HAPTIC ENCOUNTERS WITH ARCHAEOLOGICAL KNOWING

BODILY PRACTICES IN EXCAVATION

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Abstract

Modern accounts of the doings of scientists habitually obscure practices of bodily knowing. This thesis therefore speculatively prolongs a critique of the disembodiment of scientists, adapted from a philosophical tradition within Science and Technology Studies.

Part one takes as point of entry the inheritance of modern science to the powerful philosophical imperatives of detachment and lucidity, emphasising a body deprived of its curious, inventive, and adventurous dimension. The sensing, moving, and relational body is reclaimed in a turn to ontology, not only as situated within its world(s), but also as continuously in passage through diverging experiential, and affectual states. Conceptually extending the body invokes haptics as an indigenous theory of touch, drawing on the moved, and moving body. Through haptics, the body's renderings of objectivity are rethought as indeterminate and hallucinatory prehensions. Required for haptic knowing is then an ethos of yielding to material alterity, animating a kind of objective (un)knowing.

Part two analyses archaeological theory for its ethico-political conditions of knowing. Rethinking touch in archaeological excavations, the suggestion is made that archaeological knowing is alchemical, favouring affectual and material relations over objects. Following and observing haptic encounters between participants in excavations at the Burrough Hill Iron Age Fort, and the Ardnamurchan Transitions Project, experiential affects are found to be crucial for the contingent material continuity of archaeological knowing. These affects are shown to groove the excavation and bodies of archaeologists, in their imaginings of a knowing, responsive to events in their environment.

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Preface

Haptic Encounters and the Need for an Alternative Enlightenment

I am one of those, put me at the edge of a trench and I think I know what is happening, but put me in the trench and I 'just know'. Or at least that's how I feel.
(Email correspondence with David in December 2014)

David often roamed the excavation site at Ardnamurchan, Scotland, tailed by his dog, in the summer of 2014. I noticed him spending his time observing the ongoing archaeological labour – and occasionally joining in, as well as discussing parts of the site and details of its many trenches with other archaeologists. As one of the supervisors of the excavation, he carried responsibility for the continuation of the dig. Beyond formalised accounts, his responsibility included a certain affective relation to the site, and to the archaeology being done. What this means is that the arrival of archaeologists at the excavation obviously means that they *want* to go there; that particulars at this excavation in Ardnamurchan piques their interests and pulls them into its own world, with some kind of logic of its own. Questioning what exactly piques their interests, how it does so, and how it might change in the course of an excavation like Ardnamurchan, seems to change what it means to engage in archaeological knowing.

Observing David, I was struck by these short moments of active thought passing across his face during his roaming about, and attaching himself temporarily to a smaller part of the excavation. Someone he was speaking to, someone he overheard, or something he noticed, led to a

moment of recollection, and a quite literal stop to his bodily activity of just going about. He might see an archaeologist digging, and I would see David think (something) about it. In this thesis I will work out my impression that these moments have an affectual charge, which relates to a kind of knowing or reason *in reciprocal touch with the site*, which archaeologists employ during their work.

All these small moments have very wildly diverging contents of course, as they are all different in empirical situatedness. Their power to interrupt and redirect the excavation however became in itself a very familiar occurrence during the excavation at Ardnamurchan, and as a researcher I got drawn to these moments in a structural sense; that is in what ways these moments of recollection re-structure the doings and makings of archaeology. I call these moments *encounters*. This generic word describes a variety of occasions in which 'something new' happens; old relations are partially unmade, and new relations added to the situation. Interruptions to David roaming about, often accompanied by his thought, I take as specific encounters.

Drawing on the pre-Socratic philosopher Heraclitus, my emphasis on the encounter refers to the change associated with not being able to 'step into the same river twice,' even though the notion of the 'same' river, like the 'same' excavation site, is still present. In the light of this, encounters can be understood as 'new' occasions happening in the 'same' excavation. Encounters point to diffraction patterns (Sismondo, 2010, p. 91; Barad, 2014), in which the two or more agents of an encounter break apart in different directions. They also include thinking in terms of ecology, as nothing can be encountered without also encountering its landscape, environment, and world (Benjamin *et al.*, 1996, p. 13; Puig de la Bellacasa, 2012; Barrett, 2016). Other important encounters this thesis are for instance

Latour and Woolgar's (1986) encounter with various practices of laboratory scientists; the encounter between the sociological and the technical dimension of STS (Law, 1991, p. 7); archaeology's encounter with STS (Webmoor, 2013); the encounter between feminist standpoint philosophy and archaeology (Wylie, 2006); Stengers's (2000) dedication of her book "in memory of an encounter that never took place;" experiential encounters between archaeologists and the field; as well as experiential encounters between me and their archaeological practices, to name but a few. This is not to say that encounters are everything, but rather that thinking with encounters in and out of archaeological excavations emphasises a registered difference in light of the same old, and well-known, excavation site. It also means that these mentioned encounters encounter each other throughout this thesis, and form a meshwork (Ingold, 2007, 2013) of conceptual and thematic relations. I propose that employing such philosophical practice contributes to a logic of the Enlightenment, unburdened by the obsession to take strict categories as the venture point for possible knowing (as in Kant). In this reconfigured Enlightenment, the bodily following of encounters crafts knowledge through reasoning with these encounters as they happen. This thesis is in this sense an attempt to know through conceptual and experiential encounters.

Then there is the question what knowing actually means in this alternative, and the importance of archaeology for it. In David's "I think I know" there is an undisclosed relation between his thinking and his knowing, standing at the edge of a trench, waiting to emerge. When he is in the trench however, David notes that "I 'just know'." If encounters bring a 'new flow' into the archaeological excavation, surely 'just knowing' is the structural aspect of the 'same river bank,' or in other words of archaeological 'remains.' One of the main ambitions of this thesis is then

to analyse this difference between knowing and thinking-knowing in theoretical, experiential, and methodological ways. Knowing for David has something to do with where is body is in relation to the soil. There is a qualitative difference in the way his body is positioned, and perhaps also in its movement from outside ("I think I know") to inside ("I 'just know'") the trench.

This difference has consequences for teaching archaeologists how to do archaeology, and is at least a partial redress of what academic archaeological research might mean. It is easy to be suspicious of David's claim to 'just knowing,' and designate his knowing as unacademic. And yet the archaeologists I spoke to confirmed that one does not learn to become a field archaeologist in the classroom, nor that every student has an innate ability to become a great field archaeologist. Field archaeology is much more a craft than a hard science. One of my questions in this thesis is then how such a knowing from ground up can infect and change a shared social understanding of what science is and does, taking live archaeologists at least as seriously as the literature written by them and their colleagues. Moreover, through its alternative proposition of Enlightenment through bodily knowing, it is possible to look at how archaeological knowing can 'infect' and change the traditional teaching so common in the academy. Archaeology is crucial for this project, because as a scientific discipline it is unique in the sense that it cannot be separated from encounters from the ground up. Simultaneously, it is the relation between body and knowing that emerges from archaeology, and leaves a strong intensive as well as extensive contrast to learning in the academy. In archaeological excavations, these encounters themselves are critical to its epistemological program, which is historically so embedded in anthropology and rational empiricism.

Archaeology's position with regards to the sciences it relies on has been a matter of intense debate and differentiation amongst archaeologists in at least the last 70 years. As the feminist archaeologist Alison Wylie (2002, p. 23) notes, debates in archaeology are woven through themes like (1) the antiquarian gathering of facts early in the 20th century, (2) recurring empiricist notions throughout that century, and (3) reactions to such archaeology deemed traditional by a similarly recurring instances of 'New' archaeology. As Wylie (ibid.) notes, the recurring nature of these debates objects to a linear understanding of the development of archaeological theory. Considering also the forces of anthropology as well as the natural sciences, often pulling in opposite directions while being employed simultaneously, what archaeology is and does is by no means a finished discussion, but rather an extended matter of political affairs (Barrett, 2016).[1] Within this debate, this thesis takes an ethical position to re-turn to archaeology some of its disciplinary ground, that is, the excavation as an imminent place, and a corner stone of what is understood as archaeology (see also Edgeworth, 2011a; Hamilakis, 2013). The contribution of this thesis then lies not so much in an attempt to address epistemological difficulties in archaeology by returning 'thought' to the 'soil' (which Wylie, 2002 does so well in her book), but rather to encompass the affective sense of learning archaeology in the field, and extend this thought to academic knowing through the concept of the encounter, e.g. returning the 'soil' to 'thought.'

Finally, David indicates about his knowing "or at least that's how I feel." Can we separate David's knowing and feeling when he is deeply entrenched in the excavation? Rather than take this as an indicator of a reductive empiricism, dumbing down David's crafty knowing, I would

1 See chapter four for an in-depth discussion on archaeological theory.

inversely suggest an affectual connection (see Massumi, 2002) between his knowing and thinking. David's movement from outside to inside the trench somehow also moves something in or of his body from a thinking-to-know, to a just-knowing, to a feeling-to-know.

There is surely a danger in accepting that these three forms of knowing are different categories being passed in a consecutive manner, coinciding with David's movement to a 'truer' form of knowing the closer he gets to be in touch with the soil. David himself seems to suggest that he has some advantaged sense of knowing when he is inside the trench as opposed to standing on the edge of it. However, Massumi (ibid.), and affect theory more generally, has explained that cutting up the actual movement of David from one position on the edge of a trench, to another position inside the trench, subtracts *movement* from the account. Doing this, "there is 'displacement,' but no transformation; it is as if the body simply leaps from one definition to the next" (ibid., p. 3). Massumi (ibid.) continues to point out that, in order to do justice to the movement and transformation of the body, the *concreteness* of experience itself must be problematised. In other words, a description of what happens when David jumps into the trench, and moves from thinking-knowing, just-knowing, to feeling-knowing, demands an abstraction, which deals with the in-corporeality of the moving and sensing of David's body. In other words, how and in what ways does David, and other archaeologists, connect to the excavation site, without reducing the transformative notion of this connection to concrete but immobilised parts?

Taking into account the encounter as potential for such transformation, I am looking at how archaeologists, and bodies more conceptually, touch on matter and are simultaneously touched by it. Haptics, that is the science of touch and being in touch, offers an

extension to the concept of affect, due to touch being a metonymical point of entry between their movement and the bodily sensorium of archaeologists. Haptics within this framework therefore allows to research how knowing is done, without arresting touch as unmediated, or too concrete. It is rather a point of entry into the building of a world of the excavation, and the knowing archaeologists do on site, while including how their bodies touch on, and are touched by, the environments they move through.

Haptics is a way to re-think the body's relationality and ability to be affected as crucial to objectivity and knowing, in the light of 'the unknown' which is so interesting to scientists. Re-thinking what knowing means in haptic sense includes a sensibility, in which thoughts coalesce with feelings and sensations for a project of an alternative Enlightenment, which is more responsible to encounters on the field. Because of its attention to bodies in reciprocal touch with the excavation site, haptics emphasises an ethical dimension of science in the form of response-ability to the (technoscientific) worlds in which research takes place. For archaeology, a haptic notion of Enlightenment folds back into the archaeological record, and thus contribute to what is deemed acceptable as archaeological data, and knowledge.

Introduction

Something in the world forces us to think. This something is an object not of recognition but of a fundamental encounter. What is encountered may be Socrates, a temple or a demon. It may be grasped in a range of affective tones: wonder, love, hatred, suffering. In whichever tone, its primary characteristic is that it can only be sensed.

(Deleuze, 1994, p. 139)

I. Escapades

Before and during the process of writing this thesis, I have been struggling intensively with theoretical and philosophical problems in relation to a personal history within the individuated world I am part of. These problems, I found out, centred around specific practices of knowing of myself, and others, which were only very rarely satisfactory. Knowledge claims I heard were generally made with reference to an obscure, and transcendental concept, ranging from 'reason' and 'logic,' to a self-evident 'normality.' Coming from a modernised and implicitly catholic background, I remember very clearly my first encounter with some of the primary works of Nietzsche. His furious and brilliant refusal to be domesticated by a strict and lethargic division of life, not to mention the boring literary standards of philosophical prose he so effectively broke, has had a great effect on my body. Nietzsche as an educator taught me the value of joyful thinking, even if not yet how to think joyfully and without resentment. I have used Nietzsche, and later some of the work of his nineteenth and twentieth century 'associates,' in order to partially escape from a history of thinking, imagined *and* real, whose function is to subdue, even at times when this subduction would come with the kindness and humbleness of good intentions, but bad effects. The Will of Nietzsche's voluntarism is capitalised for good reason, as it has had to take up the fight with the Reason of rationalism in Kant's powerful and lingering transcendental idealism. The 'history' of European philosophy showcased to me how rationalistic concepts like autonomy, authenticity, pluralism, and (gender) equality appear to upset the status quo they address, yet in practice can turn into a part of the constitutive continuation of these same problematic practices. In other words, a showcase and celebration of

human differences gave me nice pictures, but little in the way of tools to material change. My journey therefore has had to be conceptual, and philosophical, as I feel that Kant's rationalistic shadow still reaches long and far, within humanism and also in academic and scientific thought. Therefore, any practices based on just 'examining life' would necessarily and inadvertently reproduce his legacy. After all this time since his two main Critiques (in the 1780s), it cannot be denied that Kant's shadow is still present in contemporary practices of knowing also, and that subverting it requires more than sitting in a safe and comfortable classroom examining the lives of bodies, white in many ways. My journey had to leave the classroom, and the factual analysis "Kant is wrong!" behind. Indeed, Kant is wrong, but we have known this for some time now, and *still* he is the most rightfully wrong metaphysician European philosophy has been able to produce. What bothers me most then, in Kant's philosophy, is the a priori and irresponsible determination that real change through thinking is not possible, and the reach this imaginary still has. The thing-in-itself is not accessible to knowing, and never manipulable as such. In his transcendental idealism, knowing is designated to and claimed by representative academia. Where then is the space to diverge from teachers, if the very separation of the assumptions from the effects of their didactic methods is untouchable? Subverting the inaccessibility of the thing-in-itself to thinking and knowing cannot remain a purely philosophical endeavour, if change is programmed and categorised. And yet I found that it is here that Kant can be quite easily (ab)used to make a call for an experientially encountered philosophy of knowing, which gives space to contingency before necessity. The great wall built by him around the domain of knowledge creates endless contrasts with experiential events betraying grand performances of

philosophical logic. As Kant's Critiques can be taken as an analysis of the very necessary limits of knowledge, it becomes possible to encounter and even favour a posteriori and experiential occurrences, which regardless of this doctrine still persist in knowing, without reference to or even care for personal maxims or universal laws. One only has to leave the office (and the clock) for a few minutes, and encounter a world which invalidates the best logic. After all, what creative endeavour is left for thinking, if subscribing to the seemingly insurmountable creative invention of the Kantian doctrine? This question comprises the first motivation of what led me to write this thesis. I wanted to see and register experiential change, discontinuous and interruptive of a philosophical story of modern reason.

In order to do so, and think joyfully with this potential change, I turn to the body as a potentially renewed ground for knowing. Nietzsche (2006, p. 23), through the prophetic words of his Zarathustra, entices me by inextricably connecting bodies with acts:

But the awakened, the knowing one says: body am I through and through, and nothing besides; and soul is just a word for something on the body. The body is a great reason, a multiplicity with one sense, a war and a peace, one herd and one shepherd.

My adopted, but formally empty law in this thesis is that it requires a body to act, and to know, and that souls are one of the many *extensions* bodies draw upon to act in the world (Latimer and Munro, 2009).[2] Thinking in this way intertwines knowing and acting as two verbs, which are one in life. Even the most thoughtless acts give evidence of certain ways in which bodies prehend the world. The apparent opposition between the body's

2 Even though accepting the tremendous diversity of extensions.

great reason and its *multiplicity with one sense* is nothing more than a trick of language: sense and reason are connected more profoundly than any synthetic philosophy would dream of. A mistake I found myself giving into at this point is that I tried to understand and make sense of this monistic philosophy. Trying to grasp and pinpoint a body, which is in a sense autopoietic, is a dangerous thing, especially in a world which so favours dualisms, and from theories which created grand notions of what it means to be a self, an -ism, a name. And this is why, just as it is important for me to affirm inheritance to these grand stories of Reason, it is equally so that the Kantian story should not be grand at all, but rather the story of just a philosopher speculating forth his transcendental project, which mostly prove the limitations of its own provincialism. Is it possible to betray this master of creative thinking more radically, and make what is independent of experience, e.g. certain structures of knowing, contingently dependent on experience itself? The contingent is why it is important for me to do philosophy in an anthropological way in this thesis (cf. Ingold, 2013). Paraphrasing Latour (2014, p. 302), anthropology needs to remind philosophy that it never reached the universal, while philosophy can safeguard anthropology from being merely a local endeavour. I am not a trained anthropologist, and as such I will borrow anthropological insights at times and use them to keep thinking sane. I found that the proposed extensibility (Latimer and Munro, 2009) of bodies by means of learned techniques calls out for modern researchers to be embedded in worlds where the modern comfort of their disembodied selves is in peril, even when their body comes more animated and alive. So the task for me as a researcher is to become bodily exposed as well to occurrences of the knowing-doing of bodies from the ground up. This practice should interrupt these already told stories in an

attempt to speculatively craft perhaps better, more enchanting, and particular stories about knowing.

II. Touch and the Problem of Bifurcation

In order to broaden and deepen my scope with regards to alternative stories on knowing, I connect to a philosophical tradition within Science and Technology Studies (STS). My aim is to find conceptual attachments and experiential possibilities to think with, through much of the work of Latour (1993, 2004; Latour and Woolgar, 1986), Stengers (2000, 2011), Deleuze (1988), feminist theorists within STS (e.g. Barad, 2007; Despret, 2004; Fox Keller, 1985; Haraway, 1988; Mol, 2002; Myers, 2015; Puig de la Bellacasa, 2009; Sobchack, 2004), phenomenological and geographical approaches to the sensorium (e.g. Paterson, 2009a; Butcher, 2012; Edgeworth, 2016a), as well as other interdisciplinary and even undisciplined authors. It is however a fascinating popular scientific example of a practice of physics and chemistry, which led me to intuit the significance of touch as a sense for knowing in scientific practices, and to approach haptics as the 'science' or theory of touch. In this example, the place of touch in science manifests itself as a problem, because its function as a practice of scientific knowing is not explicated. In the Avogadro Project, as told by Marcus du Sautoy in the BBC4 documentary *Precision: The Measure of All Things* ('Episode 2: Mass and Moles', 2013), human touch is used as an active sense to construct two semi-perfect spheres of silicon. The goal of the project is twofold. Firstly, the silicon sphere will allow scientists to more precisely define what is called Avogadro's constant, a standard of measurement. Secondly, as Avogadro's constant is related to the amount of particles in the unit called the *mol*, and as the mass of one silicon atom is known, scientists will be able to more precisely define the exact mass of

the kilogram. This is relevant for the project, because the mass of the materially existing kilogram master preserved in *Le Grand K*, the standard for the scientific definition of the kilogram, is slowly but surely diminishing because of unknown reasons. The two spheres the project aims to produce then not only become evidence for more precisely knowing Avogadro's constant, but they will also function as a new and better kilogram master. There are many interesting technical steps taken by scientists on their road to a more perfect kilogram, and the more precise determination of Avogadro's constant. Counting the silicon atoms for instance requires a technique which is fascinating in its own right. However, I will focus here on only a part of the project, that is on the method used to craft such a delicate sphere. That is, the scientists working on the project found that there were no existing machines able to create a sphere with such high levels of perfection. As the documentary shows, *the only way to do it was by hand.* Furthermore, the scientists involved claimed that there was only one person with such a delicate sensitivity in his fingers who could achieve this remarkable feat. Achim Leistner is a master optician known for his craftsmanship and expertise, and consequently employed by the institute to use his hands to shape the spheres. Likening the sphere to the earth, the surface would never vary more than a few meters, as Marcus du Sautoy (ibid.) mentions in the documentary. "Using his extraordinary sense of touch, it is said, Achim could feel silicon's atomic structure with his fingertips" (ibid.). Or, as scientist Peter Becker, working with the project, says, while looking rather bemused: "Really a feeling [of] how many atoms you have to remove on one side. [An a]tomic feeling in his hands." Leistner worked for months on two of these silicon spheres, for hours per day, in order to get a feel for the surface of the silicon, and know where to remove a few atoms without

letting the mass of the spheres drop to below one kilogram. His touch is remarkable and exceptional, as it seems to question the reproducibility and scalability of experimental results and devices (Stengers, 2000), by the intervention of sensual experience embodied in a singular body.

Yet, a major 'problem of knowing' stands out regarding this story. There is a lack of academic sources backing up Achim Leistner's haptic practice. In my searches, I have only found references including Leistner's touch in the BBC Documentary, as well as on several 'popular science' news sites.[3] The main academic publication for the Avogadro Project, four pages published by Andreas, Azuma, Bartl and their 23 colleagues (2011),[4] from eight institutions around the world, mention that their new approach "enabled isotope dilution mass spectroscopy to determine the molar mass of the silicon crystal with unprecedented accuracy. The value obtained, $N(A) = 6.02214078(18) \times 10^{23}$ mol^{-1}, is the most accurate input datum for a new definition of the kilogram." Yet, regarding the process of shaping the two spheres, the paper only mentions that "two spheres, AVO28-S5 and AVO28-S8, were taken at 229 mm and 367 mm distances, respectively, from the seed crystal position and shaped as quasiperfect spheres *by the Australian Centre for Precision Optics*" (ibid., p. 2, emphasis added). Leistner's hands are not part of the knowledge communicated, but are subsumed under a generic practice of 'shaping' by the ACPO. At this point it is easy to become suspicious of the validity of the narration of Leistner's atomic feeling by 'popular science' news sites, and the exciting BBC4 documentary. Alternatively, I could even propose a debunking explanation, that recruiting Leistner was probably a much cheaper option than

3 See i.e. Wired (Keats, 2011), and New Scientist (Powell, 2008). Leistner's touch is also mentioned at Wikipedia (*Kilogram: Avogadro Project*, no date).

4 One of their colleagues is the same Peter Becker who mentioned Achim Leistner's "atomic feeling" in the documentary ('Episode 2: Mass and Moles', 2013).

designing an even more precise machine for the sole purpose of crafting the spheres. Furthermore, the processes of “isotope dillution mass spectrometry (IDMS) combined with multicollector inductively coupled plasma mass spectrometry” (ibid., p. 3) used to measure the sphere are portrayed as quite novel technological achievements, and as such seem to deserve the bulk of attention. Dismissing Leistner’s “atomic feeling” out of hand is easy however, when technological advancements are achieved, and the exact historical circumstances of their construction as fact are forgotten (cf. Latour and Woolgar, 1986). What matters to me here is not how significant the sense of touch is for the project, but rather to diagnose that touch (here a metonymy of the body) is missing from the accounts of scientific knowledge. Its sense is not even contradicted by an explication of a possible other way of crafting the spheres. Its absence resonates with a report by the BBC (Feilden, 2017) on the ‘reproducibility crisis’ of science, in which scientific experiments are not reproducible, because its literature has been “"tidied up" to present a much clearer, more robust outcome.” The objective becoming of the sphere is therefore left vague; as an obscurity it does not seem to belong to touch, but rather to a particular notion of science. It is hence not science, but this notion of science, which is a problem for the sense of touch. There is something left unsaid by Andreas, Azuma, Bartl and their colleagues (2011) in the presentation of the process of the Avogadro Project, and this something implicates their science in questions about the bodily engagement of their scientists. It was following feminist scholars like Knorr-Cetina (1981), Fox Keller (1985), Haraway (1988), Harding (1991, 2005), Stengers (2000), Despret (2004), amongst others, ‘black boxing’ the sensuous and embodied part of the scientific construction of knowledge, that I was lead to genuine questions about the ways science is actually done, and it is in telling a story that accounts for

these bodily engagements that I am interested in this thesis.

At this point I would propose to think this lack of touch in the light of the concept of the bifurcation of nature, created by the philosopher A.N. Whitehead (1964) and continued by Isabelle Stengers (1999, 2011) and Bruno Latour (2008). Bifurcation is defined by Whitehead (1964, p. 210) as the separation of nature into on the one hand a world of knowledge consisting of i.e. (silicon) atoms, electrons, and primary qualities, and on the other hand a world of secondary qualities like the warmth of the sun, the colour of poets, but also, for instance, the experience of crafting a silicon sphere. In other words, one is the world of causes, and the other is the world of their appearances in the mind, and mere speculation. The obscurity of Leistner's atomic feeling in the Avogadro Project is one of those instances where, perhaps, an "experience of activity" (ibid., p. 118) of crafting the spheres is relegated to be a dreamy "byplay of the mind" (ibid., p. 21). I would therefore propose that bifurcation is still a contemporary conceptual problem. In this context, relating the event of touch with the event of scientific discovery in the Avogadro Project through a common story could lead to the realisation that the stability of the improved scientific accuracy of Avogadro's constant and the kilogram is only useful for a particular society of scientists, and only until a better method of calculation comes along. In this sense Leistner's touch is an event with a particular beginning and ending, but so is the scientific construction of Avogadro's constant and the redefined kilogram. What is problematic then, is the lack of "all-embracing relations" (ibid., p. 22) between the two, e.g. the recognition that both the haptic crafting process as well as the discoveries by the measurement machinery are specific events, which each have their place in the doings of science.

III. Encountering Archaeology

My philosophical interest in the bodily doings of scientists lead me to engage with a field of science in which bodily touch might be integral to its scientific practices. My interest here is to study how touch and their bodies work and know within their practices, and the way their discipline theorises their practices. It is with the help of my supervisors that archaeology became relevant for me as such a field, and I got in touch with archaeologists at the University of Leicester, who kindly invited me to join them on two of their field sites, one in Leicestershire, and the other in Ardnamurchan, Scotland, in July and August 2014.[5] The contrast of the story of Leistner's touch, occurring in experimental science, with archaeology as a field science, is potentially great. And yet, as I am not a scientist myself, it is one of the aims of this thesis to tell different stories of knowing, from the vantage point of not belonging to any of the sciences. And, in that sense, archaeological excavations are particularly interesting because they seem irreducibly dependent on bodily encounters with field sites. They often happen in remote locations, which at first are not designed for human dwelling, and therefore, I thought, excellent sites to witness and experience encounters with contemporary knowing outside of the constraints of stories already told. As such, I set out to learn more about archaeology as a discipline itself. While talking with archaeologists and reading about what they do, it became even more apparent to me that their bodily involvement is so crucial to their practice (cf. Hamilakis, Pluciennik and Tarlow, 2002; Hamilakis, 2013). Indeed, archaeologists do travel to remote places, where they touch all kinds of different stuff (cf. Edgeworth, 2012). And yet I also learned that the question of the bodily engagement of archaeologists, or of the archaeologists' touch, has not yet

5 I will address these field sites in-depth in the methodological reflections, and chapter five.

been sufficiently addressed with regards to their ways of knowing. When archaeologists do speak and think about bodies, they almost univocally (but of course very divergently) speak and think of the bodily remains of the dead in the ground, and not of their own sensorium. Notable exceptions in this regard are the works of i.e. Alison Wylie, Matt Edgeworth and Yannis Hamilakis. Wylie (2002) intertwines philosophy with archaeology in an amphibious[6] way, which focuses on "thinking from things" as a making of knowledge from the ground up. She shows that philosophy and archaeology have always been close relatives, and moreover that both disciplines have a lot to gain from continued relations. Edgeworth (2011b, 2012, 2014, 2016b) employs an existential vocabulary which is very reflexive of the excavation practices of archaeology, and touches on the bodily involvement of archaeologists with landscapes in various ways. Hamilakis (2013, p. 201) has written extensively on "a sensorial approach [which] can not only reanimate the past but also help[s] us revisit a whole series of categories of data and fields [...]." I share with these archaeologists, among others, a questioning of the robust and dominant philosophies of e.g. Plato, Descartes, and Kant, all of whom stand in a philosophical tradition which contributes to a bifurcation of nature and experience in particular ways, e.g. by splitting nature into grand Ideas and base desires, thinking matter and extensive matter, and inaccessible things-in-themselves and categorical representations of these things, as I touched on earlier in this introduction.[7] For archaeologists, implicit or explicit, it is the archaeological record which

6 Wylie's (2002) use of 'amphibious' pertains to archaeologists being able to draw on both philosophy, as well as on archaeological theory; being at ease both in the sea and on the land, so to speak.

