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RISING UP – RUNNING OUT
An Exploration of Oil

An exegesis presented in partial fulfilment of the
requirements for the degree of Master of Design

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Core samples, New Zealand Petroleum and Minerals Core Store.

Introduction

From the geological warehouse of the Core Store to the torn, leaking hull of the container ship Rana, this narrative forms a record of my experiences as I tread quietly (even sneakily) through a political and ecological minefield. It explores the forces of oil through a process of making art, and gives voice to four works.

The 'Core Samples' stand 3 metres tall, the oily layers and porous spaces a visceral connection to the depths of the earth they record. They are the geological voice of formation and depletion.

'Fossils of the Oil Age' are a considered warning of an unfolding crisis; they sit solidly on and of the earth, remnants of it still clinging to their surface. They have no oil on them, or in them...there is none left in their future. They are the contemplative voice of an archival museum casting. Look closely and you can see their spiky protrusions rendered almost harmless by the soft whiteness of the plaster, brute steel force softened by time and distance.

'A Landscape of Oil' documents the progression of oil through a wool blanket. It evokes a landscape awash with spilled oil, percolating slowly upwards towards a pale sky, a slow and portentous unfolding of an environmental disaster. These works speak of oil rising, oil running out...and run out.

In 'Crude Transgressions' the pure crude oil that obscures the translucent white paraffin wax, whispers of secrets; of oil in the earth and the covert activities of the oil companies that extract it. Translucent and opaque, according to the light, the oily casts of drills reference hidden economies and political agendas, corruption and warfare.

The final chapter is my response to the derelict building, Guys(sic) Body Shop. Facing imminent demolition, it has provided an authentic space, with its own unique voice, in which to situate my work.

My use of an unconventional writing structure has been informed by the work of writers Ryszard Kapuscinski, Jane Rendell, and Maurice Blanchot. I have used variations in layout and text, to explore the conflict that exists in the world of oil, and to allow diverse voices to be heard.



Bags of oily waste, collected from the beaches after the Rena oil spill.

Forces and Voices



In '*Site - Writing: The Architecture of Art Criticism*', Jane Rendell explores art 'across a passage that divides and connects inner concerns and outer imperatives, through voices that are (at times) intimate but respond to broader political issues' (Rendell, 2010, p. xv).

Throughout my oil-fuelled journeys I have been enraptured by the sights (if not the smells) of the apparatus of the liquid that powers our existence. At the same time I am conflicted by the growing knowledge of the potential legacy of the age of oil. I find myself resistant to the idea of losing the freedom and independence oil gives us and concerned about the implications (hypocrisy) of a project that consumes at the same time as it considers the price of consumption. This conflict has led me to take a position of plurality, writing in different voices to traverse the complexities of oil and art-making.

At times they speak individually, like core samples standing separately, each comprised of a complex lamina consolidated into a stratified whole. As other voices and narratives emerge, there will be leakage. Journeys will be taken, hydrocarbons burnt and energy returned to the atmosphere. The physical and textual layout of the forces,

and the voices

is sometimes

separate, with

protrusions, at times

it flows, melds and merges,

or is pulled apart in conflict.

Reflecting its oily complexity

it is viscous, layered, fluid

and at times

inconsistent.

Force is the term used for an outside influence exerted by one body on another which produces a change in state of motion or state of configuration (Net Industries and its Licensors, 2011) .

Let me introduce these voices, the cast, though the roles are not allocated arbitrarily. None are bound to a singular voice so they cannot be coded conveniently. Like oil they are fluid.

My own: at times my voice is personal as I relate my experiences and journeys, or poetic, reflecting on oil and making art. My other voice is the 'instructor' or the 'mother', the pricking conscience, the 'we should', 'us', voice of collective morality.

Artists, designers, writers and philosophers: speaking in voices that encompass the political and the *poetic*.

Geologists and scientists: the voices that make rational, the elemental forces of oil.

Oil companies and politicians: are they the 'bad guys' or do they simply fulfil our demands for a fossil fuel?

Guys Body Shop: the voice of a building.



Material Journeys

American artist Robert Morris defined art-making as a certain kind of behaviour, 'a complex of interactions involving factors of bodily possibility, the nature of materials and physical laws, and the temporal dimensions of process and perception, as well as resultant static images' (Morris, as cited in Carter, 2004, p. 8).

Thirty years ago, after a design education in textiles, I began exploring materials through a practise that encompassed printmaking, mixed media collage and assemblage. In recent years I became seduced by landscape and painting as a means of exploring environmental concerns and personal journeys. In early 2010, halfway through a large and complex work, I stopped and propped it against a wall in my studio and haven't painted since. What was missing was the sense of excitement and discovery, the potentiality for alchemy and the unpredictable, in materials and ideas.

Tim Ingold, quoting art historian James Elkins, writes of alchemy as 'the old science of struggling with materials, and not quite understanding what is happening' (Elkins 2000, as cited by Ingold, 2010, p. 9).

As a printmaker I was captivated by the unveiling, the uncertain expectation when the paper is peeled from the plate. I relished the removal of my complete control and the subsequent element of surprise, from a process that can produce unexpected happenings. Casting is a similar experience, the peeling back to reveal something not quite known.

All of the processes I have explored through this research project have an aspect of unknown territory and uncontrolled seepage. I have been led by these 'fluxes and flows of materials' (Ingold, 2010, p. 3) as part of an 'itinerative process' (Deleuze and Guattari, as cited by Ingold, 2010, p. 10), a material and physical journey. Ingold asserts; quoting Giles Deleuze and Felix Guattari, 'we are obliged to follow these flows, tracing the paths of form-generation, wherever they may lead' (Deleuze and Guattari, as cited by Ingold, 2010, p. 3). 'It is in the opposite of capture and containment, namely discharge and leakage, that we discover the life of things' (Ingold, 2010, p. 8).

I found that experimenting with oil was at times an arduous struggle, but also that 'the creativity of the work lies in the forward movement that gives rise to things' (Ingold, 2010, p. 10).

Quoting Gaston Bachelard's 'Application is complication' (Bachelard, as cited by Lechte 1994, as cited by Rosenberg, 2000, p. 9), academic and writer Terence Rosenberg goes on to say, 'Poetic research engages with the notion of complexity, weaving together disparate elements in a complex and evolving structure' (Rosenberg, 2000, p. 9).

Through the process of making this work, I reflected on how my political voice would change or develop. While initially there seemed to be a need to take a position in this complex and conflicted topic it became clear that there were many viewpoints. Oil powers our lives in ways the vast majority of us are relatively oblivious to, and that is a very comfortable place to be. In taking an approach that considers a number of voices and views, it opens this discourse to a wider audience than other artists, academics and those already interested in the political and ecological aspects of oil. It is about one of the most important materials on, and of, the earth, so this dialogue, of layers and positions, is relevant to everyone who uses oil and all its derivatives without necessarily being aware of the implications.

In Maurice Blanchot's book, *'The Writing of the Disaster'*, he said 'Criticism is almost always important, even if it omits and misrepresents a great deal. However, when straight-away it becomes warlike, this is because political impatience has won out over the patience proper to the "poetic". Writing, since it persists in a relation of irregularity with itself - and thus with the utterly other - does not know what will become of it politically: this is its intransitivity, its necessarily indirect relation to the political' (Blanchot, 1980).

Blanchot's writing gives support to a 'patient and indirect approach to the political' (Blanchot, 1980) and is relevant to my own ideas about art, oil and political discourse. My approach is evolving through an exploration of different articulations leading me to consider the question....

will this process-led intuitive material exploration, lead to the development of a more forceful personal political position or will it confirm that such a complex topic warrants consideration of other involved voices and that to achieve any meaningful progress requires a plurality that encompasses different viewpoints?

Force: c. A capacity for affecting the mind or behaviour; efficacy (The American Heritage Dictionary of the English Language, as cited by, Force, 2011b).



Core Samples, (detail).



Figure 1. Burtynsky, E. (2006). *SOCAR Oil Field #3* (Photograph, Baku, Azerbaijan). Reproduced with permission. Photo© Edward Burtynsky, courtesy Nicholas Metivier, Toronto / Howard Greenberg & Bryce Wolkowitz, New York.

Beauty and Bleakness

'Technology is fundamentally based on the tapping, confining and controlled application/release of elemental energies in nature... When however they break free, their wrath is all the more violent, the more restrictively they have been confined' (Jünger, 1939, as cited by L'Associazione Eumeswil, 2010).

