GRAPHITE

A Group Exhibition

Lizzie Cannon
Christopher Cook
Charlie Franklin
Pippa Gatty
Dragan Ilic
Ianis Lallemand
David Marron
Nina Sellars
Anaïs Tondeur
William Utermohlen

GV art

GRAPHITE

a group exhibition

curated by Robert Devcic

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Frances Sampayo
Foreword

Graphite is more likely to be the object used to make the starting point of an introduction, as opposed to the topic of an introduction itself. In fact, throughout the long history of graphite, information has scarcely been written down and recorded about it. Even the pencil – graphite in its most accessible form – has little recorded about its production, as the pencil making industry favours working secretively, with methods passed verbally from one generation to the next. It is perhaps ironic that this material, which is known universally for its mark-making qualities, has so little written about it.

With tall tales, secrecy and speculations shaping what we know about graphite, precise facts can be difficult to trace. For instance, the first vast supply of graphite to be utilised for its mark-making properties was discovered in Borrowdale, Cumbria, England. Yet the date upon which this discovery occurred has to be generalised to within the early 1500s, as there is no written record specifically stating these facts.

In the 500 years since the discovery of graphite at Borrowdale, the event has become legendary and is typically presented with a flair for the dramatic. The story takes place within the middle of a thunder storm. As the Borrowdale community took shelter from the pouring rain, thunder and lightning began to erupt from the endless black clouds painted across the sky. Ordinarily, such a storm would have only left destruction and devastation, yet on this occasion the uprooted trees unearthed something revolutionary.

For the discovery of graphite was to drastically change the ability of the world to record and create. When graphite was first discovered, it was employed by the Borrowdale community to mark their sheep. Lumps of graphite were then simply wrapped with cord to make writing with the material more comfortable, the process of writing with graphite in this manner is comparable to how one would write with chalk. During the 17th century, the pencil was engineered as a piece of graphite encased in wood. Perhaps this idea based on the Renaissance pencil, which had been made from fine animal hairs bound together by a wooden case, much like an artist's brush.

There is a common misconception that pencils are made of lead, though the modern pencil never has been. This is because when graphite was first discovered its qualities were compared to lead, and people thought that it must be a similar type of substance. It was often referred to during this period as 'black lead', along with several other names such as 'plumbago'. When graphite was ultimately established as being a material independent from lead it took its name from the Greek work 'graphein', meaning to write or draw. A suitable name for a material which is synonymous with the process of visual creation.

The production of the pencil has been countlessly re-perfected and improved by generations of pencil-makers. In the late 1700s, Nicolas-Jacques Conté was the first to drastically revolutionise the production of the pencil. In response to the shortening supply of graphite at the Borrowdale site he began to extend graphite supplies by mixing powdered graphite with clay to make the pencil cores. Not only did Conté succeed in extending graphite stocks, but he had created a process which could uniformly produce a plethora of varieties of pencil. These gradients are typically measured with the letters 'B' for black, and 'H' for hard.

The method established by Conté to produce pencils went unchanged for many years. The powdered graphite, clay and water were mixed and set in rectangle shapes. Once these had been fired, they were then glued into the hollowed half of a cut piece of wood, with the other half then glued on top like a lid. This process, though effective for decades, was reassessed as wastage and ergonomics became central issues to engineering. The cylindrical form of the pencil, for example, was replaced with a hexagonal shape, to reduce the amount of wood needed to produce each pencil. A range of products were also developed to enhance the pencil. The pencil-sharpener for example was created as it was quicker, more efficient and more consistent than sharpening a pencil with a knife.

Companies compete and challenge one another for supremacy of the pencil market, each developing a unique selling point for their pencil. From the sharpest points in the world, to being objects of patriotism- marketing campaigns have portrayed the pencil in almost every conceivable way. Pencils have even had their wooden cases removed with refillable pencils, created using thin graphite cores which are held within durable plastic cases. Among the most recent redevelopments of the pencil is the use of recycled materials to make a pencil casing as opposed to wood.

For some, the boundaries of graphite lie within the wooden pencil casing. However, the graphite pencil contradicts this as a symbol of boundless creativity, with the rubber eraser allowing for the marks it makes to be redrawn over and over. The properties of graphite have also developed over time from being purely a mark-making material. It can be made into a crucible to hold molten metal, and its ability to conduct electricity means that it can be used in batteries and electrical equipment. Graphite has been pushed, pulled and stretched into new realms by creativity and it doesn't appear to be approaching its limits any time soon.

Frances Sampayo
Art Historian
London 2012

Dragan Ilic, detail of *DI Device* with artist, Rubber & 3000 Pencils, 2012

Fiona Russell

Graphite: traces of the past, shades of the future

We keep our pencils close at hand, stowed away inside the folds of bags, enclosed in a nylon case. We discover them lurking in the crevices of old luggage, stuffed in between the pages of favourite books, crammed into mugs and jars around the house or neatly arranged in tins amongst our art supplies. There is reassurance in their proximity, always available to articulate with impartiality our ideas and impressions, sketches, notes and messages. Graphite, as a substance and particularly in the form of a pencil, is so close to us that it almost disappears from consciousness, becoming an extension of our thoughts. It takes no time or conscious effort to sketch out an idea or phrase – the pencil's immediacy comes as freely as speech itself in translating thoughts to deeds, to lay out on paper the mellifluous images and information drifting in the imagination. At once collectable and disposable, the pencil has become something so much a part of daily life as to become part of our personal archive, contributing its story to our individual history as part of the collective 'stuff' that constitutes our material identity. It is what will remain of us, and the silver-grey traces it leaves behind will come to narrate our memories, ideas and discoveries – our 'work-in-progress'.

This latest group exhibition from GV Art gives a rare platform to a material so ubiquitous as to become almost invisible – overlooked as a medium, as it becomes a conduit for expression almost as familiar as our own voice. *Graphite* explores a wide range of interpretations of the material, from artists who work with its graphic potential through drawing and mark-making, to those who experiment with its acoustic properties, right up to the threshold of scientific discovery with the first exhibition of the revolutionary material heralding formative advances in technology – single sheets of *graphene*. Graphite has followed a trajectory marked by the exploratory and creative course of a pencil's mark, following the line of discovery through expression, export and invention. Graphite traces this creative lineage, from its role as medium to translate invention and discovery, to graphite becoming the subject of new scientific discovery itself.

The earliest documented use of graphite is likely to be as a powdered pigment in south-eastern Europe from 1400 BC. however, writing implements evolved as lead, zinc or silver alloy styluses from this point on, producing light silverpoint sketches, such as those created by Da Vinci. Despite its prolific use and high market value,

surprisingly little was known about the material itself. It went by a variety of names from 'black lead', 'plumbago', 'kellow' and 'wad' to 'black coke' and 'crayon noir', conjuring up its distinguishing colour and drawing close comparisons to lead. This pseudonym has stuck and we continue to describe the nontoxic graphite core of a pencil as the 'lead' today. Not only its name but its nature proved problematic, as one writer in 1698 recorded: 'The substance called Black Lead...is certainly far from having anything of metal in it, that it has nothing of Fusion, much less Ductility; nor can it be reckoned amongst the Stones, for want of hardness; it remains therefore that it must have Place amongst the Earths, tho' it dissolve not in water.[1] ' Graphite is, in fact, a semi-metallic mineral, a carbon allotrope with the identical chemical makeup to its sibling, diamond. And, as new research has revealed, promises the potential for radical advances in technology in its flaked form.

While the early incarnation of the pencil evolved out of circumstance, convenience and the uncanny quality of graphite to suggest its own use, in the late 1700s came a rethinking of the possibility of the pencil and a uniquely imaginative development from a young engineer named Nicolas-Jacques Conté. Conté was a popular artist who abandoned his early career for one in science, achieving acclaim in his new field due to his versatility. Described by the director of the École Polytechnique as having 'every science in his head and every art in his hands'; Conté sought a balance between creativity and scientific reason. As war broke out in Europe in 1793, Conté was approached by the French war minister to create a substitute product to replace the rapidly declining stock of pencils in the country, maximising the small reserves of graphite remaining, since neither English nor German mines were attainable throughout the combat. Conté rose to the challenge, questioning the potential of the substance which previously had dictated its own use, and pushing it further, by intentionally crafting a supplement to graphite powder – a mixture of ceramic clay and water. The substance freed European industries from dependence on English graphite and enabled mass production. The combination of graphite and clay was not only cost-effective, but produced an exceptionally high quality pencil, allowing for the first scale of measurement in the graphite's density by altering the ratio of clay to graphite. This scale of softer and harder leads seemed ideally suited to both artists and engineers, and has remained the standard for measurement of both quality and practicality in a pencil today. Perhaps this bespoke solution to personalise the instrument could only have been conjured by an artist whose hand had turned to invention. To find originality in a naturally functional mineral required a combination of demand and creativity, and Conté seemed ideally placed to meet this challenge. This development marked a shift from the circumstantial availability of graphite as a natural tool, to an object of mass production, developed for the first time with focused research and production.

The ubiquitous Conté pencil becomes the catalyst for an adventurous enquiry into the story of graphite for artist Anaïs Tondeur in *1.55 or the girl that swallowed the remnant of a forest*. In her collaboration with geologists and geophysicists, Anaïs Tondeur combines scientific exploration with a natural gift for storytelling. After discovering a strange and haunting specimen of a pencil removed from a young girl's bladder more than a century ago – a block of sediment encasing the foreign object– Tondeur took it upon herself to unravel the mystery of where this pencil came from, and how it came to be found. Her series of drawings document an incredible journey from the shelves of St Bartholomew's Pathology Museum in London to the windswept carboniferous forests of the Southern Alps, where the pencil's graphite was mined. From the ruins of a graphite factory to a veteran shopkeeper's doorstep, Tondeur persists with an irrepressible desire to uncover the truth. Tondeur allows the pencil itself to speak, developing a dramatic narrative around the subject and giving prominence to the role of the pencil as it suggests its own pathway, marking out its territory and inspiring her investigation. The very word 'pencil', from the French '*pensee*' (to think), seems to afford the object this sense of imaginative autonomy, to become a thinking object with which to work out our ideas. Thus, not only a medium of the artist's ideas, but a part of the thinking process itself, elaborating on our thoughts as we conspire to write together.