7 Hamilakis (2016, p. 1) in particular addresses the colonial implications of a "dominant tradition" of archaeology.

serves as a device for how archaeology can and should know, and how this knowing relates to contemporary thought with regards to questions about i.e. embodiment, landscapes, time, and knowledge. The archaeological record, or palimpsest, defines archaeology's hold as a science, as a device to translate findings from the field into knowledge through data. What the archaeological record does in and to specific practices then, has important consequences for the notion of science archaeologists adhere to. Archaeologists have thought extensively about the archaeological record, and I will analyse in what ways the often ambiguous notion of the archaeological record relates to notions of knowing in chapter four of this thesis.

It is not very surprising that archaeologists, when they think of bodies, think mostly of bodily remains of beings who once lived, and not of their own sensorium. Their scientific practices cannot and should not be separated from the objectivity of their interests, and even when their interests touch on my own in fundamental ways, they diverge in others. For me as a science studies thinker, archaeology (both in theory as well as in my findings from the field) serves as a way to think the ontology of scientific doings differently, and because of this it is important to me to create a meta-narrative on archaeological knowing. Therefore, this thesis seeks to contribute to a philosophical space within STS where such a meta-narrative could find a place.

IV. Methodology: Situational Analysis and the Politics of Knowing

The construction of a meta-narrative is the reason why this thesis does not have a literature review, nor a data analysis, in the strict sense of the word. Rather than more or less exhaustively review literature about i.e.

embodiment, the sensorium, or archaeology, or exhaustively map empirical investigations of archaeological excavation, the chapters of this thesis are inspired by (rather than applying) situational analysis in grounded theory, as a mode of relating to a complex field (Clarke, 2003). The addressed theories and empirical findings are situated around very specific philosophical and anthropological problems, which frame the relations of theoretical and experiential encounters. A thinking path akin to relational analysis means here that "the researcher becomes not only analyst and bricouleur but also a cartographer of sorts" (ibid., p. 571). A cartographer would be able to map the situation exhaustively. My attitude however is not one in which I, as a researcher, create a map of haptics as a subject area, but instead position myself as a moved co-mover in a shared world. For this reason, the progression from what Clarke (ibid., p. 561) calls a "messy situational map" to an "ordered situational map" has been done thematically, from the midst of things.[8] The abstract concepts and findings on my messy situational map have been connected by lines or threads working from the ground (and theory) upwards, sideways, and downwards. My aim here is to make possible a *following of encounters* between bodies during excavations. The literature/theory chapters themselves are also written as situational and relational encounters between a variety of theorists, myself included in the process, and are part of the ongoing investigation to arrive at useful and in-depth contributions to the overall thesis on haptic knowing in archaeology. My attempt here is to diffract (Barad, 2007, 2014; Kaiser and Thiele, 2014; Sehgal, 2014) concepts from multidisciplinary work, and use them in a meta-analytical sense, from a thematic 'map' co-constructed by theories, concepts, archaeologists, and others. Each chapter ends with a set of these diffractions (ibid.), which

8 See also *Writing a Thesis Differently* (Honan and Bright, 2016).

function as brief propositions for the continuation of this research in the next chapter. Diffractions are reflections rethought, pertaining to an extension of the discussions to differently situated problems, and not as a mirroring of the actual meaning of these problems. This thesis therefore merely attempts to follow a thread, or a set of threads, starting with the bifurcation of nature in this introduction, and include those who contribute to the questions posed. So, even though there is a certain sense of progression throughout the chapters starting from an analysis of literature, to methodological reflections bridging the theoretical and the experiential analysis, leading to a discussion and an afterword, each chapter deals in a partial and immersive way with the issues this set of threads encounters and continues. My mode of research has been one which intends to evoke the theories to relate in a partial and temporary way around the problems I set forth to them, addressed earlier in this introduction. The method throughout this thesis is therefore primarily experiential and speculative, based on several encounters and resulting micro-experiments with theories, concepts, and experiential events. As such, I have sought to see in what thematic ways theories can respond to these problems, in order to make them speak to one another about these issues from their worlds, and later mingle experiential findings into the discussion, in ways which Tim Ingold (2013, p. 27) might call a practice of alchemy. This alchemical approach, for me, has been of ethical and political importance in doing research. Taking haptics as speculative and alchemical (as I will address in-depth in chapter three) is about “the (knowledge) politics of reclaiming the neglected” (Puig de la Bellacasa, 2009, p. 311). What is neglected is the *unknowability* so crucial to knowing (Latimer, 2009), not for the sake of making perceptible, but rather as a commitment for making possible ‘knowings’ as affective and recombining

events.

One of the major constraints emerging in the trajectory of this thesis in this regard, is its relation to the work of Bruno Latour. His work (1993, 2000, 2004) on bifurcation and its various concretisations (e.g. the problem of modernity) are of great significance for the initiation of this thesis. And yet, while agreeing at most points with his analyses on the problem of bifurcation and modernity however, I often found myself disappointed with his proposed answers and alternatives. As such, in the first chapter I will analyse my partial divergence with Latour, based on his work. Since their early studies on the laboratory, Latour and Woolgar (1986; Latour, 1987) address the bifurcation between science and society, and how to transgress it, a step that has been crucial for the development of science studies, as it makes social what was once only technical. Consequently, in his *We have never been modern* (1993), Latour continued his analysis on the roots of this bifurcation in modernity, and offered the exciting insight that fighting against this tendency to bifurcate is no better than the modern bifurcating alternative. Here he proposed a different, non-modern rather than post-modern, constitution, which includes scientists' "daring, their research, their innovativeness, their tinkering, their youthful excesses, the ever-increasing scale of their action, the creation of stabilized objects independent of society, the freedom of a society liberated from objects – all these are features we want to keep" (ibid., p. 133). What I also would like to keep is their touch, their haptic involvements, and the ways in which touch is part of a different rationality, which might not be as (part of) a non-modern constitution or a "mode of existence" (Latour, 2013). It seems to me that touch as a sense of knowing subscribes to Latour's quotation of Stengers (2011, p. ix) in his foreword to her book *Thinking with Whitehead: A Free*

and Wild Creation of Concepts: “Every synthesis begins “anew” and has to be taken up from the start as if for the first time.” Even when drawing on such a rich and fascinating body of philosophical knowledge in STS, a contribution of haptics needs to begin again, from the ground and theory, up, not in order to make haptic knowings perceptible in a constitution, but instead to make possible knowing as affectual events. In other words, the thread potentially admitting touch access to knowledge is a thread of “getting in touch” with practices of knowing, and not a thread belonging to already determined notions of the participatory value of those who know.

V. Thesis Map

Chapter one discusses the bifurcation of nature regarding notions of science more in-depth, including a range of scholars which have pointed out the effects of this notion, ranging from the disembodiment of affect and other attributions traditionally considered female, to the distancing imperialism of the gaze, by means of which a desire for lucidity (Stengers, 2000) dominates those senses like touch, thought to be obscure and vague. More specifically, I propose that the bifurcation of nature leads to a modern notion of a problematic scientific subjectivity centring around the “*disinterested* modest witness” (Puig de la Bellacasa, 2012, p. 211, emphasis in original). The function of chapter one is to, in a sense, empty the notion of modern science of some of its constitutive organisation, precisely in order to enter this ontologically grey world of touch later on.

Chapter two then addresses the body as a multiplicity, after having questioned the veracity of the story of the bifurcation of nature in the previous chapter. As Latour (1993) showed, the story of modern science is one which cannot hold, and as such a discontinuity emerges. I propose in chapter two, drawing on Castañeda (2001), Classen (2005), Haraway (1991),

Deleuze and Guattari (1988), Latour (2004), and others, that such a discontinuity in thought is better addressed by speaking about *bodies*. Conceptually speaking, *bodies* allow for an emergence, not of the scientist's bifurcated subjectivity, but of their materiality and affectual involvement, as a ground for relational touch as crucial to the crafting of knowledge. The body here serves as a contrast between the bifurcated scientific subjectivity discussed in chapter one, and a kind of body in which touch can be included as an ontogenetic potentiality (Massumi, 2002, p. 9). My ontological assumption here is that it takes a body, human or not, and often human *and* not, to touch. Speaking about the body in this way harbours a necessary paradox: I take the body as an inalienable ground of desire (to touch, to know), and a persisting potential of multiplicity which cannot but change its own parts in relation to the as of yet unknown worlds which constitute it. It contrasts a detached and bifurcated scientist who does not seem to even have a body, with a scientist who was necessarily always embodied, but now perhaps in potentially different ways. The chapter cuts out a definition of *body* whose parts can and do get out of line (Latimer, 2009, 2013) with the epistemic systems they are supposedly part of, which prove to be crucial to their practices of knowing.

Chapter three delves into touch and haptics in-depth, drawing on a range of interdisciplinary authors like the STS ethnographer Annemarie Mol (2002), media theorist and feminist Vivian Sobchack (2004), philosophers of science Vinciane Despret (2004), Maria Puig de la Bellacasa (2009), Natasha Myers and Joseph Dumit (2011), the geographer Mark Paterson (Paterson, 2009a, 2009b), the political philosopher and culture theorist Erin Manning (2009b), STS sociologist and anthropologist Joanna Latimer (2013), and others. Haptics comprises the ability of bodies

to affectually prehend, and to be inherently manipulative (ibid., p. 214). I take manipulation here in a positive and non-intentional sense, pointing to the body's ability to be sensuously disposed to the worlds which constitute them. Coming back to the story about Leistner shows touch to be experimental and experiential, and relates to a sort of affectual play with parts (molecules or otherwise), about which theory suggests it is the *passage* of parts crossing thresholds of bodies that is important (Massumi, 2002). This passage is not concrete: silicon is not *in fact* being absorbed by Leistner's fingers when he polishes the spheres.

But some residue of it does cross his fingers in a virtual and real sense, due to the body's *margin of indetermination* (Simondon, quoted in Manning, 2009b, p. 212). Even in Leistner's case, there is an unknowability (Latimer, 2009, p. 4) to touch: he was the only one the scientists could find who had such a delicate touch. This does not mean that Leistner was a genius, but rather shows that the workings of his touch are quite unknown, perhaps even to himself, and yet it makes possible an astonishing science. The tacit character of his touch seems to resist representation and understanding, and is part of a process of partial and increased specialisation. Touch can also be pleasurable, confusing, or dangerous, and as such the virtual passage of substances into bodies has a hallucinatory effect (Manning, 2009b, p. 222). Leistner might get drawn into his work, drawn into the silicon, and even be deceived by it? I propose in this chapter that haptic knowing might mean giving in to such material forms of hallucinatory deception, as such deception is characteristic of the objectivity of touch, and crucial to its knowing. I propose that hallucination does not at all oppose scientific practices of crafting knowledge, but is instead constitutive for it to work better, and more responsibly. Following the thread from the bifurcated subjectivity of

disembodied scientists, through the bodily involvement of them, to finally a touching scientist, crafts an alter-ontology (Papadopoulos, 2011a) of knowing. In other words, how scientists know might be ontologically very different from tidied up accounts on the nature of their knowledge.

Having laid out a main theoretical framework in the first three chapters, chapter four finalises the conceptual chapters. It follows how archaeology, a complex discipline of the field sciences, deals with questions of empirical and theoretical adequacy. This chapter draws on a diversified history of archaeological theory. This history starts with archaeology's "loss of innocence" (Clarke, 1973, quoted in Renfrew and Bahn, 2005, p. i; Wylie, 2002, p. 1), a moment in time when archaeologists allegedly began questioning their inherited methods. Their questions address various problems with regards to the scientific recording of material changes through time. This chapter details moreover how archaeological excavations are not exactly about finding objects, but instead deal with more abstract questions involving matter and methods. Moving with Ingold (2013), I end this chapter by proposing an alchemical view of crafty correspondence between archaeologists and their materials, which resonates with haptics. This is a view which attempts to give an answer to archaeology's questions of theoretical and epistemological adequacy, as well as provide an opening for haptics in this thesis to engage with these questions in experiential ways.

The emphasis within the methodological reflections is a continuation of the conceptual methodology, explicated in the preceding chapters of the thesis. Inspired by a particular form of participant observation (Ingold, 2013, p. 4), a partial and intermittent immersion into archaeological fieldwork, contributes to my approach to haptic knowing. My participant observation consists of a *following of encounters* during

two archaeological excavations in July and August 2014. It follows the bodily unknowability, and relational passage of affects through haptic encounters with archaeological knowing. This following of encounters means that I will focus on a speculative questioning (Stengers, 2011) of encounters in archaeological practices, while being alongside (Latimer, 2013) those archaeologists during their fieldwork. This method of speculatively following encounters, while alongside actors implicated in these encounters. For this reason, my attitude as researcher needs to be one which is, as Stengers (2011) puts it, polite and slow, in order to find a partial answer to what is required for excavations to work. Even though reflections are methodological in nature, it constitutes an articulation of the thinking paths weaved throughout this thesis, starting with how it is addressed in the previous section of this introduction.

Chapter five consists of an experiential analysis of various encounters with archaeological knowing in practices of excavation. I connect these encounters with photographs taken by me during my fieldwork, and elaborate on the events 'in' these photographs, as themes of analysis. These pictures serve as a way to 'hook into' various events, or as imaginative knots for my analysis, and not as representative of the involved practices or locations. It is here that the themes of continuity, contingent potential, (un)knowing,[9] and the groove emerge, connecting sense, relation, and haptic knowing. Finally, the *discussions and further diffractions* review the entire thesis, from the themes with regard to haptic knowing. In this chapter I retake concepts from the conceptual chapters, and contrast them with each other, as well as with the analysis of the encounters of the excavations.

9 See also Latimer (2009).

PART I

ENCOUNTERS WITH THE KNOWING BODY

CHAPTER 1

The In(ter)vention of the 'Modern Scientist'

There is an ecology of bad ideas, just as there is an ecology of weeds.

(Gregory Bateson, quoted in Guattari, 2001, p. 27)

This chapter problematises the idea of the 'modern scientist,' and its milieu the 'pristine laboratory.' It takes the modern scientist as a violent (Serres, 1974) invention and intervention, defining and managing how events of knowing might/can/should occur. It furthermore connects the notion of the bifurcation of nature, explored in the introduction, to the modern scientist as a body, socialised as non-social, with a privileged, and totalising claim to distancing knowledge, as opposed to a social(ised) person living a meaningful and colourful life, but devoid of any rational claim to knowledge. Instead of embracing a largely uninterrupted history of modern scientific progress, this chapter opens the 'ecology of modern science' to social forces, affects, desires, and changes in register. As such this chapter attempts to re-member, and re-embody the modern scientist. I will introduce this notion alongside literature from early STS, most prominently Latour (1993; Latour and Woolgar, 1986), Stengers (2000), and Shapin and Schaffer (1985). I continue by following Jay (1993), Levinas (1999), and Fox Keller (1985), in tracing the body of the modern scientist to an over-investment in its sense of sight, and relate it to the disembodiment of 'feminised' affects from practices of knowing. Significantly, I propose with Stengers (2000) that the story of the modern scientist is fictional as much as it is real: literature not only shows that 'those outside the laboratory' have also partaken in knowing, it also points out that science itself has knowingly been a social endeavour ever since its conception (Knorr-Cetina, 1981; Latour and Woolgar, 1986; Latour, 1987; Lynch, 1993). Taking science as an invention provides an opening to the isomorphism of modernity, by inviting previously marginalised ('feminised') affects to intrude, and reclaim a bodily place in the construction of knowledge.

1.1 The Crisis of Lucidity

The problem with regards to the body of the modern scientist centres around the dominant epistemological conception of the primacy of laboratory science. This conception reveals a notion of science, which contemporary field practices inherit, and therefore will have to digest in particular ways (Stengers, 2000; see also Deleuze and Guattari, 1988, p. 109). This inheritance of field sciences to laboratory science, as perhaps the purest of the sciences, is why it is important for this thesis to address the problem of the modern scientist in the 'pristine laboratory.' Stengers (2000, p. 8) stresses the problem of the lucidity of the modern scientist: a lucidity which conceals a crucial becoming of science, in order for this science to appear objective, and beyond critique of an 'outside' of people affected by its facts, but not part of its construction. This lucidity, or in my words the certainty with regards to what science is and does, points to a crisis of thinking about what scientists do, should do, and more generally about what kind of a society made it possible for them to work so disconnected from these societies. This chapter prolongs a critique of a modern discourse of science in which facts circulate freely, and without any clear attachments to ethico-political contexts. Starting with the rather dated work of Latour and Woolgar's (1986) is significant, because their work entails a 'first,' and highly contrasting encounter between science scholars and the laboratory sciences, with regards to the bifurcation of nature. Their work makes visible an encounter, not only between scientists and people who study them, but more importantly between different refrains of science (Stengers, 2008). In order to safeguard the production of scientific knowledge – the logic goes – the laboratory has to remain a black box, disinterested and detached from events in the outside world.

Even those relative outsiders from other academic fields, whether philosophers, sociologists, anthropologists or others, arguably complicate the process of scientific research by emphasising social behaviour, and in the process straying from the technical side of science. Scientific technologies seem to provide a passage to reality *as it is*, and hence should be the primary point of interest if one is to construct "hard facts" (Latour and Woolgar, 1986, p. 107). Encounters between scientists and the natural world hence have to stay as pure and uncontaminated as possible. The safeguarding of pristine environments is necessary for these hard facts to emerge, and requires an imposition of organisation, and order, to the labour processes of scientists. The physical organisation of the pristine laboratory rests on the presence and use of "large inscription devices" (ibid., p. 69). The processes of inscription made possible by these devices refers to the becoming of "ideas, theories, and reasons" (ibid.), which are inscribed into reality's fabric through the documents and papers they produce. As such, scientific craftswork is transmutated into knowledge. With the completion of this process however, the process itself is obscured. Why still care about how scientists do their work, after their work has produced such clear marvels of the mind? Assemblages of complex devices, highly intelligent scientists in white coats, and resulting hard facts within the black box of laboratories serve to convince that laboratory science is consistently and progressively able to deliver objective facts of nature to the (social) world's doorstep. The problem of interpreting scientific knowledge however becomes thereby a social problem. Science is, the proposition continues, a rather straightforward process for skilled professionals, and not easy to understand by non-scientists. Related to the professionalism of scientists, science deals in purified facts, which exclude the material historicity of the laboratory, as

well as the debates scientists engage in. Hard facts are developed by means of scientific research, and only its results are allowed to travel into the social realm, after they are purified from the noise of discussion, and uncertainties leading to those facts. What happened in laboratories with regard to the construction of scientific knowledge, and the place of bodies within it "remained undeveloped" until far into the 1970s (ibid., p. 17). As such, the modern laboratory scientist is a magician, but of a magic which normalises and pacifies divergence.

Latour and Woolgar (ibid., p. 180) analyse scientists' use of statements, on the way of becoming facts, as "artefacts". Artefacts, contrary to facts, are local, seemingly arbitrary and almost fictional occurrences, which as such are not yet grounded in natural reality. The authors' example of the neuroendocrynological substance TRF shows how its existence was in a state of flux, before it was taken as a fact. Scientists did not agree on whether the substance should be referred to as TRF (a factor) or TRH (a hormone). Several groups of scientists passionately disagreed, not only about the substance's molecular structure (*if* it exists) but also about its scientific status as a tool or an achievement (*what* it does). Consequently, expenses were made to introduce new equipment into the laboratory in order to find out – and decide on – what kind of existence TRF could have. Different strategies around finding out its structure or contrarily around looking at what TRF does were employed to construct its factuality. Eventually the endocrinologist McCann won the Endocrine Society Award in 1966 because of his work on the effects of the substance, after four years of 'mistakenly' following a strategy proposed by Guillemin, which instead aimed to discover its structure (ibid., p. 139). Which strategy is successful, and which a failure, is decided only in retrospect. Before 1962 scientists wondered if TRF existed. After 1962 it

was concluded that there must be something like TRF, however, its status during those four years changed from being a peptide, to perhaps being a peptide, to not being a peptide, to finally being a peptide again, comprised of certain amino acids (ibid., p. 147). Having taken hold of the scientific community for such a long time, the finalised construction of TRF led to new and excited scientists entering the field and taking TRF for granted, as a fact, in order to continue their new research, enabled by 'TRF.' Because of its complex situatedness, many complicit discoverers, as well as the contingent becomings of TRF were forgotten as inconsequential stories after its 'real nature' was secured. Latour and Woolgar (ibid.) show that scientific facts like TRF are socially constructed – and that histories of laboratory science generally and almost uniformly exclude this social construction *after the fact* stabilises. After its 'discovery,' TRF was taken outside of time and place as a 'fact.'

However, in the post script to the second edition of their book, the authors assess their work as ultimately unconvincing, arguing that by means of their construction of facts scientists also construct worlds[10] – while Latour and Woolgar (ibid.) instead forcefully de-construct these laboured worlds as *contextual contingency,* in the words of Knorr-Cetina (1981, p. 152). It comes at no surprise that a range of scientists were not amused with this factually wrong depiction of their work (e.g. Sokal and Bricmont, 1998, chapters four and six, quoted in Martinón-Torres and Killick, 2015, p. 3). In the *Oxford Handbook of Archaeological Theory,* Martinón-Torres and Killick (ibid., p. 3) point out that Latour and Woolgar's (1986), and Latour's (1987) contributions had the "intent of provoking a reaction," and were "not wholly serious." These archaeologists (Martinón-Torres and Killick, 2015, p. 6) however also point out the lingering 'bad

10 Following the ontological turn in STS (Van Heur, Leydesdorff and Wyatt, 2013; Woolgar and Lezaun, 2013).

effects' of their work in archaeology, encouraging some archaeologists in the new millennium to think they are able to interpret scientific facts without involving archaeological scientists. The bodily lucidity of the modern scientist, warned of by Stengers (2000, p. 5), also penetrated Latour and Woolgar's (1986) work here, it seems. In other words, who exactly repeats the refrain of modern science is contingent with doing natural science – or social studies of science. Natural scientists, archaeologists, and social scientists alike can fall into the trap of perpetuating the bad idea of modern science. And yet, what is defined as acceptable logic depends on "the present balance of forces" (ibid., p. 285), and as such the work of the authors establishes a 'first' point of contact between daily work of scientists in the laboratory, and the worlds outside of that laboratory. Even though subjected to a range of critique, their research takes the scientific laboratory not as a black box, but increasingly as a field site where worldly events beyond the pristine control of the scientists' minds occur, and are therefore worth investigating. I propose that Knorr-Cetina (1981, p. 17) more aptly addresses the problem of modern science as a methodological one, and argues in particular for a more sensitive, as opposed to frigid methodology, focusing on engagement and interactive constructivism. Her work on the *Manufacture of Knowledge* takes a more fruitful approach in favour of constructing the at the time young social studies of science, with a focus on sensitivity – and perhaps foreshadowing an explicit significance of the senses – contrary to a cold, formal and detached methodology. She hence contributes to a methodology of doing science beyond lucidity, embracing science as a part of social life, rather than 'meddling with' the meaning of the reality, and truth of its (arte)facts. Doing so, she raises a small but particularly significant point, directed not at the laboratory, but at the approaches of

STS observers.

1.2 The Curious Non-Death of Leviathan

The manufacture of knowledge, and the place of scientific experiments in relation to a wider society, lead to careful questions regarding 'those who know,' and on what basis their knowledge is founded. These questions are specifically addressed by Shapin and Schaffer (1985) in their book *Leviathan and the Air-Pump*, which depicts the disagreements between the chemist and natural philosopher Robert Boyle and the political philosopher John Hobbes, with regards to how natural science should be done. The controversy between Boyle and Hobbes is crucial, because, as Latour (1993, p. 27) notes a few years later, "they are inventing our modern world." The disagreements of Hobbes and Boyle focus in particular on legitimate spaces of doing science, and as such on the relation between science, politics, and the social realm, which constitute these spaces. The legitimisation of particular spaces of doing science defines its possible *witnesses*: spaces restricted by law, or social status, allow only elected people access to scientific discovery, while more open spaces allow a greater variety of the public to witness nature speak through experimental events. These questions are of importance not only for scientists in general, but also for archaeologists, as they might be witnesses of past events in open spaces of excavation. I wonder what kind of scientific space constitutes an archaeological excavation? What kind of scientific 'body' do archaeologists have? I propose that the disagreement between Hobbes and Boyle provides a background of the particular inheritance of bodily archaeological knowing to social and political philosophy, before tackling these questions more directly in chapters four and five.

As Shapin and Schaffer (1985) propose, philosophical

disagreements about the place of science in society do not take place inside the laboratories themselves: they have their own space of politics. Here, the crucial point of the disagreement between Boyle and Hobbes in the seventeenth century, is the notion of the laboratory as a "public space" (ibid., p. 111). For Hobbes, scientific experiments should happen in an open public space, for their demonstration to carry any convincing power. Conceptually, the notion of this open public space is grounded on Hobbes's theory of the Leviathan, a political theory on the necessity of an *a priori* social contract between the state and its citizens.[11] His "experimental programme" (ibid.) requires demonstrating the natural connection between cause and effect, not to scientists only, but to the wider society. Therefore, the workings of the air-pump can only achieve believability when convincing the people on the relation between force, and the vacuum the air-pump creates. Hobbes's main adversaries are those scientists, who depict the air-pump as an exotic wonder, locking its demonstration behind a proprietary wall (ibid., p. 112). In the time of Hobbes and Boyle, only about fifty men had access to these 'wonders of nature,' something which Hobbes found highly problematic, as it was in no way clear to him if it was indeed the power of demonstrations or perhaps other social and political forces which lead to consensus about nature's laws. Scientific experiments therefore should instead happen in public places, where they are able to be witnessed publicly by a society, transcending collectives of scientists, says Hobbes. Yet, the argument between Boyle and Hobbes calls into question what a public space for the demonstration of experiments means (ibid., p. 333). Boyle's public space is instead the "nascent laboratory" (ibid., p. 334), a space where nature could

11 The absolute political notion of the Leviathan entails the necessity for the public to give up the right to self-determination, in exchange for a peace keeping state, in order to fend off the otherwise imminent and natural *bellum onium contra omnes*, the war of all against all (Hobbes, 2006).

speak before witnesses (elected officials), who could reason with scientists about natural concepts, in order to come to consensus. Boyle deemed coming to consensus impossible when allowing a wider public access to experiments. Boyle's space was public, in the sense that it was restricted to knowledgeable representatives of the public. 'Good' laboratory scientists, for Boyle, are thought to be those able to act as witnesses of natural processes, revealing set-up experiences to a carefully selected public (ibid.). How scientific knowledge is justified is then a result of a restricted audience witnessing productive experiments with what is constituted as natural events.