Paraphrasing Friedrich Georg Jünger's 1939 work, *'The Failure of Technology, Perfection without Purpose'*, L'Associazione Eumeswil (an Italian organisation studying his brother Ernst Jünger), link his seemingly prophetic words with the BP Oil spill, in which 4.9 million barrels of crude oil was spilled into the waters of the Gulf of Mexico. While horrified by the environmental disaster, I was also captivated by the 'elemental energies' and catastrophic forces involved, and the beauty and bleakness of the images depicting them. The photographs of Edward Burtynski introduced me to the stark structures and landscapes of oil, and to the accompanying essay by Paul Roth, that examines his work within a political and environmental context.

In Paul Roth's essay, published in *'Burtynsky Oil'*, he states, 'The subject is not oil. In these pictures, Edward Burtynsky shows the man-made world – the human ecosystem – that has risen up around the production, use and dwindling availability of our paramount energy source. The mechanics and industry of extraction and refinement ...and the wreckage, obsolescence and human cost that lies at the End of Oil. These photographs are about man and what he has made of the earth' (Roth, 2009, p. 167).

In order to better understand these complexities, I first needed to explore oil itself...liquid, viscous and uncontrollable. My journey into the world of oil began with experiments into the forces of heat and pressure, and a visit to the Core Store, the repository of petroleum and mining samples in New Zealand.

Core Samples





Mincore core sample storage box, New Zealand Petroleum and Minerals Core Store.
Waimamuku 2 oil core sample, New Zealand Petroleum and Minerals Core Store.

The forces of formation, of heat and pressure, porous spaces, layers and traps, are the voice of geology. They speak of oil, created over millions of years and trapped in the reservoir ...and of soaking up and running out.

My work entitled 'Core Samples' is a group of three metre high 'cores'. They are an exploration of material, geology and the maelstrom of wider political issues. An assemblage, lamina, strata: diverse materials from clay sediment to organic death, with the addition of heat and pressure to create a transformed new whole.

In her book, 'Crude', writer Sonia Shah states, 'The formation of oil begins with assemblages of tiny particles of sediment, that form layers (lamina) alternating with accumulations of organic matter. Over millions of years these compress under the forces of heat and pressure to become oil bearing shale (source rock). Larger layers of different types of rock become strata. 'A worthwhile oil reserve, must have thick layers of oil-rich source rock, porous reservoir rock, and an impermeable 'cap' rock, all in the right position to form a trap, and pressurized and heated to just the right conditions. It is an elaborate sequence of events that takes place over millions of years, enlisting the carcasses of billions of creatures, and the rising and falling of seas, and the shifting of tons of rock (Shah, 2004, p. xix).

The porous spaces of the 'Core samples' are hidden, much like those in an oil reservoir. Do they hold oil or not? We can see the oil on the outside and in the dark pools at the base, but how much is left inside?

Bain Webster of Webster Drilling told me of an oil core sample he had that was so porous he could blow air through it, and while it was sitting on his shelf it eventually crumbled into dust. (B. Webster, personal communication, 2011).



Core sample storage boxes, New Zealand Petroleum and Minerals Core Store.



The Core Store

Core samples are cylindrical sections of rock or sediment extracted during the drilling process. They are a record of the depth and composition of the earth, and a measuring tool to establish the position of the reservoir.

The Core Store is run by Crown Minerals. Any company that is given a license to drill for oil, coal or minerals has to lodge core and other samples with the core store. These are sealed for 5 years and after that time are available for geologists to examine. This means that oil reservoirs that may have been abandoned can later be re-explored. With changes in economic imperatives and newer technologies they can become a viable proposition again. Just as the core sample is a storage system for information about geological time frames covering millions of years, the Core Store is a storage system (albeit over a shorter period), for information about mining in New Zealand. The storage systems are of varying ages (it goes back to the 1930's), condition and type.

All of the samples stored at the Core Store are available online as photos but after downloading a number of these, I decided to go and see them in the flesh. My intuition was that in going, I would find something unexpected, a discovery currently unknown, slightly secret and mysterious that would only be revealed by my presence. This feeling pervaded all my subsequent visits to see the structures of the oil industry. I went looking for one thing...and found another.

The Core Store is in Featherston and is not open to the public. I had to apply to visit and there are strict rules and security around access. This adds a slight air of menace as I approach the chained gates of the driveway, but arriving at the large anonymous building I was greeted by Dan, the Core Store man, and what a gem he turned out to be! He had previously worked on exhibition spaces and had a wonderful understanding of what I wanted to see. Amongst the rows and racks of storage boxes, stacked 6 metres or more high, he knew exactly where to find the most interesting samples. I went expecting to see the cores, but there was so much more;



Westgas 2 core sample, New Zealand Petroleum and Minerals Core Store.

small bottles of crude oil in different colours and viscosity, and boxes made of varying materials with writing and colour-coded lines and symbols.

This investigation of core samples took place as my material experiments with oil and the forces of heat and pressure were evolving. Explorations of these forces led to me making a large number of objects out of boiled MDF and bitumen (oil in its heaviest, most viscous form). Of the various shapes I made, the cylindrical 'cores' seemed to be the most relevant to my research.



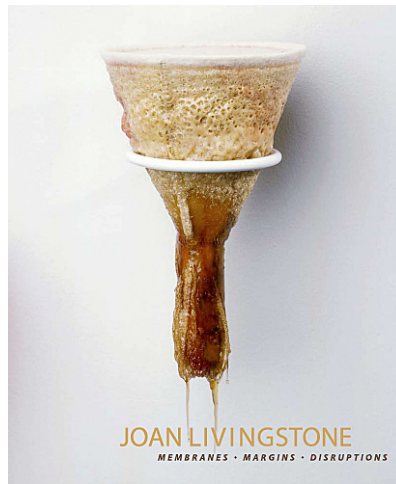
Experiments with heat, pressure and MDF.





MDF (medium density fibreboard) is made from wood pulp...the same organic plant matter that millions of years ago flowed, with sediment, to form the rotting layers that created oil. MDF, with the addition of wax and resin, is compressed under heat and pressure. The resin that binds it is phenol-formaldehyde (Encyclopædia Britannica, 2011). Like so many of the common products that we take for granted, it originates from oil. In my experiments I clamped, boiled and released the MDF layers, in a reversal of this transformative process. The resultant forms are subsequently soaked in bitumen, the absorption through the layers of the core, resonating with the seepage of oil through the porous spaces in sedimentary rock.

The work of Joan Livingstone reinforced the potentiality for lusciousness and beauty in this leakage and spillage of oil, and the geologic compressed layers of the core samples. There are parallels, between the alchemy of force and material that is the leaking bodily fluid of Livingstone's 'At Capacity' (Figure 3), and oil's journey through the 'Core Samples' and the wool of the blanket, in 'A Landscape of Oil'.



Joan Livingstone works with felt, suture thread, stain, epoxy resin, pigment and metal, to convey ideas of leaking, spilling, and containment, in the context of bodily fluids. In *Portfolio Collection: Joan Livingstone*, Gerry Craig's essay on her work states that, (her) 'investigations into felt making resulted from her desire to find a marriage of concept and materiality that could reference the body's membranes and skin, with the skin's dual function of holding in organs while also serving as a breathing organ'(Craig, 2002, p. 11). In 'At Capacity', there is a 'transgression of boundaries with the materiality of the over-catalyzed resin erupting and oozing through the surface of the felt. Livingstone uses the energy of her materials to create a metaphor for the luminal space of the membrane'(Craig, 2002, p. 28).

At close quarters the detail of the oily layers of the 'Core Samples' is seductive, but a sense of unease is heightened by elements of smell and toxicity. There is a dissonance between the visceral reality of oil and the invisible fuel we heedlessly use every day.

Through this 'hands on' exploration of oil, I created many beautiful and evocative forms, but there was also a darker side, a toxic legacy.

Breath and Blood

Richard Wilson's work, 20:50, fills an entire room with oil in the Saatchi Gallery. The gallery's promotional material for the exhibit describes it as, 'A site of epic illusion... visitors are invited to examine the piece close-up via a walkway that extends into the lake placing the viewer, waist deep, at the centre of a perfect mathematically symmetrical scope'. It states that, '20:50 takes its name from the type of recycled engine oil used' and issues the warning, 'it is thick, pitch black, and absolutely indelible: please take extreme care with your clothing and belongings, and no matter how tempting, please do not touch. 20:50 often has to be demonstrated to be believed: the liquid can be seen by blowing very gently on the surface' (The Saatchi Gallery, 2003-2011).



Figure 4. Wilson, R. (1987). 20:50 (Used sump oil, steel, dimensions variable). Saatchi Gallery, London.

Sent: Wed 17/08/2011 9:01 a.

Hi

I am a Masters of Design candidate at Massey University in New Zealand. I'm wondering if you can provide me with some information about the Richard Wilson exhibit, more specifically how you deal with the issues around using sump oil in an enclosed space. How do you manage the smell, toxicity and flammability of a petrochemical product in a gallery setting?