This relationship between thought and deed, in which the pencil plays the role of medium to translate ideas to paper, is the subject of Dragan Ilic's amorphous, striking sculpture. Exploring the interaction between the creative mind and technical process, Ilic deconstructs the act of drawing itself. The pencil becomes central to the process – the focalising instrument through which marks are made and thoughts inscribed. His sculpture becomes a redefinition of 'drawing': a sheet of rubber studded with thousands of pencils, their metaphorical use intact yet their expression manipulated. The collaborative work from Ianis Lallemand and Tondeur also conjures with the nature of mark-making, exploiting the acoustic properties of graphite to create an automatic image drawn from the dialogue between graphite and technology. As viewers interact with the three samples of graphite in different forms, the sonic vibrations produced are translated into drawings through specially commissioned software. The process of 'drawing' is reinterpreted, interrogated and tested, as the material becomes the artist, generating its own idiosyncratic drawings.

Exploring this compulsive process and humanistic impulse to reshape and reinterpret natural materials, Lizzie Cannon echoes the interplay between the natural function and human intervention that cohere to produce the pencil. The sense of complicity between artist and material is again heightened in Cannon's work, as she allows graphite to suggest the forms she reveals. Taking pavement rubbings, and following the logic of their form to reveal something disturbingly viral or microcosmic in the uncertain form of natural shapes, Cannon performs a

kind of transmutation of the natural and the artificial.

The sculptor Charlie Franklin develops a similar relationship with her materials, allowing them to suggest their own shape by removing the skin from cast objects to produce something at once familiar and alien – an ambiguously lifelike form. Her work explores the physicality of both the natural and the artificial, meditating on the process of creativity and the tactility of her materials. As the pencil suggests its use, abetting the artist's progress, both Cannon and Franklin allow their process to be guided through the markings and materiality of the natural world.

What characterises graphite is its compulsion to leave its mark – to haunt the surfaces it comes into contact with. Differing from its cousins that can compete with only some of its characteristics, graphite is a natural artist. Its distinctive texture and deep pewter sheen has been availed of by artists for centuries. It is particularly adept at announcing its materiality and nuances in the work of both Pippa Gatty and Christopher Cook, who erode the dense, glossy surface of a thickly applied graphite emulsion to reveal the images, layers and textures buried beneath. The carbon foundations of graphite are embraced in Pippa Gatty's work, a series inspired by 19th century astro-photography in which her hand-drawn nebulae return graphite to the stars. Cook's work explores themes of memory and consciousness, referring back to its own process as he methodically builds up a dense silver-grey surface and erodes it finely to produce brooding landscapes. The act of this application and erasure entails a meditative, self-reflective process, expressive in its monochrome evocations of imagined landscapes. His process seems somehow complicit with the material itself, as though he develops an image that was somehow always there, waiting to be coaxed from the page. The processes become the narrative, self-portraits of artists in motion as their erasure produces haunting imagery.

This capacity for erasure and revision is unique to graphite. Described as 'the unrefined material' throughout its early development, its lack of refinement indicates a simplicity and lucidity that characterises the pencil. Graphite's inherent impermanence makes pencils perfectly adapted to the use of an engineer or artist, their potential to revise, redraft and revisit allowing them the fluidity to interpret the changeable course of the creative process. In a recent study, engineers given pens to record their design process found themselves unable to work fluently, the indelible quality of ink acting against their instinct to move freely.[2] Graphite's capacity for erasure and reconstruction imbues it with limitless creative potential, narrating each individual pencil's unique story through a palimpsest of traces and impressions. While ink represents a finite mark or finished product, the pencil traces the pathways we draw toward comprehension and tells the tale of the work in progress. As Petroski puts it, 'Ink is the cosmetic that ideas will wear when they go out in public. Graphite is their dirty truth'.[3] There is vulnerability in its shades and sketches – an unself-consciousness of expression that perhaps adds to the desirability of an artist's

work in pencil draft as it captures the moment of invention still kindling into the flame of the finished work. The sketch becomes a journal of the artist's progress and insecurity – as the writer Nabokov admitted 'I have written – often several times – every word I have ever published. My pencils outlast their erasures.'

The graphite pencil is not only an object of deduction and revelation, but an instrument of observation, of focusing the gaze and picking out details in an image. The focused act of drawing and the meditative power of controlled observation are a unique sensation, as drawing from life heightens our visual comprehension, the smallest details emerging from the tip of the pencil lead. It becomes a conduit for our thoughts, and a way of preserving a moment for posterity or reference. Though it allows us to observe more closely, the pencil is bound to record a lost moment in time, effectively leaving us outside of the truest impression. The philosopher Jacques Derrida argues that the artist is dependent on memory in order to create an image – that the act of drawing itself is one of blindness. He suggests that the process can only happen under the condition of 'not seeing', as the tip of the pencil naturally obscures the impression from sight at the moment of inscription.[4] As such, all artists are rendered blind at the point of creating artwork, drawing from memory and desire and recording only the passing of a moment. The acts of writing and drawing, particularly in the case of the self portrait, are acts of blindness, and as such represent the lost, the absent subject.

In the moving self-portrait by William Utermohlen, *Head I*, this work of blindness and memory is most poignantly felt. Documenting his progression into Alzheimer's, Utermohlen captures fleeting memories through recording his relationship to his body and mind in a series of expressive self-portraits. They document the decline and traumatic loss of his memories, capacity and co-ordination, yet his implacable urge to preserve his identity in the face of a slow process of self-erasure. The image itself seems fragmented, the features blurred and indistinct. Disconnected, the deep fissure between the mouth and brain belie the anguish of a severed connection between thoughts and action, the loss of communication.

The artist Nina Sellars also explores the idea of absence, disconnection and loss in her works in pencil. In *Encoding/Decoding the Body*, Sellars' passion for both art and science intersect. Taking the classical foundation of beautifully rendered anatomical drawing, Sellars expresses the intangible information, stimuli and connections of the brain through a graphite-drawn QR code linking to an animation. Her own narrative is at the heart of the work, telling an intensely personal story through the detached language of science and technology, and using graphite to illustrate the humanity of the individual. The QR code interrupts the point of blindness in the image quite literally, creating a supplement that enhances comprehension of her experience at the site of her own trauma: a brain tumour discovered as she began her career as an artist. Manipulating the boundaries between

self and subject, scientific abstraction and experience, Sellars builds new connections at the site of the aperture, shedding light on the darkness of disease.

David Marron's film *Floral Tribute* appropriates the pencil to document the motion, process and evolution of a drawing through parallels to the steady development of a virus. The line of progress follows a disturbing trajectory of the advance, remission and ultimate decline enacted by the body, through a fragmentary and irrepressible sketched sequence that breaks free from the screen to inhabit the building itself. It announces itself as a bodily mark that brings the intimate process of drawing, writing and documenting into a close parallel with the strange logic of decay.

Despite the pencil's essential role in everyday life as something so intimate and reliable, it is also marked by its transience. Though the pencil 'subject' is necessary and intrinsic to us, the physical object is permanently replaceable, in the same manner as a box of matches – we rely on its availability and the instant gratification of its function, yet it is a self-consuming object that exhausts itself without the loss of our personal attachment to it. The pencil may well be one of the earliest examples of a disposable utilitarian item – rather than a prized fountain pen passed down from parent to child – the pencil is a throwaway article, taking on the role of its predecessor as though we had never lost it. The pencil 'a thing to be consumed in its very use' is an auto-destructive, self-cannibalising implement.[5] The sharpener, cleaving wood from clay to leave nothing but a stub, implies a ritual of regeneration, a rebirth of creative possibility in every tapering of the lead. It mirrors our innate desire to preserve our identity against eventual decline and insignificance through leaving some trace of our existence. In giving birth to its progeny, the pencil sacrifices its own materiality and becomes the quintessential disposable item – at once imperative and expendable.

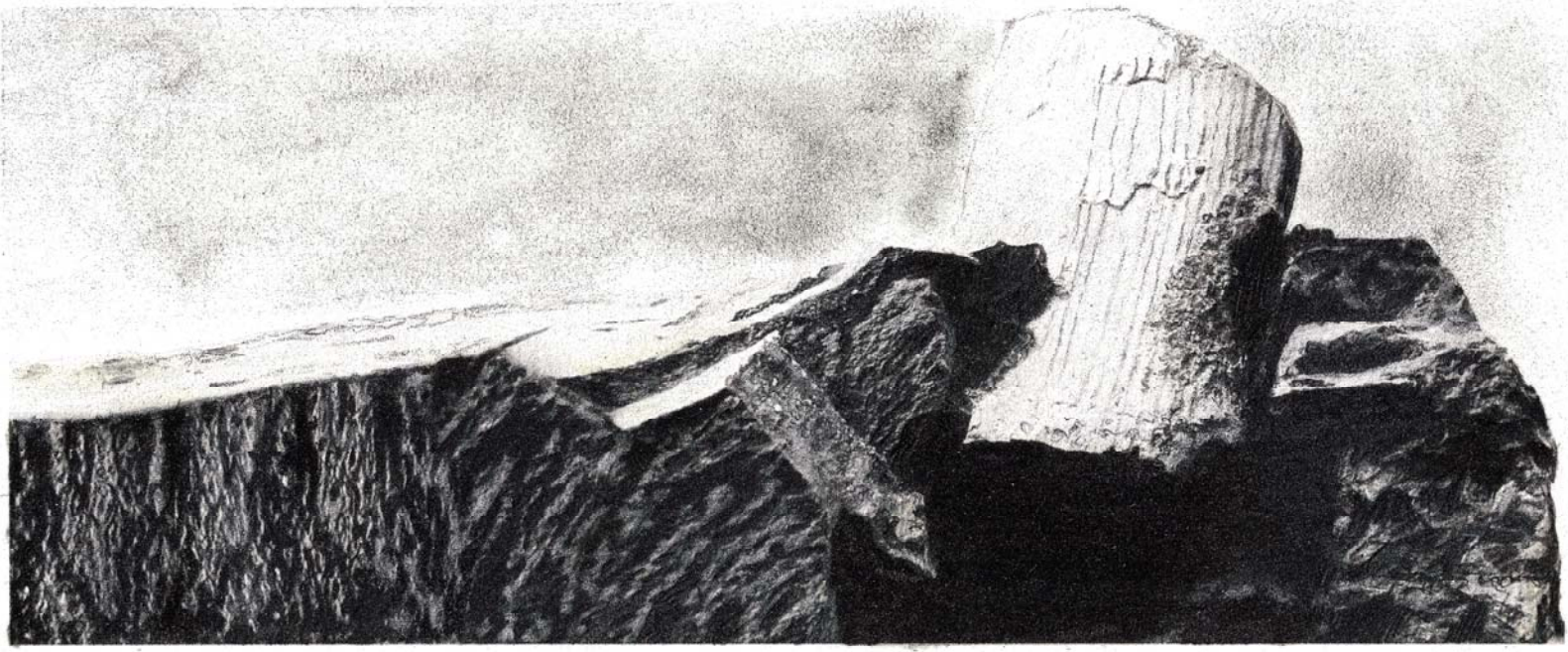
The shavings left behind by the pencil as it is consumed and renewed may seem incidental – a by-product to be disposed of. Yet, within the remainder of the graphite pencil, lies the spark of a revolution. Graphene, first isolated in 2004 by scientists Andre Geim and Kostya Novoselov at Manchester University, is being hailed as a Nobel prize-winning 'wonder material' with extraordinary properties capable of revolutionising modern technology. Graphene seems to be the perfect accomplice to human endeavour, with the potential to revolutionise not only screen technology, but to optimise solar energy storage, to develop super-light and energy efficient vehicles, and to create smaller, faster microchips. The material is under intense research and development, most recently giving substance to the 'science fiction' of a material which can super-conduct at room temperature – a proposition which holds enormous potential to drastically reduce the cost of energy on a global scale. Exhibited at GV Art for the first time in a gallery context, the graphene flake marks a new chapter in the