To summarise, Hobbes's argument is that experimentation should happen in "an open and liberal society[…], the natural habitat of science" (ibid., p. 343), and is grounded on the idea that the public is "assenting and professing" of the demonstrations of experiments (ibid., p. 334). In Boyle's conception however, experimentation should occur in a restricted space, in front of a selected audience representing the public, which is rooted in the notion that knowledge is a product of nature, through scientists and their experiments to a "witnessing and believing" public (ibid.). The main debate to be settled by Shapin and Schaffer (ibid., p. 344) then is whether knowledge is produced by open human social action (e.g. in favour of Hobbes), or whether knowledge is the product of limited spaces, where science meets reality (e.g. in favour of Boyle). The authors conclude, in an ironic turn of events, that Hobbes is right, and knowledge is the sole product of human action. This is ironic, because Hobbes, so in favour of open spaces of scientific experimentation, had already realised in his critique of Boyle, that these spaces, precursors of the closed laboratory, were not accessible to any one 'rational man,' but only to some men, and therefore that they were not about scientific truth, but about social status

(Latour, 1993). By siding with Hobbes, Shapin and Schaffer (1985) side with an argument in favour of spaces of science, judged only by a master of science appointed "by virtue of his exercise of pure [geometric] mind, not by craft-skills or ingenuity" (ibid., p. 338). Hobbes's master of science is the quintessential and perfect representative of all citizens of the State, bound by the social contract theory of the Leviathan. Such spaces cannot be located anywhere, and such masters cannot exist only on the virtue of their minds. Hobbes, and the authors, therefore renew a bifurcation of nature into, on the one hand, this universally common space of science, in which there is supposedly no social, nor political discrimination, with regards to the value of science, and, on the other hand, a separate space of politics which exists in order to safeguard this common space, while simultaneously being entirely distinct from it.

1.3 The Dichotomies of Modernity

Significantly, Latour (1993), in his *We have never been modern*, uses Shapin and Schaffer's (1985) analysis to critically analyse modernity, and in doing so provides a much needed description of the contemporary inheritance of *Leviathan and the Air-Pump*. Latour's point in this work is to explain the notion of what it means to be 'modern,' and how "an anthropology of science" (ibid. p. 26) can be done in a world which has never been modern. The modern notion of science, following Latour (ibid., p. 11), rests on a double-dichotomy, the first one of which is the dichotomy signified by the controversy between Hobbes and Boyle. This is the dichotomy between, on the one hand, *nature*, produced by non-human actors, and, on the other hand, *culture*, produced by human actors. The labour associated with keeping this dichotomy in place is done by "works of purification" (ibid.). As such, Hobbes's argument in favour of a space of

scientific experimentation, purified from social discrimination, purports to subject a human culture to the laws of nature. This system is fundamentally absurd: his theory relies primarily on the political notion of a social contract, which would require of 'the people' to recognise the primacy of nature, and therefore give up belonging to the very social-political group which enabled signing the social contract in the first place. Latour (ibid., p. 26) thus provides the opposite answer to the question: "Hobbes was wrong." He (ibid.) praises Boyle for a "political invention[, which is] much more refined." Indeed, Boyle's argument in favour of a restricted space of doing science should not be taken as a limitation, and restriction, of experimental science. On the contrary, Boyle's political invention contributed to an actual space, which would practically make it possible for experimental science to occur.[12] His invention is of course by no means ideal – e.g. the politics involved in the construction of this space could, and would only be accessible by *some*, and only make possible *some* forms of experimentation, but that is only because experimental science requires experimentation, and not idealism. In this sense, Boyle crafts a political narrative in favour of the construction of a restricted space of experimental science, which is in turn free from politics (ibid., p. 27). Boyle's politics enables experimental science to be done in a society, which is human-made, and able to declare a politically constituted space of experimental science politics-free. It is nature which speaks through carefully crafted experiments, within the walls of this scientific space. This is still part of the first dichotomy, a dichotomy where separation exists between human practices and a non-human nature, which speaks through these practices.

12 See also Heidegger's (1971, p. 71) essay on the bridge, in which he reasons that it is the building of the bridge which creates a 'space,' and "gathers the earth as landscape" of i.e. science, and not simply the two banks (i.e. nature and culture) on opposite sides of the river.

Latour (ibid., p. 32) proclaims a second dichotomy, which together with the first dichotomy constructs modernity. This second dichotomy consist of the necessary “work of translations” between the human, and the non-human. In the second dichotomy, transcendental nature is translated with the help of experimental devices into facts, documents, artificial and human fabrications, which are in turn fed back into a human-made society, and able to change that society, based on scientific progress. Not only is non-human nature, which needs to be ‘discovered,’ translated into fabricated representations, but the political society which guarantees the continuation of experimental science, cannot touch on the facts as they are presented by scientists. Because of the necessity of translation between events within the human-made scientific space (legitimised by a transcendental non-human nature), and a social and human space (legitimised by human-made politics), the scientific space turns out to provide fabricated and human-made facts, to a socio-political space which is necessarily transcendental to these constructed facts. In other words, what is constituted as ‘transcendental’ switches depending on the movement to, and from, social spaces and natural spaces. Moreover, as Latour (ibid.) shows, it is important to keep these two realms separate, as they are mutually exclusive. Politics cannot intervene in the fabrication of facts by science, as it needs to accept these facts as non-human and transcendental to its function of constructing society, based on these facts, to succeed. And the works of science requires a space which transcends politics, for it to take nature as manipulable by devices, in order to fabricate facts and documents which are valuable for a society which remains separate to it. As such nature is fabricated, while pretending it is not, and society is not constructed, while pretending it is. This double dichotomy Latour (1993, p. 37) proposes, accounts for the

invincibility of modernity. This invincibility rests on the indiscriminate dexterity of moderns to switch between previously demarcated natural and political constitutions whenever necessary. Modernity thus has the tools to "criticize and unveil, denounce and express indignation at irrational beliefs and unjustified dominations", while retaining the ability to "reverse the principles without even the appearance of contradiction. They [moderns] can mobilize Nature at the heart of social relationships, even as they leave Nature infinitely remote from human beings; they are free to make and unmake their society, even as they render its laws ineluctable, necessary and absolute" (ibid.).

To give an example of how this double dichotomy might work, I turn to archaeological excavation practice. The excavation process in archaeological fieldwork could be envisioned as a combination of practices of purification, in which archaeologists purge insignificant natural events from cultural remains. For instance, the intrusion of a plant's sturdy roots into the excavation at Ardnamurchan[13] is seen as an annoyance, and an obstruction to the work of archaeologists.[14] Such insignificant natural events might be significant to other practices of science, i.e. geology, palaeontology or soil science, but insofar as there are no cultural traces involved archaeologists would not be interested, and remove the natural 'obstruction' as rubbish. This is of course a disciplinary purification, but does archaeology also partake in the dichotomies of modernity? The question here is what is taken as natural for a specific practice. Latour's (ibid.) story of modern science might propose that for geology, palaeontology, or soil science, the natural consists of what is considered common sense nature, e.g. non-human processes. At times

13 I will introduce the excavations I visited in the methodological reflections.

14 During my fieldwork it was mentioned to me that an excavation is a practice of purification (see field notes C4).

that ‘nature’s’ influences on evidence in the soil becomes an issue within archaeological practices, attempts are made to separate these influences from cultural factors – if I exclusively stick to Latour’s (ibid.) analysis for now.[15] For archaeological practices, the natural is from the outset *not* the non-human, as it as a discipline is interested in the history of human culture. Yet the remains of human practices, buried in the ground before the excavation process is underway, are taken as if they were in fact natural. The justification for archaeology’s excavation practices is, that remains of human practices in the ground, even though already part of an ongoing human past, remain separate from written cultural history, until the remains are excavated and constructed as natural (fabricated) objects. Excavation practices are therefore practices of purification, because they, firstly, radically distinguish between cultural habits of a time long past, and the natural, e.g. non-manipulable, evidence of these cultural practices. Secondly, archaeologists invasively intervene in the space where these events took place, and thereby fabricate their knowledge of these practices, which in turn is taken as natural. So what are archaeologists excavating? Are the remains they are interested in natural or cultural? The answer here is, I think, in line with Latour’s (ibid.) analysis. Archaeologists think and discuss plentifully whether something is “interesting or not,”[16] and the reason they might have for making a decision is not always framed by whether a relic is human-made or nature-made, but at times also by the direction they want the excavation to take, and hence, by how they are affected by the ‘interesting evidence.’ A decision is made by means of discussions (amidst social-political forces), and the very answer

15 In-depth nalyses on encounters with soil in archaeological fieldwork are addressed in chapter six.

16 See field notes E7.

is naturalised as if it were so all along.[17] As such archaeology also rests on "works of translation" to make its practices possible, while struggling with the separation of 'nature' and 'human' as constitution for its knowledge. There might not be archaeological research without 'natural' environments, animals and material spaces, which have often been entangled with 'human' remains for hundreds of years. Latour's (ibid.) analysis however shines in his proposition that it is no use to deconstruct these dichotomies in post-modern but still-modern ways – as it would be to affirm that science is merely a social endeavour. The *modus operandi* of both dichotomies is not that of two separate inventions, but instead relate to practices of "seeing double" (ibid., p. 27). This visual metaphor establishes firstly that nature is both infinitely transcendent, while simultaneously artificially immanent to laboratory work; secondly that human society is malleable and manageable while transcendent in our daily lives, and thirdly that any kind of necessary mediation between the two is concealed and obscured in their pristine transcendental constitution as *Nature* and *Culture*. Works of translation however show us that natural-cultural hybrids have always proliferated through their respective networks, *even if* they were representationally speaking kept from doing so by works of purification.

Latour's (ibid.) proposition to counter the problem of "seeing double" lies in the formulation of a renewed constitution, one which invites non-humans to join humans into democracy in a "Parliament of Things" (ibid., p. 142). Practices of translation cross the modern dichotomies, and betray the ontologically distinct fields constructed, because of their epistemic

17 It is significant to mention however that archaeologists in one of the two field sites I joined, the Ardnamurchan Transition Project, were well aware of Latour's (1993) critique of modernity, and therefore of this crucial problem with regards to their knowledge making. See chapter four for an in-depth conceptual analysis of archaeology as a very particular discipline, and chapter five for a more specific experiential analysis of the findings from the field

and political constitution as such. Latour's (ibid.) critique on modernity helps in approaching sciences less indiscriminately, and consequently enables looking at particular encounters between any kinds of actors in processes of knowing, and not only at grand political theories on science, such as Hobbes's Leviathan. Knowing this, practices of translation in science are infused with an element of betrayal of the political status quo. Allowing hybrids, and accepting their proliferation constitutionally in "The Parliament of Things" (ibid.), requires the betrayal of clear-cut existing disciplines of science; a betrayal which is justified by practices of science, which have done translation since the conception of science.[18] Now it is not only the professor who only speaks for the objects as a representative, or the philosopher who delineates what can and cannot be known, or the statesman who only speaks as a representative for the people, but it is the things which speak for themselves, and which cannot be reduced by their representatives to mean either nothing, or everything, in a particular place. The merit of the renewed constitution lies in what Latour intends to keep of the sciences, and what has to go: "after the arbitrary withdrawal of epistemology - we retain what has always been most interesting about them: their daring, their experimentation, their uncertainty, their warmth, their incongruous blend of hybrids, their crazy ability to reconstitute the social bond. We take away from them only the mystery of their birth and the danger their clandestineness posed to democracy" (ibid., p. 142).

It remains vague to me however in what ways drawing up a new constitution incorporating hybridity, and treating humans and non-humans as if they have equal rights, is not a project of relativistic post-modernity. And, it is still the philosopher of science Latour, who drafts this

18 See also Serres's (1974) call for the *betrayal* of the institutionalised sciences in order to arrive again at the happiness of knowing.

new constitution, which justifies some suspicion. Beyond this, I wonder where the constitution itself is to be located? Is it to be signed by global leaders and documented in similar ways other constitutions have been? Or, where does the *Parliament of Things* lead, if it is simply a philosophical proposition? What is interesting here is that Latour admits to be an heir to the Enlightenment, as well as to his determination that to be anti-constitutional is still a modern undertaking (ibid., p. 142). Indeed, it seems necessary to make perceptible a birth of science in a discourse of the time of the Enlightenment, in order to keep a continuity to knowing. But, does he himself not use 'modern witchcraft' in the formulation of his constitution? Where is the third option, the option to be indifferent about an acceptance into a constitution, and instead to speak out with very particular non-humans, from a very particular space? It seems to me, that the very structure implied by a constitution, counteracts Latour's (1993) attempts at proclaiming that "we have never been modern," and instead culminates in a practice of drawing those "works of translations," which were contingent to the dichotomies in the first place, to a lucid place of political equality, thereby flattening out their relational power.

1.4 The Imperialism of the Gaze

Investment in the look is not as privileged in women as in men. More than any other sense, the eye objectifies and it masters. It sets at a distance, and maintains a distance. In our culture the predominance of the look over smell, taste, touch and hearing has brought about an impoverishment of bodily relations.

(Irigaray 1978, p. 50, quoted by Jay, 1993, p. 493)

Modernity's "seeing double" (Latour, 1993, p. 27) is therefore not addressed sufficiently by the double dichotomies, which play right into the crisis of lucidity (Stengers, 2000). I would engage sight as a sense, and not just as a political metaphor, important for how practices of science know, but also for the construction of the modern scientist. In particular, it is the relation between the "modern human cognition" and a representative way of seeing, or rather a particular way of imagining, which is invested in *making images* of and in the world (Malafouris, 2007, p. 290; see also Heidegger, 1977, p. 115). With Malafouris (ibid.), I propose that the perceiving of images folds back into the making of the modern human cognition and perception. Malafouris (ibid.) shows that it is not only the human eyes, which have a history, but also the ways 'representative' images form human cognition itself. Perceiving forms knowing, and the very structure of the body and brain (ibid.).

By addressing why, and how, twentieth-century French thought subverted a normalised modern kind of vision in the work of the intellectual historian Martin Jay (1993), and how feminist philosophy (Fox Keller, 1985; Haraway, 1988, 1997; see also Harding, 1991; Rose, 2001, p. 7) came to understand, and rather, experience *being seen*, I attempt to go beyond those political theories which seek to 'make images' of how the world works, and pave the road for a reclaiming of human cognition in a bodily way.[19] My argument is that these intellectual traditions attempt to change 'images' (in the broadest sense of the word) in order to change human perception and cognition. In the quote above, Irigaray makes a connection between several things. Firstly, she makes the connection between vision and men, and secondly, between this masculinised vision, and its power to objectify and make distant. Consequently, she calls into

19 See chapters two and three.

question the relation of the objectifying and distancing gaze, with the dominance of the look over the other senses. She thereby contributes a particular sensory dimension to the power of witnessing experimental events, a dimension which is lacking in Shapin and Shaffer's (1985), as well as Latour's (1993) focus on an inherited political and scientific theory. The modern witness favours sight as "master sense of the modern era" (Jay, 1993, p. 543).[20] Ocularcentrism is abound in modern life, also considering the dominance of words associated with sight, i.e. light, vision, representation, image and even speculation (ibid., p. 22, 495). Instigated by a Cartesian perspectivism, which bifurcates the gazing subject from the gazed upon object, sight becomes "the noblest of the senses" (ibid., p. 21, 542). Vision as a master sense has become part of a scientific regime, as it intertwines the gaze to transcendental truth, with bodies and their sensorium. It is only the eyes which "are able to see themselves seeing", and which can substitute matter with ideas and images (Sloterdijk, 1987, p. 145, quoted in Jay, 1993, p. 21). The power of the eyes is thought of to be able to pierce the veil of reality, leading to, as Sloterdijk (ibid.) soberly puts it, "a good part of philosophical thinking is actually only eye-reflex, eye dialectic, seeing-oneself-see." Of note for this discussion is Baudrillard's invention of the concepts of *simulacrum* and the *hyperreal*, which reconstitute reality in the guise of images. The hyperreal as a post-structural extreme infuses every image with ontological status, obscuring the distinction between its 'fictional' becomings and its 'real' objectivity, because of its self-referential and non-material function (Jay, 1993, p. 544). In a hyperreal world images are become real, without signification to the material, whether in the guise of advertisements, scientific models, television soap operas, generalised

20 Fascinatingly, until the eighteenth century, the master sense was touch: "it tests, confirms what sight could only perceive." (Jay, 1993, p. 35)

constitutions, or other depictions. It is perhaps inherent to the modern double dichotomy, that the material status of a symbolic order can be confused for reality.

My point here is not to denounce sight as a sense which necessarily *only* signifies, or objectifies and distances, in favour of the other senses. Instead, a focus on a specific use of vision as a sense makes perceptible how the modern use of the eyes relates to a construction of a powerful kind of epistemic knowing. Indeed, concepts like the simulacrum, which inflate a modern scientific world view ('the world picture'), are useful to clarify that the problem is only one kind of vision in a specific, albeit dominant, epistemic tradition. Sight, as Jay (1993, p. 8) proposes, is most useful for looking at a distance, as the retina's blind spot (where the nerve connects the eyes to the brain) makes sight unsuitable for close and accurate inspection. There is thus a "metaphoric 'hole' in vision" (ibid.), as well as a risk of looking at (and by extension believing in) the very material illusions of a hyperreal. Again, the crisis of lucidity involves not a choice in favour or against vision, but rather *the implicit acceptance that the distancing effect of clearer sight is favourable to the more fuzzy effect of seeing close by*. In other words, in order to arrive at a clear 'world picture,' one has to look from a vantage point of distant space. Such clarity of sight however makes the earth seem perfectly round, obscuring the capriciousness of the earth's terrain. Distancing sight is corrosive of a myriad of differences, and its lucidity a source of obscurity. The dominance of corrosive sight is thus not only about what can be seen, but also about what cannot be seen any longer, in this enlightened modern episteme.

Jay (1993, p. 559) further analyses the modern dichotomy, by addressing what it is that traditionally 'resides in the light,' and what 'slips

away from that light.' In following his discussion on sameness and alterity in Levinas's (1999) magnus opus *Totality and Infinity*, I attempt to get to the function of the gaze in the body of the modern scientist, in relation to what Irigaray (1978, p.50, quoted in Jay, 1993, p. 493) refers to as the privileging of the look in men. Levinas is important for an ethical view, as he argues against traditional twentieth-century philosophy (especially with regard to Heidegger's phenomenology and Sartre's existentialism), which prioritises ontology over ethics, as ontology has shown little regard for the otherness of the environment, in its search for the structures of experience. Indeed, ontology often reduces 'Otherness' to the 'Same,' and therefore incurs an ethical debt, Levinas (1999, p. 12) argues. Significantly, he reveals a knowledge troubled by what does not lend itself to a mode of masculinised enlightenment. He proposes that it is 'the feminine' which hides and flees from the "specular economy of the male gaze" (Jay, 1993, p. 559). Here the feminine is specifically part of an ethical becoming, one which flees and hides before a male gaze attempting to capture her 'Otherness.' I relate Levinas's (1999) ethics here to a conception of science, setting out from a familiar and safe position, the laboratory its utopia, in order to enlighten natural, as well as social worlds. For Levinas (ibid.), the 'Other' resides in an exterior, which is metaphysical and ethical, and this means that it cannot be envisioned as something encountered by the ontic (male) subject, only after it leaves the safe place of its dwelling. Rather, the metaphysical comes first, meaning that the possibility of an encounter with alterity, should be able to intrude into this ontic subject. It is then the male, who is 'hypostatised' as totalising subject, and not the female, which is instead 'othered.' Significantly, Levinas's ethical philosophy implicates *the relation* between the male subject and the female 'Other.' Here, his attributions of male and female should not be

taken as synonyms for men and women, but instead as abstract concepts relating to differing human uses of sight, and of knowing.[21] Notably, the alterity within the exterior 'Other' cannot be comprehended by sight, as it is metaphysically as well as relationally infinite, and because of its infinity, it is fundamentally unknowable (Levinas, 1999, p. 220). Sight as an objectifying sense is not functional in such an unknowable exterior, but only as part of an organised, that is 'hypostatised,' interior of an identified 'I' – which Levinas stipulates to be totalitarian.[22] As such the male gaze is part of a hypostatised singularity making up an 'I': an individual identity from within, totalising the exterior. In other words, the gaze takes the resources an 'I' needs, without regard for the infinitely rich environment it takes it from. The 'Other,' hiding and fleeing from such a totality, however, should not be taken as just a passive attraction to the male gaze.[23] Levinas distinctly favours the 'feminine' mode of existence, and Jay (1993, p. 559) shows that feminists like Catherine Chalier and Luce Irigaray found his philosophy useful for his, in my words, female ethics of *transcending inwards*. The exterior, as a metaphysical place where events happen, brings about a difference, which the identifying eyes cannot grasp, e.g. that which evokes a "Desire for Infinity" (ibid., p. 292). Levinas (1999) adds theoretical depth to totalising, and individualising acts of gazing, and an exterior with events which potentially interrupt, problematise, and make worthwhile endeavours of knowing. Moreover, he proposes an alterity that does not shape itself to the modern gaze, is free and desirable, because of

21 The starting point of Levinas (1999) is non-social, and non-biological: the male and female refer to metaphysical relations. These relations are *non-reversible* in metaphysical sense, but not necessarily so in social sense. It is easy to see the social equivalence of these relations (as per Irigaray's quote), although I would instead speak of masculinised and feminised.

22 Here Levinas's (1999) critique of Heidegger (1962), who set out his philosophy thinking from an interior about the nature of Being, becomes more clear.

23 Paraphrasing an argument made by De Beauvoir (1970, p. 3; quoted in Jay, 1993, p. 559).

its immanent difference to an enlightened agent. The difference between this metaphysical approach to knowing, and Latour's (1993), and Shapin and Schaffer's (1985) socio-political philosophy, is palpable. Of course, Levinas (1999) did not extend his philosophy to notions of a modern scientific body. For him, as a religious Jewish philosopher in mid-twentieth century France, *Totality and Infinity* is a book of metaphysics. What is interesting to me however, is that his metaphysical analysis can speculatively thicken and situate the disembodiment of the modern subjectivity of the scientist, while keeping the 'desire for knowing' alive. Moreover, feminist theory, and in particular Evelyn Fox Keller's (1985) *Reflections on Science and Gender*, covers ground eerily similar to Levinas (1999), albeit more directly in relation to science. Keller (1985) ventures beyond the early invention of modern science, to a grounding of science in the foundational myths of European philosophy. In her book, Keller (ibid.) analyses the gaze of science as a masculinist effort to pierce, capture, and unveil the truths of nature, understood as a female 'body.' More so than Levinas (1999), Keller (1985, p. 21) traces the explication of the relation between knowing and sexuality back to Plato's philosophy, connecting the male gaze to sexuality by doing so. In Plato, the purification of an objective nature, pierced by the knowing subject in very explicit pederastic terms, makes an erotic interpretation of knowledge believable – and modern science more uncomfortable (ibid., p. 18). What Keller (ibid.) takes from the Platonic myth with regards to science is firstly Plato's conception that good science can only be done by undergoing disembodiment, before arriving at the transcendental idea of Love. Within the constraints of Platonic thought, it is the mind, which is able to pierce the shadows of bodily disorder and "free the soul from the clutches of passion and the flesh" (ibid., p. 22). In this Platonic sense, unreason and passion belong to

women, embodied by the Furies. Knowledge is posed as transcendental and disembodied, outside of time and space. She stresses that this kind of reason, which might have a part in leading laboratories to produce hard facts, is a distinctly masculine conception of thought, as embodiment is associated with a feminine mode of existence. Correlatively, “a woman thinking scientifically or objectively is thinking "like a man"; conversely, a man pursuing a nonrational, nonscientific argument is arguing "like a woman"” (ibid., p. 77). She thus objects not to a lack of women in laboratories or other places of doing science, but rather to a myth leading to a specific gendered conception of knowledge, permeating so-called modern societies since the beginning of history: 'hard' facts are for men while 'soft' things are for women. Significant for this thesis is her exploration of objectivity as a masculine concept invoking “autonomy, separation and distance,” only accessible to men because of a heightened, and non-physical sense of love, made possible by their access to the Idea of Love (ibid., p. 79). This way the modern myth permeating scientific cultures organises affects, bodies, and knowledge around inherited conceptions of what it means to do good science. The embodiment of scientists is ‘checked out at the door’ of the ‘laboratory,’ belonging to the distinctly softer realm of their homes. The softer realm of social relations then becomes the prerogative of the arts and the female, while the realm of objective knowledge remains separated from the bodily ‘unreason’ of ‘feminised’ affects. Keller's (ibid., p. 178) call is hence not against science, but in favour of “the taming of hegemony,” which allows for only a disembodied understanding of doing-knowing. Therefore, the problem of gender in practices of science, which I take as part of the epistemological problem of modern science, includes those relations between societies of men and women, which are already fabricated before science happens, i.e.

by myths of ancient philosophy.

With Haraway (1988, 1997), I propose to reintroduce the affective body as a way to answer the problem of modern science, which culminates in the form of a *lucidly reasoning, constitutional, and visionary male scientist*. Levinas's (1999), and Keller's (1985) analyses of gender contributes the body as a body of affects, feelings, and bodily processes, beyond politics or society as addressed by Shapin and Schaffer (1985), and Latour (1993). Haraway (1997, p. 267) is important for this reintroduction, as she queers the concept of the witness, who becomes a collective *withness*, "seeing; attesting; standing publicly accountable for, and psychically vulnerable to, one's visions and representations." Her accounts of the modest withness are significant, because she provides an alternative to a strictly gendered as well as a modern science. Whereas Boyle's witness focussed on the detached male scientist to mirror transcendental knowledge to society, Haraway (ibid.) instead collectivises the withness, whose laboratory or other spaces of knowing are no longer disembodying and disconnecting restrictions, but rather openings for the power of relations (Ghelfi, 2015, p. 14). She keeps what Latour (1993, p. 142) proposes as the most interesting of the sciences, and thus translates Plato's Eros into a practical and material yearning for knowledge, remaining bodily in touch with relations of the environment, in which knowing is done. The queered modesty of the withness therefore prevents the "mistake of misplaced concreteness" (Whitehead, 1978, p. 7), which confuses metaphysical abstractions (e.g. the Idea of Love), and the confined laboratory, with real practices of knowing (Haraway, 1997, p. 269). Experimental scientific practices within spaces of science then serve to carry and translate knowledge outward as situated knowledge to those who are not direct witnesses (Haraway, 1988). When the doors to the

laboratory are metaphorically opened, the modern scientist's distance, neutrality, objectivity, and reason are revealed as political and social forces, which negatively affect doing science, as well as societies of bodies both outside and inside science. Importantly, this modern conception of science is unveiled as a very passionate force, so invested in the ways knowing should be done. Re-membering the witness of Shapin and Schaffer (1985), the question arises what kind of bodily withness would not be trapped by "a culture of no culture, which longs passionately for a world without loose ends, without temperament, gender, nationalism, or other sources of disorder – for a world outside human space and time" (Haraway, 1997, p. 277). The primacy of vision as it is criticised above, is as such a form of witnessing as an act of gazing, a proxy for the transparency and immediacy of rational lucidity in science, an ally of disembodiment, and a relegation of the other senses such as touch.