Many thanks

Rosemary Mortimer

Sent: Thu 18/08/2011 5:05 a.m.

Dear Rosemary Mortimer,

The Sump oil is not very flammable and setting it alight is more difficult than conventional oil. Because of this, there is not much to worry about that a fire could occur – if you dropped a match in it the match would simply sink and extinguish as it's engulfed by the oil and it would also be almost impossible to generate an air temperature high enough to cause the oil to combust. You would probably need an accelerant to set the oil alight and expose it to a large flame for a prolonged time.

Although a smell is generated by the oil the fumes are not toxic but we have a large extraction fan at the rear of the installation (in the fire exit round the corner) that takes much of the smell out and removes any potential toxins from the air.

20:50 has only been installed in a few places and 'new' oil is used each time. When it comes to removing the oil a pump is put in to suck out as much as possible. With the remaining oil we pour in soap powder to absorb it until we're then able to sweep it together and collect it up – almost like sweeping up wet sandpaper.

Hope this is helpful, please contact me if you need any further information.

Kind regards, Fernando Pereira, Operations & Security Manager, Saatchi Gallery
(F. Pereira, personal communication, August 18, 2011).

At first I saw the 'Core Samples' as large scale works incorporating multiples of the 'cores' that I had made. However soaking a large number of absorbent objects in oil meant exposure to its toxicity. Despite the best safety precautions, I was forced to face the reality that it wasn't neurologically viable to continue on that track, and to confront the personal conflict of using large amounts of oil.

*Brief Exposure at High Levels--Death may occur in humans and animals after brief oral or inhalation exposures to high levels of benzene. Low concentrations of benzene cause drowsiness, dizziness, and headaches. Benzene has a suppressive effect on bone marrow and it impairs blood cell maturation and amplification. Benzene exposure may result in a diminished number of blood cells or total bone marrow loss. A number of metabolites appear to be involved in this process, and there may be several targets of toxicity, including stem, progenitor, and stromal cells (Gislason, 2010).

I have given a lot of thought as to how I can make this personal conflict with the hazards of oil a part of my work. Above all it drives an imperative for reduction.

Reducing risk by reducing scale, tied into my research on Peak Oil. I made a number of 'Small Objects of Beauty and Bleakness' however the larger scale of the 'cores' was still captivating. I explored other options, particularly alternatives and reduction, from a position deeply reflective of proposals for the future of fossil fuels and of a commensurate lack of desire to change the 'scale' of our lifestyles.



Small Objects of Beauty and Bleakness.



Core Samples at Guys Body Shop.

In the end I 'resolved' the problem by similar means to those suggested by many commentators on our looming Peak Oil and environmental crisis, by reduction in the amount of oil used, by the use of a greater variety of materials, and the somewhat reluctant acceptance of risk where there was no viable alternative. Oil is unique and, as in life, sometimes the alternatives are a pale shadow of the real thing, or they perform in vastly inferior ways, it's hard to duplicate the raw carbon energy of something created from sunlight, over millions of years. I continued making 'cores', albeit with less oil, and built them into tall stacks.

I have situated this work in the derelict Guys Body Shop, in a pool of black sump oil, drawing on the work of Richard Wilson and the Russian architects Alexander Brodsky and Ilya Utkin, who have used oil, contained by edges, to provide reflective surfaces for architectural spaces. In 'Core Samples', the beauty and delicacy of the surfaces is a stark contrast to the towering height and scale, mirrored in the oily reflections as drilled depth below. The steel patterns of the roof trusses speak of industry and the structures of oil rigs.

The pools reinforce the idea of oil rising, being absorbed into porous spaces, and of oil running out. Is the oil travelling up through the cores, sucking it out of the ground ...or is it oozing out, through gravity or depletion, leaving a puddle at the base? Ingold suggests, '(it is) in that irrepressible discharge of substance through porous surfaces of emergent form, we find the essence of life' (Ingold, 2010, p. 3). The 'Core Samples' are a response to the sedimentary layers that start the cycle of oil's formation, and a reflection on its dissipative loss. Rising up ... running out.

The process of making 'Core Samples' explored the voice of geology and the concomitant awareness of the geological and political forces of reduction. In the following chapter, 'Fossils of the Oil Age', I reflect on a future without oil.

Fossils of the Oil Age



'Stone, bronze, iron, the great ages of humanity are defined by the raw elements we mine from the earth and use to drive civilisation. We like to think we are living in a bold new age of silicon, but the stuff that powers us is oil. Ancient mysterious...and messy'

(Smith, 2007).



Fossils of the Oil Age at Guys Body Shop.

Like the bleached bones of Jurassic dinosaurs evoking an age when oil was created from fossilised organic matter... these are the fossils of the 'dumb steel' that is the very force behind the process of extraction. Cast in plaster to create a record of fragments of history, the remnants of the drills suggest imprints left in the ground by an obsolete extraction process, in an imagined future. They are a symbol of the oil industry, preserved as a reminder of an age that has past ... an advance warning of its vulnerability, and a portent of the impending death of a fossil fuel . This work is an articulation of the political voice of Peak Oil.

It would be ironic if the end of our oil age becomes the start of the earth's next great stage of oil formation' (Smith, 2007).

Letting process lead, I allowed the clay moulds to distort and break apart asserting the conflict between the unyielding steel force of the drill and the soft sediment. The piecing together of the remnants, prior to casting them in plaster, is suggestive of archaeological artefacts with flaws, faults and repairs preserved.

'Fossils are preserved remains, or traces of remains... formed when animals or plants died and were covered by sediment. Over time, minerals in the sediment seep into the remains of the organism ...turning it to stone'(National Geographic, 1996 - 2011). These fossils, entombed in geological strata, provide us with a record of past life on earth.

Sent: Tuesday, 21 June 2011 11:25 a.m. To: 'Rose'
... Glad you enjoyed our "dumb steel" as it is known in the industry.
Regards 'D'

Sent: Tuesday, 21 June 2011 12:14 p.m. To: 'D'
...why do they call it that?

Sent: Tue 21/06/2011 12:35 p.m. To: 'Rose'
The majority of items do nothing other than what they are designed to do. AS opposed to the very technical stuff used in Directional Drilling, Jarring, WireLine, Coiled Tubing etc ('D', personal communication, June 21, 2011).

Plaster casts have long been created as 'imprints of nature' and to 'record fossils' (Foster, 2002; Herzog and de Meuron, 2002, p. 59).

Architects Jacques Herzog and Pierre de Meuron have used plaster casting as a method of developing and recording ideas. Later, when these models were exhibited, they reflected that '...they bear mute and lifeless witness to considerable energy ...', and that they '... have something in common with natural history ...accumulated archival documents or accumulated bones and fossils – whatever the case, it would all be lifeless waste were it not for the special gaze, the creative, attentive, sometimes even loving gaze of the interested beholder who is able to interpret and interrelate the moulded shapes, grooves indentations and discolouration' (Herzog and de Meuron, 2002, p. 74). Casting, the making of imprints and impressions, has much in common with printmaking and I have been conscious of my past work in this area, informing my experiments and explorations.



In an untitled work by Herzog and de Meuron, the rust from the steel framework has leached through the plaster, infusing it with a patina that heightens its sense of strata and geology. It is this embracing of process, elemental materials and forces, and decay, that resonates with my own aesthetic. In their book, a collection of essays edited by Philip Ursprung, Kurt Forster describes their use of materials in relation to the work of artist Robert Smithson, '...rocks were no longer lifeless sediment and machines no longer products of industry: both had become fossils' and writes of, '...a striking clash between Jurassic materials and modern industry' (Foster, 2002; Herzog and de Meuron, 2002, p. 59) .

In these 'Fossils of the Oil Age', the 'lifeless' static quality of plaster and the historical context of its representation of some previously living force, speaks to the idea of oil and extinction. No longer rising, seeping, leaking its oiliness through sea and sky, but oil run out, undone by greed, its past preserved in plaster and its visceral life force dead. Yet the echoes of this

Figure 5. Herzog & De Meuron (Model expressing topographical stratification of a cliff side with plaster cast in steel).

life remain, in the shadows and protrusions and the clay adhesions for a 'special gaze' to 'interpret' (Herzog and de Meuron, 2002, p. 74).

In making these castings I reflected on scale and how to situate them. I experimented with plaster on a small scale with solid bases, and explored ideas of combining casts in a series of box like structures, inspired in part by the assemblages of some of the Herzog and de Meuron models. They also referenced the storage boxes in the Core Store, but with the decision to situate the work in the Guy's Body Shop building, I moved away from the idea of containing the work in this way. Scale seemed important and the large castings seemed most appropriate on the ground, as pre-historic remains casting spiky, aggressive shadows.

