' will be truly reflected in the way we celebrate our dead.

Bideford Black:

Peter Ward

As an earth pigment Bideford Black is surprisingly black! It is dull and sticky and slimy, often stubborn and gritty at times. Recently it has become popular in the artistic community through its links to environment and an interest in traditional painting methods. It is found as lens-shaped deposits of carbon-based clay alongside an anthracite seam. One theory suggests its formation began 350 million years ago as fallen tree ferns stripped by fast flowing rivers were deposited in oxbow lakes. These lignin logjams were then buried under 8km of mud and sand, to experience the pressures and temperatures that have led to



its present form. Over time the pockets of compressed mineral have been exposed. It was mined commercially in North Devon until 1969, being used as an anti-foul for wooden boats, for tank camouflage in WWII and for mascara by Max Factor, among other things. While it is not globally unique it was only ever commercially exploited in Bideford.

In 2008 Appledore Arts invited me to research local earth pigments and in particular Bideford Black. Through this investigation I learnt a great deal about the local history and geology of North Devon, as well as the history and practicalities of pigments and making paint. I have worked with geologists, historians, miners, museums, schools and other artists and shared my findings through my own work and workshops confirming the richness and diversity that interdisciplinary creative investigation offers.

However, while the positive aspects of such research cannot be denied, constant questions have arisen about the ethics of extraction and

use of earth's natural resources, not to mention the legalities of their removal from certain places. In addition, mediums and binders used in paint making, especially modern plastics and acrylics, can certainly be detrimental to the environment.

'Foraging' for food and pigments has become popular as we try to establish new links with our environment but when does foraging become a problem? I have often been disturbed when revisiting pigment sites that I have shared to find unsettling evidence of foraging over-enthusiasm. Ecologists have reassured me that the rate of erosion through gravity, water and wind is greater than our small excavations but such actions have certainly interfered with any aesthetic sense of place. Likewise, geologists interested in Bideford Black often professionally specialize in the location and extraction potential of oil and coal measures for multinational companies - Bideford Black being a closely related mineral. Since the project began the pigment has become commercially available as an over-priced artist pigment as the 'owners' of the site have seen its profit potential.

Our place within earth's ecology is of course determined by such finite relationships. As we are now aware we cannot continue to extract, manipulate and exploit natural resources without disturbing a sustainable ecological balance. In today's world, as artists who use both foraged and synthetic materials, we can only continue to evaluate the consequences and effects of our actions and hopefully get the balance right.

Dirt Dialogues

Dr Alexandra Toland

In an age of accelerated global soil degradation, creative approaches to protecting the soil are needed now more than ever. In addition to scientific knowledge and good management practices, soil stewardship must facilitate appreciation and wonder, stimulation of the senses, and identification with place. The exhibition and publication project, *Dirt Dialogues: The Art and Science of Soil Stewardship*, highlights a group of contemporary artists who have been working along these lines to visualize the use, misuse, and cultural relevance of soil. Rather than an art historical approach, the project uses the internal organization of the International Union of Soil Sciences (IUSS) in its thematic overview to reflect on specific soil protection challenges. As a starting point to facilitate transdisciplinary dialogue between artists and scientists, 36 artists were asked to create posters of their works to be exhibited in scientific conference settings.

The first phase of the project was realized from 8–13 June, 2014 at the 20th World Congress of Soil Science, (20WCSS) in Jeju, Korea, co-curated by myself and Prof. Dr. Gerd Wessolek, chair of the Department for Soil Protection at the Technische Universität Berlin. By integrating the arts into one of the largest and most prominent scientific conferences on soils, the goal was to bring different areas of expertise together to inspire new opportunities for collaboration, and to

expand the horizons of soil protection and communication. The poster exhibition documented projects that use soil materially or symbolically to address issues of food security, soil degradation, land use management, and more.