1.5 Diffractions: Modernity, an Ecology of Weeds

This chapter analysed a problematic state of knowing, grounded in the myth of modern science. Practices of modern science are exempt from social justification, as stories of more and less contingent events leading scientists to their inventions. It could be said however that this justification is already tacitly given, within any scientific paradigm, by means of notions concealed in the socio-political becomings of science. One such notion from feminist STS is Keller's (1985) grounding of the desire for knowledge in Platonic idealism, only to be harnessed by men. A related notion from metaphysical philosophy shows Levinas's (1999) analysis of the hypostatised male subject, pursuing a female 'Other' in a totalitarian desire for infinity, from which she nevertheless always escapes. A third one, from intellectual history, tells about the dominance

of a distanced kind of vision, which corrodes differences in favour of a unilateral perspective (Jay, 1993). When Stengers (2000, p. 5) announces that "lucidity is the result of a crisis; it must be conquered and cannot be considered normal," she proposes that lucidity is a Kuhnian-type anomaly, which enters an established scientific discourse, and hacks its social logic. Drawing on Kuhn (1996), the significance of tacit knowledge, as the necessary blind spot of social life, is felt as a time of "fundamental indecision" and confusion so unbecoming of modern scientists (Stengers, 2000, p. 7). The epitome of this event is given in modern science's efforts to conceal social strategies "under the mask of objectivity" (ibid.). Science's modest witnesses are unveiled as social actors inheriting a history they cannot retrospectively make sense of, because the inheritance of their objectifying vision to what is situated, is obscured and fuelled by what is excessive to modern science itself (Haraway, 1988, 1997; Jay, 1993). Their envisioned objective history, constructed in such a way as to give an illusion of perpetual progress, instead shows its multiplicity, as interruptions in the form of discussions or disagreements redistribute multiple possible pasts. As such the history of modern science, in the figures of Boyle and Hobbes, by Shapin and Schaffer (1985), and embraced by Latour (1993), start to feel increasingly contingent. This paradigm-breaking rupture reveals not only a discontinuous past, but also the ideology underlying its stagnated myth.[24] As such, this disturbing modern science becomes possible as an object of study, within STS. These studies of science and technology are especially disturbing to modern scientists, when their efforts are seemingly symmetrical to more mundane social activities; a symmetry which made Latour and Woolgar (1986) question the

24 See also Foucault (1994, 2002), who excavated the origins of modern science. My attempt in this chapter however has not been to delve into its discursive origin, but rather to decentre the notion of modern science itself, through encounters with theorists.

importance of their work on behalf of the scientific status quo they are part of, as well as Shapin and Schaffer (1985) judging in favour of political power, over social contingency.

Scientific knowledge as such is shown to be an invention, based on practices of modern scientific thought, yet not one without real effects in the form of facts as products of its reason, and its dealings with materiality.[25] Even with its facts however, revealing science as a social invention wounds it, and scientists obviously revolt against those who, instead of pointing out what is critical to science, instead turn critically towards them. Rather than debunking scientists as socially determined practitioners however, we might acknowledge "their engagement and their passion," and how their particular affectivities render different parts of doing science newly discussable (Stengers, 2000, p. 12). These social doings do not reduce what scientists do, but instead open up scientific worlds of knowing to new research. As such Latour's principle of irreduction (2005, p. 107, 2013, p. 33), pertaining to the free association with regards to transformations of events,[26] is a methodological advice to researchers to not reduce, or denounce scientists by critically unveiling the ideological foundation of their judgements. Rather, it becomes possible to laugh with scientists for their, and our, ideology of progress, and ask them how specific scientific practices engage with the world (Stengers, 2000, pp. 17, 29). This is why the methodological reflections, in part two of this thesis, will discuss immersion in practices of science, as a curiously connecting mode of philosophical research. Such engagement is for Stengers (ibid.) never neutral, nor factual, but rather rests on abstract articulations. Instead of a normative philosophy of science aiming to

25 I will address materiality in-depth, related to archaeological theory, in chapter four.

26 The principle of irreduction is "the philosophical meaning of ANT [Actor-Network Theory]" (Latour, 2005, p. 107).

inject a different, and disjunctive set of values into practices of science, Stengers (ibid.) connects science to fiction, wherein the fictional strongly affirms the scientific. Scientists' passionate engagements are able to establish new scientific reasons based on abstract articulations, from a realm of scientific fiction, that which falls outside of the naturalised boundaries of science. Instead of denouncing science for its unscientific fictional character, she (ibid., p. 85) elevates the fictional in science, as a contingent force of the social. Practices of science then have the task of 'knotting together'[27] fiction, and matter, into multiple “facts of art,” without silencing other arte-facts. Her method is to expose (scientific) abstraction as an event, allowing social fictions to translate into science, and consequently to organise particular sets of phenomena, on the basis of experimental facts.

In the following chapter, I propose that this conception of experimentality, which leaves behind an ideology of the detached mind, also allows for a reintroduction of the body into practices of knowing. This experimentality rewrites what bodies of scientists can do, by how these bodies, multiple, rather than cohered around a unified scientific rationality, engage with the world, and follow their interests.

27 The concept of the knot is used by archaeological theorists and will return in chapter four, section three.

CHAPTER 2

Bodies, Sensing and Moving

When I think of my body, and ask what it does to earn that name, two things stand out. It moves. It feels. In fact, it does both at the same time. It moves as it feels, and it feels itself moving. Can we think a body without this: an intrinsic connection between movement and sensation, whereby each immediately summons the other?

(Massumi, 2002, p. 1)

The modern myth of the embodiment of scientists references a fictional and homogenised body-type, behind a detached and masculinist gaze, oriented towards sustaining the privilege of inhabiting modern science's places of knowledge making. Chapter two moves this body, which is found to be a socially situated, gendered, and sensuous body, beyond the constraints of strictly epistemological concerns. The ontological turn in STS, featuring an "appreciation of fluidity," and a "reluctance to take the world at face value" (Woolgar and Lezaun, 2013, p. 336), contributes to reclaiming the body as a sensing, and moving body. In order to conceptualise this body ontologically, this chapter engages with theory, questioning and rethinking its constitutions and significations. In an encounter with Donna Haraway's (1991) ironic conception of the cyborg, the hybrid body keeps together incompatible scientific and fictional 'reasons.' Gilles Deleuze and Felix Guattari's (1988, pp. 149–166) *Body without Organs* takes a necessary alternative route, fragmenting and smoothing out the body's over-investment by significations and subjectifications, in order to re-potentialise its inherent ability to continuously connect. With Bruno Latour (2004) and Annemarie Mol (2002), the notion of the articulation of multiple connecting bodies becomes crucial for a reinvention of different bodily significations. Following Brian Massumi (2002), Karen Barad (2007), and Marilyn Strathern (1996), the analysis shifts to a moving and sensing body, creative of different ontologies, by means of cuts of previous networks of signification. The sensing and moving body as such creates partial relations, often abstract and propositional, and is affected by what it relates to, as much as that it affects what it encounters. The function of this chapter is to reclaim the body as a moving and sensing singularity, which engages in multiple relational practices of knowing.

2.1 Re-relating the Body

Chapter one showed a body endangered by a homogenising force of modern science. The problem with the homogenised body is that it reduces an affective and active force within bodily events of knowing to vestigial silence. The body of the modern scientist is never there when things happen, but only afterwards, in the process of categorical purification. In the semiotic sense, the body depends on the rule of a signifier, and how he, she, or it signifies signs referring to bodies. What a body can do in semiotic sense then depends on possible signs for 'body'. Differences in conceptions of the body risk becoming systems of signs pointing at what is deemed to be significant by a certain power, “such that nothing can be considered in itself” (Colebrook, 2010, p. 252). Semiotics resists potential different and alternative conceptions of the body, since it refers to a pre-set system of significations. The body as a signification for an organism (as an organisation), whose organs/parts cross-reference one another to keep up a ‘healthy’ homeostasis, has been reproduced by epistemological methods throughout philosophy and science (see Haraway, 1988; Ahmed and Stacey, 2001; Classen, 2005; Papadopoulos, 2010). Crucial for an attempt to re-imagine the body beyond semiotics, is the turn to ontology in STS, and in particular of “extending its idiosyncratic critical sensibility” (Woolgar and Lezaun, 2013, p. 336). This research agrees with the five key points of this turn to ontology, that is, 1) the move away from epistemology, 2) an intensification of “the provocative power of STS perspectives” (ibid.), 3) focus on a description of how achievements of ontology are done, both in theory, and in practice, 4) the unwillingness to remain on the level of phenomena, and 5) a renewal of

commitments within STS to different worlds in becoming.[28]

2.2 Cyborg Hybridity

In her *A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century,* Donna Haraway (1991) blasphemously and ironically proposes the cyborg as such a re-imagination of what a body can be. The cyborg is a crucial product of imagination, because of its radical ability to "hold[…] incompatible things together because both or all are necessary and true" (ibid., p. 149). What is true about the cyborg body is then that it is a result of feminism, as well as of socialism, and of materialism, but also that it belongs to the social realm, *and* to science fiction. The cyborg imaginary is Haraway's (ibid., p. 181) direct answer to the problems set out in chapter one of this thesis, as a way out of the dichotomies between science and the social, and a refutation of the imaginary of the modern scientist, which lacks a hold on what is real. It is also her polemic revolt to a science, which has both created as well as dominated "'women's experience'" (ibid., p. 149). Rather than maintaining a codified theory of knowledge, the cyborg does not adhere to a singular epistemology of science, rooted in a signified subject of science. This makes cyborg thinking, as a social-scientific practice, able to conceptualise practices of science which are never solely scientific, and are never wholly conclusive of facts. It critiques false belongings to certain unified categories, as these categories are instead already mixed and mashed in 'everyday bodies.' Cyborg thinking connects and emancipates parts of science and social fiction, while being ironic about its often contradictory parts. Irony, as Haraway (ibid., p. 149) describes, is a playful,

28 As shown by Van Heur, Leyesdorff, and Wyatt (2013), the turn to ontology in STS is perhaps better formulated as a turn to STS through ontology.

but serious strategy for dealing with unresolvable contradictions in our cyborg bodies, i.e. in terms of animal-human, human-machine, technological-natural, and male-female. The cyborg opposes and perverts dominant cultural figures, which in modern times cannot be taken together, like heterosexuality, the oedipal family, socialist and capitalist classes, as well as humanist ideals, and is as such a reactionary and revolutionary force. It hacks ideals and political identities prescribing a set of expectations of living together, and provides an "argument for pleasure in the confusion of boundaries and for responsibility in their construction" (ibid., p. 150). Pleasure beyond repression, the cyborg manifesto says, is necessary for survival in a world of hybrid connections between humans and animals – and other non-humans. In McCaffrey's (1969) *The Ship Who Sang*, an example addressed by Haraway (1991, p. 178), the author describes a conscious cyborg constructed by interfacing the handicapped body of a young girl, with the machinery of a star ship. Haraway (ibid.) shows how this body-ship or – as McCaffrey refers to her – *brainship* is a hybridisation of "gender, sexuality, embodiment, skill," and argues that our bodies should not necessarily end at our skin, as the cyborg brain in the story is able to sense and feel through receptors in the spaceship's interior and exterior hull. The brainship reveals a society, which mixes specific biological and technological parts, and adds social imaginations, and skills about how to deal with acceptable and disabled bodies, as well as ideas about what a body might be able to do. Significantly however, the girl/ship known as brain has a brawn counterpart, a person able to use his or her normalised human birth-body to guide the ship, by being able to move around through it, and outside of it, providing the pair with a much richer sensorium. The brawn's role is paramount to extending the brainship's bodily abilities of dealing with

feelings, and intensities harshly framed by her early childhood disability and technoscientific enslavement. Haraway's (ibid., p. 181) exclamation "I would rather be a cyborg than a goddess," tells us that the ontology of the cyborg might be very helpful for futuristic, and slightly utopian dreams of becomings, in which we all already were cyborgs in retrospect. Imaginaries of a future, in which more-than-human bodies would potentially be able to fly through space are tremendously powerful. She acknowledges the perverse utopian, and oppositional body type of the cyborg of the brainship however, as the cyborg is indeed "completely without innocence" (ibid., p. 151).

However, I wonder if the cyborg is partial *enough*? Its body still seems to solidify in one strained homogenised cyborg-body, comprised of different parts, relating in specific incompatible, although non-reducible ways. Importantly, it shows a sense, in which the individuality of the cyborg is built on a myriad of perverted social normativities, which neither were, nor ever will be clean and virtuous. So the cyborg conceptually and rebelliously reorganises what it means to have a body, constructing it differently, but alongside significations similar to modernity's. Moreover, my concerns lie with the cyborg imagery as desirable, e.g. a choice between being a goddess or a cyborg, while, another question might be how goddesses have *become* cyborgs, or perhaps vice versa. As such I wonder if the cyborg is not the revelation story of what kind of forgotten madness constitutes modern society, and not necessarily a way to rework it, or answer to it. The cyborg retains an imaginary which dislocates, and relocates cultural understandings, and bodily capabilities necessary for incorporating differently perverted identities. But what about a possible outside or other, which could potentially confuse or interrupt its composite logic? Anthias (2001, p. 638)

addresses how hybridity “constructs identity in a singular, albeit synthetic form.” More importantly however, she notes that the hybrid's imagination runs short, as its possible syntheses depend on what a dominant culture allows. The cyborg according to Anthias (ibid.) is a synthesis of different parts, which are prosthetic to a form of hegemonic thinking – but do not question it as such. Cyborg thinking might prescribe the science fictional, as a perverting force of social hegemonies, without asking *what kind* of fictions it allows for beyond those perversions of old bodily ideals in practices of modern science, which have already deteriorated to allow the cyborg imaginary to emerge. Cyborg hybridity, as a prosthetic theory, attaches to a identitarian politics in which “othering and incommensurability” seem to have no place (*u-topia*) (ibid., p. 637). However, the cyborg does help to speak about i.e. the partiality of the senses within practices of science – about becoming hand when touching something, or other less conscious embodiments.

The cyborg therefore allows for an imagination of the kind of bodies archaeologists have during excavations. I can imagine their bodies as partially enveloping the soil and objects they sense, never innocent in relation to what they find. They must have certain preconceptions which construes their interests: they are not merely interested in the site itself, and their preconceptions cross boundaries of the social, fictional, and technological, in the creative work of their excavations. In other words, they are perhaps creatures of a myriad of real-and-fictional significations, synthesising their bodily knowing in the process of excavating. The bodies of archaeologists might harbour a richness of being, which betrays the dichotomies of the stories about them as treasure hunters or something else. At the same time however, the synthetic nature of their cyborg bodies must be able to encounter a site as something new, beyond

what is given by the richness of its queered history, in order to make it worthwhile venturing out to a field site. However, the hybrid body of the cyborg remains heavily signified as a result of its powerful utopic imaginary, and is of limited use for imagings of bodies of archaeologists. Because "contemporary science fiction is full of cyborgs" (Haraway, 1991, p. 149), the cyborg is not exactly an alternative to the body of the modern scientist, but rather an unapologetic provocation from a range of marginalised perspectives.

2.3 Tilting the Body on its Side

The Body without Organs is what remains when you take everything away. What you take away is precisely the phantasy, and signifiances and subjectifications as a whole.

(Deleuze and Guattari, 1988, p. 151)

I wonder what the body can become, when instead of over-signifying it, arguably in the form of the cyborg, it is (at least partially) emptied of its significations of dominant social, political, and scientific imaginaries. Can such an undertaking be done, I wonder? What happens when this alternate direction is taken, with regards to the reclaiming of the body? Deleuze and Guattari (1988, p. 253) open up this alternative, in a proposition of *haecceity* (thisness), as a creative rethinking of semiotics, in which a body is understood as its particular composition of intensities, and not as its signifying whole. This composition of intensities would allow a body to be primarily actively desiring, and have affective relations beyond organised categories like the organism.

The body, for Deleuze and Guattari, is a "whole composed of parts"

which relate to one another and their environment in particular ways (Baugh, 2010, p. 35). The composition of a body depends on the arrangement of its organs or parts, and the significance of these organs or parts related to one another. The cyborg seems to contradict many singular stratifications for instance, while aiming for a heterogeneous body, by keeping its queered organs in tense order. Social, political, chemical, biological, and representational bodies can be described in similar ways, as organisations of different parts which are named accordingly, and relate to each other in distinctly lucid ways (Deleuze and Guattari, 1988, p. 86). A body's functionality is made by the parts which dominate and support it, thereby giving a certain significance to the body as uniformly, and homeostatically, acting organs. Hence, the body is only capable of acting as a unity insofar as the functions of its parts are aligned and tuned. Here, the fascinating and disturbing matter of bodies is not that they have organs as such, but that "only [their] unity seems rational to us" (Serres, 1995, p. 2). The body only becomes coherent, when it creates internally essential and dominant relations between its parts. In its becoming, thresholds regulate the minimum of intensities, required for a body to care for, or be affected by things outside of itself. Intensities pass over the body, and are intensive, in contrast to the extensive, which can be measured. Intensities then do not change the size of e.g. a liver, a heart, or a brain, but rather its "axes and vectors, gradients and thresholds, by dynamic tendencies involving energy transformation and kinematic movements involving group displacement, by migrations" (Deleuze and Guattari, 1988, p. 153). In other words, *intensities contribute to contrasts, not dichotomies*. When intensities do not overcome certain thresholds, the body remains unaffected. A body depends on what it can do in practice, and thus on how its affectual thresholds are tuned, in relation to other

bodies. What a body can do depends then on what it can be affected by, and thus its power depends on its potential to engage in a composition, with other bodies of various kinds. What it means to have a body thus relates to what it can do, or produce in the broadest sense imaginable. Here, feelings are taken as purely technical terms relating to what these feelings make possible (Sehgal, 2014, p. 194, discussing Whitehead, 1985, p. 164). Bodies are pathological, when they are (entirely) closed off and unaffected wholes, as they do not have a pathos any longer. In this sense, the body rather seems to be an opening to a world which can augment its parts, and can relate in extension with others (Strathern, 1992; Latimer and Munro, 2009). Of course, bodies of field scientists like archaeologists depend on their ability not only to be affected by very specific elements, and not affected by others. Yet what I am looking for at this early stage, is a kind of body unencumbered by the grand narratives of a modern science, in which what a body can do does not rest on the functioning of a body, signified into pathological states. The question is hence not how to disassemble the body into its parts in order to escape the notion of the modern scientist. Rather, the issue becomes how to "gently tip the [modern] assemblage" on its side in order to touch on a differently embodied scientific practice in which bodies are not signified from the outset by the grand narrative of science (Deleuze and Guattari, 1988, p. 161).

The *Body without Organs (BwO)* is Deleuze and Guattari's (ibid., p. 149-166) answer to the overabundance of (modern) significations, which weigh heavily on what a body can do. The metaphysical BwO is what remains after taking away the totality of these significations on the body – any body, whether human body, animal body, cyborg body, organisational body, or body of knowledge. The conceptual power of the BwO lies in its radical affirmation of e.g. the body of the modern scientist, not as a body

lacking an (feminised) affectual register, but on the contrary of a body filled to the brink with signs and identities, as results of creative acts in and of itself. This does not mean however that the modern body, organised as a homogenised unit, is not a problem any longer. Those significations belonging to a modern scientist entirely fill a world with interpretations of what bodies can do, to the extent that no other bodies, nor actions, are desirable and thinkable. In the BwO it is therefore the *organisation* of the body, which is circumspect and not per se *all or partial* significations. Rather than organisational or extensive, the BwO infers a materiality of passing and circulating intensities. It is an articulation of a body which is not homogenised, yet also not boundlessly multiplistic (ibid., p. 153). It is necessarily abstract, because it does not pertain to the personal, or the non-personal. What this means is that the BwO should not be thought of as a concrete body in any known way, as it does not occupy any space (it has no extensive properties), nor belongs to anyone, but only serves as a singular point of immanent desire. As such, the BwO affirms the body of the modern scientist, because it affirms the singular desire of a body to 'say yes' to what it encounters in the outside world, even if that includes the problematic significations of modern science. The BwO can the thought of as a thorough rewriting of the quote by Nietzsche, in the introduction of this thesis.[29] Nietzsche's "soul as just a word for something on the body" does not occupy any space either: it is entirely intensive. Nor does reason, or sense, occupy a place. And yet, Nietzsche's problem with the soul is that it makes the body lethargic: the soul as an invention is an act of pure creativity of the BwO, and not of an external God or other power, and yet the signification of what a soul is, disrupts the creative potential of

29 "*But the awakened, the knowing one says: body am I through and through, and nothing besides; and soul is just a word for something on the body. The body is a great reason, a multiplicity with one sense, a war and a peace, one herd and one shepherd.*" (Nietzsche, 2006, p. 22)

what Deleuze and Guattari (ibid.) call the BwO. In their words, “[t]he question, rather, is whether the pieces can fit together, and at what price” (ibid., p. 157). For Nietzsche, the soul was not a price worth paying for the neat organisation of the Christian body, and in a not unsimilar way, I propose that the price of modern science, including its significations as analysed in chapter one, is not worth paying for the neat organisation of the body of the modern scientist. Therefore, it is necessary to make oneself a BwO, to “invent self-destructions that have nothing to do with the death drive” (ibid., p. 160). Even though ever reaching the emptied BwO is an unachievable goal, the point is not teleological, as the goal was never to achieve it, but rather to free its immanent desire to extend and connect. The potential of this desire is unlimited, only because it frees the body’s extensibility in the many limited ways it desires.

What I am interested in, firstly, is the possibilities this view offers for the creation of a BwO of knowing, while retaining what is interesting about science (Latour, 1993, p. 142). And, secondly, I wonder how such a material-scientific BwO fits together with other BwOs (animal, environment, otherwise scientific, et cetera) in a continuum in which the 'price' for fitting together is paid imminently by the particular practice of science, in this case archaeology, as to not rely on transcendental significations. I take the BwO here as multiple, as to extend this notion to what is required by divergent practices of knowing, working from the material upwards, and not from transcendental notions downwards. This is not to say that bodies as such do not co-depend on a material assemblage, which transcends the field site itself. Of course bodies of archaeologists are affected by a myriad of things not native to any particular place or site. Yet the question of the BwO here is how its ‘destratification’ in the field leads to differences not accounted for by

significations of a modern body of knowledge. Taking these questions into consideration, it becomes possible to address not any significations of an imaginary whole field of science, but instead to take the excavation site as a 'plane of consistency' through which intensities pass the bodies of archaeologists, and other present bodies. Rather than giving answers on the basis of existing significations, it looks for an emergence from a position in which "we still don't know what a body can do" (Spinoza, quoted in Deleuze and Guattari, 1988, p. 256; see also Myers and Dumit, 2011, p. 246).

2.4 Articulation of a Multiplicity of Noses

What bodies can do is then subject of further analysis. Latour's (2004) paper on *How to talk about the body?* is significant for the discussion on what a body might be able to do, and how, without reinforcing the modern dichotomies. In this paper, Latour (ibid.) proposes that what a body can do proliferates by means of propositions about their potential abilities. Propositions, rather than statements, establish acquisitions of new science-fictional body-parts. Only propositional worlds can be "at once solid, interpreted, controversial and meaningful" (ibid., p. 212), and thus common to the world. Such articulated propositions are neither natural nor constructivist, but rather equalise the artificial, and the natural in a progressive sensorium. Sensing concurrently occurs by means of particular senses, which make the body partial, and the partial body. Latour's (ibid., p. 208) example of the sense of smelling perfumes explains how stupid, unaffected noses "become nose," by learning how to smell, e.g. "register chemical differences." Much like the other senses, the sense of smell can be trained, by smelling increasingly interesting substances,

with inherently diversify scents. Smelling the same thing over and over does not lead to representative statements about particular substances, but rather to a differentiation of smells, each time a body inhales and learns more about a smell – often of course while closing the eyes. Constructing statements relating to what happens to the whole body, when speaking about smells is futile, as rather the sense of smell touching upon perfumes gives birth to a world worth exploring; or in Latour's (ibid.) terms, a world worth articulating. Significantly, a body's partialities do not deny sensory differences, but rather contribute to new ways of experiencing the world – and thereby adding to the sensuality of a more interesting world. Therefore, the body becomes nose, when chemical substances teach it to smell better. While smelling, I would propose that the nose draws on the Body without Organs, holding back the significance of what it already knows by means of distanced sight or otherwise, while new sensations of scent become embodied, as chemicals become more material. Becoming nose therefore feints bifurcations between a subject and an object, or between reality and interpretation. The production of noses are therefore continuous projects of becoming partial. Becoming partial in this sense means that the smells do not define, nor homogenise, the larger body they become part of. The difficult question however is how one articulates particular smells in a proliferation of sensorial, and material stimulation. Bodies are open-ended, and progressively effecting and affective tinkering propositions of worlds in becoming. One should thus refrain from making factual statements about bodies, as these statements limit their abilities to what they were organised to signify. Bodily acquisitions of new parts (e.g. a new nose) go hand in hand with proliferations of materiality in a world. Its new and speculative body parts involve new ways of sensing, as well as new worldly 'things' to connect to.

One might say that the body in Latour's (ibid.) exploration is the quintessential Swiss army knife, with the ability to craft new and as of yet unknown tools, while new and unknown materialities engage with those embodied tools. What is crucial is that bodies learn by sensing, and not by desk chair thought. Necessary for propositional sensing then is not a consciousness, which intelligently focusses on an important matter at hand, but instead “a passionately interested scientist who provides his or her object of study with as many occasions to show interest and to counter his or her questioning through the use of its own categories” (ibid., p. 218). Here Latour relocates traditional distances between scientists and their objects of research, to an interference between uninteresting worlds and newly-engaged-with worlds of increased interest. “How to talk about the body” in terms of science can then be measured by distances crafted between worlds of noses which could not distinguish between smells of various subtleties, and worlds of noses which are increasingly able to relate to new obstinate materiality. Good scientists have bodies, which can learn to attune to the often unnamed and unknown others inhabiting their fields. Scientific reductionism becomes a silly impossibility as bodies are in between object and subject, or *inter-esse*, thereby in-folding subjects and objects as affect and interest proliferate by means of a sense like smell (ibid., p. 227).