Later, when I situated the work in Guys Body Shop for the second time, I revisited these ideas of museum storage. I placed the five casts in the box-like openings of an old workbench. The containment evoked a sense of recording history. It seems ironic to consider that these remnants of huge machines, that currently force their way through the earth in search of oil, may be all that is left when it runs out.



Fossils of the Oil Age at Guys Body Shop.

The cast fossil works began with a journey and as with all of my other excursions I went looking for one thing ...and found something else. I wanted to see for myself, a working oil rig. New Plymouth, the centre of oil and gas production in New Zealand, seemed a good place to start. I contacted the main oil companies and soon discovered the impenetrable nature and secrecy that pervades the industry. They are guarded by courteous PR women, whose job is to deflect any inquiry or request, to their website or their visitor centres (there is little difference between the two). At Maui Production Station and Motonui's Methenex plant you can watch sanitised videos about their commitment to safety and the community, and view nice clean scale models of an industry you are not allowed you to see.

While safety is often given as a reason for preventing access, it is the huge economic investment and drive for oil that feeds this secretive world. The oil companies are very protective of the rig sites, and are determined to avoid attention or publicity.

I knew visiting the offshore rigs would be impossible, but some of the smaller companies have onshore wildcat prospecting wells. Finding them is more difficult, as any rig that the company releases information about on the internet, has already been moved from that site. The locations of new sites are kept under wraps and finding them requires some detective work. After considerable research, the best information I could find was a recent list of resource consents the council had issued for the discharge of waste water from the drilling process. I set out with the lo-

Wildcat: Of, relating to, or being an oil or natural-gas well drilled speculatively in a area not known to be productive (Wildcat, 2011).

cations marked on my map, tiny spots in the middle of nowhere, on the basis that some would have moved but sooner or later I would find one.



15th June

At the next location the sign said Ensign Rig 6, TAG OIL. It seemed a little less intimidating than the Tiger site and signage, and the gate was open. I had however been told previously by the main office of TAG Oil that I wouldn't be able to see their rigs so it was with some trepidation that I drove up to the site office and asked to take photos. I had learnt by now not to mention art or university. 'As long as you don't get too close' was the taciturn response. In conversation with a worker on the site, he asked if I had been to the Tiger rig, I replied 'no, I couldn't get in'. He said 'they're a pretty scary lot up there; this is one of the most relaxed drilling rigs around'.



Wildcat oil rig sites, New Plymouth.



Integral blade stabilisers.

On my way I made a discovery that changed my focus from oil rigs, to the machinery that operates below the ground. I stumbled across a drilling yard full of massive sculptural drills and pipes, and ventured in, ostensibly to ask for directions to another company, but my very next question was 'can I photograph your drills'? A very helpful 'D', agreed, on the basis that his name, and the name of the company would not be revealed. Sensitivity to outside examination or any possibility of political criticism seems a palpable factor within the oil industry.



Tricone bit.
4" drill pipes, pin end.
Drilling yard shed.

I would have loved to have brought one of the stabilisers home but 'D' said it weighed 300kgs and despite its battered appearance was worth a small fortune. The ground they are drilling in is so corrosive, the steel rusts almost immediately, so all these pipes and drills are cleaned up again and repainted bright blue before each job. These proved to be the most exciting find of my trip and the extraordinarily evocative forms of these monstrous tools, provided the aesthetic inspiration for the 'fossils' work.





Steel beams.



Peak Oil

Peak Oil describes the point in oil production, where remaining oil is uneconomic to extract and we rapidly consume more than we produce. Worldwide the predictions range from having already passed it, to, as discussed by writer Paul Roberts in his book *The End of Oil*, an optimistic view by the US government of 2035 (Roberts, 2005, p. 13).

Most commentators see it as being around about... now! A few still reject the idea of Peak Oil altogether and believe there is plenty of oil left, albeit economically and politically difficult to access.

It is in this context that the castings of the drills, advance the concepts of reduction, and running out, that were explored in the core samples. The work, 'Fossils of the Oil Age', develops a political force and voice that references Peak Oil, the oil industry and the tools of extraction.

While I was in New Plymouth, I visited the museum, Puke Ariki, where I came across a sign for 'Peak Petrol' from a 1950's garage. It seemed to encapsulate a period of unbridled use of petroleum, and unlimited optimism about oil. The irony of Peak Petrol to Peak Oil was inescapable.

'Oil creates the illusion of a completely changed life, life without work, life for free....The concept of oil expresses perfectly the eternal human dream of wealth achieved through lucky accident...In this sense, oil is a fairy tale and like every fairy tale a bit of a lie' (Kapuscinski, 1983, as cited in Shah, 2004, p. vii).

Despite polarity and division, in the debate surrounding the issues of Peak Oil and environmental concerns, it is important to recognise that the oil industry and oil itself provides considerable benefits to our society. Oil is not just about transport, it is about roads, cities, food production, pharmaceuticals, plastics and technology.

Products refined, derived or catalysed from petrochemicals, include polyester, nylon and acrylic, glue, resins, HDPE, PET and other plastics, dyes, paints, detergent and fertilisers (Matar & Hatch, 2001). If oil and oil products were suddenly removed from our environment, our lives (if we survived) would change irrevocably.

Exploring plastics and resins I was intrigued by the idea of oil contained by oil ... a container made of oil that contained oil. Other experiments involved transparency and applying heat. None of this work was fully resolved but some of these elements have seeped through into my subsequent work with casting wax

Writer Mathew Yeomans sees a triple threat of dependency... 'economic, geopolitical and environmental' (Yeomans, 2004, p. xix).

A strategy often proposed is immediate reduction, an interim period of hybrid petrol and electric transportation and a longer term investment in hydrogen fuel cells as the eventual total replacement for hydrocarbons in transport at least. One of the concerns with these alternative technologies is the time it would take to make the necessary changes to infrastructure on such a massive scale. That is why there is such a strong imperative for reduction, to ensure existing oil reserves last long enough for this replacement to happen.



Replacement technologies are still many years away from being able to take over all of our energy needs. A localised gas leak in the Maui pipeline recently gave a small insight into our fossil fuel dependency. Production of milk stopped and even supplies of Weetbix were threatened. In New Zealand our oil production is exported, its quality is such that it is valued for lubrication. Our domestically-used oil is imported and refined here, so we are reliant on the larger oil producing countries to meet most of our energy needs.

Biofuels are not seen as a viable option for a number of reasons, including the loss of land currently used for food production. Converting atmospheric carbon dioxide to fuel would seem like a very elegant solution, it kills two birds with one stone. It has been proven possible but at this stage the energy required is greater than the energy produced, and that is a major flaw with many alternative fuels.





Synchrocities

It was in New Plymouth, that I saw the huge drills, and made the link between the equipment of the oil industry and the political force of Peak Oil. Every journey I have made has led to revelations and clarifications, imaginative 'hunches' (Rosenburg, 2000, p. 4), that give 'forward movement' (Ingold, 2010, p. 10) to my work.

Despite the closed nature of the major oil companies, all of my journeys have been marked by serendipitous encounters and the generous assistance of others in the industry.

Typical of these was my meeting with Zane Bruce. I had some old bits of marble lying around in my garden; they were in the way so I decided to advertise them on the freecycle website. Zane emailed me saying he'd like to take them as he carves small models. He duly arrived and in the course of our conversation mentioned that he was a geologist and worked for GNS (GNS is the government owned research institute for geological and nuclear sciences, formerly the DSIR) and, like a gapingly improbable leap in the plot of a work of fiction, he had two large tricone drills sitting in his workshop...and yes, I could come and cast them.



At times it seemed everyone I talked to turned out to be a geologist but one valuable encounter was made through a more prosaic method. I rang and asked Bain Webster at Webster Drilling if he had any drills I could cast. 'Come on out and have a look if you like' was the response. Bain seems the archetypal 'oil man', yet was happy to accommodate my unusual request, allowing me free reign in his 'shed'.

My intention had been to return to New Plymouth, but in the end the challenges posed by access and the scale of the New Plymouth drills, made casting the drills in Wellington a more viable option.

This decision also led to the development of the 'Crude Transgressions' casts, and an exploration of the voice of economics, exploitation and corruption.



Tricone bits (Webster Drilling & Exploration Ltd), *Fossils of the Oil Age*.

Crude Transgressions





Transgression: a. A violation of a law, command, or duty.
b. The exceeding of due bounds or limits.
c. A relative rise in sea level resulting in deposition of marine strata over terrestrial strata.
(The American Heritage® Dictionary of the English Language, as cited by, Transgression, 2011).