The formal circumstances of the scientific poster session at the congress were appropriated to include artistic visions into the given 2D graphic format. When the call for abstracts was sent out by the IUSS, we put out a mixed call for poster presentations of art



works that were in some way related to specific scientific session topics. For example Ayumi Matsuzaka's, conceptual performance artwork with *Terra Preta* was placed in the session on *Biochar Soil Amendments*, and Dan McCormick and Mary O'Brien's large-scale willow-sculptures to control hillside erosion was placed in the session on *Physical Restoration of Soils*. Meanwhile, Sarah Hirneisen presented a few of her projects casting soils in glass in the session on

Minerology and Reactivity of Soil Microsites; The Center for Land Use Interpretation (CLUI) presented a photographic documentation of uranium disposal cells for the session, *Critical Issues of Radionuclide Behavior in Soils and Remediation*; and Daro Montag contributed Bioglyph images from his project, *This Earth* (2007) to the session, *Life in Soils – Distribution and Functions of Soil Microorganisms*. Other artists and artist groups included, among others, Ulrike Arnold, Jackie Brookner, Georg Dietzler, Nance Klehm, Future Farmers, Matthew Moore, Tattfoo Tan, and Urbaniahoeve. A permanent block of artists' posters hung in the 3rd floor lobby and served as central point for reflection and conversation, while each day seven to nine posters were rotated within different scientific poster sessions.

In the following year, the 2015 UN International Year of Soils, the posters were exhibited at the German Soil Science Society's annual conference in Munich, at the Soil Culture Forum in Falmouth, and at the Soil Culture exhibition at Create Bristol. While the exhibitions in Jeju and Munich were aimed at a mostly scientific audience, the exhibitions in Falmouth and Bristol were oriented towards a more general public interested in the cross sections of art, science, environment, and education. In all settings the exhibition offered a range of visual methodologies and worldviews that aimed to expand public understanding and appreciation of the soil in an time of acute soil degradation. The dialogue continues...

Subterranean Love Songs

Suzanne Williams

My art excavates questions about home, place, identity and love. My life and work has taken me all over our planet. I have lived in deserts, jungles, cities, inland, and on coasts. I have worked in urban and rural communities, in refugee camps, in policy forums in international NGOs and the United Nations. Crossing borders, shifting identity, home is elusive.

In recent years I have worked with sand - great survivor of geologic time, glittering global voyager, tumbling through continents and riding oceans; breaking, reforming, holding the magic of its resilience. Sand carries memory and longing and a connection to my childhood in a desert town in Namibia.

The Soil Culture Forum in the summer of 2014 was a revelation, and set me on a road to a new focus in my art practice. The range of perspectives and information was enlightening, and I have continued research into soil. The art works presented at the Forum were warming and inspiring.

I began working with soil – finding under its immediate surface a vivid and sensuous world, an effervescent universe of creatures that creates and maintains life on earth. Under the microscope, a magical world unfolds. Under my feet, the earth teems with life.

Like sand, soil connects me to the soul of the world, brings me closer to home, wherever I am. I work with installation, in a range of media, creating immersive environments into which I

invite others – to explore, to feel, to contemplate, to question; or just to be. I draw on impulses from Social Sculpture, to work in the world, to soften, warm and engage with it in ways that are imaginative and loving.

In August 2015 I exhibited my work on soil, called *Subterranean Love Songs* in the MA Art & Environment show in Falmouth. It was a two-roomed installation: in the first darkened room images of microscopic soil creatures were projected on moving layers of fabric hung from ceiling to floor, inviting people to inhabit a subterranean world, brushing through multiple veils, experiencing the light and shadow of images on the fabric, on their skin. A recording of Sylvia Plath's poem *Mushrooms* played in and out of the shadows.

In the interconnected room I projected a film shot through the microscope of soil samples from my garden in Oxford and Falmouth's Fox Rosehill Gardens. The vivid, abstracted images alive with minute creatures covered floor to ceiling in a large, dark room filled with soil and

*Beneath my feet, connecting me to everywhere,
are the unseen, the unheard, the unsung
the billions of strange, magical creatures and life forms that inhabit and create the soils
Silently, ceaselessly connected
they make life possible

they hold up the sky*

the pungent smell of decomposing vegetation; and an evocative track from Uakti, traditional Amazonian musicians. The film was subsequently shown in Falmouth Art Gallery in the *Deep Roots* exhibition.