However, Latour's (ibid.) insistence that bodies might become *increasingly articulated* becomes suspect, when considering the Body without Organs. As Schrader (2015, p. 673) aptly points out, “progressively accumulating” new smells creates a problematic rift between those noses, which know many smells, and those which do not. Advanced noses might become hegemonically empowered to distribute moral wrongs to those noses not yet articulate enough. Astrid Schrader (ibid., p. 668), drawing on

Maria Puig de la Bellacasa's (2011) *matters of care*, explicates how Latourian (2004) *body talk* involves teleologically pooling increasingly elaborate affects into learned bodies, with little regard for the bodily relationality with disruptive others, of which one *cannot yet* make sense. A discontinuous process of sense, which remains decentralised, rather than a goal oriented articulation of it, should be significant for sensing bodies, in her proposition. Latour's (ibid.) more significant contribution for the question about what a body can do, might lie in the propositional sense of knowing. Proposition are "a lure for feelings," and serve as pragmatic and speculative methods for a hopeful knowing, as fleshed out by Whitehead (1985, p. 33, 259, quoted in Sehgal, 2014, p. 195). It is in the propositional question *What if?* that a science-fiction, which is "committed to making a difference and not to repeating the Sacred Image of the Same," come together in bodies (Haraway, 1997, p. 273).

Applying Latour's (2004) analysis of the sensing body, I can speculate that during excavations archaeologists learn, because of the interaction between their sensorium and encountered materiality, and not because of their increasing intellectual ability. I propose that this is a crucial point for the becoming-archaeologist of the bodies of anyone participating in excavation labour. The bodies of archaeologists gain articulation, as they engage increasingly complex and previously unknown substances and things, if I follow Latour (ibid.). However, as Schrader (2015) aptly points out, the question is whether this is indeed a progressive process of becoming more articulate, with regards to 'increasing complexity.' I can imagine senior field archaeologists are 'better' excavators than someone like myself, whose body is not articulate at all regarding excavation matters. Perhaps an increase in excavation skills is indeed the result of a higher degree of articulation. And yet, it

seems to me that it is not their more refined articulation, or knowing, which makes their work interesting. What is interesting, and often more interesting for experienced field archaeologists than for student archaeologists, is what they do *not* know yet.[30] Why else would they venture to a remote field site, if i.e. by taking samples they would be able to train their noses or other senses? Is there not, instead, an inverse relationship between articulation, and accumulation of knowing in the body? In other words, I propose that *the more articulate bodies become, the more they do not know*. Perhaps it is the case that the more articulate nose does not replace the less articulate nose in Latour's (2004) example of smell. Instead, where there was once one nose, there are now two (or more…) noses, which are 'summoned' only alongside, or in extension to, a particular scent (Latimer and Munro, 2009; Latimer, 2013). Such an explanation could also clarify how modern scientists might suffer from a 'blocked nose.'[31] It is not that modern scientists are not able to have a highly refined, and articulate nose with regards to some substances. Rather, it seems to me that a refined and articulated sense of smell is not allowed access to knowing, but only to highly qualitative practices of sensing – again bifurcating nature. What is important here that there might be a multiple of noses, and bodies, depending on what these bodies are sensing and doing.[32]

In her ethnography on atherosclerosis, Annemarie Mol (2002) deals with the question of multiple bodies in a variety of medical practices. She

30 See field notes L1.

31 "To block, to be blocked, is that not still an intensity?" (Deleuze and Guattari, 1988, p. 152)

32 Another point of signification here is Latour's (2004, p. 209) proposition that the opposite of a sensing body is a dead body, since dead bodies cannot be affected at all. Death however is a doubtful opposite of what having a body means. Are dead bodies, much like living bodies, not continually affected by other bodies, i.e. bodies of micro-organisms, and fungi? Is it not thinkable that dead bodies, differently alive, can know in other ways?

explicates what happens to bodies of patients (including, to a lesser extent, bodies of medical professionals) in a hospital in the Netherlands. Patients suffering from various types of atherosclerosis offer the hospital 'their legs' (ibid., p. 29). Mediated by instruments such as microscopes, dyes and colours, doctors and technicians sample parts of a leg of patients. Medical analysis of these samples is mediated by a wide variety of practices, signifying and measuring states of blood vessels, pain, walking distance, no pain, humour, and other performative enactments of bodies. Cutting, as practices of discriminating bodily enactments, happens not only by scalpels, but also by injecting dye into veins, or by medical consults, which cut what is important to that practice from what is more contingent. Mol teaches us that the body is multiple, neither singular nor fragmented. “Bodies are partially connected, more than one, and less than many” (Strathern, 1992, p. 35; Mol, 2002, p. 82). She describes for instance how technicians, who inject dye into veins, *do* a different body, than the doctors analysing the effects of the dye in the legs. The atherosclerosis patients themselves do their body differently as well, *feeling* the effects of the disease in their daily lives. Whereas this once might have been explained as a difference in perspectives on the same body, Mol (ibid.) proposes that there are in fact different bodies depending on the practice, which constructs these bodies. Moreover, it is not only the multiple body, which is done in this way, but also the disease. There is as such also a multiplicity of atheroscleroses. She (ibid., p., 35) shows that these bodies, and diseases are by no means always compatible. Patients might complain about feeling pain in their body, for which a medical practice cannot find any evidence. Furthermore, different medical practices might not agree at all about the presence of the disease in a body.

This is significant for a science, which enacts and explicates new

bodies through practices. Bodies cannot be anything or everything, but are specifically tied to their practices of becoming. Rather than phantasms, bodies are experientially tied to practices, in which explicating or writing them happens by cutting up previous images of bodies (Strathern, 1992, 1996). Practices of cutting here do not reduce: there are no pieces cut away from the body, and destroyed in favour of more recent and privileged body-types. Assuming that cutting is destructive, Strathern (1992, p. 109) argues, is a fiction (of ethnography). This fiction rests on an assumption conflating two kinds of wholeness. The first assumption is metrical, as shown in the figure of an arborescent wholeness, in which the parts are equal members of a whole – think of the separate branches of a tree, which are interchangeable in their function for the whole. Here any branch encompasses an image, which includes the entire tree, and as such cannot be taken without the tree. The other wholeness is one of set-theory – think of a hospital organised based on differing enactments of atherosclerosis. Strathern (ibid.), drawing on Thornton's (1988) *The Rhetoric of Ethnographic Holism,* argues that these two kinds of wholeness are often conflated and confused for one another. Human bodies have a set of two hands, which are interchangeable in their functions for the body, as they are both hands. Yet for non-ambidextrous bodies the hands are already 'cut' because they are not interchangeable at all. Rather than assembling or tying the hands/parts back together – in effect disabling them – Strathern (1996, p. 520) proposes that cutting them apart leads to an additional prosthesis. The 'gap' between the left and right hand leads to different attachments or grips. I hold my pen with my right hand and hold the sheet of paper in position with my left hand. Cutting leads to an increase in complexity as it creates more and more vital gaps.

The body is therefore not a tied together or constructed reality.

Grabbing a pen or a sheet of paper does not make the pen-hand, or sheet-hand into an enacted construct. Rather it cuts the body and adds, by means of a prosthesis, another partial body. This leads to an understanding of bodies as performances, which can also let go, or stop in order to add yet another function (Mol, 2002, p. 32). Importantly, bodies can counteract one another and be incompatible, depending on the particularities of their enactment. Pathological atherosclerosis in Mol's (ibid.) example enacts bodies, which are potentially incompatible with clinical atherosclerosis: patients speaking about their pain do not necessarily mix with clinical analysis of an artery (ibid., p. 36). One body is enacted by a patient feeling pain in his left leg, while another comes into being by a technician calculating certain clinical values, and a third emerges because Mrs. Stienstra, the person in question, loves to travel and really needs her legs to walk (ibid., p. 96). It is the disease, which might connect the three (among more) different bodies. These bodies are however very differently performed. Not only is someone who never experienced atherosclerosis not trained in feeling atherosclerosis, there might even be other possible diagnoses unrelated to the disease. So when Mr. Somers, another patient, has a lot of pain walking, and yet the technician is unable to find anything, the patient's feelings might be bracketed out, and Mr. Somers is referred back to his GP. The body's coherence is thus threatened, and the name of the disease contingent (ibid., p. 63). Here Mol (ibid.) shows that the medical discipline requires a somewhat coherent body and sometimes, if different actors cannot make sense of the body, it requires sorting things out to arrive at a coherent body yet again. As medical students learn however, the pressure measurements necessary for pathology to enact the disease, can fail. Either the clinical body or the pathological body might introduce an incoherence, and

doctors engage in solutions to sustain a body's singularity by (sometimes temporarily) bracketing and un-bracketing those enactments, which are acting up. She uses the phenomenology of bracketing to show how doctors fill the gaps in understanding this disease. Pathology, in her example of Mr. Iljaz, shows a body, which by all accounts should not be able to walk any more due to the severity of his atherosclerosis. And yet, he reported only slight pain while driving to the hospital *on his motorcycle*. This contradiction points to a cut, and intervention of another body. Eventually, the cause of disruption of the two contradictory bodies was Mr. Iljaz ability to feel pain. Until that time however, one of the explanatory bodies – in this case the primary experience of Mr. Iljaz – was bracketed, until it could be unbracketed again, when explained by the enactment of a new neurological body. Mol (ibid., p. 69) continues by telling us about Mr. Winter as his "pain-free walking distance is some 120 meters. The ankle/arm index of his right leg is 0.7." Here pathological and technical indicators are mixed, and explanations of why they must be incompatible are forgotten. Instead it is up to Mr. Winter to indicate his wishes, as his very moderate case cannot sufficiently construct a coherent body. Atherosclerosis becomes social when the motivation of the patient takes a significant share. Mol (ibid., p. 74) shows how challenging it is for patients to sufficiently articulate their stories – and for doctors to 'fill in the gaps' by listening to what is not pronounced. A composite reality with its singular body has to be enacted by means of various mediations between actors, in order to decisively judge severity and course of action. Experiences of patients have to be made to fit pathological methods, which in turn have to be made to fit one another when practised.

Her (ibid.) work shows firstly how the importance of not subsuming bodies under the notion of the perspective. A body is multiple as it is

enacted by a diversity of different practices, and 'fleshed out' as more than just a practical way of seeing the one body. Furthermore, she makes apparent that any such body also enacts the particular practice and its disease, concurrently with its own enactment. She furthermore shows a distributed body, not owned by the subject it is said to belong to, but is instead enacted by practices, which in relation with each other have to figure out which one is more important in a particular case. 'Cutting' the one body leads to a multiplication of bodies, and of what a body can do. For archaeological excavations, the body multiple might help to come to understand the richness of bodily excavation practices, and the ways in which the environment of the excavation itself enacts multiple bodies of archaeologists, but also possible other bodies present, which resonate with a distinct multiplicity of practices. Her philosophical contribution emphasises the notion of the multiple, as opposed to a kind of plurality, which does not hold, because practices of enactment of the body are, even though multiple, still limited in number. Mol's (ibid., p. 55) multiple however also contradicts the singular body, as a body is always "more than one – but less than many." I would agree that the notion of plurality is not helpful here. However, her account of the body multiple strikes me as too liberal a notion, and perhaps not abstract *enough* (Deleuze and Guattari, 1988, p. 90). Though I inherit the notion that a body depends on the practice which enacts it, and that it therefore can be more than one, but not pluralistic, I wonder simultaneously if a body is ever multiple, concurrently. When an archaeologist is bending down, and trowelling a particular patch of a trench, she is not recording her findings at the same time. She will get up, when she decides the trowelling is done for some reason or another, or perhaps when interrupted by a different encounter, take a sheet of drawing paper, and start recording. Time and its passage, it

seems, is bracketed out as well in Mol's (ibid.) account.[33] But, to not gloss over this point, I want to raise the hypothetical question of *where her other bodies go*, when the archaeologist is trowelling. Could it be that, when trowelling, her 'recording body' is part of a Body without Organs, e.g. not there in spatial or temporal sense, but rather as a part of an imminent 'plane of intensities'? If this would be the case, the mapping of the body multiple should encompass something like a 'singular-multiple' body in a virtual but real map of bodies. But perhaps Mol's (ibid.) account does contain such a body. Mol's (ibid.) mapping of the body multiple seems to be a mapping of a medical discipline, with regards to a multiple disease and its bodies, with regards to "medicine's *ontological politics*" (ibid., p. viii, emphasis in original). Indeed, these politics incorporate a multiple body, multiple practices, and a multiple disease, under the sign of a singular medical discipline. It would be interesting to make another cut, following bodies down to where their atherosclerosis is only the disease enacted by a medical body multiple, while another body emerges alongside as an intensive reality of daily life, and therefore in this sense to do an anthropology of health with constraints, and not of disease.[34]

33 "For a long time process has been such a buzzword that when doing (social) theory, one could hardly do without it. But in this book the matrices produced are primarily spatial. The different configurations to be mapped are next to one another, or inside or above." (Mol, 2002, p. 25)

34 I do not mean to suggest that this alternative would be 'prettier,' but I think it would be a more caring and invested way for how 'patients' and their movement through environments enact different concurrent bodies.

2.5 Becoming Abstract Sensing and Moving Bodies

It is a problem not of the One and the Multiple but of a fusional multiplicity that effectively goes beyond any opposition between the one and the multiple. A formal multiplicity of substantial attributes that, as such, constitutes the ontological unity of substance.

(Deleuze and Guattari, 1988, p. 154)

Following this quote, I would take the body as both singular, as well as multiple, but in different ways. Reworking this paradox between the singular and multiple, requires an even greater abstraction of what it means to have a body. Abstraction enters into the body with its movement and sensation (Massumi, 2002; Manning, 2007). I suggest that this paradox is best investigated by analysing the body's singular ability to move, and to sense, in multiple ways. What remains from Mol's (2002) insight then, is that the singular body differs from itself via movement; and its multiplicity lies in what it can do, in relation to something else it can do; related but also 'cut' apart from it by its sensing movement (Strathern, 1992, 1996). In other words, while multiple in its divergent acts, a non-extensive potentiality (Body without Organs) seems to be carried with the body. To give an example of what this might mean for excavation work: when learning how to trowel, a body does not remember something what was lost to it. Instead, it seems to extend its relationality (Strathern, 1992; Latimer and Munro, 2009) to the excavation in an act of becoming affected[35] by what was there all along – the differences in soil, or stones, roots or animals – but what did not affect it previously, at least not in archaeological sense. My own practice of learning how to trowel, as I will

35 I will address affect more in-depth in the chapter three.

address more in-depth in chapter five, was not very effective, as I could not relate to the excavation as an archaeologist might, given that I was there for very different reasons, as a very different relational body. My trowelling body, as it were, was blocked by another body, moving and relating in other ways to the excavation. Trowelling as such did not function in the same way for me, as for other archaeologists. And, I would even say that it can function very differently for different archaeologists. In this sense, there is a multiplicity of bodies already in that one relatively mundane practice of trowelling. Simultaneously, in the performative act of trowelling, a body is singular – e.g. its relational ability depends on the particular potential of that body, its hands, feet, head, heart, etcetera, in relation to the site, trench, soil… During my trowelling experience, I therefore did sensuously relate to the soil, the stones, and the roots. But I also tried to relate to the potential body of an archaeologist inside myself, sense as he might, and this indeed 'blocked' my practice, as it was not something my body could or would do. My body could not be multiple in this particular practice: both researching bodily practices in excavation, as well as excavating archaeologically, does not fit very nicely. In this case, the body of an archaeologist can then be a Body without Organs, just out of reach as the plane it is on requires particular relations, i.e. thinking, moving and sensing in archaeological, but perhaps more importantly also requires *not* other relations.[36] It is therefore crucial not only to think about what it means that "we do not know what a body can do," ((Spinoza, quoted in Deleuze and Guattari, 1988, p. 256; Myers and Dumit, 2011, p. 246), but also to think what it means that we do not know what a body cannot do – and how this knowing and not-knowing is not at all so dissimilar in practice.

In highlighting the body's singularity as well as its multiplicity,

36 This is not a lack of course, as the other relations where there, but more of an intensive block.

moving and sensing constitute the potential of the body to gain, not progressively more as Latour (2004) would have it, but progressively *differing* partial articulations which make up the world called excavation. Articulations are partial, as they happen in bodily movements, which create only a part of the singular world of the excavation. My trowelling disability also made up a part of the excavation.[37] As such the archaeologist can trowel a section of a trench, and move onward to record her finished trowelling work on forms, or sheets of recording paper. Both activities are different, and even within the activity of trowelling many different active movements can become clear. But the point is that these practices partially relate to one another, and it is this relating which creates a world, as the emergence of 'new' relations with 'old' matter.[38] Surely Mol (2002) is right in pointing out that these bodies are not necessarily always compatible: the archaeologist's trowelling body might not fit very well with a body backfilling the trenches, or one contemplating the meaning of a particular find or soil contrast. The Body without Organs resides in different moving bodies. As such it is not so much about a body multiple, but rather about an ecology of bodies, which can only manifest because of the environmental practices, and techniques they engage in. It is important here that bodies are distinct from significations. What this means is that the body is always a collective of singularities.[39] So there is the female archaeologist who is trowelling a section. Then there is another – male archaeologist, who is trowelling a different section. These two, I

37 And hopefully for the archaeologists, it did not make up too big of a part.

38 See also Latimer and Munro (2009), in their discussion on building, dwelling, and thinking in Heidegger (1971).

39 See also Guattari's (2001) notion of the importance of an ecology of singular, intermittently relating subjects, not as opposed to the multiple, but instead opposed to the collectivity of mass-subjectivity in Integrated World Capitalism.

would propose, share a *kind* of body because of the specific relationality their body has with the practice, and the environment in which that practice is enacted. This body is not a physical body as such, but an abstract body, or Body without Organs, because it is not closed off, in advance, by a statically signified organisation, independent of practice. Of course, this does not mean that the material bodily trowelling of the female archaeologist is the same as that of the male archaeologist, nor does it mean trowelling is an entirely free act, without guiding design. Their 'trowelling-BwO' is not the only body. Perhaps the female archaeologist is also a mother, a professional cyclist, and a painter, and these other bodies might matter as noise (see Serres, 1995) during the practice of trowelling. These other bodies are important for a sense of how singular bodies can be multiple, when their noise interrupts the practice they are engaged in, but what I want to emphasise here is the collectivity of i.e. bodies in the singular (one body's doings), and in the multiple (more bodies' doings). That is, in investigating one body trowelling-moving-sensing, there is a wholesome sense of what trowelling is, even if one's own body is not able to do it just like the other.

In relation to archaeological excavations, this analysis raises questions regarding the encounters of archaeologists. What does taking bodies as their potential to move and sense, mean for their encounters? Here, Karen Barad's (2007, p. 357) *agential realism* is useful, as it takes the body's relation to objects not as deterministic, but rather as experimental, imaginative, and manipulative. Agential realism speaks of bodies as agents, which intra-act, that is "enact the between," much like atoms resonate with atoms of different kinds, without signifying which ones are subjects and which ones are not. Such resonances leads to *diffractions* – a concept she translates from physics, and is used throughout this thesis, as

an alternative to reflections of each chapter. A historical use of diffraction from classical optics, means “to break apart, in different directions” (Barad, 2014, p. 168). Barad (ibid.) prolongs this concept, enriching it with more recent insights from quantum physics. The diffractive act of breaking apart, much like Strathern’s (1996) cut, does not diminish or dismember the particles or waves. Rather acts of cutting apart are themselves acts of shared becoming. The 'resulting' difference from diffractions immediately entangles the cut parts. Her point here is to render change and movement in objects, and bodies, across a boundary or intensive threshold. Diffraction embodies transition, superposition and potentiality. “Phenomena are not located in space and time; rather, *phenomena are material entanglements enfolded and threaded through the spacetimemattering of the universe*” (Barad, 2014, p. 182 emphasis in original). As such the extraction of objects from the ground during an excavation for instance, should not be taken as a clean removal of these objects from the field site. Instead, I speculate that excavation practices employ a variety of diffractions, which relate the site and its extracted objects even more intimately, even when the parts start leading separate lives. As discussed in chapter one, the residue of these material diffractions also enter the social, political, and scientific. Even ‘destroying’ or ‘removing’ objects from the site, leads to a becoming of the excavation. Barad’s (2007, p. 41) notion of diffraction implicates objects with unstable boundaries, and are therefore manipulable. Their manipulability points to a body’s ability to know the object by co-inciding with it, instead of merely representing it as the extracted knowledge of a bifurcated nature. Their boundaries are quite literally unstable with regard to what they might be able to do, in as of yet unknown processes of knowing. Much like a body, this conception is akin to that of “boundary objects” which “are able both

to travel across borders and maintain some sort of constant identity," and "act as anchors or bridges, however temporary" (Star and Griesemer, 1989, p. 414; Bowker and Star, 2000, p. 16). They are thus plastic, but not without some sort of boundary between what is known, and what might be known. The Body without Organs shows how it is necessary to rework (modern) significations, so that the body is able to differ in knowing, by sensing and moving. But, it also shows how maintaining some degree of signification is important for it to remain plastic – and not to be pinned down under the weight of unmanageable intensities.

2.6 Diffractions: Reclaiming the Body

This chapter reclaims bodies in an ontological sense, in a move beyond the powerful myth of modern science, and connects as such to the ontological turn in STS (Woolgar and Lezaun, 2013). With Haraway's (1991) cyborg, it arrives at a notion of the hybrid body, extending and blending modern science into worlds of social, material, and technoscientific significations and tensions. The Body without Organs (Deleuze and Guattari, 1988, pp. 149–166) is instead a limiting force to these significations, in order to potentialise renewed bodily encounters from the inside out. Latour's (2004) paper analyses more specifically what a body can do in terms of its senses. His progressively descriptive and articulate bodies make sense, but the sensing of the body itself is lost somewhere between the lines of articulation. Rather than articulations, Mol (2002) focuses on enactments of a multiplicity of bodies, in practices of medicine. The body multiple describes bodies, which are at times ontologically incompatible. The very notion of their (in)compatibility however seems to require a kind of singularity of the multiple body, if bodies are able to move from one ontological enactment to another; if they

are to *encounter* (in)compatibility. What is necessary then, is a further increase in abstraction of what the body is, to establish its primacy as a moving and sensing body, for practices of knowing, beyond significant mappings of multiple bodies. With this abstracted notion, the body's sensing and moving becomes a force of cutting networks of signification, establishing points of intermittent connecting, and letting go (Strathern, 1992, 1996; Latimer, 2013). As an extension to, and reinterpretation of, the Spinozian adagio that 'we still do not know what a body can do,' I propose that it is also necessary to think 'what a body cannot do.' The potential of moving and sensing in bodies is more a matter of *(un)knowing*, than it is a matter of a stratified fabrication of knowledge (Latimer, 2009). Moving and sensing cuts the semiotic network between sign, signifier, and signified, and brings heterogeneous materiality back to our descriptions (see also Strathern, 1996, p. 527; Latour, 2005, p. 10). Contrary to semiotic relations, the sign, and the thing the sign refers to come to overlap, returning materiality to bodies by making them resistant to capture by signification in practices of (un)knowing (Semetsky, 2010, p. 244). Here, Barad's (2007, 2014) agential realism, enriched by concepts like intra-action and diffraction, invites such a non-deterministic relation, in which the body's moving and sensing are experimental, imaginative, and manipulative.

The focus on the moving and sensing of bodies is particularly relevant to practices of archaeological knowing, as bodies of archaeologists move differently at the rather contingent beginnings, and endings of archaeological excavations, and their movement changes during the excavation. This then means that bodies of archaeologists know differently, depending on their sensing and moving in various excavation practices. How 'the body of the archaeologist' knows, is therefore not only partial, and in relation to the fluid doings of their

excavation work, but also changes in relation to the encounters in their work. Similarly, archaeological knowing changes tremendously throughout archaeological theory (see chapter four). Sites of excavation also change each season. Even across the centuries when the site was covered up, it was never in stasis, but cut again and again by a multiplicity of human and non-human actors (see chapter five). In similar vein, how a body moves and senses, by i.e. the collaboration of a hand, trowel and trench, leads to diffractions of matter. The question here then becomes aimed more specifically at sensing in *relation to worlds*, and more specifically, how bodies (of archaeologists) touch on, and are touched by, their worlds (of excavation). Furthermore, the question is how bodies of archaeologists can arrive at "immanent discrimination" (Stengers, 2008, p. 39) of their relating by a sense like touch.

CHAPTER 3

Haptics: Prehensions and Recombinations from the Midst

The theory of haptics aims to provide an "indigenous theory of perception."

(Howes, 2005, p. 6)

This chapter continues the conceptual journey of the body as a sensing and moving body. It does so in a multidisciplinary way, diffracting concepts to build a relational framework on touch. More specifically, this chapter engages with theory on haptics as a theory of perception, with the potential to reorganise the sensorium, beyond competing sense-organ functions like sight, smell, or the touch of the hands, as noted by the geographer Mark Paterson (2009a, 2009b). Haptics seems as such to be not only – and, in some cases, not at all – about physical hands-on touch. Crucial to this notion of haptics is Natasha Myers (2006, 2008) ethnography of science, which features the rendering of touch as experimental, ambivalent, imaginative, and manipulative of matter from the midst of practices of science. Connecting accounts by Stefan Helmreich (2009), Eva Hayward (2010), and Claudia Castañeda (2001), this chapter also questions how the affectual character of touch can cut through conceptions of closeness and distance, relating unlikely objects of research. With media theorist Vivian Sobchack (2004), and philosopher of science Vinciane Despret (2004), it furthermore rethinks haptic relationality as subjective experience with alterity, transcending the notion of a subject-object dualism, in doings of alterity. The philosopher of art Erin Manning (2009b) is attentive of the prehensive abilities of the body's touching, and the mattering it calls into existence through its prehensions. How bodies affect and are affected by the worlds they inhabit, is crucial for this prehension. Saliently, prehensions of these kinds are not at all clear in their meaning: the body's ability to discriminate matter, crucial to touch, takes it onto an immersive path, which can be hallucinatory, illusionary, *and* real. On this path, the discriminatory dimension of touch is about animating, or giving life to, encountered worlds, by yielding to the objectivity of these worlds

(Vasseleu, 2009). Throughout this chapter, many parallels are drawn to encounters with archaeological knowing.