In reflecting on the process of making the 'Fossils' castings, I decided to explore an alternative aesthetic by using latex moulds. These give a much finer, more accurate representation of the details of the drill, rather than the fractured fossil-like qualities imparted by the Klean Klay. I made casts of a number of small drills kindly lent to me by Webster Drilling and Exploration, initially in plaster and then in paraffin wax, which is a petroleum derivative. At the Core Store I had seen wax used as a seal for some of the samples. Its translucent, mysterious quality, spoke of something hidden and protected within.



Core samples encased in wax, New Zealand Petroleum and Minerals Core Store.



Samples of crude oil, New Zealand Petroleum and Minerals Core Store.

I experimented with adding varying amounts of Huinga crude oil, from a rig in New Plymouth, to the wax. Despite popular expectations of 'black gold' being black, crude comes in many colours and the Huinga crude is a deep golden brown waxy oil. This means that it stays soft but in adding it to paraffin I was able to achieve a solid form, in a range of tones and densities that affected the transparency of the wax.

The dark crude oil seeping through the clean white wax spoke again of oil rising and running out. There was an irony too, that the waxy drills, originally made from molten steel, were now being made from gently melted wax, and that the force of heat could simply transform them again into liquid 'oil'. Oil, despite its power, is ephemeral.

Writer Peter Maas asked, 'How do you coax secrets from a liquid?' ...'It is a commodity that is extracted, refined, shipped and poured into your gas tank with few people seeing it. It has no voice, body, army or dogma of its own. It is invisible most of the time, but, like gravity, it influences everything we do' (Maas, 2009, p. 6 - 7).

Its influence is far reaching, and its depletion only serves to strengthen the interconnecting political forces it activates. When an essential product, a product we are totally dependent on, is threatened, the economic imperatives become extreme. The easily accessed oil reserves in politically friendly countries have long since peaked and depleted. The ensuing drive for new discoveries, has led to corruption, poverty and war in many poorer countries.

Since the 1970's America has had so little of its own oil left that it is also dependant on frequently unstable, foreign oil-producing nations, to sustain its economy. A difficult position for a country that is one of the world biggest consumers of petroleum.

The EIA (US Energy Information Administration) provides information about worldwide oil reserves but how reliable are these figures? EIA post this warning alongside figures on their own website (shown overleaf as it appears, including the warning in red).





'Reserve estimates for oil, natural gas, and coal are very difficult to develop. The Energy Information Administration (EIA) develops estimates of reserves of oil, natural gas, and coal for the United States but does not attempt to develop estimates for foreign countries. As a convenience to the public, EIA makes available foreign fuel reserve estimates from other sources, but it does not certify these data. Please carefully note the sources of the data when using and citing estimates of foreign fuel reserves' (US Energy Information Administration, 2011).

From the Niger Delta to the rainforests of Ecuador the oil companies' voracious drive to find new sources of oil has decimated environments and indigenous communities.

In his book, 'Crude World', Peter Maas describes 'what economists call the 'resource curse' which posits that countries dependant on resource exports – especially oil - are susceptible to lower growth, higher corruption, less freedom and more warfare' (Maas, 2009, p. 6).

I add the dark crude to the hot clear melted wax, in small amounts. It fizzes in violent objection to the intrusion. I'm sure I'm breaking some cardinal rule of alchemy (or printmaking), like don't add the water to the acid. On this unknown material journey, there is no recipe for the toxic soup I am brewing. 'Don't try this at home'!

In the Niger Delta toxic oil and waste from the drilling process has destroyed sources of clean drinking water and displaced many from their homes.

Sonia Shah described the aftermath of Shell Oil's intrusions into the fragile waterways of Okoroba. 'Six thousand people in Okoruba lost their cash crops. Piles of mud slowly silted up the life giving waterways. Then, the saltwater contaminated the fresh waters. The fish died. The drinking water



was ruined. As oil pulsed through the pipelines that criss-crossed villagers' backyards and garden plots, it leaked out into the soil and the now brackish muddy waters'. (The) air was filled with smoke and fumes from a continuously burning plume of associated gas' (Shah, 2004, p. 93)

In the world of oil, 'rising up' is a political force as well as a geological one.

In Nigeria, in 1993, activist Ken Saro-Wiwa, 'in a massive show of popular resistance,.....led 300,000 Ogoni on a protest march against oil exploitation' (Shah, 2004, p. 96 - 97). Less than three years later he was executed by the Nigerian Government. Shell Nigeria issued a statement 'asserting that "a large multinational company such as Shell cannot and must not interfere with the affairs of any sovereign state"' (Okonta and Douglas, as cited in Shah, 2004, p. 98)

Force: (Military) a group of persons organized for military or police functions (Force, 2011a)

The wax is hot, it smokes and burns like oil... it is oil. The crude has contaminated the paraffin wax, altering the clean face it presents to the world. The light filters through as the casts stand in line, along the decay of the window sill in Guys Body Shop. They feel like a memorial for the building... and for the desecrations that the desire for oil has visited on the world.



British sculptor Rachel Whiteread uses a variety of materials including plaster resin and wax, to make casts 'of the spaces in, under and on everyday objects' (Octavia Nicholson, 2009, as cited in The Museum of Modern Art, 2010). Her work 'creates tension between the haunting and the poetic, the monumental and the fragile, and the ephemeral and the eternal' (The Museum of Modern Art, 2010). Artist and writer Janet Goleas suggests, 'there is a translucent idealism in Whiteread's works' and goes on to state 'She is identifying the space between memory and experience' (Goleas, 1996).

Figure 7. Whiteread, R. (1995). *Untitled (One Hundred Spaces)* (Resin, 100 units of nine sizes). Saatchi Gallery, London.

In my wax casts any idealism in the transparency of the wax is infected by the covert encroachment, the corruption, of the crude oil. The darkest, with the greatest incursion of crude, have become completely opaque. Fine lines and cracks disrupt the smooth surface. The lighter casts take on the hues of honey, the lubrication of sweeteners paid.

Force: To inflict or impose relentlessly (The American Heritage® Dictionary of the English Language, as cited by, Force, 2011c)

Peter Maas describes how, 'Corrupt dictators and officials, after taking bribes or negotiating lucrative side deals for themselves, award exploration and production contracts that are unduly generous to the (oil) companies on the other side of the bargaining table'. He states, 'Nigeria earned more than \$400 billion from oil in recent decades, yet nine out of ten citizens live on less than \$2 a day, and one in five children dies before his fifth birthday' (Maas, 2009, p. 55).

Nigeria is infected with the corruption of oil, but abuse through greed and power is not only a disease of poorer countries. USA, Russia, Central Asia and the Arab world have all played a major role in oil wars and conflicts around the globe. Wars have been started, won and lost purely because of the economic and political power of oil.

Ryszard Kapuscinski, in 'Shah of Shahs' wrote that oil 'anesthetizes thought, blurs vision, corrupts' (Kapuscinski, 1983, as cited in Maas, 2009, p. 159). 'It is a filthy foul smelling liquid that squirts obligingly into the air and falls back to earth as a rustling shower of money' (Kapuscinski, 1983, as cited in Maas, 2009, p. 56).



'Crude Transgressions', Guys Body Shop at night.

A Landscape of Oil



*Out of an oily black sea,
percolating through
porous spaces,
seeping, rising,
a landscape of oil
below clean vapour sky.*

*Oil turns to air...
and to oil again
as the world changes.*

'The disaster: stress upon minutiae, sovereignty of the accidental'
(Blanchot, 1980, p. 3).

In 1967 The Torrey Canyon ran aground off Cornwall spilling 80,000 tonnes (919,000 barrels) of crude (The Mariner Group, 2004). Since then the number of spills has increased exponentially and it was the BP spill in the Gulf of Mexico that provided the catalyst for this project. More recently New Zealand has had its own disaster, albeit on a much smaller scale, with the grounding of the container ship Rena on Astrolabe Reef in Tauranga. After seeing the photos of oil on the beaches, I felt compelled to go there myself. It seemed crucial to my project to experience it, to see the oil, to smell it and write about it.

This is the same oil that powers our lives, suddenly it's 'toxic', noxious and all over the beaches, from which the public are promptly banned. It had become evident that despite being used successfully in the BP spill, sorbents would not work with the Rena oil. The weather had been too rough to use them at sea and the oil on the beaches was too heavy. Aside from a small boom to protect an estuary the oil was removed along with tons of sand by large earthmoving machinery, and what remained was hand-picked from the sand. I was reminded of Chinese artist and activist Ai Wei Wei's words, '...everything comes tragically and furiously, but is graceful and unhurried as it leaves' (Siemons & Weiwei, 2009, p. 13).



24th March

My first experiments with oil and capillary action, were in response to the use of textiles in the clean up process. The absorbent booms and blankets are constructed from a variety of materials. Polypropylene is the most common, ironic given it is made from oil, but wool, 'sphagnum moss' and even 'human hair' (EBSCO Sustainability Watch, 2010) have been used to soak up spilt oil.