history of graphite – another serendipitous discovery that extends the creative potential of the unassuming pencil. Both artists and scientists are responding to the latent potential of graphite to describe and enrich our experience as we stand at a tantalising point in time, on the threshold of extraordinary scientific advances and achievements. The pencil, in its functional, creative, disposable and consumable nature, continues to be a beguiling source of new ideas and inspiration for both artists and scientists alike. This recent discovery announces the intrinsic value and significance of graphite to our lives, revealing it to be not only an indispensable tool of creativity, language and design, but a remarkably contemporary and fluid material which has developed alongside us to find a space in technology. Thus, it can continue to support, discretely and harmoniously, our very sense of self, our ability to leave a trace on the world around us and the legacy we leave behind.

Fiona Russell,
Writer & Art Historian
London 2012

[1] Henry Petroski, *The Pencil: A History of Design and Circumstance*, Knopf Doubleday Publishing Group (New York, 1990) p.43
[2] Henry Petroski, *The Pencil: A History of Design and Circumstance*, Knopf Doubleday Publishing Group (New York, 1990) p. 7
[3] Ibid. p. 7
[4] Jacques Derrida, *Memoirs of the Blind: The Self-Portrait and Other Ruins*, University of Chicago Press (Illinois, 1993) p. 49
[5] Henry Petroski, *The Pencil: A History of Design and Circumstance*, Knopf Doubleday Publishing Group (New York, 1990) p. 10

Anaïs Tondeur, *Journey 1 1.55 or the girl that swallowed the remnant of a forest, drawing from the Carboniferous site*, Graphite on paper, 2012



Lizzie Cannon

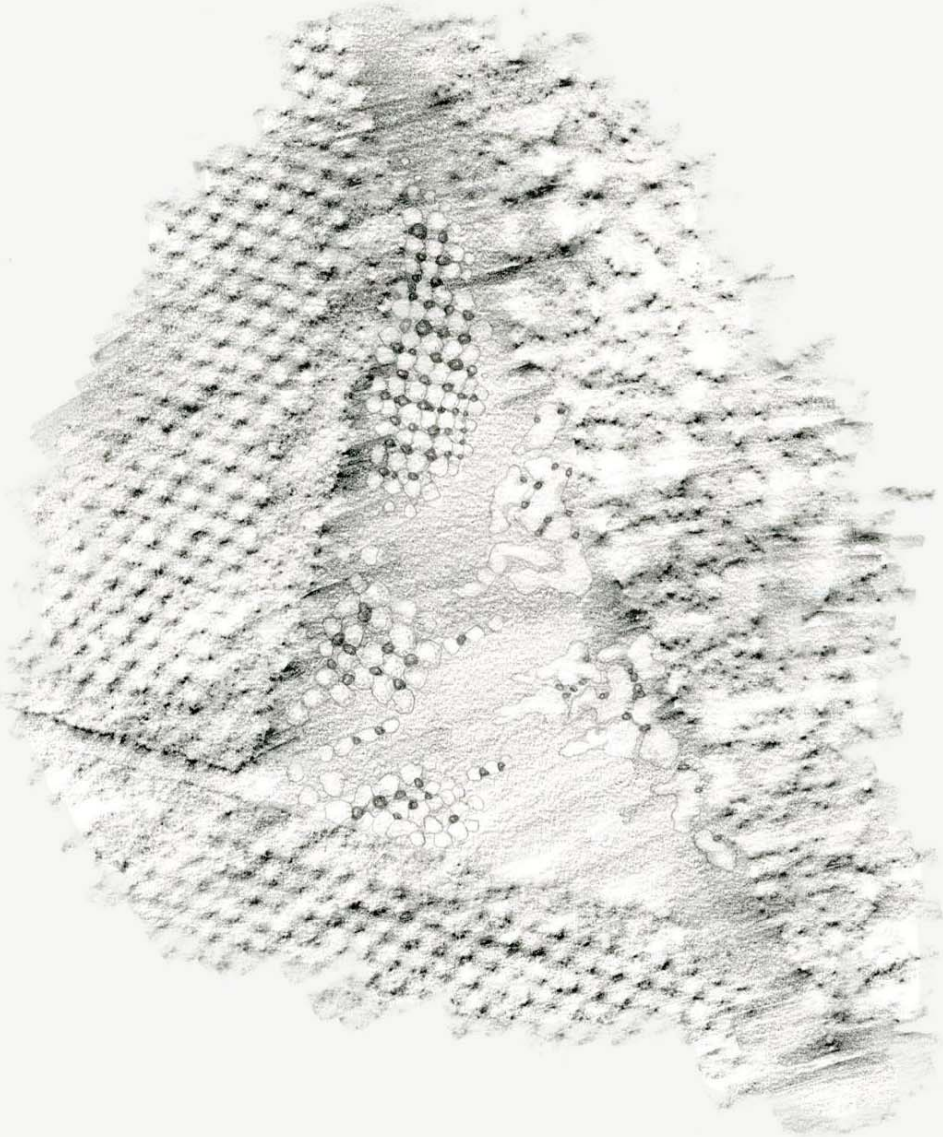
Artist Statement

Through the process of making and drawing, Lizzie Cannon explores a dynamic interplay between the natural and man-made. Through the subtle modification and manipulation of materials, found objects and surfaces, her works reflect the human desire to continually re-shape and re-define nature.

Often working sculpturally with textiles, Cannon transforms the fluid qualities of fabrics to the rigid and unforgiving textures of urban surfaces or industrial materials. Velvet puckers into the oily stoniness of tarmac, whilst delicate embroidery sits within the rigid structure of the pavement and fleshy folds of soft wax take on the qualities of cold hard iron. Through a process akin to alchemy, seemingly organic forms evolve from the inanimate fabric of our surroundings.

Drawing is central to Cannon's practice. It is used to document imagined species by fusing observed forms and textures from disparate sources. Using the technique of frottage, impressions of the pavement are captured and interpreted as an evolving landscape. Drawing becomes a process of transmutation, as these found textures are assimilated into biological entities that colonise lines of weakness within the tarmac. In the series '*Mimesis*' (2010), areas of pavement have been selected and isolated as individual rubbings. The drawings take on the quality of specimens, documented within the niches they have occupied. Covering a range of textural habitats, this series appears to survey a continually mutating strain of species responding to a man-made environment. The urban landscape is presented as a product of symbiosis between biology and human activity. The artist's role in interpreting and documenting it reflects this reciprocal and cyclical relationship between creator and created through the evolutionary process of drawing.

Mimesis 1, Pencil Drawing and Rubbing on Paper, 2012



Biography

After completing a B.Sc. in Geography at The University of St. Andrews, Lizzie Cannon re-focused her interest in the environment into her art practice, graduating from Goldsmiths (Fine Art: Textiles) in 2006. In 2007, she was short-listed for the Jerwood Drawing Prize and in 2009 was selected for The Embroiderer's Guild's internationally touring biennial exhibition. Other exhibitions include '*The Garden of Earthly Delights*', curated by Indra Khanna, and *999 Requiem to a Bridge*, in association with T1+2/Hive Projects and Kinetica Art Fair, London, showing with Tenderpixel Gallery. Cannon has taken part in various cross-disciplinary projects, working with the Curator of Lichens, Natural History Museum and Exhibiting at the Horniman Museum, London. Her works are held in collections internationally.

Christopher Cook

Artist Statement

Christopher Cook has worked almost exclusively in graphite for the past 13 years, adding silver or black graphite powder to resin and mineral spirits, and pouring or spraying the mixture onto coated surfaces,. He then works it with a variety of unconventional implements, making use of both its lubricant qualities and its capacity to hold fine detail. The final images consequently hover between painting and drawing, and between representation and abstraction. The method also allows thin surfaces to gain complexity through performance-like strategies; many rehearsals contribute to the final piece.

His process was affected initially by a sequence of sand drawings made in India, and later by a residency at Eden Project, Cornwall (2001-03) when sub-cellular forms became an important reference. Large works from this period also examined the post-industrial landscape and our human inclination to modify and subvert nature. This tendency is often tempered by a poetic evocation of the natural world, which recalls both English and oriental landscape genres. Exhibitions in Japan and China have reinforced this latter connection, and brought visual conversations between Zen calligraphic practice and Surrealist methodology into play.

'*Vestige*' employs the visual metaphor of a fish tank to consider the role of the observer and the observed, laying down veiled formations generated as much by removal and elision as by addition.