My *Subterranean Love Songs* continue, taking me to further discoveries.
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Seed Guardians

Jackie Yeomans

On arrival to the Soil Culture Forum, all the delegates came to the registration area to find a pot of wet mud. Each was asked to place their mud thumbprint onto a tie-on tag, along with their name, to pin onto themselves. Laid out on the table were seed packets of a variety of edible plants, small balls of moist terracotta clay wrapped in damp cloths, and some modelling tools. Once a single seed was chosen and planted inside the hold-in-the-hand ball, I invited each delegate to transform the clay into a guardian of the seed. Everyone seemed to engage in this practice with a sense of tactile delight, with an instant connection to earth, and with an understanding of the precious gift of life that a single seed can offer.

Each seed guardian then became part of the *Seed Community*, a project I produced whilst studying at Falmouth University on the MA Art & Environment course. In all, 315 guardians were made by the participants: toddlers, school children, young people in

care, adults with learning difficulties and all ages of the general public.

The simplicity of the idea was received well: to create an object that was not intended to last; an ephemeral figurine whose purpose was to momentarily protect the seed. The guardian is, yet becomes more than, a metaphor. Seeds are continually under threat of being reduced to a small and patented, genetically modified agricultural varieties. Seeds are our heirlooms, our gifts from nature; they need saving, sharing and tending to, for continuing abundance. We each can play a part in their protection. The sheer diversity of seed varieties became a reflection of how each individual guardian maker, given the same material, created their own unique responses, thus making a rich ecology of metaphors for life's foundational dependence on seed: from dinosaur, snail, bird to farmer and his dog, to basket and urn.

Within a workshop setting, these and other more complex issues could be discussed, depending on who was involved:

- To promote awareness of where our food comes from: encouraging growing your own, sharing produce, saving seeds and to pass these gifts on to others.
- The soil and seed relationship: how industrial farming is depleting the health of soil and questioning the global health and wealth effects of genetically modified seeds.
- The universal cycle of life, death and regeneration: each guardian is given

back to the earth in order for the seed to grow.

- Seed as a metaphor for dreaming, wherein nurturing nature and nurturing creativity both support a vibrant and sustainable ecology.
- The importance of community: coming together in a collective action is supportive, fun and productive.

On a political level, many more people are now aware of the health issues of soil and seed: as reflected in support for organic growers and local smaller scale farmers, in seed saving and swapping, in a resurgent use of allotments, and self sufficiency. Globally, many countries have now banned the use of GM seeds that are reliant on heavy pesticide use.

The *Seed Community* is now being looked after by Falmouth Art Gallery. We collaborated on this project together, and they continue to add to the collection through further workshops. We are in discussion regarding the future of the seed guardians, with an intention to have a community planting ritual. The initial 315 were reduced after being offered as gifts to the audience that attended their exhibition, as part of the Falmouth University MA Graduates show 2014. The ones that I have heard about are still intact, being kept as an object for now and hopefully as a reminder of their purpose. I have personally given some back to the land: once the unfired clay guardian had broken down, a giant sunflower and a Kabotcha squash germinated; the

Rajka apple may well take longer to show its face, or may be one of those precarious seeds that didn't make it.

One year on, soil and seed continue to nourish my life. I am a full time vegetable grower and gardener, creatively transforming a disused piece of land into healthy, beautiful abundance, saving and sharing seeds. The produce feeds a family of six and also goes to a café and juice bar, who promote local growers and support the community ethos. I continue to make paintings with my soil collections and to evolve my practice within the context of soil cultures.

<http://jackieyeomans.com>

Soil Kitchen

Naomi Wright

Why not cook up some soil? Do we have the ingredients?