3.1 The Sensibility of New Thoughts and Feelings

In chapter two, I discussed the importance of conceptualising the body as an active body, generative of relations by moving and sensing, which by means of diffractions make up, and remake, its ontology. The generative dimension of a body's relationality is important for its singular potential to be multiple. That is, the generative body is crucial for its ability to relate to a range of objects and others beyond what constitute it. It is due to its relationality, that a body can be 'reconstituted' as another body. This is by no means a progressive reconstitution, in the Latourian (2004) sense. The body does not become progressively *more* articulated, but rather differently articulated depending on the matter it engages with. It is my proposition then, that this generative notion of what it means to have a body is important for practices of archaeological knowing. Chapter one and two show, that the constitution of the body requires a reworking of the body's modern composition, for its relationality to be affective, and that the myth of modern science inhibits such a generative relationality. A body's ability to relate and move makes it thus into a *doer,* rather than a static observer. As doers, bodies encounter other bodies, and quasi-objects (Bowker and Star, 2000), which affect them in particular ways. Yet, the question of the body's perception is still unanswered. How does a body's perception relate to its potential to enter into generative relations? How does diffraction, as an inherent dimension of the body's sensing, become embedded in worlds-in-making? I suggest that the concept of haptics could provide an answer to this question. Literature on haptics suggests a normative difference between on the one hand a haptic "perceptual system based on the sensory returns from nerve endings" leading to awareness of one's body in the world (Paterson, 2009a, p. 769), and on the

other hand a haptic tactility able to animate the inside world of what is touched (Vasseleu, 2009, p. 143). These two accounts, one exploring the inner workings of a body's perception, the other addressing the relation between the body's tactility and an outside world, require further investigation. Beyond this, it can be said that contemporary theory suffers from "sensorial poverty," which leads a call for a research-oriented approach of "haptic knowledges" (Howes, 2005, p. 1; Paterson, 2009a, pp. 767, 774).[40] There are indeed major gaps in haptic theory; even in those theories. Phenomenology for instance was conceived of as a revolutionary and sensory answer to transcendental idealism. As Michel Serres (with Latour, 1995, p. 131; quoted in Howes, 2005, p. 318) shows however, the senses in Merleau-Ponty's (1994) phenomenology remain paralysed in his investigation of the role of the senses in language:

When I was young I laughed a lot when I read Merleau-Ponty's Phenomenology of Perception. He opens it with these words: "At the outset of the study of perception, we find in language the notion of sensation. ..." Isn't this an exemplary introduction? A collection of examples in the same vein, as austere and meager, inspire the descriptions that follow. From his window the author sees some tree, always in bloom; he huddles over his desk; now and again a red blotch appears-it's a quote. What you can decipher in this book is a nice ethnology of city dwellers, who are hypertechnicalized, intellectualized, chained to their library chairs, and tragically stripped of any tangible experience. Lots of phenomenology and no sensation-everything via language.

40 Or, in the words of Švankmajer (1994, p. 234, quoted in Vasseleu, 2009, p. 149): "the importance of touch... for the restoration of sensibility that has been so poorly represented in our civilisation."

The composite of language, ideas, and signs perhaps form the base of a modernity which started with the Socratic conversation – that is, the dominance of language – and extend through most of European history. It is for this reason that it is important for research to take the senses, as an alternative mode of knowing, and as an intrinsic part of the body, allowing for new feelings, and new thoughts (Stoller, 2004, p. 832, addressing Artaud, quoted in Paterson, 2009a, p. 775). Here, 'new' pertains to the body as *changeable*, which means *sensible*, in the philosophy of Michel Serres (1985, p. 304; see also Connor, 2001, p. 38).

3.2 The Textural Reorganisation of the Sensorium

In this light, the geographer Mark Paterson (2009a) endeavours to "re-mediate touch," and return to the senses as a medium for experience. Paterson's programme emphasises haptics as pertaining to *somatic sensations*[41] of the internal kind, transcending a focus on cutaneous tactility, while leaving behind discourses on the more generic 'embodiment'. He investigates touch in a "clearly defined and robust programme," mostly from the "psycho-physiological point of view" (ibid., p. 767). He diagnoses the lack of sincere interest in haptic knowing, as an effect of the "woolly-minded vagueness that 'touchy-feely' might suggest" (ibid.). The notion of touch as soft and vague in methodological sense, he proposes, is at least part of the reason for the sensory poverty of theory. Paterson (ibid.) is interesting as he provides a theory of sensory perception, which attempts to articulate the body's haptic abilities in a technical way, and through this, arrives at defining haptics in a broad sense. He distinguishes three kinds of sensory systems as part of haptic

41 Synonymous with interoception (Fowler 2003) or somesthesis (Boring et al. 1948), both referenced by Paterson (2009a, p. 768).

knowledge: “kinaesthesia (the sense of movement), proprioception (felt muscular position), and the vestibular system (sense of balance[…])” (ibid., p. 768). Central to the haptic system is input in the form of information or data, as well as these three ways sensory information affects the body with regard to its environment. *The first sense* of the haptic system, kinaesthesia, is significant for research on i.e. dance and martial arts (see also Cohen, 2006), because it deals with muscular tension and balance as information relayed by the body's nerves. Paterson (2009a) discusses kinaesthesia as a knot interlacing intuitive perception and exterior impulses. *Secondly*, the body’s system of proprioception deals with the position and axis of the body based on information from muscular nerve endings. Because of proprioception, bodies know what is up and down, next to, underneath and above, and the relation of its limbs to these particular orientations. *Thirdly*, the vestibular system relates to the fluids of the inner ear and is responsible for “inertia and momentum” (ibid., p. 770). The vestibular system makes sure bodies are able to keep themselves upright while navigating through space and is closely connected to the other two systems of sense. In relation to these systems of sense, Paterson (ibid., p. 768) also distinguishes between mechanoreceptors responsible for feeling pressure; thermoreceptors for feeling temperature; and nociceptors for feeling pain. These three subsystems of haptics are responsible for tactually and discernibly experiencing and relating to the outside world.

Instead of providing a more in-depth analysis of the parts of the technical haptic system as set out above, I would propose that Paterson (ibid.) responds to the need to 'reorganise' theories on the senses, with regards to its conceptual poverty. The demarcation of haptics into kinaesthesia, proprioception and vestibular, with their respective nerve-

sensors and sub-systems, emphasises the importance of the non-visual[42] senses, as well as their collaboration. Thus, even though bodily sensing includes diffractions (Barad, 2007, 2014), as I addressed in chapter two, the senses are entangled and inseparable within the haptic system and its subsystems. In order for the vestibular system to guide bodies through space, it might rely on sight, touch, hearing, smell, and perhaps taste. A dancer's kinaesthetic ability does not necessarily exclude sight or sound, and even though there might be dances imaginable, which do not rely on one or two senses, no dance or indeed movement of bodies can exclude a haptic system, or indeed, ways of relating to its environment. What I take primarily from Paterson's (2009a) haptic system, is that touch in the sense of haptics is not quite about touch as one of the senses, separate from the other senses, but instead *the senses are organised differently* – and not according to sense-organ functions, but according to their collaboration with regards to the moving and sensing of the body. I would therefore propose that Paterson's (ibid.) theory of haptics is about creating a particular Body without Organs (Deleuze and Guattari, 1988) in relation to its sense and movement. In other words, his haptics is about a distinct minimum in terms of a body's organisation and signification, which is required for sensing and moving. Moreover, when one of the senses fails, i.e. sight, the haptic systems are not broken beyond repair, but instead reorganise in order for the body to be able to keep moving and sensing.[43] The body is hence a fluid and plastic 'entity.' For Paterson (2009a), this reorganisation can occur because kinaesthesia, proprioception, and the vestibular system are changeable, in the sense that their relations can

42 Note that non-visual here does not exclude sight as a sense altogether, but refers instead to the possible distancing and reductionist use of vision, as discussed in chapter one.

43 Fascinating neurological research confirms the plasticity of the sensory brain in cases of "sensory deprivation" (Leporé *et al.*, 2009, 2010; Ortiz-Terán *et al.*, 2016).

rework the body's sensorium with regards to its movement in the world. Interestingly, the parts of the haptic system become bodies in their own right, and multiple due to their ability to change their functionality in the singular haptic system.

Moreover, Hannah Macpherson (2009) speculates that the common association of touch with the human hands might be related to our dependency on vision, as seeing bodies *see* their hands when they reach out. The hands might metaphorically refer to a seeing body's idea of what it means to touch. Instead, she (ibid.) shows how blind people's primary organs of touch are their feet, which are their connection to the movement of their bodies through the world. The haptic systems of blind people, as well as their reorganised brains, lead to very different ways of sensing and moving through their worlds. Saliently, the feet, more than the hands, relate to the moving body, and the haptic systems mentioned by Paterson (2009a), even though this is not a sensory relation set in stone. To define strict categories by means of which specific organs are responsible for specific senses (eyes – sight; ears – sound; hands – touch; nose – smell; tongue – taste) makes the proximate (the body) most distant to our understanding, as Paterson (ibid.) puts it. He (ibid., p. 771), following two of his colleagues, aptly addresses this problem by explicating the body as the primal *felt* geography. Bodies become *sensuously dispositioned* towards sensations in near and distant spaces, by means of techniques connecting social and temporal contexts to the body. The haptic system provides such techniques. Haptics therefore reorganises the body as e.g. having a "poetic sensibility [and] a sensuous disposition" (ibid., p. 780). This also outlines a methodology of prehension towards being touched by a sense of wonder, fullness and enchantment, and how such a prehension relates to ethical and political feelings of shame and connectivity (Obrador-Pons, 2007).

Significant of Obrador-Pons's (ibid.) ethnography of being nude at the beach for instance is that it re-mediates touch as a sensuous disposition: nudism is about inspiration and attachment to a world, rather than an outlet of hedonistic liberalism.

Touch therefore seems to be a mediating sense of affects, such as wonder and enchantment, between world and body (Paterson, 2009b, p. 130). Touch cannot be immediate, he proposes, as all mediation takes time as well as space – even if only for neurons to transfer signals to and from the brain. He points out that touch is, significantly,

the totality of the experience [...] despite being the synthesis of a variety of different receptors distributed around the fleshy body, each providing a range of information concerning temperature, pressure, pain, and texture, always already mediated through the organ that contains these receptors, the skin. Crucially, further mediation can occur when technologies extend this information, providing a tactile illusion or impression of texture.

(ibid., p. 130)

I question however if the mediation of touch is not another form of the *making* of sense, as opposed to sensing itself. Indeed, neurons, and brains as receptors, take a central position to the sensing of the skin (ibid.). However, are neurons, brains, and other technological mediations of sense, not partial bodies themselves? Do they not move, and to an extent, sense the paths of their movements, in relation to other bodies, in experiences of enchantment and wonder? A more radical affirmation of the primacy of bodies, as addressed in chapter two, complicates the mediatory character of haptic sensation. Understanding touch as mediating of sensory affects,

contextualises the 'synthesis' of sensory experience, by relating *intra-touching* (Puig de la Bellacasa, 2009) bodies like neurons and brains.

Rather than taking these other bodies like neurons as contextualising sense however, I propose that these bodies change *the sense of sensing*. So, instead of contextualising sense, neurons *texturalise* sense acts. As such acts of sensing themselves seem to change plastically, by recombining sensory organs (see also Papadopoulos, 2011b). Related to experiential sensing through receptors, Mlekuz (2014) stresses the importance of textures, not on bodily sensing, but on field sites and environments. Textures, he proposes, materialise social relations, as they are woven through landscapes, throughout history. He shows how time and space are woven through the landscape's haptic system by producing a haptic vision of the 'stuff' rather than 'things' which build up textures (ibid., p. 22). Examples of this include a landscape textured by ploughing, the seasons, garden maintenance, pottery and bones. Technologies like trowels, shovels, recording forms, previous haptic knowledges, and cameras, amongst many others im-press the environment with historical textures. Therefore, textures are marks left by encounters between bodies and other bodies, and an environment, allowing for particular sensations of these haptic encounters. Textures in this sense also clarify that haptics extends beyond the bodily systems in place to move through the world. Saliently, with his haptic theory, Paterson (2009a, 2009b) populates, and texturalises, the inside world of experiences with multiple bodies: receptors of a variety of kinds, organised by function, form a composition of sense and movement. As Mlekuz (2014) shows, these multiple bodies imprint textural remains of events on a landscape, and as such textured bodies leave a textural residue. This is significant for archaeological excavations, as it enriches how archaeological knowing with regards to

bodily encounters could happen. Bodies of archaeologists might be texturalised, rather than contextualised, by their encounters with an excavation. Texturalisation seems to be a crucial process for bodily knowing beyond subjects and objects, grounded in an alter-ontology (Papadopoulos, 2011a) of knowing compared to the type of knowing by modern science, as set out in chapter one. The human skin with its different sensory receptors might then function as a multiple organ for textural inscription, and as such an excavation might also have its multiply textured 'skin.'

3.3 Haptic Renderings of Intra-animate Life

Texturalisation as a concept is useful, because it takes the body, and the bodies of its receptors, as part of the same kind of processes of impression, as the world it is part of. However, texturalisation seems to implicate a rather passive description of impressions of the human skin, and environments. Here, Natasha Myers's (2006, 2008, 2015) research on animation and embodiment in the sciences provides an active account of how scientists *do* textures, and, importantly, how these haptic doings relate to scientific objects like proteins. What is fascinating about Myers's (2015, p. 29) work is that she is not interested in an "enchantment or reenchantment of the life sciences," but rather in showing that scientists perpetually fail to abide by techniques to de-animate their work. Her use of the verb *to render* gains as such a "multivalent" meaning (ibid., p. 30). She addresses the ways scientists, and in particular crystallographers, kinaesthetically manipulate, and come to learn, and therefore render, the structures of protein molecules. Rather than learning by representing molecules through their bodies, Myers (2008) shows how bodily attempts at representation transcend significations, as she expressively discusses

scientists “dancing their molecules” in order to get to know them, and *make* them in the process. Molecules come alive in these embodied performances of modelling, as do the bodies of the crystallographers. She recalls crystallographers moving their bodies as molecules would, in order to elaborate on their feeling that the modelling software just did not get the molecular structure of a protein right (Myers, 2015, p. 3). This feeling harbours a ‘common sense’ of the modellers, which is “common only among his teachers and colleagues” (ibid.), and gives them a sense that something is wrong with the programmed model. They would stand up from the renderings on their computer, and twist their body in a certain way as to imagine how the molecule would actually look like. Her account shows that it is not that protein molecules are too complex for software to ‘get right.’ Rather, the crystallographer surprisingly informed her that “proteins are breathing entities,” and not just a “rigid body” representable in a static model (ibid.). What the crystallographer means is that proteins are animating, moving bodies, which affectively and mechanically render their life, and by extension, life itself. The performances of crystallographers are then not only performances limited to their practice: rather they are performative of worlds. In the case of a student misfolding a protein molecule for example, the teacher “contorts her entire body” as to perform the misfolded shape, along with strong expressions of the molecule’s *pain* (Myers, 2008, p. 165). The molecule’s pain is here not something unreal, or something humans can do away with as an anthropomorphising of an obviously non-human ‘other’. Rather, pain is “rendered molecular,” in the recognition that to experience pain is not simply the prerogative of a human or animal body. What Myers’ work implies then is that the technical dimension of haptics encapsulates more than just technologies or know-how from books. In the life sciences,

crystallographers move and affect material reality, and are simultaneously moved by their materials' agency. Thus, "molecules as such are inextricably bound up with the agencies of observation that draw them into view," whereby speculation functions as engaged observation (Myers, 2006, p. 11). This clarifies the point of chapters one and two of this thesis: the bifurcation of nature into a world of reality on the one hand, and a world of social life on the other hand, cannot persist in life. Bodies of scientists themselves are 'tools' for accessing the natural world of proteins and other molecules, because of the movement and sensation, which are so crucial to what it means to have a body (Massumi, 2002). The bodily articulation of scientists (Latour, 2004) breaks through language and significations, because of the *haptic sense* of the crystallographers, whose speculation cuts out, or diffracts (Barad, 2007, 2014), a sensing molecular body from a pacified representation by software. The bodies of the modellers couple with the models of particular molecules, when they are manipulated into particular positions. Learning to be a crystallographer – on the way to becoming a craftsman of science – does as such not mean possessing particular knowledge or power, but rather entails a bodily ability to move together with objects of crystallographic science. Retaking Latour's (2004) 'becoming nose,' is such a moving together of a decentralised body, and the substance it relates to by smelling. The human body is decentralised, because it is not about becoming a more articulated human body that matters here, but it is rather about the potential of the sciences to animate worlds in their 'dance' with objects. As haptic speculation is key for this animation, the potentiality of what might be known by manipulating molecules, weaves a textural thread through the history of science. Speculation through touch is hence important not only for what 'we' think 'we' know, but also for a science which has relied on

this kind of manipulation during the failure of modernity (Latour, 1993).

Significant for this speculative manipulation, is Myers's (2006, p. 21) proposal for "dexterity with theories and language, as well as with their application of experiential knowledge," without differentiating, at least on the level of the experiential, between theory and practice. Hypothesising and intuiting are steps of a dance between human bodies and molecular bodies, fed by practical theories within theoretical practices, and leading to a concrete, and virtual, moveable protein model. Quoting Bourdieu, Myers (ibid.) offers mimesis as an explanation of these practices, entailing a ritualistic 'dance' in which *something* different from concepts or words communicates between bodies. "To mime is thus to intra-actively build up a model of an other entity within one's own body – a model that can be shared with others" (ibid.). The body of the crystallographers is therefore in the process of gaining a body part, because it can discriminate or make distinct the molecule it enters into relationality with. This constitutes, in Myers's (2006, p. 25; Myers and Dumit, 2011, p. 248) words, the intra-animacy of practices of model-building, redefining the function of models in a rhythmic and experiential way. Significantly, these practices of intra-animacy means scientists "are in the midst of things: caught up in moments of not yet knowing" (ibid., p. 241). This very apt description reveals the crystallographic modelling practice firstly as an 'actual occasion' (Stenner, 2008 on Whitehead) of scientific experiential thought. Thinking actually occurs *with* the intra-animate practices, and not afterwards in a representative analysis of the objectified model. Secondly, this 'actual occasion' pertains to not knowing, and not, to knowing as such. This is significant, because it emphasises that scientific practices, even though they might contribute to knowing, actually occur in these occasions of not knowing. Moreover, it should be noted that these

experimental moments harbour a certain playfulness (Myers, 2008, p. 170, 2015, p. 1; Myers and Dumit, 2011, p. 241), because of the modellers' awkward attempts to embody a molecule, not knowing yet how to get the structure stick. She (Myers, 2008, p. 171) however also points out that this play can be frustrating and time consuming, for instance in the case of figuring out the double-helix structure of DNA by Watson and Crick (see also Latour, 1987), who repeatedly "spent whole afternoons 'cutting accurate representations of the bases out of stiff cardboard'." This haptic experimentation, playful *and* at times frustrating, is crucial to practices of (un)knowing (Latimer, 2009) DNA, and the molecular structure of proteins. Moving beyond dichotomies, performing cellular life means experimentalists engage with their molecules, amplifying those molecules by carrying them, translated, into social life. Here stories of those molecules are fuelled by hypothesising body-experiments – and in turn these embodied hypotheses are interventions of new materialisations. Epistemological questions on how to know are perhaps too serious for haptics, so caught up in the midst of playful, fun, frustrating, challenging, and worthy of undertaking, experimentation (Myers and Dumit, 2011, p. 244; see also Hartemink *et al.*, 2014). It allows for an exciting and interesting future of knowing, which proliferates by means of these practices. Not knowing therefore does not at all define a lack of knowledge, but rather an invitation to remain in touch and 'play' with "life's vital mechanisms" (Myers, 2015, p. 25). In this sense, practices of rendering molecular, which Myers addresses in both her 2006 and 2008 papers, changes slightly in tone in the 2011 paper, in which the experimenter's hesitation, wavering and ambivalence to the data is emphasised (Myers and Dumit, 2011, p. 247). Even though playful, an exercise of touch in the grey area of not yet knowing has to be a careful

and improvisational exercise. The 3D environment CAVES (Computerized Active Visualisation Environment), at UC Davis exemplifies such a careful improvisational exercise. In CAVES, a human body interfaces with a virtualised and high-resolution 3D image projected on the walls of a room. Virtual reality goggles enable the CAVES-computer scientists and geologists to analyse geological processes in much more detail, and for a much longer period of time, than traditional fieldwork would allow for. The static images projected on the walls of the CAVES come alive because of their ability to be manipulated in time. As such the CAVES-researchers create not only a virtual space, but also stretch out time to give life to new stories of more distant geographical regions. The manipulability of this virtual environment in "mid-embodiment" activates researchers' creativity, enabling them to understand the objects of their research in more prehensile way. Interaction with CAVES is also playful, as one can move around and be immersed in the virtual environment. Even though the projected images are static, and outside of their lived time, the practice of CAVES itself creates a different – and experimental scientific – time line, opened up by a haptic encounter with all the partial images which form the body of the CAVES-image.

For archaeological practices of excavation, Myers's work has wide ranging implications. Even though her research involves the life and experimental sciences, I propose that the kinaesthetic engagement with soil and objects implicates excavation practices as scientific doings of intra-animacy. Excavation sites are places of manipulation: the history of a place does not simply reveal itself as the result of a rigorous appliance of representative modelling. Instead of taking archaeology as a discipline, which represents abstractions from historical events as facts, it becomes possible to think archaeology as a careful and improvisational practice

from the “midst of things.” For excavation practices this is perhaps even more apparent, as archaeologists have to bodily get into trenches, which are a part of a landscape which has not stopped changing throughout time. What the CAVES virtualisation furthermore shows, is that excavation practices are thinkable as virtual as well. I do not take the virtual here simply limited to a computer simulation. Rather, the virtual pertains to the “transcendental condition of all experience” (Shaviro, 2007, p. 14) in Deleuze. What Myers teaches, is that even though the virtual in some cases incorporates a dimension of computer simulation, its value of haptic knowing depends on how these simulations are done, and undone. CAVES renders a particular moment in time changeable, as an opening to a snapshot of space, even as it undoes the changeability of that time and place. In excavations, renderings of this kind are done and undone constantly, as the bodies of archaeologists become affected by differences in soil colour, roots which get in the way, and the openings of trenches. Their work is performative of the excavation, and this performance re-renders an excavation multiple times. Renderings as such are done, even as they undo other renderings. Bodies of archaeologists become multiple as their renderings texturalise and animate both their bodies, as well as the ‘body’ of the excavation. With her concept of intra-animacy, the body, as discussed in chapter two, extends to the site of excavation as well. The excavation is rendered singular by academic, legal, and practical constraints[44] – but it is also multiple, in the sense that what is rendered as excavation changes, as bodies of archaeologists move together with bodies of an excavation, in partial ways.

44 I will address this more in-depth in chapter five.

3.4 Separation and Distinction: A Matter of Affectual Passages

Processes of knowing from mid-embodiment decentre the body of the researcher. The crystallographers do not take to the stage as representers of molecules, but what is emphasised instead is the manipulability of molecules. In this section I focus on this manipulability, and how it works as a *passage,* pertaining to the *intra* in intra-animacy. Passage here pertains to a change in affectual 'charge' of the body. Following Puig de la Bellacasa (2009, p. 298) touch cannot but involve itself while touching, and is thus reciprocal with any touched upon body. To touch means to be touched, and to be included in the performative changes of the encounter. Being in touch then means to be *close, moved, engaged, to inhabit a body, to feel,* and also to be alive. The ways bodies are affected, and affect others in such engagement, contribute to the passage of the body's experiential states. Affectual touch embraces the collisional character of alive and changeable bodies in co-inhabited worlds. Its collisional character is excessive, affirms Puig de la Bellacasa (ibid., p. 300) in that is interruptive, and cannot be shut down by e.g. the over-investment of the body of the scientist, by powerful modern significations.[45] The continuity of affect is aptly described by Massumi, drawing on Spinoza, in the foreword to the English translation of Deleuze and Guattari's (1988, p. xvi) *A Thousand Plateaus*:

AFFECT/AFFECTION. Neither word denotes a personal feeling […]. Spinoza's affectus […] is an ability to affect and be affected. It is a prepersonal intensity corresponding to the passage from one experiential

45 See also Checchi (2017)'s analysis on the primacy of resistance over power in Foucault, which relates to scientists' failure to abide by techniques to de-animate their work (Myers, 2015, p. 29).

state of the body to another and implying an augmentation or diminution in that body's capacity to act. […] Spinoza's affectio […] is each such state considered as an encounter between the affected body and a second, affecting, body (with body taken in its broadest possible sense to include "mental" or ideal bodies).

The *passage* of a body's experiential states defines a focal point for haptic encounters, in the sense that a change in affectual state conveys something experiential about being in touch. Myers's (2008, p. 165) rendition of the body contorting, signifying a molecule's pain, as discussed in the previous section, makes perceptible the intertwining of the crystallographer's body and the molecule. Pain is here not simply a feeling, passed along by the body's nociceptors, in Paterson's (2009a, p. 768) words, but instead more profound 'evidence' of the diminution of both the molecule's, as well as the crystallographer's, capacity to act.

Archaeological fieldwork uses a multiplicity of renditions, which allow for encounters of an affectual kind, or indeed passages into diverse experiential states, which in turn enhance a body's action repertoire, or at times diminish it. This is significant for 'following after' haptic encounters with archaeological knowing, as it provides concrete experiential pointers for haptic encounters.[46] Saliently, a focus on a body's passage through experiential states describes *bodies as visitors* first and foremost (Serres, 1985, p. 306). Bodies of archaeologists visit their field sites, are temporary guests, and changes in experiential register can likewise be seen as visiting affects, which nevertheless leave a residue.[47] Haptics here opens a field of investigation into how closeness and distance is done, taking

46 See the methodological reflections.

47 I will address this residue in relation to the experiential encounters during my fieldwork (chapter five).

archaeologists as visitors. With Serres (ibid.), I speculate that different smells, sights, sounds, and other effects on the sensible mingle, when archaeologists immerse themselves in their work, and pass through experiential states. Bodies of knowledge are traditionally keen on hiding, subverting, or denying an ontic mingling of the senses, as Serres (ibid., p. 310) aptly points out. In order to describe how the mingling of senses, and passages of affects, works on and through different bodies, I turn to connect Hayward's (2010) marine invertebrates, Barad's (2007) scanning-tunneling microscope, Helmreich's (2009) alien oceans, and Castañeda's (2001) robotic touch. I am interested here in drawing parallels between pre-personal bodily affects in these examples, and archaeological fieldwork, in order to rethink distance and closeness in haptics.

Eva Hayward (2010, p. 582) addresses the mingling of affects in her study of marine invertebrates, more specifically cup corals. These animals touch and see at the same time, and with the same sense organs. Cup corals have 'fingeryeyes' which optically register what they touch, and are as such capable of seeing in real time, by being incapable of seeing from a distance. Implicit in their seeing-touching is their inability to distance themselves from their objects – and their embodied embeddedness in their worlds. Importantly, their tentacles see, feel, taste and eat, and thus perceive *and* manipulate their close environment, with one sense organ. She speaks about the "island of senses" (ibid., p. 592) humans share with these animals in their acts of sensing, apprehensions, and texturings of the environment, which I take as a relation of haptics between different kinds. Relating these corals to the scanning-tunnelling microscopes (STM), as described by Barad (2007, p. 50) offers a broader take on affectual passages. STM devices are able to sensitively register the smallest atoms, while also able to pick up atoms, and manipulate their position, by means

of inducing an electric charge. Such a microscope effectuates intra-action, beyond what the name of the device implies; much like the fingeryeyes of cup corals, which go beyond mere perceiving. The STM is not a 'micro-scope' at all, but rather a large micro-manipulation device to get in the midst of the behaviour of atoms. When working the soil with hands and trowels, bodies of archaeologists are likewise too close to their environment to be able to see a complete picture from a distance.[48] Of course, their relation to the soil is not *as* immediate: there is a separation between their body and the soil, as there is a separation (of a different degree and kind) between cup corals and their environment, and between the STM, and the atoms it engages with. There is however a passage of affects in these examples: constraints of movement and senses in the performance of bodies and their relations emphasises how these three practices of discriminative knowing both sense and manipulate 'stuff,' because of close encounters with material worlds. More importantly, their closeness is an augmentation of their capacity to act, by counteracting detachment. Their (being in) touch is a non-normative commitment to their different and interdependent practices (Puig de la Bellacasa, 2010, p. 2). In this sense, haptic archaeology engages bodies of excavators with a plethora of engaged intensities, many of which require a certain close affectual relationship in order for the practice to 'work'.