Biography

Christopher Cook was born in North Yorkshire, England, and studied Literature at Exeter University, and Painting at the Royal College of Art. He then spent three years in Bologna as an Italian Government Fellow, working on intensely coloured symbolic works, which were the subject of his first solo show at Camden Arts Centre, and included in major international exhibitions such as *Da Bacon a Oggi*, at the Palazzo Vecchio, Florence. Following three extended visits to India during the mid-1990s, a sequence of sand drawings inspired him to work in a new process using graphite. Colour has not been used in his work since. From 2001-03, he was Arts Council England artist-in-residence at the Eden Project, Cornwall, where he produced large graphites on aluminium, and an artist's book (*a thoroughbred golden calf*), both referenced genetics research. A graphite work on aluminium was prizewinner at John Moores XXI, and Cook's 'graphites' have now been the subject of major solo shows in the Towner Gallery Eastbourne, Memphis Museum of Art, Yokohama Museum of Art, and the Today Art Museum, Beijing. Recent group exhibitions include *Leaded*, touring eleven venues in the USA; *Grey,* Fitzwilliam Museum, Cambridge; and '*Dust on the Mirror*' at Djanogly Nottingham and the ICA Singapore. Recent residencies include the British School at Rome and Langgeng Foundation Jogjakarta. Cook's graphite works are held in collections including the Metropolitan Museum New York, the British Museum, and Minneapolis Museum. He is represented by Mary Ryan Gallery, New York and is currently Reader in Painting at the University of Plymouth.

Detail from *Vestige*, graphite, oil and resin on coated paper, 2011

Charlie Franklin

Artist Statement

Process and physicality are the driving forces behind Charlie Franklin's sculptures. Her work is abstract and energetic, where forms often appear to be in a state of emerging or dissolving, growing or dying. The surfaces and textures open avenues for interpretation and provide visual motifs that allude to notions of seduction and repulsion, natural and man-made environments, and a struggle between chaos and order.

Franklin adopts a very tactile approach to her work, continually experimenting with formless and familiar materials. Traces of physical experience and impressions of what is visually present within the sculpture are more important than a particular narrative or meaning. Control is continually questioned throughout the making process, as deliberate dismantling or sabotaging of the progressing work often aids the resolution of the overall piece.

Tendril has been made through the traditional sculptural process of casting, using the skin of the mould, rather than the cast object, to become something ambiguous, evocative and specimen-like.

Charlie Franklin, *Tendril*, graphite, latex and acrylic plastic, 2012

Biography

Charlie Franklin completed her BA in Fine Art at Middlesex University in 2005 and her Master's degree in Fine Art at Chelsea College of Art and Design, London, in 2008. Recent exhibitions include *Other Structures* (London), PITV (Stockholm), and *Trauma* at GV Art (London). In 2011, she had two solo shows, *Inland* at The Dunwich Museum (Suffolk) and *Mushrooms Like Lace* at Motorcade/FlashParade (Bristol). She was one of the winners of The Whitechapel Gallery East End Academy Studio Prize (2010). Franklin has recently completed an artist's residency at the Hafnarborg Centre of Culture and Fine Art (Iceland), with the support of a grant from the KEL Trust. She is collaborating with curator Philip Northcott to complete a book of work she produced while on the residency, which will soon be published. She lives and works in London.

Pippa Gatty
Artist Statement

Drawing Nebulae and Interstellar Matter is a part of a larger and on going series of drawings inspired originally by images of late 19th -century astrophotography, particularly the photogravures of the American astronomer James Edward Keeler (1857– 1900). Gatty was trying to create a drawing process that emulates and captures something of these earliest pictorial explorations of the universe.

She is interested in ideas of archive, – the gathering and collecting of information over time, a grounded theory approach to research and the potential that this unlocks. Individually, she approaches these drawings like carvings, cutting away the whiteness of the paper until the form becomes evident. The shininess of the graphite is seductive and envelops the paper almost entirely. Gatty has been making these drawings onto primed paper which also allows her to lightly scrape away some of the surface of the graphite with a blade and leave the brightest areas really bright. She believes that the graphite pencil and primed surface can behave like a camouflage and that, as the artist, she can then reveal or tease out the forms that are concealed within that surface.

There is a repetitive and often obsessive process to her work generally and the idea of artistic labor as facilitating some sort of 'phantasm' is central to her practice. Gatty uses her process and materials as a device for shifting time and space, infiltrating the archive and creating an area where memory and narrative can be created and altered.

Biography

Pippa Gatty studied for a BA Hons degree in Fine Art Painting at Chelsea School of Art, London, 1987-1990. She then completed a MA Fine Art at Chelsea College of Art and Design, London, in 2008. She was recently shortlisted for the; Jerwood Drawing Prize (2012), the Threadneedle Prize (2012), and the Discerning Eye Drawing Bursary (2011). Recent exhibitions include '*Palomar*' at Surface Gallery, Nottingham (2012), '*Parallels of Latitude*' at UBM, London, curated by Drawing Room (2012), *Creekside Open* (2011) and *'Dig Down in Time*' at Man and Eve Project Space. She was winner of the Red Mansion Art Prize 2009 which included a month long residency in Beijing.

Detail of Drawing *Nebular and Interstellar Matter*, Graphite on Paper, 2011

Dragan Ilic
Artist Statement

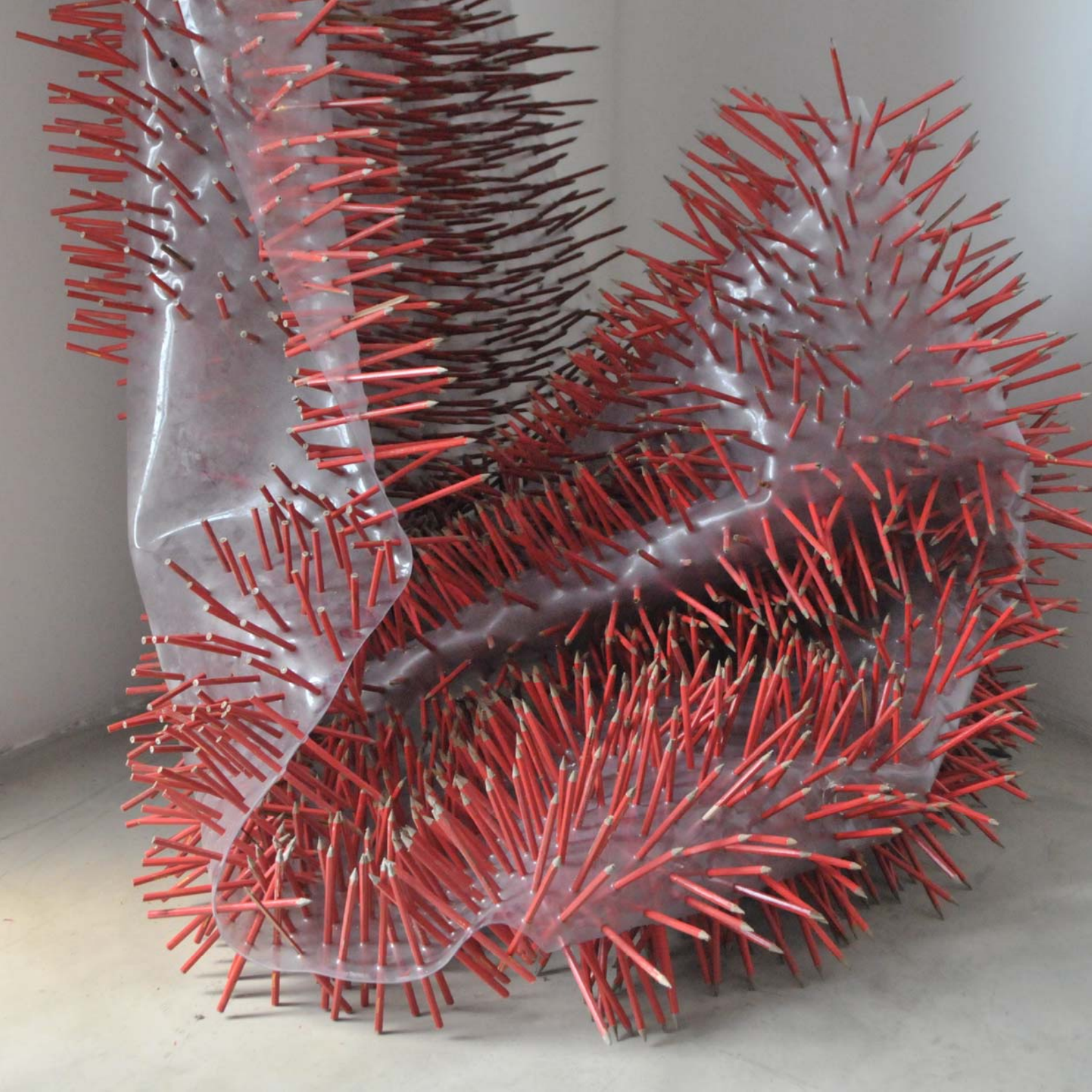
This installation is one of a series of mark-making devices created by Ilic which continue to explore the interaction between the creative mind and robotic activity. This series of works include sets of graphite pencils, colour pencils, pastels or paint brushes equally spaced across an instrument, such as rubber. Across these installations, Dragan has used over 300,000 pencils to make marks across paper, canvas or metal. These works involve the artist's entire body in precisely choreographed movements, in much the same way as his other work also uses the human body.

The movement of mark-making provides conceptual analysis of drawing as a process of inscribing bodily actions onto paper, as a means of communicating ideas or a fulfilment of artistic intent. This collaboration between the human and the machine began in 1974, as Dragan began to draw with fistfuls of pencils, as opposed to a single pencil. This alerted Dragan not only to a new way of drawing, but to the realisation that devices, such as the pencil, are inherent to the process of drawing.

Dragan Ilic's artistic practice investigates the balance between the help and hindrance of technologies to it, and Ilic has created increasingly complex tools in response to advancements in technology. His work combines a laborious and highly meticulous process, often requiring months of careful assembling of tools, with a instinctive, visceral, and often controversial performative experience. Some of his works, such as the performance, *The People I Don't Like*, are overtly political, offering the audience an opportunity to hurl sharpened pencils at him while he invokes the names of people in power whose actions he questions. Other works seek to highlight the systems of technologies that serve us and in turn codify human behaviour.

Dragan says that 'It is worth noting that, as our technologies continue to develop, I will continue to include them in my process, especially now that we are on the cusp of exciting advances that, 30 years ago, seemed possible only in the world of science fiction. Very recently, scientists have been able to implant computer chips directly into the brain, to record thoughts and ideas. It's my great ambition to be included in this research as an artist which, in my view, is the natural extension to my work thus far.'

Detail of *DI Device*, Rubber & 3000 Pencils, 2012



Biography

Dragan Ilic's work has been termed post-subjective, a designation that indicates a reordering of artistic authorial hierarchies. In 2009, Ilic founded the experimental performance space ITS-Z1 in Belgrade, which serves as a platform for the intersection of art and science. ITS-Z1 has hosted internationally-acclaimed experimental artists such as Stelac. Ilic's work has been featured in television presentations and shown in numerous performance spaces, galleries, and museums internationally. These include Documenta, PS 1 MoMa, the Center for Cultural Decontamination in Belgrade, Queens Museum of Art, and, in April 2010, at the Museum of Science in Boston, as a part of National Robotics Week.