By the time I arrived, there were limited areas still affected by oil, they had already done an amazing job removing most of it. The cleanup operation using mainly volunteers was co-ordinated with military precision and thorough attention to OSH and personal safety. At the induction for volunteers and others with permission to go onto the beaches, amongst the other instructions we received was the directive... 'don't eat the oil'! Suitably dressed for the job, I collected samples and took photographs and notes. Unlike my other journeys I didn't feel that I had made any unexpected discoveries but it did inform my research with a more direct and personal experience of oil spills.



Connections were drawn between the damage from this spill, and the permits issued for deep water drilling off the coast of the South Island. Once again I was left conflicted, by the risk of environmental damage on a much larger scale, weighed against the need to find enough oil to keep a continuity of supply until alternative technologies are sufficiently developed to replace it.

Booms protect the estuary at Maketu. Warning sign. A clean up crew at Papamoa Beach.

Of course a much bigger disaster may be looming on the oil horizon, one that makes running out of oil seem the lesser of two evils.

'Hidden in the black magic of an oil reservoir is a climate demon from the distant past and we unleash it at our peril' (Smith, 2007).

In Richard Smith's film, 'Crude', he documents the formation of oil and warns of the threat of atmospheric carbon. He explains how oil is made from the bodies of tiny sea life sealed in sediment, and activated by the forces of heat and pressure. It is the carbon in this ancient organic matter, which is the energy source behind fossil fuels. The uncontrolled release of this carbon, through technology and growth, is widely recognised as a major factor in rising global temperature. He posits that the very carbon that powers our planet, also releases carbon dioxide into the atmosphere as we burn it, raising temperatures and creating a greenhouse affect much like the one in the Jurassic period. Over periods of millions of years previous worldwide oceanic anoxic events, triggered by high levels of atmospheric carbon dioxide, have killed off animal and plant life, creating a source of carbon that in turn formed large deposits of oil. Since the industrial revolution atmospheric carbon dioxide has risen at an unprecedented rate over such a short period. Smith's film suggests that at some point, and no one can say when that would be, we risk reaching a climate change tipping point of no return. As he says, 'It would be ironic if the end of our oil age becomes the start of the earth's next great stage of oil formation' (Smith, 2007).

In 1967 Jimi Hendrix wrote the lyrics to 'Up From the Skies'. In 1999 they were my inspiration for a series of paintings entitled 'Change in Climate'. The relevance of his words has only become stronger with time.

*I have lived here before the days of ice
And of course this is why I'm so concerned
And I come back to find the stars misplaced
And the smell of a world that is burned
The smell of a world that is burned*

*Well maybe..... it's just a change in climate
(Hendrix, 1967).*

My experiments with materials, oil and the force of capillary action were the beginning of an intense exploration into the nature of oil. Like an alchemist orchestrating the 'flux and flow of materials' (Ingold, 2010, p. 3), I heated, mixed, stirred and diluted endless permutations and viscosities of oil and bitumen (a heavy grade of oil).

Once I had refined my fabric choice to the wool of oil spill cleanups, I wanted to find the best way to get the oil to travel through the wool fibres. Heat and pressure are the forces of geology and of refinement, but it is capillary action that is responsible for oil's transmission through the pores of wool. I discovered that the speed of transmission through the porous spaces was affected by the density of the liquid. Bitumen/tar is liquid but is too dense to rise by capillary action. It needs to be less viscous and the choice of thinner, temperature, the way that it is thinned and even the order in which thinners are added, make a difference to the appearance and behaviour of the rising liquid in the wool. I made numerous samples, each carefully labelled in order to 'follow these flows, tracing the paths of form-generation, wherever they may lead' (Deleuze and Guattari, as cited by Ingold, 2010, p. 3).

'Capillary action, also known as capillarity, is a result of the intermolecular attraction within the liquid and solid materials. The mutual attractive force that exists between like molecules of a particular liquid is called cohesion. Cohesion produces the phenomenon known as surface tension. When an attractive force exists between two unlike materials, such as a liquid and a solid container, the attractive force is known as adhesion' (Net Industries and its Licensors, 2011b).

'The combination of the adhesive forces and the surface tension that arises from cohesion produces the characteristic upward curve in a wetting fluid. Capillarity is the result of cohesion of water molecules and adhesion of those molecules to the solid material forming the void' (Net Industries and its Licensors, 2011b).

In wool, small pockets of air create the container or void, and the liquid adheres to the 'sides' of the fabric of those 'containers', rising through the air pockets by capillary action.

This process of refinement (and refinement of process), was filmed and further explored in numerous re-shoots, as each time the wool is dipped into the oil, the results vary according to these factors. Control or release ... accept the random and unpredictable path of the oil or attempt to exert control by varying the minutiae of heat, viscosity, time and movement? The story of oil makes clear the challenges involved, in controlling unpredictable forces of nature, physics and oil. Initially the oil rose in a straight line, a perfect horizon, but by 'following its flows' and letting it take its own path, I was able to capture the occasions where it mysteriously evolved into a landscape of its own making.

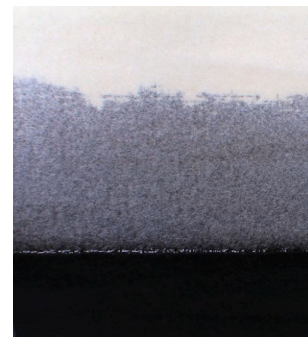
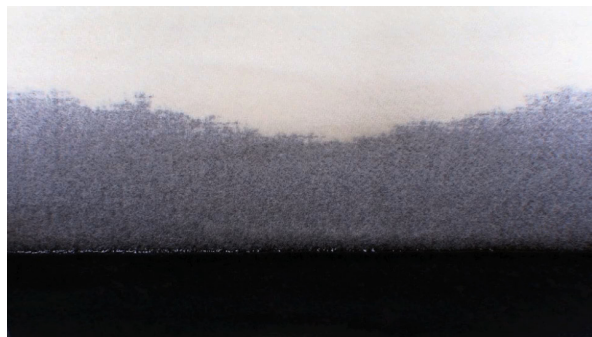
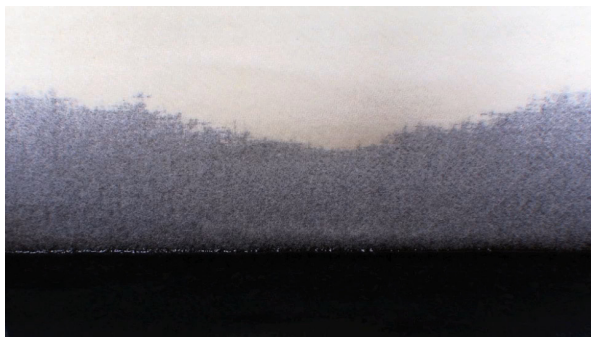
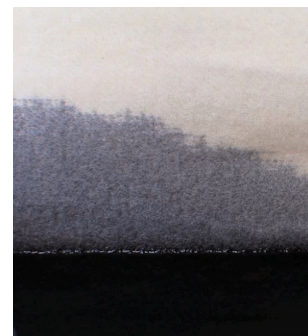
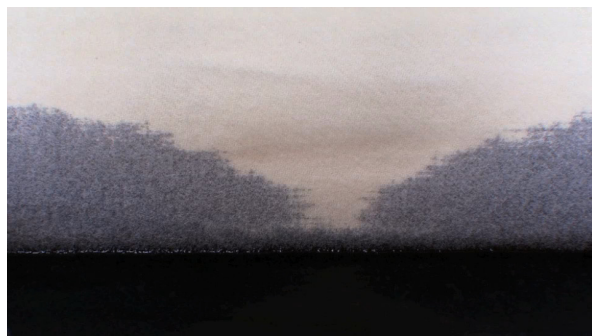
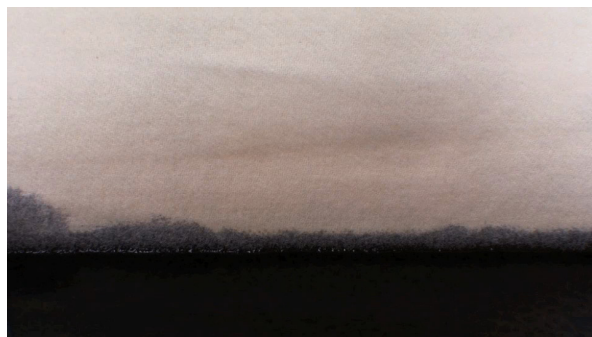