That such a commitment informs the object of archaeology, but also of scientific encounters more generally, can be highlighted with a contrast with astrobiology, as described by Helmreich (2009, p. 253). Astrobiologists, searching for potential life on other planets by looking at "extraterrestrial seas," hypothesise that life in Earth's oceans may be more alien in its material history, than often presupposed. Life might share "bio-

48 See field notes A11.

signatures," even across planets like Earth, Mars, and Jupiter's moon Europa. One of Helmreich's (ibid.) important companions in his ethnography, Margulis, interjects *symbiogenetic events,* in which micro-organisms evolve by fusing with different micro-organisms, and forming more complex structures and functions. This not only means that Earth, Mars and Europa are in touch genealogically, it also opens up ontological imaginations about life's speculative functionality: different micro-organisms touch, and new functions develop in symbiogenetic processes beyond the boundaries of a planet. The effects of this touching between distant heavenly bodies means that life finds surface, and is animated in relation. The ambient and microscopic working of the STM, as well as the touch of cup corals, seem contrasted by the great distance in both time, and space of life's bio-signatures. Helmreich's (ibid.) ethnography extends both the temporal and spatial ranges of touch in life-giving processes. And yet, these temporal and spatial ranges support a relation between these planets, as well as a cut, in terms of their singularity as a body-planet. He brings the planets closer in microbiological terms. He (ibid.), and by extension the biologists, performs not the distance, but rather a close relationship of traces of life. By relating Earth, Mars, and Europa, Helmreich (ibid.) does distance and closeness differently, than the STM and the cup corals. In the examples of Mars, Earth and Europa, or archaeologists, scanning tunnelling microscopes or cup corals, distance has different meanings; and their touch offers new problems and possibilities (Puig de la Bellacasa, 2009, p. 304). In excavation work, sensorial experiences are remade by interventions of archaeological hands and tools, as well as by hypotheses, which are made by being in-touch with archaeological field sites.[49] Touch is material, because its

49 See field notes P2.

function is to *redistribute distance,* as Puig de la Bellacasa puts it (ibid.). This has to do with the reversibility[50] of touch: archaeologists are affected by their sites, their co-imaginations of possible goals for their short visit, as well as the weather, and other bodies, which augment, but also diminish, what their bodies can do. Affect plays a part here, as relating heavenly bodies by tracing bio-signatures, picking up atoms with the STM, and also excavating a field site, opens affectual passages between previously foreclosed bodies. In a speculative abstraction, I propose that Mars, Earth, and Europa share microbiological body parts, which does not dominate their status as a planet or moon, but rather augments their abilities: what these heavenly bodies can do, differentiates, because of their microbiological relation.

In *Robotic Skin: The Future of Touch* Claudia Castañeda (2001) extends touch further. She (ibid.) describes a bush robot with "a trillion leaf fingers," each able to detect changes in force, over periods of time. Moravec, the creator of the robot, proposes that one leaf finger has many times more sensory capacity than the human eye (ibid., p. 226). Not unlike the fingeryeyes of the cup corals, the robot would be able to see through its sense of touch: in its case by moving its leaves across objects. Distance is indeed redistributed and vision redefined, as the leafy fingers see only proximate 'images,' or textures. Limits to the (human) senses are not so much overcome, as they are redefined: the bush robot with its leaves cannot see at a distance and yet it can see immeasurably better than human eyes from close by. Saliently, she (p. 235) argues that the "quality of touch" lies not in the difference between a robot's skin (as "piezo-electric

50 It is important to note that this reversibility does not pertain to a reversibility of scientific events. Occurrences of scientific knowing cannot be undone, or reversed, although they might transform in particular ways. Rather, reversibility here means the reversibility of the traditional subject and object: the one who touches is also the one who is touched, without primacy of an either/or.

membranes") and i.e. human skin. To support this notion, she reminds the reader of Haraway's (1991) cyborg,[51] and stresses that even though the cyborg overcomes the dichotomy between human and non-human, it does not replace the human sensorium altogether. This means that undertaking a comparison between human skin and non-human skin misses the point that touch is, in my words, enactive of alterity. Castañeda (2001, p. 253) proposes that "it is the notion of touch as the relation between materialities (skins) that enables embodied alterity." Alterity in the guise of otherness, or the Other in the sense of Levinas (1999),[52] is what happens in the midst of things (Myers and Dumit, 2011), instead of being decided on in advance by e.g. the dichotomies of modern science. Castañeda (2001) aptly renders visible that differences in composition of the skin, and perhaps also in the skin's receptors as explored by Paterson (2009a, 2009b), does not signify touch. These differences only come to matter in a contrast with what the sensing body relates to. This contrast is furthermore partial, as it is coloured or highlighted by the relation, and not by the nature of the skin or body. Castañeda's (2001) robotic sensing offers richer imaginings about what touch could be in non-human sense, extending to archaeological excavations.

My attempt here is to think speculatively with these distinct practices of touching, and to take them as contrasts for thinking how touch in archaeological excavations might work. Relating to alterity materially means that a body and its skin are a non-extensive place where non-native affects can pass. What is non-native is arguably quite contingent, and depends on the moving and sensing body in *relation*. To touch means to subscribe to a nomadology of affect. Such a nomadology

51 See chapter two for the discussion on the cyborg.

52 See chapter one for the discussion on Levinas.

means that bodies visit places (Serres, 1985, p. 306), and are visited in return by affects. The fingeryeyes of cup corals show a mingling, which counteracts a separation of sensation and manipulation. They absorb and excrete nutrients, and other substances at a near-continuous pace, redoing distance in a process of texturing themselves, and their environment. The STM shows a much more controllable and less risky form of touch, yet the device underlines the very manipulation of relationality in practices of science. The bio-signatures shared by heavenly bodies furthermore shows keenly that touch is not so much about closeness in and of itself, but rather about a relating which *makes close*, and which opens a passage for affects, which changes what a heavenly body can do, e.g. it can be more than a barren and lifeless rock. Castañeda's (2001) robotic touch shows that what is 'other' or non-native is enacted through material relations, and not something belonging to bodies themselves. For all their similarities when it comes to an abstract conceptualising of haptics, these different practices of touch are not homogeneous, not unifiable and potentially incommensurable (Puig de la Bellacasa, 2009, p. 311). To relate these practices of haptic relationality informs "a craft of *carving* possibility" (ibid.), for archaeological practices of excavation. The point is here, following Puig de la Bellacasa (ibid.), a commitment to re-do practices of excavation as something else than extensions of the myth of modern science, and reclaiming what is not acknowledged by this myth. Pointing out the incommensurability of the haptic encounters in this section by means of a commitment to touch, emphasises the wonder and immersion of touching worlds. Cup corals, the STM, biological signatures across heavenly bodies, and archaeological excavations can potentially instigate a sense of wonder. What is required to wonder is to "acknowledge the '*unknowability* of the other'", as Marks (2002, pp. 13–16), quoted by Puig

de la Bellacasa (2009, p. 310) puts it. Touching acts happening from the midst of things (Myers and Dumit, 2011) is then not a matter, primarily, of taking away knowledge *of* an other *to* a place of knowledge. Non-native affects visiting bodies on excavation sites are to an extent incapable of being made perceptible. Only their residues can be traced. Yet, this is not to say that these affects are not crucial to practices of bodily knowing. Intensities passing across the skin of bodies, make possible passages. Following these passages – made possible by touch – is, as Stengers (2000, p. 39) puts it, undertaking an adventure. The bodies of bush robots, oceans and planets, and atoms emphasise that the affectual interest of touch, and its enchantment by worlds, is kindled by the possibility of alterity. This notion of alterity implicates a more interesting way of doing science, than an investment in distanced and disembodied sight or thought. The unknowability of alterity evokes a speculative desire for an encounter with what is yet unknown on a field site, and might even remain that way in epistemic sense, insofar as the adventure should never end in representative knowledge, but rather lead to a continuous commitment to other passages of interest. The notion of affectual passages however raises questions concerning its relation with objectivity. What is the relation between alterity, objectivity, and relations themselves? Does objectivity have a place in haptic encounters with knowing, or should it be re-conceptualised purely as relationality?

3.5 The Objectivity of Relational Alterity

In *Carnal Thoughts,* Vivian Sobchack (2004, p. 286) explores an intertwining between the flesh, and the lived body, in a search for a concept of subjectivity, which includes objective alterity. She investigates

what alterity could mean for a commitment to bodily doings, which is important for excavation practices, as it enriches what a commitment to an excavation might include. She searches for the meaning of contact in passions: passions which define the relationship of intertwining materiality and aliveness. The intensity of passions is important, in order to find possible limits of touch, and perhaps also potential ways of escaping the modernist paradigm of dualities between subject and object, and materiality and lived body. The first of two passions she explicates, suffering, is positive in experiential value, because it forces a body to "become acutely aware not only of the irrelevance of our subjective will but also of the extreme vulnerability of our material objectivity" (ibid., p. 287). In suffering, the normal(ised) subject-body is forced to engage with its delicate materiality by means of intentional or unintentional events and disasters. In order to deal with incredible objective events, the body sets out to become this objectivity, and overcome its suffering in the process. Passionate suffering makes the normalised *objective subject* into a pre-reflective and passive *subjective object*, "nonetheless capable of feeling what it is to be treated only as an object" (ibid., p. 288). Such suffering is, in other words, a real experience of inhumanity. It is important to speak of *the* body, because of the necessity of safeguarding the reversibility of the body as subjective *and* as objective; a necessity which is clarified by Sobchak's (ibid.) proposition of suffering, as experiencing the objectivity of one's body, outside of the grasp of subjective agency. The second passion she describes, active devotion, entails a desire to enfold others and accept their alterity as part of one's self (ibid., p. 289). Here, the adagio to *be objective* in science takes on an entirely new meaning. Becoming objective through active devotion does not diminish the subjective experiencing of a body, but rather enhances

and increases its sensibility. The body's sensibility extends to knowing the self in the other in a very non-Platonic sense, and to enfolding the other in one's own skin. Sobchack (ibid., p. 289) gives the elucidating example of a pregnant woman, who extends and grows her*self* with an*other* in her own skin. Pregnant bodies are objective, because of their more-than-subjective devotion to this other, who is encapsulated within the body. It is the experience of being an inhuman object, and the irrelevance of subjectivity – although still there in diminutive form – which makes Sobchack's (ibid.) account valuable for thinking with touch. Her account complicates Deleuze and Guattari's (1988, p. xvi) inherited conceptualisation of affect, in which the augmentation of a body to act could be taken as more desirable over a diminution of a body's potential. This complication is not an outright refusal: the inhumanity of experiencing the body's objective resistance make a body's materiality painfully clear, and is an augmentation of it. The contrast here lies in the focus on the objective, and affectual constraints on a body, which go together with this augmentation. These constraints make a pregnant body's sensing and doing less related to the possible intentional or unintentional decisions of a subject. The body's freedom, within such a subjective object lies only in its ability to sense and experience this adamant objectivity from a position of passionate devotion or commitment. I propose that objectivity taken in this sense is crucial for scientific practices of knowing, as it requires an active following of encounters which leaves no space for modern practices of purification or distancing. It furthermore implicates the body in its subjective objectivity, into practices of knowing. It seems to me that the devoted materiality of Sobchack's (2004) thinking does not simply invite non-human hybrids into a parliament of things (Latour, 2004), but instead requires inhuman

affects to decentre the knowing subject in an invested form of objectivity.

Parallels can be drawn between Sobchack's (ibid.) passionate account, and excavation work. During their fieldwork, archaeologists might become increasingly objective by devoting themselves to the objectivity of their encounters. Even though their devotion might be restrained by an often-times non-personal relation to their field site, the haptic encounter with the field can include becoming subjectively objective, in an uncompromising struggle. This means that, even though there is plenty of room for interpretation during excavations, I propose that the objectivity of the excavation itself should not be reduced to an analysis of an excavation by archaeologists. To be in touch means relinquishing part of what would compose one's subjectivity, and to *become excavation* in the process.[53] This becoming refers to a dual becoming of archaeologist and excavation.

In order to analyse this dual becoming more in-depth, but also to explore its limits, I call on Barad (2012), who extends the notion of alterity in a more radical way. Her proposal of alterity goes like this: imagine touching yourself by moving your one hand across your other hand. Simultaneously (perhaps) two affects transverse the skin: one hand makes the other hand 'tingle' while the other hand feels the tingling sensation of the first hand. Barad proposes that haptics and affect do not end there, but only then begin. The affecting, moving and subjective hand is also a passive recipient for the hand, which does not move: the 'other' hand affects the moving hand. Perhaps the moving hand can even feel the 'other' hand affect itself. Here confusion starts as it is difficult, or even impossible, to differentiate one hand from the other the longer one follows the oscillations of touch. The proximal (un)knowability of touching a hand

53 See field notes D3.

or other demands a participation in which agency goes back and forth, indeed oscillating between bodies (as two hands are bodies in this sense). Unknowable then is not only the other (hand) but also the self; both quite unsure where boundaries lie, while speculating through bodily action and reflection on which hand affects the other, until resistances surface, and touch is interrupted. Whichever hand is determined as moving, subjective, passive and 'other' is contingent, and only important for their relations with other affects in particular serialities of sense. Instead, the touching of two hands is the touching of an infinity of hands, an infinity which "entails touching the strangers within" (ibid., p. 214). Barad (ibid.) proposes infinite possibilities of an ultimate alterity of the stranger within touch. But where lies the distinction and discrimination between these infinite pulses of touch? Such infinity seems limitless and boundless, and liberally vague in a movement confusing two hands, which are surely not the same in their abilities to touch. In the words of the philosopher Erin Manning (2009a, p. 52), such "infinite infolding" risks "to submerge into nothing." I wonder instead how to distinguish between certain potentialities, or in other words, how to know which different affects from this infinity are able to affect archaeological touch. Field scientists like archaeologists are occupied with matters of knowing, and with translating their encounters into diverse, and quite heterogeneous topics of research, as I will expand on in chapters four and five. Without losing sight of the potentialities to knowing field sites can provide, haptics looks at how bodies touch on alterity in a methodical sense, that is in a following of encounters, and how these encounters matter for knowing, and not to infinite inflections of sense.

A turn to an alterior body in the form of Hans the horse shows empirically how scientists might better touch on their matter of research,

by dipping their feet into alterity without drowning in its infinite transcendence. In Vinciane Despret's (2004) recounting of this story, Hans the horse was believed to be able to count on his own. Hans was visited by an assortment of thirteen men; a psychologist, teacher, zoo director, veterinarian, and circus manager, among others. These men questioned Hans on a variety of topics. The four-year-old horse answered most questions involving mathematics correctly. He also showed the ability to spell words and distinguish colours. When presented with a question, Hans replied by tapping his right foot on the floor when the right answer was read out. The fact that a horse could count was of course unimaginable, so the scientists scrutinised their experiment in order to eliminate potential deceit by the horse. Hours of observation and testing by several scientists eventually showed Hans lacked the ability to count, but was instead able to read responses from human bodies. Hans did not reply to their questions, but instead *replied to their engagement with him.* Hans's ability to read bodies in this sense means he proved able to enter into a reciprocal relationship with the scientists, by diffracting their own knowledge. A posed question leads to subtle movements by the scientist: "he involuntarily bends his head and trunk slightly forward (to look at the foot that was supposed to begin the tapping)" (ibid., p. 113). Of significance for Despret (ibid.) here is not only that Hans can read human bodies, but also that the scientists gave away the answer to their own question because of their interest and care for their research project. If they would have been more detached, and less hopeful for the project to succeed, Hans would likely never have been able to read their bodies because they would not have made their "unintentional minimal movements" (ibid.).

Furthermore, Hans made articulations visible, which occurred in realm of the as of yet unknown and unpredictable, and pertain to a

reclaiming of the body: the assumed answer to the research question *is a horse able to count?* was located beyond the boundaries of that research question. The scientists asked the wrong questions, their interest pre-established by an ethic of science, which drew them to normalised, and in a sense already known expected/unexpected behaviour. The experiment was considered a failure and valuable time wasted. However, a focus on bodily relationality would "prevent[…] us from deciding too quickly what is cause and what is effect, what affects and what is affected" and reclaim the bodily and relational materiality of what is going on (ibid., p. 125). Here, Joanna Latimer's (2013, p. 98) concept of "being alongside," as an extension of relationality with (in this case) Hans the horse, proves useful. Her notion of alongsideness highlights the necessity of a cooperative dimension to practices of knowing. The notion of cooperation as alongsideness upsets both the oppositional and divisional character of the humans studying Hans for the sake of things he could not do, as well as of the hybridising trap that Hans is somehow engaged with *horse-human* relations. Hans is instead caught up in a relational extension (Latimer and Munro, 2009), alongside the scientists. Even though we should discriminate between the interesting science of Despret (2004), and the less interesting science of those modern scientists, attempting to purify Hans's natural actions from the intellectual abilities of humans, the passage of relations between Hans and the human scientists is something belonging to a more abstract notion of affecting and affected bodies. The point here is not to conclude that bodies are therefore always hybrids, but rather that bodies are partially affected by a given situation – e.g. it is Hans's *foot* which is affected by the attention of the scientists, whose bodily movements asked different questions than they articulated. Latimer's (2013) notion of alongsideness serves as a way to modify the

attitude, or bodily positioning of scientists, in a realisation that it is not the presence of scientists themselves, which elevate a situation into a scientifically significant one, but rather the as of yet unknown trajectories of affect, which comes with being in touch with an abstract reality.

Being alongside as a concrete relation to alterity, means adopting a more peripheral vision in archaeological practices, which does not attempt to 'get to the bottom' of this alterity. Archaeologists as sensing visitors (Serres, 1985, p. 306) to a field site emphasise the dedication to the partial (un)knowability (Latimer, 2009) of the site's history. This means that archaeologists are therefore probably not primarily interested in teaching their excavations how to count, or distinguish colours. As strange as that might sound, such a contrast with the case of Hans the horse does bring a distinctly different perspective on excavations featuring archaeologists who count finds and contexts, and distinguish soil colours on a sometimes hourly basis.[54] With the theory in this section, it becomes possible to question what kind of relations with excavations are created through these acts, and what kind of alterity is done in the process. For archaeologists, relating to bodies in doings of alterity often means looking at discarded things, ranging from animal bones, broken tools, to human remains of relatives or other close ones. These remains can often be found mixed together in one deposit (of the Neolithic). Decayed bodies, and deposits of rubbish are of vital importance to what affects archaeologists, as these are crucial indicators of ancient practices. I was puzzled at first that all these remains, of broken 'things,' as well as remains of relatives, were often packed together as 'rubbish'. Yet for archaeologists this does not at all indicate a carelessness of disposing of the deceased. Archaeologists' affectual objectivity here lies in the

54 See field notes Q4.

extension of their relationality to these ancient remains, which entails figuring out different stories of how such disposing can be more than the modern notion of 'taking out the rubbish'.

Annemarie Mol (2002, p. 149), proposes a parallel story of dealing with remains in a modern hospital. She (ibid.) describes a corpse lying on a table, ready for pathological examination. Even though human life is absent, the person the body once was remains in particular forms, when small techniques of care – i.e. the removal and putting back of a small cloth on the forehead of the deceased by relatives – retain a bit of personhood in daily life. She (ibid.) proposes that social life does not equal biological life (or death). Social life might go on, because of (small) ritualistic techniques keeping the dead in touch with loved ones a while longer – and create time to deal with letting go. The social realm encompasses the dead body, while imprinting social meaning on individual personhood by small acts of care (ibid., p. 150). These acts carry one's social life onward, even when human life has ended, Mol (ibid.) suggests. Bodily care is then a matter of techniques (Stengers, 2008, p. 58) and not perhaps, as Despret (2004, p. 125) proposes, of emotions; unless of course emotions are techniques to make us feel, to 'stay in touch.' As the archaeologist Fowler (2004) describes, personhood is 'stored' in archaeological deposits. It is then thinkable that techniques of archaeological excavation and analysis, employed by archaeologists relating to, and 'objectifying' these deposits, extend the personhood of ancient people, in ways similar and different to Mol's (2002) account of care for the deceased.[55] Such techniques of bodily knowing relate actions of deposing of remains, by cutting apart (Strathern, 1996) the modern idea of rubbish, and care for the deceased. Interestingly, Latimer's (2009, p. 317)

55 See also field notes T9.

notion that what people *keep* "grants relational extension," can be extended to what Neolithic people did not keep, but disposed off, through archaeological practices of knowing. This at times uncomfortable notion of disposing bodily remains, alongside remains of broken things, shows how acts of disposing might *also* be acts of keeping, and opens archaeological questions about the significance of 'burial' places in the dwelling of these ancient people.

In terms of archaeological knowing, the question how extensive affects 'objectify' bodies of all kinds in worlds, in partial practices like putting back a small cloth on the head of a deceased relative, emerges.[56] Crucially, as Despret (2004) explains, even partial knowledge is a reclaiming of reason, as a way of connecting practices in affective ways. This reason however is open and "*attentive* to the unknown knocking at our door" (Deleuze, 1989, p. 193, quoted in Puig de la Bellacasa, 2012, p. 212). Care (for a site of excavation) is in this sense an open and possibly unsafe act of allowing others, things, and becomings to i.e. lead archaeologists in practices of knowing, achieved in the sense of affective relational objectivity. Haptics, as a theory of indigenous touch, addresses important questions of sensing, and knowing, for archaeologists in the field, as it allows for multi-directional passageways of intensities, which with dedication can make knowing objective in bodies and worlds.

56 See chapter five for a more in-depth analysis of this question.

3.6 Yielding Animation and Indeterminate Prehensions

Haptic knowing therefore refers to how archaeologists render affectual worlds objective, by means of their touch. The philosopher Cathryn Vasseleu (2009) adds an important dimension to how objectivity can be done in affective sense. She (ibid.) proposes that touching bodies *yield* to other bodies and things: archaeologists might yield to finds they touch, which in the process infuses them with bodily enthusiasm, excitement, disappointment, or other affects.[57] Drawing on the surrealist artist Švankmajer, Vasseleu (ibid., p. 144) aptly proposes that we should understand "tactile experience in terms of poetic metamorphosis rather than phenomenal dexterity." This means that a yielding touch takes on a transformative notion, conjoined with the crafting of alterior objectivity, as discussed earlier in this chapter. Importantly, this transformative notion suggests that excavation work might not depend on the phenomenal skills archaeologists have with their tools. In other words, archaeologists might not be qualitatively or quantitatively defined by their expertise with their trowels, mattocks, or other tools, but rather by their relational yielding to their work. As an attribute of touch, yielding is defined by the dictionary (*Oxford English Dictionary*, no date) in terms of giving way to force or pressure, and relinquishing possession of what is yielded to. It allows for a conceptualisation of touch as the metamorphosing of an alterior objectivity, which does not coincide with, or result in, its appropriation. The dictionary (ibid.) also shows that 'yield' pertains to the production or generation of gains, most commonly understood in financial sense. The productional dimension of an (un)knowing touch however can hardly be said to be one of financial returns. Rather, yielding to an object or body

57 As addressed in section 3.4, such yielding is not without discrimination. It includes affectual 'blocks' and intensities passing in various ways. As such, *following encounters* pertains to following the reason of the body.

animates that object or body, and is productive of the affectual passages of its relationality, owned by no one. Through the animating potentiality of touch, I propose that bodies and their skills are de-centred in favour of these affectual passages, yet without reducing their singular status, e.g. their ability to be affected, and extend through relations. In other words, acts of touch make objective an alterior world by means of relational affects and effects, which includes a yielding of the body. To be in touch with something or someone then requires a body in its singularity, and moreover requires *of* the body to, as Latimer (2013, p. 4) puts it, "get out of line" for the sake of its power of relations to craft an objective – meaning animated and self-sustaining – alterior. In this sense, acts of touch decentre bodies in favour of relations: bodies get out of line, with regards to what constituted them. Taken as acts, touch animates, and transforms, objective worlds. As shown by Mol's (2002) example of the care for a deceased person, in the previous section, this does not mean that the objective personhood of the deceased was not animated already in relation to other bodies, but instead that through new acts of touch the body is re-animated, redone, and redoing its world. Crucially, thinking of touch in terms of animating and yielding, reconfigures the phenomenological and sensory dimension of bodies, de-emphasising, and de-centring, perception and consciousness. Haptic objectivity is then not about grasping or understanding the world for the sake of the knowing body. Knowing this, haptics departs from touch "as a result of direct physical contact," and instead foregrounds touch as "tactile imagination" (Vasseleu, 2009, p. 145). Tactile imagination resonates with animation, and relates strongly with the kind of yielding productive of objective alterity. For the sciences this means that objectivity remains an important notion – something worth keeping – and allowing for important questions to be

asked regarding the productivity and manipulability of objectivity, outside of the bifurcation of nature, and the myth of modern science, as addressed in chapter one.