Ianis Lallemand and Anaïs Tondeur

Artist Statement

Inspired by the history of graphite as a drawing instrument, this installation interrogates the uses of this material in a practice-based context of visual production, in dialogue with digital technologies.

The installation is composed of three different forms of this mineral: pure graphite, amorphous graphite and flakes of graphite. Each piece is equipped with small contact microphones that capture the acoustic vibrations of the material.

The piece is enacted during several performances, throughout which viewers are invited to interact with the graphite by using tools to scratch, hit or caress the graphite surfaces. By doing so, they set the material in vibration. A custom software simultaneously collects the sound data in order to translate it into drawings, which are produced by the means of a printer. The drawings constitute an imprint of the acoustic resonance of the material. They are produced by the stratification of simple linear forms.

This work explores how the graphite's acoustic qualities can foster the production of a drawing. The interaction with the material directs the way the drawing is performed, in a temporal dimension that echoes traditional techniques. However, the image is not created through a purely analog connection between the graphite and the paper, but through the possibilities opened up by digital technologies.

Biography

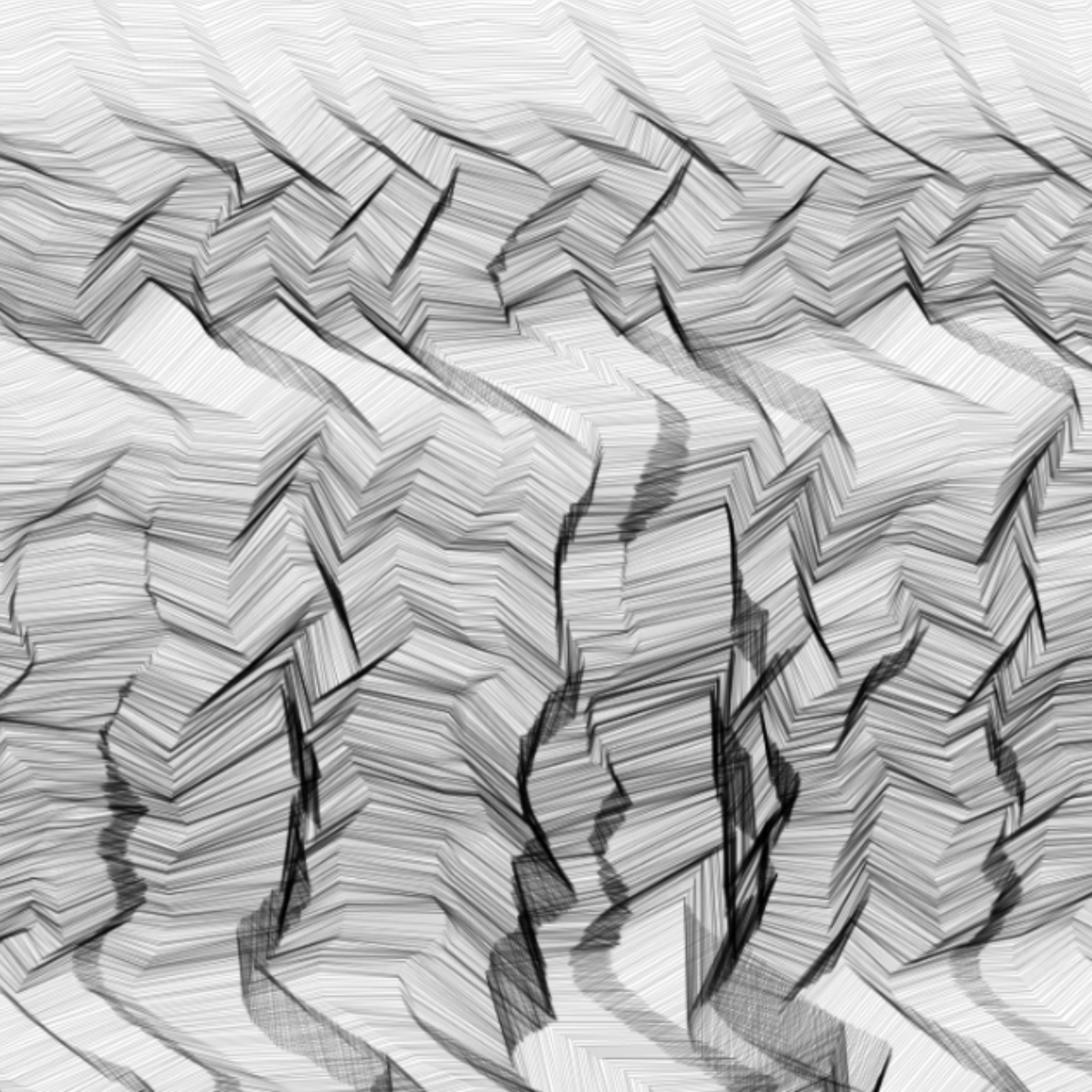
Ianis Lallemand works and lives in Paris. He studied physics and art history at the École Normale Supérieure of Paris and is now pursuing a PhD in computer science in relation to music and performing arts at Ircam, a Paris-based research and creation institute founded by Pierre Boulez in 1977.

In 2012, his artistic practice led him to join Dispositifs Interactifs et Performatifs, (DIIP), a research programme focusing on interactive installations and the use of relational devices, at the École Nationale Supérieure des Arts Décoratifs of Paris.

Lallemand is an electronic musician and has released several albums under various aliases. He uses sound in interactive installations and other contexts as a mean to explore the invisible qualities of physical objects and phenomena. He is interested in confronting physical objects to their digital representations, in order to question how their intrinsic and extrinsic properties are transformed by digitiszation processes.

Anaïs Tondeur gained a Masters in Mixed Media at the Royal College of Art in 2010 after completing a Bachelor in Textile design at Central Saint Martin's School, London in 2008. In 2012 she was awarded the Arcadi Bursary Awards for digital arts.

Her practice has included artist residencies in the Netherlands and France. Her work has been presented in solo exhibitions in Paris and London and group exhibitions shown nationally and internationally.

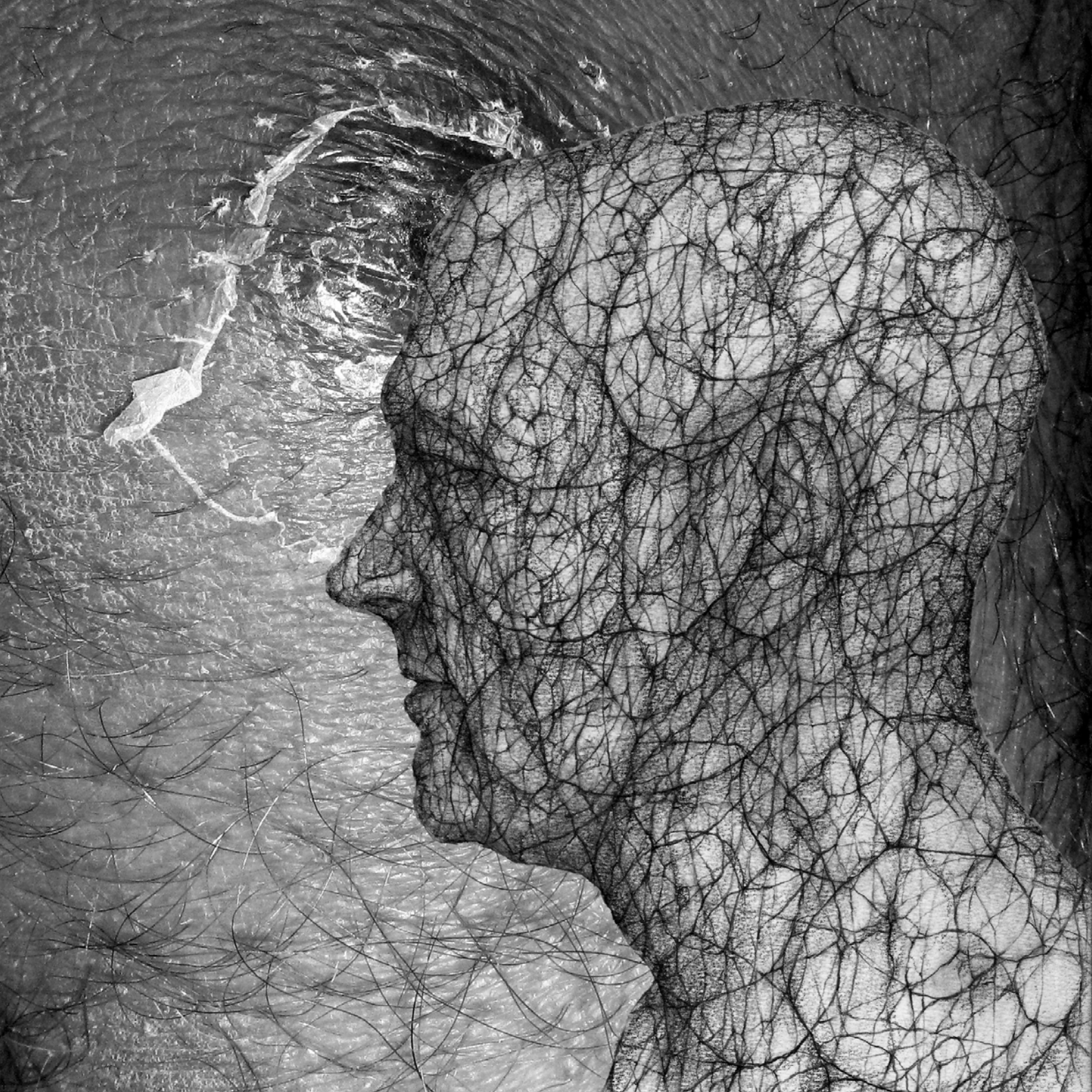


David Marron

Artist Statement

Floral Tribute is a film with a pencil drawing at its heart; the nature of the film in itself resembles a drawing. Not as an animation, but as sequential, focalised fragments that together constitute a whole, with slightly unbalanced camera work imitating the hesitant, controlled gestures in putting pencil to paper. The drawing being a self-portrait implicating the normally unseen skin flora, which can reveal its presence, on occasion, via skin infections caused by the bacterium *staphylococcus aureus*. The film follows the inspiration and emotion behind the drawing – in effect, replacing it. To be installed within a bunker, the walls scrubbed in graphite: a silver flora grown over a wall skin.