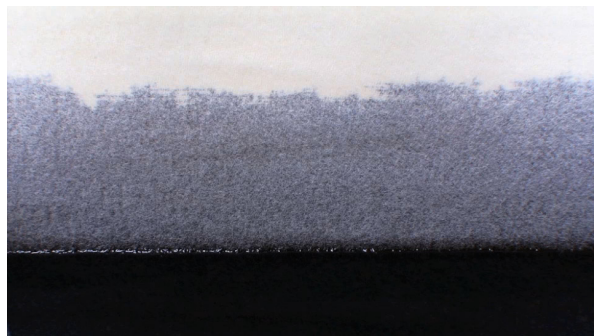
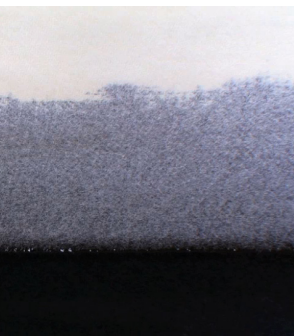
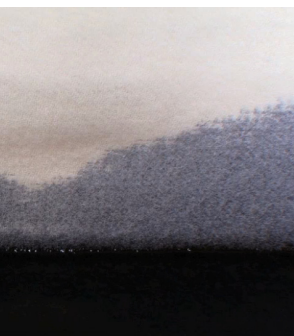
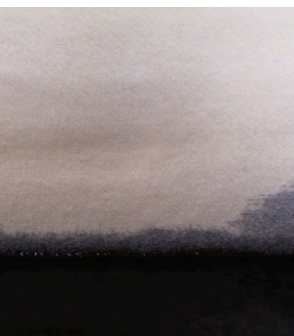
Experiments with wool and capillary action.

Robert Morris writes of this 'controlled lack of control' and refers to 'the employment of gravity and a kind of "controlled chance" that has been shared by many since Donatello in the materials process interaction'. 'Automating some stage of the making gives greater coherence to the activity itself. Working picks up some of the internal necessity as those points where the work makes itself, so to speak' (Morris, 1994, p. 28).

I initially saw the relevance of this work as of a soaking up of oil, accidentally spilled in a black sea. It captured the slow progression of oil through the wool and the detail of the threads. As the oil rose it transmuted into a ghostly landscape, seeping towards the pale sky. Its dark oily transgression gave voice to the forces of environmental degradation, and the threat of atmospheric hydrocarbons.

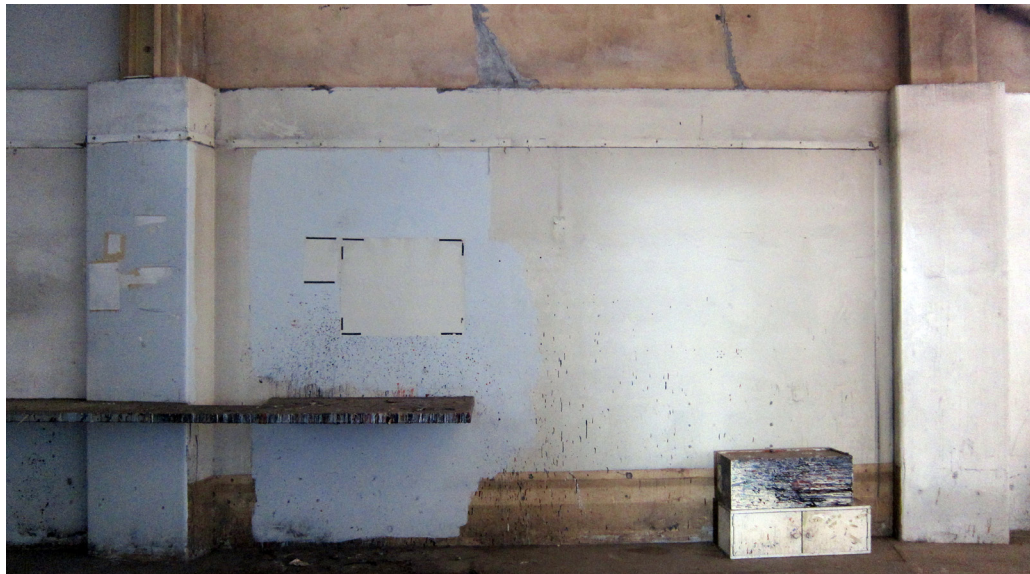
In situating the work in the Guys Body Shop building, I first projected it as a large scale luscious enveloping wave of oil, climbing up a wall. Robert Morris stated that, 'Objects project possibilities for action as much as they project that they themselves were acted upon' (Morris, 1994, p. 28). In situating the work at Guys Body Shop, the environment suggested another way to view this work.





The Oil Video plays against a darkened wall, oil slowly rising from the ground, the black sea, into an evolving landscape. Periodically it flickers, a shadow passes, accidents/spills/blemishes in its inexorable rise to a carbon-loaded sky. Above it, the tall roof of the body shop allows glimpses of the real sky... is that where it's going?... Where else? The fumes you feel around you, smell around you, they all rise, that's what oil does; it becomes vapour and rises. That's how it got here, through the porous spaces of the reservoir, forced by ancient pressures upwards through the rupture of the drill string. Rising through the sea, through the process of refinement, through fuel burnt... through the elemental forces of its very making.

As the landscape quality of the image came to the fore, I reconsidered the desire for this large scale. On the same wall was a smooth clean rectangle marked by corners of black tape. Surrounded by over sprayed splatters of paint, it formed a frame into which I projected my work as if it were a painting.





Susan Crile's, 1991 series of paintings, 'Fires of War', recorded the burning of oil wells by Iraqi forces in Kuwait. She says of her work, 'There were layers of meanings and issues. To begin with, I was showing the extremity of war, and its ecologically disastrous outcome. Scientists had believed that detonating the 700 plus oil wells could well start a nuclear winter; through good luck, due to providential wind patterns, it remained only a regional disaster. Then, the burning of vast amounts of precious oil was a major chess move in the power struggle for control of resources. Spending time inside the conflagration gave me another viewpoint. I spent almost 2 weeks in the burning oil fields, travelling through them with the chemical engineer, who was the director of safety for the clean-up project. It was like seeing the beginning and the end of the earth at the same time. There was an epic quality to it that I would never have understood without having witnessed it firsthand. And finally, there was the surreal physicality of the scene; nothing looked like anything one had ever seen before. It was post apocalyptic; Mad Max meets Alice in Wonderland in Dante's Inferno' (Crile, 2008).

Susan Crile describes a scene of epic proportions and initially my video reflected this quality in its projection. Subsequently I borrowed from the tradition of landscape painting, where vast scale is represented within the constraints of the picture frame.

In Vigo Lander's, 'Oil Rigs in Baku at Caspian Sea' (Figure 10, overleaf), human figures are dwarfed by huge structures, presiding over the bleak industrial landscape. His painting captures the raw beauty of oil exploration, tempered by an underlying awareness of its awe-inspiring power and danger.

The 'Landscape of Oil' video evokes oil's encroachment on the environment. As the oil travels through the wool, tiny threads are evident in the larger landscape. The dichotomy of the bleak and beautiful is expressed through the mesmerising moody blackness with the added dimension of time and movement.

Figure 9. Crile, S. (1991). *Daylight Darkness* (charcoal and pastel on paper, 38 x 50 inches). Reproduced with permission.

While the work references the atmospheric qualities of a tradition of landscapes, using video gives a temporal dimension that could not have been expressed in a static image. In Susan Crile's paintings, she has captured a fast moving dramatic act, frozen into a single image. A video would have been purely documentary evidence.

The 'Landscape of Oil' video is the reverse, a disaster moving so slowly as to be imperceptible, given a voice by showing its movement. The rising up of the oil took many hours in real time as evidenced by the gradual change in the quality of daylight. In the video it was sped up, yet it still emphasizes a slow, measured and unstoppable process. Looped, it repeats itself, a cycle reflecting a much slower climate cycle, we are both observers and participants in.

This chapter started with a quote by Maurice Blanchot that seems apt in so many ways. It considers the small things we might do that contribute to events beyond our cognisance, and to the accidents and the unpredictable forces of nature and oil. As much as it applies to the events that culminate in disaster, it also describes my material practise. Allowing process to lead means 'stepping aside for more of the world to enter into the art' (Morris, 1994, p. 28).

It was the process of making and situating my work, which led me to Guys Body Shop.



Figure 10. Langer, V. (1911). *Oil Rigs in Baku at Caspian Sea* (Oil on canvas, 18 x 29 ½ ins). Grohmann Museum, Milwaukee School of Engineering, Milwaukee, WI, USA. Reproduced with permission. Photograph courtesy of Grohmann Museum, Milwaukee School of Engineering.

Guys Body Shop



The name speaks of testosterone and motor fuel, burning rubber, burning carbon...body work. What would 'Guy' think now, if indeed he is a real 'guy', of this relic of automotive idolatry?