Our Recipe:

- Little roots and sticks
- Shiny bits, silica
- Red mites
- Larval earwig
- Worms – various
- Seed pods
- Water
- Decomposing leaves
- Humus
- Mica
- Clay

Add all these ingredients in a large bowl; fold



in carefully (avoid squashing the living animals). Compare with the original soil – is it the same? What's missing?

- Time – more than 500 years
- Fungal Mycorrhiza
- Millions of micro-organisms
- Trillions of bacteria
- A whole lot of love

A Soil Kitchen – get dirty, play and be inspired.
Soil feeds us all.

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Tasting the Place

Charlotte Rathbone

I am keen to encourage the public to engage with the earth, the turf and the food from local farms in sensory soil tasting, meadow mud mapping and conversations around 'terroir'. 'Terroir' can describe the soil, the topographic, cultural and climatic characteristics of a farm and its produce.

The idea of 'tasting a place' or 'terroir' was first created in the early 20th century by a group of writers, chefs, farmers and producers in France, who could see marketing benefits to promote the survival of small farms and regional cuisines: they invented a new language of taste based on their word for soil, which has come to signify "a sensibility a philosophy of practice ... to determine quality and authenticity" (Trubeck, 2008).

Laura Parker is an artist working in California (www.lauraparkerstudio.com) who suspects that food producers are invisible and often denigrated by the public; and she believes it is time to celebrate food as art, and the farmer as an artist. As poet and farmer Wendell Berry describes. "The good farmer, like an artist, performs within a pattern. He must do one thing while remembering many others. He must be thoughtful of relationships and connections...."

Inspired by her soil tasting work I encourage the public, using all their senses, to 'taste' the soil and turf, followed by the produce from the same local farm. Did they experience a connection, physically, psychologically or philosophically between the soil and the produce? If they wish they can contribute their thoughts to a page of tasting notes. By the very act of writing they are analysing and creating soil related adjectives. As Joseph Beuys maintained, "everyone is an artist" whether they are participants, farmers, soil scientists, food

lovers or children.

It is very pleasing to see participants' reactions, usually starting with incredulity and disbelief that I am suggesting they should 'taste' the soil. Once I have explained that they can smell, listen, look or touch the soil, they visibly relax. Parker maintains that the people who appear to be most affected by the tasting are those who were surprised at the idea and thought it was a joke. I agree. As they use their senses and start to really think about the soil; and then are encouraged to taste the produce 'grown' in the same soil, you can see the dawning of understanding on their faces; and many participants realise the aim of the artwork.

Tasting the Place is a fun and inspiring way to enlighten the public on the link and importance of soil and the provenance of food. To sustain, retain and invigorate the cultures, ecologies and economies of our rural landscape and market towns, it helps to understand and celebrate these links.



unmaking

*earth under your feet shifting away
it wants to run to the desert
blow wind that knows no boundaries why not
shift soil south to coyote country it wants
to be mischievous sieve itself in dry bowls
carry to far countries take taste of poor people
on unused tongue take memories
tumbleweed down road like it never know
any place to put down roots feeds its family
I see men come in trucks heavy metal in their heads
pulling at corn wheat rye all we can't afford anymore*

*soil go where wind go
quiet unspeaking
forget itself and the why words of stay still
touch light as feathers
forget slow slide of earthworms through their own corridors
bodies soft like air cushions harmonious
shaped to their surroundings
making the world unmaking*

*earth sliding away
hiding in windblow fill men with futuredeath melancholy
dontknowwhatlost breath women handonhips watch
with underfelt palms creases clog with dust
dust whatcomes to us all tonguethick words
how you think when soil come uninvited now unstaying
baying breatheheaving
granite all pulverise to dust*

*soil go where wind go
deathwatch unspeaking*

Caroline Carver

Turning the compost

*Forking through the matted clods
I thought of all those poems
that have died unformed
or half-formed, those word-seeds
whose soft radicles have reached
into dry soil and gained no hold,
whose white shoots have pushed up
against stones too hard to shift
or cleared the dark crust to find
only frost, slug or cutworm,
and how in the warm bin of my skull
these might still mulch down
to stuff that's gravid, friable.*

Tom Scott

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