Still from *Floral Tribute*, Film, 2012



Biography

David Marron was born in 1972. He received a BA (Hons) from Chelsea College of Art and Design, London, in 1996. He is a London- based artist and currently divides his time between his art practice and his work as a paramedic. Medicine permeates the art works he makes – a haphazard amalgam of experiences diluted from time spent as a paramedic. Generalised recurrent themes appear to be the human condition, a detached physiology, pathogens, violence, treatment and transience. Imagining art with magnetic properties, appropriating relevant material from differing subjects – collisions and collusions to damage and reconstruct.

Nina Sellars

Artist Statement

Encoding/Decoding the Body is a page from the artist's journal. The page displays a selection of her ideas and associations about the conveyance of anatomical knowledge. Essentially, it is a playful and poetic mix of imaging modalities.

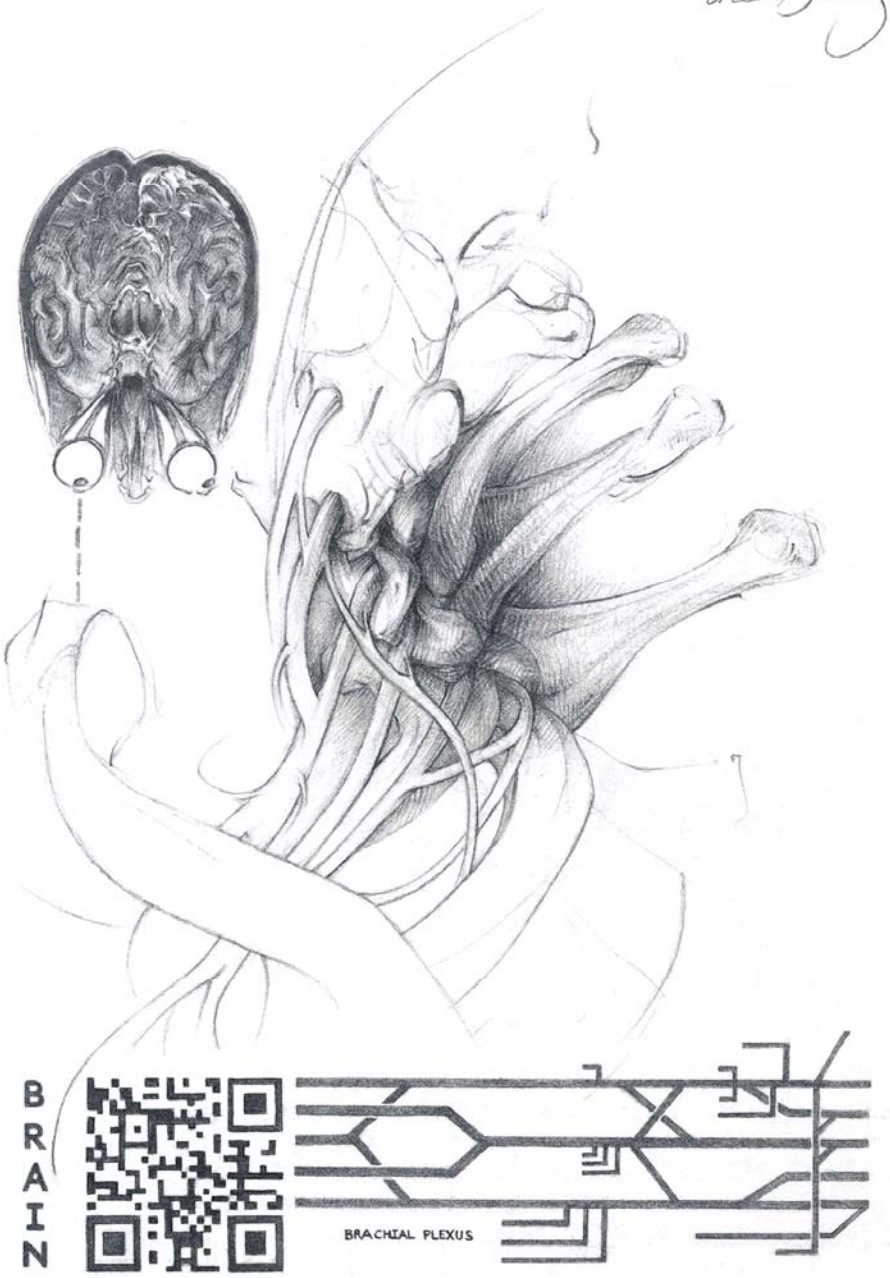
The images include: a hand-drawn QR code that acts as a hyperlink to an online animation; a small intimate self-portrait, of sorts, with the drawing based on an MRI scan of the artist's brain; a classically inspired drawing that shows the nerves of the brachial plexus as they descend from the spine and travel under the clavicle; the brachial plexus translated into a diagrammatic representation; sight depicted as a broken line.

Biography

Sellars' artwork explores the influence of anatomical knowledge on our understanding of the body, identity and subjectivity. Classically trained in drawing, her artwork is now based in multimedia light installations. Sellars' interest in anatomy has taken her from working in wet anatomy labs to working in physics labs, where she explores the cultural implications of clinical imaging modalities. Sellars lectures in Anatomical Drawing and is a trained Prosector (dissector of cadavers for medical display) and her work is shown nationally and internationally.

Encoding-Decoding the Body, Graphite on Paper, 2012

Encoding / Decoding the Body. 2012.



Nina Sellars

Anaïs Tondeur
Artist Statement

A century ago, a young girl swallowed a pencil. The swallowed specimen now resides in a jar on a shelf of the pathological collection at St Bartholomew's Hospital, London. The discovery of this specimen raises questions about the motivations and the circumstances in which this scene occurred, not to mention the specific use of this pencil lead or its strange fate. Somewhere between fiction and reality, this series of drawings was developed as a narrative piece. They were created during a journey to set the graphite specimen in its historical and paleo-geological context. After 1,000 kilometres of train journeys, five days of walking, the ascent of two passes and excursions into industrial wastelands, Tondeur unravelled the journey of this piece of graphite lead and was able to map the major places in its transformation.

Under the guidance of geologist Raymond Lestournelle and geophysicist Luc Tondeur, she travelled back to the earliest time of the graphite's formation in a carboniferous forest, some 320 million years ago. They walked on the coal-bearing seam, where, over a million years, organic residues of this forest transformed into carbon.

After walking for 12 hours, the group located a crystallised form of carbon veins of graphite, the result of contact metamorphosis. At an altitude of 2,800 metres, on the Chardonnet's rock face which is lashed by frozen winds, they followed the dark and oily graphite veins to reach the entrance of a mine. Under the light of their speleological torches, the vast caverns of the mine emerged as if abandoned just the day before.

Subsequently water rivulets, used to carry the extracted material, led them back to the valley where they found remnants of a factory used to process graphite into powder. Vestiges of the Plombagine Factory still exist below Briancon railway station. From there, the journey continued to the Conté factories, major producers of the graphite pencil in the early 20th century.

At the time of the young girl's accident, Sennelier was the main seller of Conté pencils in France. This Parisian shop also kept detailed lists of their clients. Documents stored in Forney's Archives in Paris enabled Tondeur to track down a certain journalist by the name of Edgar Amphlett. In the summer of 1914, this British journalist was appointed war correspondent for The Times in France.

A few months later, his daughter swallowed a pencil.

Biography

Her art practice draws on an exploration of the interface between science and art, perception and cognition, fact and fiction. Through a plural-disciplinary practice including drawing, early techniques of photography, installation and new media art, her work stems from a fascination of the history of ideas: the attempts of our civilisations to understand the mystery of the living, endow our existence with a meaning and elaborate a comprehensive view of the universe.

Exploring techniques of the spectator's participation, she questions the influence of a narrative, material and embodied experience when encountering an object of knowledge and explores the ways through which the elements and entities that stand beyond direct observations are understood, perceived, imagined and visualised. She focuses her research on elements that lie below ground, stand at the confinement of space or in the invisible realms that surround us.

To this end, she collaborates with scientists in the fields of physics, astrophysics or engineering in both collaborative and consultative roles. She also engages in collaboration with composers, writers and artists, including the international art collective, Art in Touch, and the Royal Opera of Wallonia in Belgium.

1.55 or the girl that swallowed the remnant of a forest, drawing from the graphite vein, Graphite on paper, 2012

William Utermohlen (1933-2007)

Artist Statement

Head I 2000 is one of the last, frightening heads drawn in pencil by the artist. Handling oil paint and brushes had become almost impossible in this late stage of his dementia. The pencil and the eraser were the simplest instruments available to him and the mirror in which he looks at himself can still limit and frame objects and space which he has increasing difficulty in seeing. The composition of the head and placement of the features show clearly the difficulty the artist had in precisely placing his reflection in space – for example, two heads are combined into a single outline. On the left, a smaller head with two dark sockets for the eyes is placed at a greater distance in a three quarter view. On the right, a second version of the head, which is partially erased, appears closer and seen from the front. The two heads are divided or joined by a strong black line which runs through the middle of the composition like an S-shaped curve.

In the view of the French psychoanalyst Patrice Polini, Utermohlen has assimilated his drawing method to his destiny: to subsist while disappearing. Perception can still call forth a primal image, but what emerges is also foreign and threatening to the artist's sense of self. Polini interprets the curving black line in the centre as a deepening crack, splitting the head in two. This crack represents therefore a psychic break – or split – in the artist's sense of himself.

The use of the eraser in this – nearly – final drawing is also significant. It points to the artist's frequent change of mind as to the precise position of his features on the paper and his difficulty in perceiving them in space. It also reflects an ingrained technique which is visible in his much earlier work in charcoal where the eraser is used as a modelling instrument for volume. However, from a symbolic point of view, the eraser also emphasises the artist's perception of himself as an entity that is about to disappear. Ears, nose and mouth have noticeably been erased, indicating that the artist's senses, his connectors to the world, are closing down. The only remaining perceptual organ is the eyes. They are black, dramatic and still carry a sense of expression, a mix of sadness and terror. Yet they also figure as the empty, hollow sockets of a skull which is ultimately the form indicated by the general outline of the head.

detail from *Head I*, pencil on paper, 2000

May-30 2000

Biography

William Utermohlen (1933- 2007) was an American artist, born in Philadelphia. He was trained in the 1950s at the Pennsylvania Academy of Fine Arts and the Ruskin School of Art in Oxford. There, he acquired the skills which nourished the rest of his career as a serious figurative artist. In 1965, he settled in London, where his art was exhibited at the best gallery of the day, the Marlborough, in 1969.