Guys Body Shop, a shop for bodies? Beaten back into shape, sprayed and polished, back to burn...

Body Shop, a microcosm of a world based on a petroleum economy, now a broken body.....running on empty.



Guys Body Shop is an abandoned automotive workshop in Tasman Street, Wellington where I chose to situate my work. The building is in a poor state of repair with broken windows and holes in the leaking roof making patterns of light on the walls. Dead power sockets hang from steel beams; it seems as if all sources of power have left the building.

Initially power was restored by a noisy petrol generator, later a builder's temp enabled me to more fully utilise this vast space.

30th September

Makeshift lighting cast hard shadows on the 'Core Samples'. Even at 3 metres they seemed diminished by this massive, tall space. With more 'Core Samples' and more oil on the floor, I can make better use of its reflective qualities, doubling the 'height' of the cores and mirroring the rig-like structure of the roof.

The floor is concrete, grey and stained like oil-drilled ground. It's coated in dust and a few scattered dried leaves. Periodically dark wet patches appear, in reality rain through the leaking roof, but imagined as lingering leftovers of oil rising.

I am making multiple castings and situating them on the floor to cast spiky ominous shadows. They evoke a sense of premonition/precognition of a future, where these are the fossilised remains of the oil industry, and the age of oil.



The building contains many remnants of its former life. Grinding discs and tawdry posters, a face mask and car paint samples are reminders and relics of its past role. Old drawers, cabinets and workbenches, mostly empty, evoke its previous human occupation as a workplace.

28th November

I have contained the five fossil casts in the cupboards beneath an old steel topped workbench, though one escapee has made it out onto the floor and two are locked in a mortal struggle. Despite references to museum castings contained in cabinets, they still seem to have a life of their own, as does this deserted building.



Guys is divided into two main spaces, that I think of as the dark space and the light space. The light space is surrounded by high windows. The outside leaks into the building not just when it rains, here plants are growing in through spaces in the roof, the windows, and anywhere they find purchase. Dead moths litter the window sills and the fine webs above them. This cycle of growth and mouldering decay evokes the sense of a primordial garden from an age of oil formation.

I placed a number of the smaller drill casts on the floor beneath this cascading plant life, with the idea of them as growths. On the windowsill I balanced a wax cast of a smaller drill, in front of the tall cloudy windows. This recent work seemed full of 'unfinished potentiality' a phrase mentioned recently by an audience member at the, 'Where Art Belongs / Exhibition as Medium' Symposium (2011, October).

Subsequent reflection on this work led to further experiments with casting paraffin and crude oil. By following the 'fluxes and flows' (Ingold, 2010, p. 3) of process and material, they developed into the 'Crude Transgressions' work, discussed in chapter 5, and gave voice to the darker side of economic forces.

In the dark space, marking time in a filmic cycle, oil rises slowly against the paint splattered concrete wall. Beneath plastic skylights and steel trusses, oil is rising ...and running out.

Time, for Guys Body Shop, is also running out. The economic forces that drive the search for oil, are also seeping and leaking, like rain, into this building. It is scheduled to be demolished in the near future, to make way for new apartments.

Like a 'Fossil of the Oil Age', it is damaged and obsolete, past usefulness. The work that is situated there, and the photos I have taken, will be the only record of its voice.



Conclusion

A conclusion suggests a summing up of what has gone before, but the conclusion I anticipated at the beginning, might have contained answers. While my journey may have shed some light on the complex arguments surrounding oil, the body of evidence seems troubled and divisive, and any solutions offered, uncertain.

'This indirection, the infinite detour which we try to understand as writing's being, so to speak, out of phase or belated – as incertitude or chance (and also as invention) – makes us unhappy. We would like to proceed in a straightforward way towards the goal – the social transformation which it is in our power to affirm. Some time ago this impulse was expressed as a desire for active commitment (engagement); to this day it animates the wish for a passionate morality. It is thus that we always manage to consider ourselves divided' (Blanchot, 1980, p. 78 - 79).

This narrative is about my journeys and material explorations of the forces and voices of oil. Embarking on this project I was attracted to the powerful visual imagery of oil, yet repulsed by its smell and toxicity, by its threat to the environment, and concerned at the social implications for the future. Making this work has been a journey through the world of oil that has strengthened and renewed my practise of making art, by 'following the materials' (Ingold, 2010, p. 9). My process led exploration of making, writing and reflection, has allowed me to find a path through the complex world of oil. This body of work is my personal response and is intended to encourage discourse and greater awareness, through its pluralistic engagement with diverse voices.

Oil is a contradiction, one that creates a powerful discord between a product and industry we all depend on, yet one that threatens our future. 'We are drawn by desire - a chance at good living, yet we are consciously or unconsciously aware that the world is suffering for our success.

Our dependence on nature to provide the materials for our consumption and our concern for the health of our planet sets us into an uneasy contradiction' (Burtynsky, 2010).

Peter Maas suggests there is a 'fortunate convergence between the answers to global warming, peak oil and the resource curse' (Maas, 2009, p. 222), ensuring that reduction is an imperative. Some writers predict forced reduction with dire consequences, while others hope for planned reduction, achieved in a manageable way. Maas believes that 'we already possess most of the answers we need' and that 'one of the reasons we face a world melting into violence – and just plain melting – is that for several decades we have refused to act on the answers within reach' (Maas, 2009, p. 218).

Professor William E. Rees' position is unequivocal and he poses the question, 'will any combination of art and science be enough to force necessary action? Techno- industrial society will not be the first human society to collapse under its own weight but it may be the first to do so knowingly and with so exquisite a portent of its own imminent demise' (Rees, 2009, p. 199).

In making work, that gives voice to the scientific and the political, the poetic and personal, it seems that there are many possibilities, but no definitive solutions. Perhaps the work I am making will, in a combination of the rational and the poetic, draw attention to this debate.

Where will my practise go from here? My material explorations have led to these four works, but littered along the path are abandoned experiments that are the beginnings of other journeys as yet unknown.





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Figure 1.

Burtynsky, E. (2006). *SOCAR Oil Field #3* (Photograph, Baku, Azerbaijan).
Reproduced with permission. Photo© Edward Burtynsky, courtesy
Nicholas Metivier, Toronto / Howard Greenberg & Bryce Wolkowitz,
New York “

Figure 2.

Livingstone, J. (2002) *Illusions of Security (for Joseph Bueys)* (Felt, Epoxy,
Resin, Pigment, Wood, 6 parts 170 x 20.50 x 8.50 cm). Photograph
David Ettinger.
Retrieved from [http://www.joanlivingstone.com/index.
php?option=com_content&view=article&id=39&Itemid=10](http://www.joanlivingstone.com/index.php?option=com_content&view=article&id=39&Itemid=10)

Figure 3.

Livingstone, J. (1998). *At Capacity* (Detail). Photograph David Ettinger.
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php?option=com_content&view=article&id=39&Itemid=10](http://www.joanlivingstone.com/index.php?option=com_content&view=article&id=39&Itemid=10)

Figure 4.

Wilson, R. (1987). *20:50* (Used sump oil, steel, dimensions variable).
Saatchi Gallery, London.
Retrieved from [http://www.saatchi-gallery.co.uk/artists/richard_
wilson.htm](http://www.saatchi-gallery.co.uk/artists/richard_wilson.htm)

Figure 5.

Herzog and de Meuron. (n.d.). (Model expressing topographical
stratification of a cliff side with plaster cast in steel).
Retrieved from <http://nootnatait.net/p/arc.html>

Figure 6.

A81.226; Sign, trade. (circa 1950's). Collection of Puke Ariki, New Plymouth. Reproduced with permission.

Figure 7.

Whiteread, R. (1995). *Untitled (One Hundred Spaces)* (Resin, 100 units of nine sizes). Saatchi Gallery, London. Retrieved from http://www.saatchi-gallery.co.uk/aip/rachel_whiteread.htm

Figure 8.

Skantze, K. (n.d.) (Photograph of Oilguard, nonwoven fabric). Reproduced with permission. Photograph courtesy of HeiQ, Switzerland.

Figure 9

Crile, S. (1991). *Daylight Darkness* (charcoal and pastel on paper, 38 x 50 inches). Reproduced with permission.

Figure 10.

Langer, V. (1911). *Oil Rigs in Baku at Caspian Sea* (Oil on canvas, 18 x 29 ½ ins). Grohmann Museum, Milwaukee School of Engineering, Milwaukee, WI, USA. Reproduced with permission. Photograph courtesy of Grohmann Museum, Milwaukee School of Engineering.

Pages 50 and 61. Photographs, Jordan Flynn.

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Re-presentation of 'Rising Up - Running Out' at Massey University, MDes Exhibition 2012.

RISING UP – RUNNING OUT

Material Investigations