His style of the 1960s and 1970s can generally be associated with the London figurative school of the era dominated by Bacon, Kitaj, Freud, Hockney and Andrews. In the 1980s, he had two major murals commissioned by the Liberal Jewish Synagogue at Saint John's Wood and the Royal Free Hospital.

In 1995, William Utermohlen was diagnosed with Alzheimer's disease. His last self-portraits, created post-diagnosis, are unique artistic and medical documents that have been exhibited to great acclaim in numerous institutions in the USA, Britain, France and Italy, and shown in 2012 at GV Art and Wellcome Collection in London. They portray a man doomed, yet fighting to preserve his identity in the face of an implacable disease. All the emotions associated with the knowledge of impending death – from anger, to resignation, to despair – are recorded in oil paint and, later, in pencil. As the artist's manual capacities diminished, he adapted his technique to these limitations, making the most of what was still an ingrained artistic sensibility, continuing to work to the very limit of his capabilities.

GRAPHENE

Graphene
Unexpected Science in a Pencil Line

Graphene is a two-dimensional material, consisting of a single layer of carbon atoms arranged in a honeycomb or chicken wire structure. It is the thinnest material possible and yet is also one of the strongest. It outperforms all other materials, including copper and gold, as a conductor of electricity and heat. Graphene is almost completely transparent, yet so dense that even the smallest atom helium cannot pass through it.

Graphene was thought to be unstable in its free form, until it was isolated by Andre Geim and Kostya Novoselov at the University of Manchester in 2003. The results of this work, which were published in 2004, heralded a new dawn in the study of two-dimensional materials and of graphene in particular. Andre and Kostya continue to unveil new and exciting properties in graphene and other related two-dimensional crystal materials.

Graphene has a number of potential applications, which are being explored at Manchester and elsewhere. These include bendable touch-screen displays for mobile devices; strong yet conductive composite materials; electronic devices operating at terahertz frequencies; sensors capable of detecting even a single atom of a gas or very small electric and magnetic fields, solar cells, etc.

Despite the fact that graphene has so many potential applications, there are several major challenges for research and development to fully realise this potential, and research to overcome these challenges is being actively pursued at Manchester. These include cheap mass-production, protecting graphene from harmful external effects, and technologies for handling, shaping and patterning of such a thin material.

To learn more about the properties and applications of graphene, as well as the scientists working on this material at Manchester, visit www.graphene.manchester.ac.uk

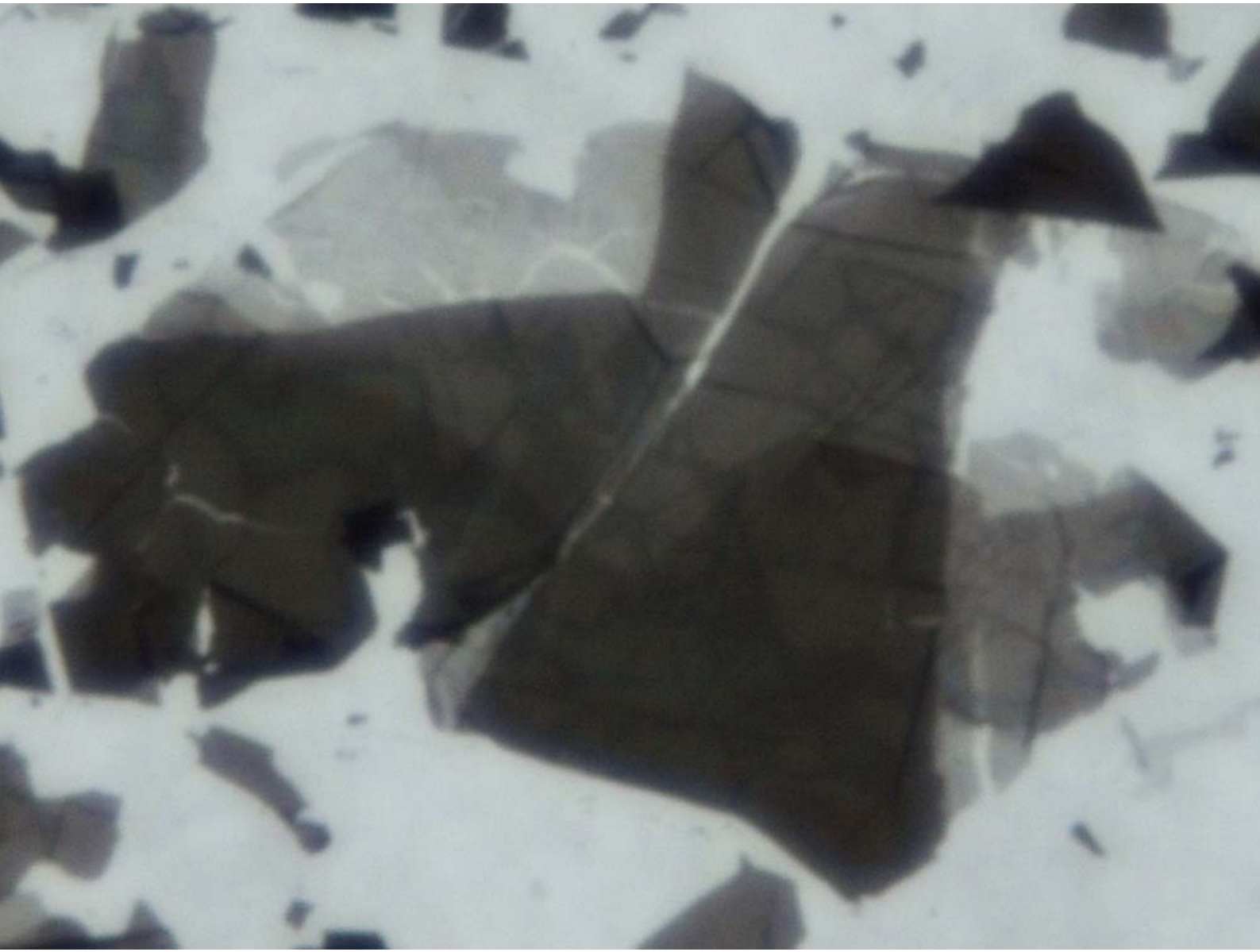
National Graphene Institute at Manchester

The National Graphene Institute (NGI) will be a world-class centre for graphene research – a state-of-the-art facility with cutting edge equipment coupled with research excellence. It will comprise 7,600 square metres, over four floors, located in close proximity to the existing graphene research facilities at the university. It will consist of two Class 100 Clean rooms (1,050 sq m) and laboratory space of 900 sq m, with a proposed industry accommodation space of 920 sq m (comprising Clean Room and labs). It will accommodate 100 people (90 researchers) and is scheduled to open in early 2015.

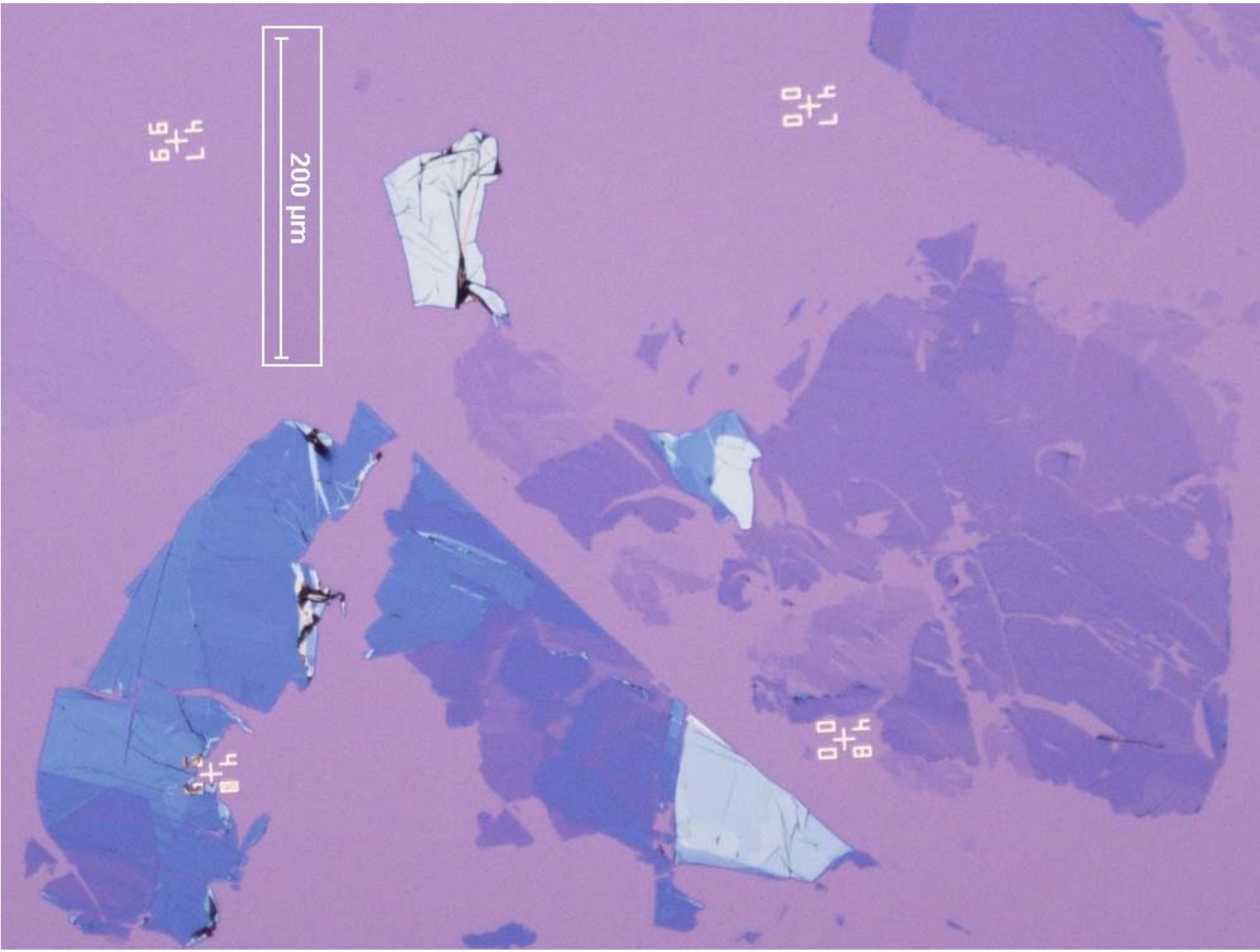
The NGI will support research, development and, ultimately, the scale-up of graphene production and the development of commercial graphene applications. It will house state-of the-art facilities, laboratories and business support services, to be shared with commercial and academic partners and to support and nurture application and commercialisation of ongoing developments. The interaction between all collaborators will also stimulate and accelerate the pace of scientific discovery in the Institute.

Graphene was first isolated at Manchester by Prof. Andre Geim and Prof. Kostya Novoselov, and their subsequent research into graphene has revealed its unique and superlative properties. Geim and Novoselov were awarded the 2010 Nobel Prize in physics *'for ground-breaking experiments regarding the two-dimensional material graphene'*. The graphene research community at Manchester currently includes over 20 academic staff and nearly 100 post-doctoral researchers and post-graduate students, and this number is growing. Manchester scientists have published over 200 papers on graphene, predominantly in the best scientific journals such as *Science* and *Nature*.

For more information regarding graphene research at the NGI Manchester, please visit www.graphene.manchester.ac.uk or contact Mr. Ivan Buckley (ivan.buckley@manchester.ac.uk).



Transmission – Optical micrograph in transmission mode at 100X magnification showing single-layer to few-layer graphene produced from graphite (pencil lead) on a transparent adhesive tape (similar to Sellotape). The graphene is then transferred from the tape to any desired substrate for use. Image courtesy A. Oikonomou and A. Vijayaraghavan, The University of Manchester.



Reflection.jpg – Optical micrograph in reflection mode at 100X magnification showing graphene (single to few layers) on the silicon dioxide surface of a silicon wafer. As the number of layers increases, the colour of the graphene changes from light to dark purple in quantified steps related to the fine-structure constant, a fundamental constant in physics. Image courtesy A. Oikonomou and A. Vijayaraghavan, The University of Manchester.

List of Exhibits

Lizzie Cannon, *Mimesis 1*, Pencil drawing and rubbing on paper, 2010, 29.5 x 29.5 cm.

Lizzie Cannon, *Mimesis 2*, Pencil drawing and rubbing on paper, 2010, 29.5 x 29.5 cm.

Lizzie Cannon, *Mimesis 8*, Pencil drawing, embroidery and rubbing on paper, 2012, 29.5 x 29.5 cm.

Christopher Cook, *Vestige*, Graphite, oil and resin on coated paper, 2011, 72 x 102 cm.

Charlie Franklin, *Tendril*, Graphite, latex and acrylic plastic, 2012, 16 x 40 x 36 cm.

Pippa Gatty, *Drawing Nebular and Interstellar Matter*, Graphite on paper, 2011, 165 x 150 cm.

Dragan Ilic, *DI Device*, Rubber and graphite pencils, 2012, 100 x 300 cm.

David Marron, *Floral Tribute*, film, 2012. (approximate running time, 7 minutes).

Nina Sellars, *Encoding/ Decoding the Body*, Graphite on paper, 2012, 20 x 15 cm.

Ianis Lallemand & Anaïs Tondeur, *Untitled (vibrations from a graphite core)* , Graphite, digital c-print, piezo microphones, custom software, printer, 2012, 118.9 x 28 cm

Anaïs Tondeur, *I.55 or The Girl that swallowed a remnant of a forest*
This artwork is created through six journeys:

CARBONIFEROUS SITE
Around 320 million years ago_ Transformation of organic residue into carbon
Drawings realised at an alt: 1473m; lat: 45.646°N, long: 4.276°E; date: August 2012
Puy St André, Hautes- Alpes, France

GRAPHITE GEOLOGIC VEINS
240 - 160 millions years Formation of graphite in a contact metamorphosis
Drawings realised at an alt: 2800m; lat: 45.966°N; long: 7.016°E; date: August 2012
Chardonnet Pass, Hautes-Alpes France

IN THE GRAPHITE MINE
Around 1910 Mining extraction of the graphite piece to be swallowed in 1914 in London
Drawings realised at an alt: 2800m; lat: 45.966°N; long: 7.016°E; date: August 2012
Chardonnet Pass, Hautes-Alpes France

SENNELIER SHOP
1914 Pencil sold to Edgar Amphlett
Drawings realised at an alt: 28m high; lat: 48.87 42°N; long: 2.34 70°E; date: September 2012
3 quai Voltaire, Paris, France

PENCIL FACTORY
1912 Production of the graphite pencil lead
Drawings realised at an alt: 323m high; lat: 45.965°N; long: 4.001°E; date: September 2012
Régny-sur-Loire, Rhones, Alpes, France

LA PLOMBAGINE FACTORY
1911 Graphite processed into powder
Drawings realised at an alt: 1326m high; lat: 44.896°N; long: 6.635°E; date: September 2012
Briançon, France

William Utermohlen, *Head 1*, Graphite on paper, 2000, 40.5 x 33 cm.

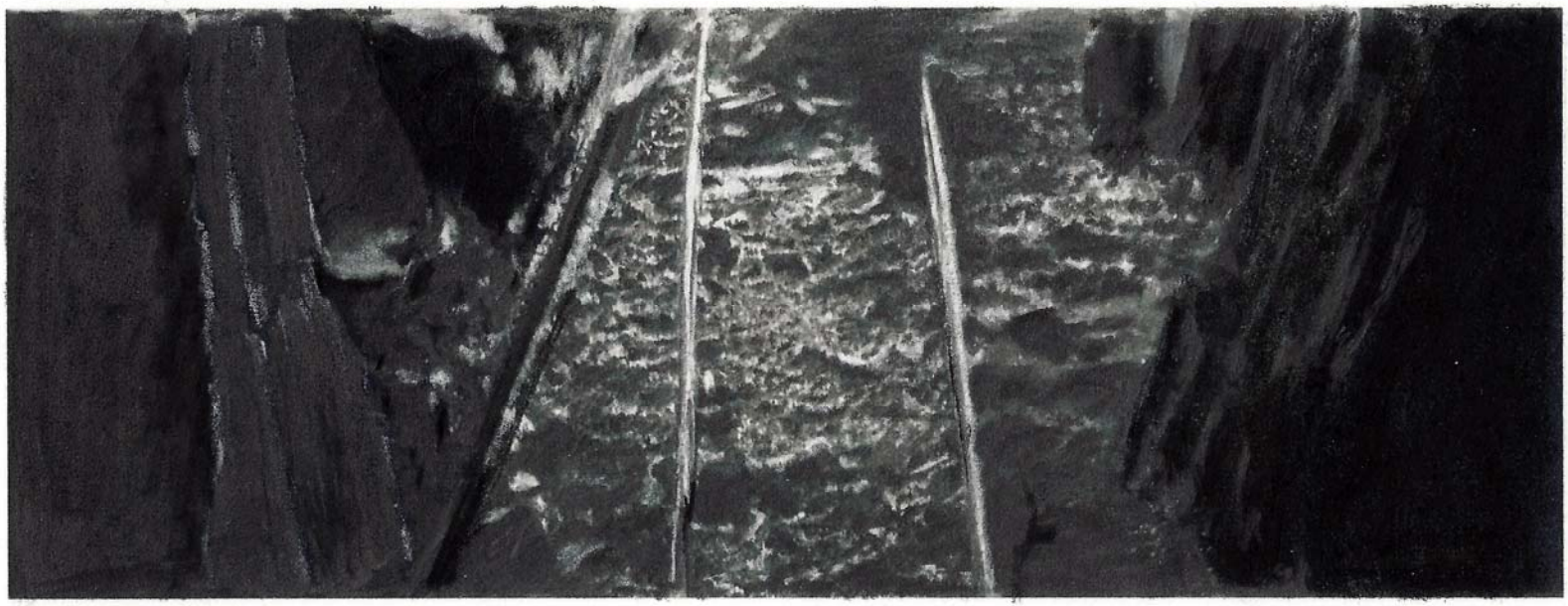
List of Exhibits on Loan

Specimen I.55 on loan from St. Bartholomew's Pathology Museum, London.

Graphene Samples, from The National Graphene Institute, the University of Manchester.

Graphene Nanotubes, on loan from Imperial College, London.

Anaïs Tondeur, *Journey 3 I.55 or the girl that swallowed the remnant of a forest, drawing from the Carboniferous site*, Graphite on paper, 2012



Contributors Biographies

Robert Devcic

Robert Devcic is the founder and Director of GV Art, London. Since 2005, Robert has been working as a collaborator to curate art & science experiences by working with versatile artists whose creativity is sparked by scientists and multidisciplinary approaches.

Robert is working to establish GV Art as a new model for a contemporary art gallery, which aims to explore and acknowledge the inter-relationship between art and science.

Fiona Russell

Fiona Russell studied literature and visual culture at the University of Sussex, where her interests extended from artistic responses to the body and the uncanny to autobiography and ventriloquism. She wrote her thesis on the Contemporary Cabinet of Curiosity, a theme which she has continued to explore in her writing in London for artists including Polly Morgan, Kate MccGwire and Jonathan Wateridge. She works in marketing and co-directs a 'curiosity company', 'Animal Vegetable Mineral', producing food installations and responses to artwork, crossing the boundaries between art, science, history and performance.

Frances Sampayo

Frances Sampayo studied history of art, at the University of York, and specialises in British art of the eighteenth century. She has contributed to the programme of events at York Art Gallery on graphic culture in eighteenth century London. Following this event, she was invited to participate in York Art Gallery's online version of the exhibition *William Etty: Art & Controversy*. Sampayo has also worked with the Foundling Museum, London, researching their collection of portraits and delivering a series of talks on her findings. She is currently part of the team at GV Art, London.

Acknowledgments

Queen Mary University of London, The Pathology Museum at Bart's and the London for the loan of specimen I.55 with particular thanks to Stephen Moore

National Graphene Institute at Manchester, with particular thanks to Aravind Vijayaraghavan

Dr David Dexter, Imperial College London, for the kind loan of the microscopes

GV Art

Is a contemporary art gallery which aims to explore and acknowledge the inter-relationship between art and science, and how the areas cross over and inform one another. The gallery produces exhibitions and events that create a dialogue focused on how modern man interprets and understands the advances in both areas and how an overlap in the technological and the creative, the medical and the historical are paving the way for new aesthetic sensibilities to develop.

GRAPHITE

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