Moving with Erin Manning (2009b), the touching body is therefore taken not as an instrument for bifurcated judgements. Instead, she (ibid., p. 212) redefines perception as "sensitive to in-formation. It is to shapeshift, with-forming the world." Touch is, according to her, inventive, without knowing in advance what it will mean to sense in "body-events." Her (ibid.) thought on touching bodies makes perceptible what happens *before* movement, e.g. the *activation* of a body's sensorium which allows for movement in diverging directions. To elaborate on this, she (ibid. p. 212) draws on what Simondon calls a body's *margin of indetermination.* This margin of indetermination means that a touching body can recombine towards a 'somewhere else.' This power of recombination is not limited to the use of physical tools like trowels and shovels in excavation work, but rather to bodily *techniques*, which include thought, as well as tools. From Manning (ibid.) I take that a touching body is an indeterminate body: what it yields to and what it prehends rely on i.e. archaeological techniques which disclose, rather than conclude, objective reality in ways which are unknown. The unknown here pertains to the indeterminate of (un)knowing as a margin shared by the body and its touch of worlding. Significantly, Manning (ibid., p. 214) proposes that recombination happens in relation to an "elsewhere", and not simply to an "outside." This is interesting, because it establishes alteriority as a 'somewhere else,' instead of as a 'not here,' and is as such much more a matter of place, than of an other 'who.' This move resonates with the de-centring of the body in events of touch, focusing on the body's relationality through recombination. To illustrate this, she invokes the concept of *prehension*

from Whitehead's process philosophy, which relates to perception as sense activation. Prehensions pertain to simultaneously sensing, moving, as well as perceiving bodies, in the sense of the body's activation and animation of a world. They are techniques for activating "opening[s] toward worlding" (ibid., p. 217). Different ways of prehending come from different techniques, and activate differentiating worlds. Sites of archaeological excavation for instance are not only archaeological sites: they are also often non-human regions inhabited by many animals, and plants, while also used for different human practices like walking, living, camping, eating and more. Animals like sheep, worms, and rats prehend these sites even differently, and contribute to the multiplicity of a singular place. Archaeological techniques, in this sense, serve demarcated prehensions of worlds outside of their understanding. These techniques recompose the archaeological body: the body of the archaeologist but also of the archaeological site, and even those bodies which are (archaeologically) neglected and set aside, in processes of knowing. Manning (ibid., p. 218), with Whitehead, proposes *relational displacement* as what happens when (and I speculate) a field site comes into 'world' *as* archaeological field site.[58] Relational displacement should not be taken as something which simply occurs to archaeologists or other bodies. Rather, Manning (ibid.) shows relational displacement to be "a technique for recomposition," for bodies to sense anew, and thereby follow new sense events beyond the possible lethargy of mere perception. What this means for archaeological excavation work is that upon arrival at a site, and after preparations have been made and travelling has been done, bodies of

58 David Howes (2005) suggests re-placement or emplacement as a term for what happens when a world 'becomes'. Notably, emplacement is his alternative conception to embodiment, which takes into account the *worlds* a body is embodied within. Whitehead's concept of relational displacement (2009b, p. 128), as well as Strathern's (1992; Latimer and Munro, 2009) concept of relational extension, can be taken as reframings of embodiment, which instead focus on relations, and I would propose, decentre the body by doing so.

archaeologists make sense of the order of things, or the organisation of the site. This speculatively ranges from where the primary site of interest is, to how the site is built in terms of vegetation, height and size, to more mundane aspects like where the toilets are, taking the midge repellant, and how far the walk to accommodation is. Archaeology's techniques furthermore feature a set of etiquettes and regulations as to where to walk, and what to touch, similar to symbolic references in the social realm, which give behavioural guidance (Finnegan, 2005). The archaeological site of excavation needs some minimum of symbolic references and distinctions, in order not to drown in the totality of qualities and sensations (Nancy, 2013, p. 12). These distinctions are 'pre-made', but what is interesting about touch is the primacy of bodies getting out of line, when they are de-centred in events of tactile yielding to objectivity. The potentiality of archaeological excavations, in other words, does not rest with symbolic references, but rather with the body's ability to yield to, and animate objectivity from relational displacements of their bodies, in which it is unclear where the body ends and the excavation starts. Excavation work through the lens of haptics, I propose, requires a dedication to go beyond archaeology as a discipline, and 'deliver' primacy to archaeological excavations.[59]

Important for this primacy of touch are the concepts of yielding touch, relational displacement, and tactile animation and imagination, as addressed in this section. In relation to these central concepts, Manning (2009b, p. 221) furthermore voices a final dimension of touch: its hallucinatory dimension. While Stengers (2000), addressed in chapter one, takes science as a fictional invention, I can further extend this inventiveness with Manning's (ibid.) hallucinatory quality of touch. Moving with Deleuze (1993), she relates hallucinatory perception to

59 I will expand on this notion in relation to archaeological theory in chapter four.

affectual passages, addressed earlier in this chapter. Hallucinatory perceptions are *small* perceptions, and "relation[s] in the making," (Manning, 2009a, p. 79). It is with these hallucinatory small perceptions that Manning's (ibid.) recomposing bodies become more defined, as they emphasise the body's perceptual ability to sense, and actualise changing relations in processes of worlding. As such bodies are able to infold affects, passages, yielding, animating potential, and imagination, and sense the *becoming* of objectivity, beyond simply perceiving material objects. In other words, bodies are very well able to sense the virtuality of touch, and being in touch, and can through imagination and animation actualise this sensorial potentiality. When objects are buried below the top layers of soil and overgrowth in excavations for instance, archaeologists can imagine that differences in soil colours or textures have something to do with stratigraphical differences, which are important for archaeological knowing, and furthermore hallucinate what this may mean. This is hallucinatory work, because even though important for archaeological knowing, imagination happens in bodily states of not knowing. Perceiving differences in soil colours or textures are hallucinations, because they pertain to relations in the making, and a getting in touch with the excavation, beyond scalable and representable objects of history. As the qualitative sense of touching experience can be delusional, hallucination makes clear – or rather obscures – objects and subjects beyond a point of their symbolic reference. This obscuring effect is not an obscuring of something which has to be clarified, but rather the coming into being of a new relation.

This new relation also opens up the possibility of deception. Archaeologists might be deceived by a change in soil colours or textures, which might turn out to mean something entirely different than what they

are looking for. The excavation has mis-led them, their bodies have been de-centred, relations have been displaced, and bodies recombined. What is important here is the invitation for imagining and animating an excavation in unexpected ways, and the continuity this animating brings beyond finding what is expected.[60] It stands to a reason of haptics, I think, that even the site of excavation can be in a state of hallucination: it moves and becomes something else, or rather an unpredictable 'somewhere else,' with i.e. each stroke of a trowel. Touch is then quite extraordinary, in the sense that its hallucinatory character can go together with a "dizzying effect of sensations, these sensual and sentimental fevers" (Nancy, 2013, p. 13). Even a field *science* might be affected by such irrational inventiveness for the sake of its knowing. Such a feverish struggle of touching-inventing new knowledge shows a "reciprocal motion: that as place is sensed, senses are placed" (Feld, 2014, p. 179). Haptics in archaeology might then be envisioned as a continuous sensing, and making of place, all the while materially extending some kind of hallucinatory imagination to a site. It should be noted that a hallucinatory 'dance' with a field site can be pleasurable for this very reason. The sense of touch foremost is a sense of pleasure (Classen, 2005, p. 69). Touching on what an excavation might offer, including the hallucinatory character of prehensions, and what it can add to partial bodies of knowledge could be very joyful, as I will expand upon in chapter five.

3.7 Diffractions: A De-centred Body for Hallucinatory and Relational Objectivity

This chapter consists of encounters with a range of theories and concepts,

60 I will address experiential examples of hallucinatory touch in chapter five.

thematically related to haptics as an indigenous theory of sense (Howes, 2005, p. 6), in particular touch. Haptics, as a theory of bodily touch, and being in touch (Paterson, 2009a), is featured in this chapter through experiments with these concepts, not in order to exhaustively construct a final and harmonious analysis on what touch entails, but rather to follow along what touch might include, both for knowing in general, and in particular regarding archaeological knowing. In haptic theory, touch is taken as more than one of the senses, able to activate a body's affectual passages, by means of worldly prehensions, and experimental renderings of objectivity (Myers, 2006, 2008, 2015; Myers and Dumit, 2011). As such worlds are animated by bodies yielding to what is touched on, from a commitment to knowing alongside, instead of in opposition to, 'others' or rather, 'elsewheres'. A haptic objectivity follows from this commitment, which includes and mingles traditional subject-object dichotomies, de-centring the singular body in favour of its relationality. Because of its yielding character, haptic knowing requires the relinquishing of a subject with privileged access to objective facts, as was the case with modern science. Its inability to distinguish subjects from objects emphasises the hallucinatory quality of haptic knowing, grounded in bodies which do not know, or rather (un)know, the knowing they are inventing, from an often playful recombination of matter. An emphasis on "relational displacement" (Whitehead, discussed in Manning, 2009b, p. 218) enables objectivity to *be done*, as a haptic technique, in events of knowing. The ability of (un)knowing bodies (see Latimer, 2009) to separate and distinguish objects and bodies, closely related to relational displacement as a way for bodies to *be moved*, is given by affectual passages, which these displaced relations invoke. Worry, doubts and joy for instance, are experiential affects texturalising the objectivity of haptic knowing in

bodies, and encountered worlds, by moving bodies in particular ways.

With the end of this chapter, part one of this thesis comes to an end as well. As chapter one features *the activation of an opening in the myth of modern science*, chapter two finds that opening in an ontology of the body of the scientist. This chapter explores haptics as alternative ways of knowing, folding touch back into practices of archaeological knowing. And yet touch has not been absent from archaeological practices of knowing, even though archaeology also suffers from a modern discourse on science. It is therefore crucial for an immersion in archaeology, and its particular kind of objectivity, in relation to its practices of knowing. In other words, part two will, in a sense, begin anew with chapter four, in order to displace the direction of the first three chapters of this thesis, and line their conceptual diffractions up alongside archaeology's theories of knowing. The methodological reflections outline questions and considerations of encounters with archaeological knowing, and chapter five will analyse these encounters with excavations, keeping in mind the conceptual diffractions of part one of this thesis.

PART II

ENCOUNTERS WITH ARCHAEOLOGICAL KNOWING

CHAPTER 4

An Amphibious Ecology of Archaeological Thought

Thus, what is needed today, we conclude, is an archaeology that looks back at its own past with wonderment, approaches it without embarrassment and contempt, seeks to revitalize its important legacy, and folds this into a future vision for the care of things.

(Olsen *et al.*, 2012, p. 20)

This chapter addresses archaeological theory, as an ecology of knowing, drawing both on archaeological-philosophical thinking on knowing, as well as on archaeological insights from excavation work. Whereas archaeology can be understood as an "ecology of practices," in relation to "material pasts in the present" (Olsen *et al.*, 2012, p. 1), this chapter instead foregrounds a meta-narrative on archaeological knowing, which is important for encounters in excavation. As a feminist standpoint theorist, Alison Wylie (2002) emphasises that archaeology should be thought together with philosophy, to safeguard its science as a thinking from the ground up. Being puzzled by a standardised handbook, by established archaeologists Renfrew and Bahn (2005), who organise archaeology rather strictly in several temporal traditions, I am interested in connecting with a meta-archaeological narrative, aiming to decolonise archaeology from positivist notions (Hamilakis, Pluciennik and Tarlow, 2002; Hamilakis, 2013, 2016) attempting to arrest the archaeological event in a static form, overlooking the richness of excavation practices on the ground. It is therefore crucial to reclaim the archaeological record as a material and temporal notion of knowing, for the sake of archaeological events (Lucas, 2005, 2008, 2013). Archaeology's relation to STS provides points of friction to think with for such a possible reclaiming (Martinón-Torres and Killick, 2015; Webmoor, 2013). Furthermore, Tim Ingold's (2007, 2013) philosophy of meshworks, landscapes and alchemical practices contributes another alternative reclamation, in favour of an imaginative correspondence with materiality, and supported by renewed phenomenological thinking on excavation practices (Edgeworth, 2012, 2013, 2016a). Finally, in the light of the theoretical diffractions in this chapter, a tension is highlighted between thinking archaeology as a discipline of things (Olsen *et al.*, 2012), and a focus on the potential of relationality in practices of excavation.

4.1 Ethico-Political Conditions of Archaeological Knowing

As explored in the previous chapter, being in touch with an excavation might give rise to dizzying, hallucinatory, sentimental and irrational affects in the haptic doings of objectivity. Excavations are often alien, obscure, and messy. Bodies do not know what they touch, yet. Of course, archaeologists might not 'suffer' from many spells of dizziness, or pronounced hallucinations, while doing fieldwork. Often the affects are less intense, and perhaps subtler, mediating, and hesitant.[61] There are tremendous and significant differences between archaeologists regarding 'experience,' and previous knowledge, career path, age, gender, and other bodily compositions, as well as efficiency in both excavating and 'making sense of things.' More salient for what I try to do in this chapter however, is an analysis of the ethico-political conditions (Puig de la Bellacasa, 2011) of possibly neglected affects, which can come to matter in archaeological excavation work.

The promise of any kind of (archaeological) research necessarily includes 'new contributions to knowledge.' With the insights from part one of the thesis, knowledge in this sense needs to be build from the ground up, taking seriously a commitment to the excavation (Wylie, 2002). Academic experience or rank does not reflect or represent the obligation, which an excavation commits those bodies which relate to it to. A haptic commitment instead obligates archaeologists to relate to an excavation, as a particular society with many inhabitants across time, and can not focus on extracting knowledge in progressive or productivist sense (Puig de la Bellacasa, 2015, p. 693). In this chapter, I think with archaeological theory,

61 See field notes B1.

as an ongoing discussion to conceptually 'build' archaeological excavations. I discuss how archaeologists imagined and imagine their obligations to their discipline, with regards to what affects, and affected their thought – and therefore how and why their theory changes in the process of changing epistemic constraints. Although explicative of a historical dimension to their discussions, this historical dimension does not unilaterally lead theorising. Theory is a practice in the sense that it too shares a world with many divergent 'body parts' of (scientific) knowing, which archaeologists are called to think with, in order to continue their work, now differentiated by new thought. These divergent knowledges, firstly, relate to archaeology because, as a discipline it cannot stand on its own in a world where scientific and academic validity is marginalised by epistemologically unifying and (micro-)reductionist imperatives (Wylie, 2002, p. 201). Secondly, such an embedded sense of theory requires us to determine, as Wylie (ibid., p. 203) emphasises, "to what extent disunity prevails, in what different forms, and for what reasons." Finally, theoretical reflections on practices of archaeological knowing show archaeologists troubled by what it means to do science. I therefore take archaeological theory in this chapter as thinking the discipline ecologically, but not as unifying.

4.2 Departing from a Past

In their widely referenced handbook *Archaeology: The Key Concepts*, Renfrew and Bahn (2005) offer students of archaeology an introduction to different concepts, methods, as well as periodisations of archaeological theory, by means of a selection of key concepts, which broadly rather than deeply explicate what contemporary archaeology is, and what it does. Importantly, their work does not only explain theory, but more importantly

demarcates “what may be claimed as archaeological theory” (ibid., p. i). This territorialising work conveys in a very general, and far from problematic sense what concepts and questions archaeologists might take with them to their field work. The authors attempt to provide a somewhat unified account of archaeology’s theoretical history, with the neutral voice of explanation, if not of in-depth understanding. I am nonetheless interested in reading, and selecting some parts of this recent handbook, as reading between its lines, and contrasting it with different theories not only reveals traces of a modern generalised method of teaching theory to students, but moreover makes a more peripheral and lateral theoretical diffusion perceptible. In other words, reading that archaeology “is a construction built upon the basis of the material evidence. That is what modern archaeology is about,” (ibid., p. 2) makes me wonder what *other* kinds of archaeology might reside in archaeological theory.

The authors tell us that archaeology, as a theoretical discipline, is rather young. The handbook explains that thinking, and theorising about the practical work of archaeologists, and implications of that work, began only in the 1960s, having followed a decisively militaristic strategy in the form of practical “field campaigns” earlier (ibid., p. i). It follows in this line of thought, that the possibility of questioning epistemology and ontology in archaeological practice is also quite young. This fabricated moment, a beginning of questions, and perhaps confusions in its theory, is understood to be archaeology’s “loss of innocence” (Clarke, 1973, quoted in Wylie, 2002, p. 1; Renfrew and Bahn, 2005, p. i). Locating an origin in the 1960s might suggest a continuity of archaeological thinking hence, even though this theoretical continuity is filled with interruptions and changes in register. Beyond the at this point contingent originality of its theory, several concepts of archaeology’s ‘pre-history’ subsist, i.e. “the Three Age

System, the Antiquity of Man or the principles of stratigraphic succession. […] Darwinian evolution and Marxist materialism are still the focus of current debate" (ibid.). Regardless of this curious mixture of pre-archaeohistory with later archaeological concepts, three main temporal periods of archaeological theory are distinguished (ibid., p. ii), which I will follow in order to find points of divergence. Threaded through these periods are epistemological quests to unchain archaeology from mere accumulation of facts – and hence to connect archaeology to a more scientific register (Wylie, 2002, p. 23). The first of these sets of theories, the New Archaeology (later referred to as processual archaeology) of the 1960s and 1970s emerged out of archaeology's troubled epistemological status, "according to some as a would-be science, yet undoubtedly directed towards the history and prehistory of humankind, and hence also to be situated among the humanities" (Renfrew and Bahn, 2005, p. ii). The concerns of New Archaeology include a search for epistemological rejuvenation from the previous conceptual poverty of its antiquarian methods (Wylie, 2002, p. 23). I summarise these antiquarian methods as being based on an object-fetishism: in this unified history of things, pre-1960s archaeology was about the finding, collecting and exposing of interesting, exotic, or otherwise curious objects, by often wealthy individuals. New Archaeology therefore consists of a move towards "saner and more truly scientific methods" (Dixon, 1913, p. 565, quoted in Wylie, 2002, p. 230).[62] This move seems to be connected to the feeling "that archaeology should be saying more and have a greater impact" (Barrett, 2016, p. 1), a feeling which persists or resurfaces in contemporary archaeology. My speculation here about archaeologists' feelings of impact

62 Of note is Dixon's year of writing, 1913, which by account of Renfrew and Bahn's (2005) textbook should be a time when nothing noteworthy arguably happened in archaeology, with regard to its epistemological notions.

is underpinned by Wylie's (2002, p. 230) tracing of themes, surfacing at several "critical junctures." As a revolutionary movement within the discipline, New Archaeology repeats itself every twenty-odd years, the latest being the processual archaeology of the 1960s and 1970s (ibid., p. 24), but with earlier occurrences by the end of World War I, and in the 1930s and 1950s.[63] Wylie (ibid., p. 230) furthermore identifies two convictions to the recurring theme of New Archaeologies. Firstly, there is the conviction that "archaeology is anthropology or it is nothing" (Willey and Philips, 1958, p. 2, quoted in Wylie, 2002, p. 20), and secondly, there is the need for scientific rigour of its practice (ibid.). These seem to be the two unsteady legs sustaining archaeological theory, leading it into critical moments over the last century, and materialising in the "archaeological record as a source of evidence, a scientific resource" (ibid.). Note that the archaeological record here pertains to any physical evidence of the past of 'Man', and not the analysis (or thought) of this evidence. Wylie's (ibid.) thorough analysis of the various crises throughout archaeology's history shows how these crises upset the curious mixture of anthropological, and scientific thought within archaeological theory.

The real crisis however, moving with Stengers (2000), might instead surface when there does *not* seem to be any difficulty in unifying archaeological practice with science and anthropology; when it becomes too clear what archaeology is. In other words, the lucid and decisively in appearance unproblematic times when 1) archaeology is anthropology, and 2) scientifically rigorous, might be what leads the discipline into conceptual poverty, introducing the desire for a new New Archaeology. To illustrate this point further, I will use Wylie's (2002) analysis of two presumptions, underlying the disciplinary expertise of archaeologists. The

63 For an in-depth analysis of the socio-political circumstances of each of these revolutionary movements, see Wylie (2002).

first of these presumptions is that there is a clear difference between proper archaeology, and non-scientific, or unprofessional uses of the archaeological record. The second presumption states that archaeology's scientific understanding "of the cultural past [...] is a common good" (ibid., p. 234). The only way for archaeology to be 'autonomous' in this refrain is in an exclusive allegiance with a kind of science providing the authority to speak from an 'ivory tower' (the first presumption), as well as a science, which generates knowledge flowing down to these archaeologically unprofessional and non-scientific people (the second presumption).[64] To make matters worse, archaeologists need to uphold this schizophrenics in a world, in which interesting excavations often belong to "descendant communities" of the same lay people, who would not care about the *scientific value* of excavating/destroying their heritage. Furthermore, other forces like the expansion of Cultural Resource Management, as well as the many legal and illegal commercial machines, intertwine with archaeological excavations (ibid., p. 235) to the extent that a knowledge built from the ground up is threatened, or at best made more difficult.

Without going deeper into these enormous issues at this point, I would instead propose that it is not surprising that critical calls for a renewal of archaeological thought are recursive, when affected by distinctly unsatisfactory positivistic notions. An important example of such a notion is Leach's claim in 1973 that archaeology should focus exclusively on *what* questions, and not on *how* or *why* (Olsen *et al.*, 2012, p. 13). Not only does such a prohibition limit archaeology's access to anthropological methods and theories, it also means archaeologists could not claim allegiance to natural sciences, as it was mainly interested in what practices humans used to engage in. During its processual period,

64 Parallels can be drawn between these presumptions and Latour's (1994) analysis of modern science.

archaeology was as such doubly bereft of lines of flight to, and from anthropology, as well as natural science.

The handbook furthermore informs that the second period, post-processual, or interpretive archaeology, starts in the early 1990s when archaeologists were affected by a diverse range of phenomenological, post-structural, and existential philosophers (Renfrew and Bahn, 2005, p. 1). Again, speculations or reasons concerning the why of this change in register are not addressed in this book. The authors instead continue their descriptive analysis, and state that is in interpretive archaeology that the body becomes a concern, albeit in limited ways by focusing on bodily mechanical techniques and the body's relationships to objects (ibid., p. 72). Significantly, bodies are taken as historical objects of archaeological research, and little attention is given to bodies of archaeologists, not to mention 'other' bodies populating a site. This is illustrated by the authors' critique of Bourdieu with regards to the body, when expressed values become "the inflections by which the body is not only known but by which it comes to know of itself. It is the building of a security of knowing how to occupy the world of things and people, knowing implicitly what is possible" (ibid., p.102). Here a relation to the body's dwelling (see Heidegger, 1971; and Latimer and Munro, 2009) becomes tentative, and the worlds inhabited by other people(s) from other eras might become more interesting and contrasting. Yet the authors do not further explicate how archaeology could benefit, nor do bodies of archaeologists enter the picture as particular dwellers with distinct practices of bodily knowing. Renfrew and Bahn (2005, p. 2) show that a third set of theories deals more explicitly with "contemporary social issues", including questions of the body. This third set of theories appears less unified than the earlier two, although that could very well be because it is closer to contemporary,

active thought, and history has not had a chance yet to judge dominant strains. Within this set of theories, it is feminist archaeology in particular, which opens up an archaeological-scientific subjectivity to often complex, and in appearance non-archaeological, problems. The authors summarise feminist contributions, by proposing that “feminist archaeology tends to refer to practice as the basis for evaluating knowledge claims or interpretations” (ibid., p. 88). According to the authors, this position is complicated, because it lacks philosophical basis, and rejects authority. If by authority, and philosophical basis, the authors mean the bifurcating philosophies of transcendental idealism, then I propose that new positions are indeed complicated, and need to be explicated.

Alison Wylie (2002), a feminist theorist who contributes to the building of archaeological knowledge from the ground up, further unpacks archaeology's struggle for empirical ground, amidst powerful empiricist and positivistic philosophies of science. She proposes that New Archaeology's positivism made archaeology lose “touch with 'real science'” (ibid., p. 7). She instead proposes an *amphibious* philosophy of archaeological science, which should be able to answer questions of empirical adequacy, and philosophical accountability, from the ground up. In her words, she (ibid., p. 12) proposes “a resolutely amphibious and naturalized (or, properly historicized and socialized) program of science studies research,” including an open-ended normative, and political engagement with the sciences. Thinking with Hacking (1999), and Pickering (1995), she (2002, p. 12) furthermore shows how a study of contingencies in science highlights the extraordinary feature of permanence, or stability, in fields of science. This is a key point, drawn from empirical studies, which focuses my conceptual framework (of haptics) on archaeology. It adds to haptics that its study of changing

intensities of bodies aims to reveal those affects which take hold of a body – and allow bodies of archaeologists (and others) to dwell in particular ways. It proposes that archaeological fieldwork necessarily engages bodies in works of craft, even though its diverse epistemological claims make very different, and problematic, ways of dwelling, and crafting possible – and impossible. Archaeology therefore cannot do without an internal and reflexive meta-archaeology, which is able to provide reciprocity between philosophy and archaeology within material practices (ibid.). That is, to research significant ways, in which new and Othered things find a place among stabilised recurring practices – while hopefully contributing to different ways of doing archaeology. Hence, I think that processualism's positivism might have contributed to archaeology's theoretical poverty, because its empiricism was polemically caught between a rigorous natural science, and a humanistic anthropology, with regards to what should constitute materiality. As such, the critique on positivism in archaeology is a critique on what is included and excluded in the very material practice of archaeology, and more particularly on the design of the archaeological record, e.g. on what can and cannot be translated into knowledge claims. Here ethics – what practices should, and should not do, mingles with epistemology – what counts as knowledge, and what not, as well as ontology – what ways of dwelling are possible for a foundation of knowledge. Wylie's (ibid.) meta-archaeological thinking then re-entangles these traditional pillars of philosophy, in the forms of excavation and theory, and contributes to what archaeology does, is, and should do in the field. As such it becomes possible to escape from a history, written with an asphyxiating pen. Her re-entanglement activates scientific engagement, and wonder, while evaporating strict divisions between disciplines. Wylie (ibid., p. 246) therefore invokes an image of

archaeologists as “co-stewards of a scarce and irreplaceable resource,” and thereby defines an open floor, upon which local negotiations for the sake of a new kind of scientific knowing can take place.

4.3 Archaeology and STS: Frictions and Knots

In the Oxford Handbook of Archaeological Theory, Martinón-Torres and Killick (2015) diagnose a starting point of the technoscientific problem of archaeology, in the crucial difference between archaeological science, and scientific archaeology.[65] Their book chapter is so significant not only because it is very recent, but also because it takes a different political position towards theoretical, and methodological disagreement, and struggles over the domain of archaeology. I will take this disagreement as fertile soil upon which to think with archaeologists, and escape from attempts to colonise them and their work (see for instance Hamilakis, 2016). Whereas archaeological science applies “techniques and concepts drawn from the natural sciences and engineering,” with no explicit position with regards to archaeological theory (i.e. some are positivists, some are not), scientific archaeology on the contrary harbours the “missionary fervour” to exclusively base archaeological methods upon natural science. Scientific archaeology deems a foundation in the natural sciences as the only true archaeology. As such, the processual and neo-postivistic approaches to archaeology, which Wylie (2002) was so keen to untangle from New Archaeology, directly relate to questions addressed by Martinón-Torres and Killick (2015), and in particular to epistemic misunderstandings between differently disposed archaeologists. Post-processual archaeology, they propose, is a movement mostly based on

65 This section analyses parallels in archaeological theory with early studies in STS, addressed in the first section of chapter one.

philosophers and sociologists of science Barnes, Bloor and Latour, among others, aiming to repel the 'scientific invasion' of archaeology, which 'black boxes' so much of archaeological practice inside scientific laboratories. This would be a common argument amongst post-processualists (ibid., p. 3). However, the authors emphasise that Latour (1987), and Latour and Woolgar (1986) did not have enough understanding of actual scientific practices, and reception by archaeologists consequently "missed the point that Latour was not wholly serious" (Martinón-Torres and Killick, 2015, p. 3).[66] They argue that archaeologists missed the point that Latour's social critique of laboratories was instead mostly polemic, and aimed at provoking responses from scientists. Taking these STS authors seriously led physicists to review their work, and conclude that their critiques are *factually* wrong (Sokal and Bricmont, 1998, quoted in Martinón-Torres and Killick, 2015, p. 3). This misunderstanding of what scientists do and care for is of course not a productive way to think with, or alongside them. But, as Martinón-Torres and Killick (ibid., p. 4) show, some archaeologists still quote Latour and Woolgar's (1986) early work widely, in order to claim a professional position, which does rely on scientists, in order to interpret facts (see for instance Jones, 2002, quoted in Martinón-Torres and Killick, 2015, p. 4). Keeping a disciplinary distance between scientists in the lab, and archaeologists in the field, allows the latter in particular to claim an inherent meaningfulness in black-boxed facts, without live collaboration with scientists. Significant here are the attempts of some post-processual, as well as differently positioned archaeologists, in upholding the status quo between scientists in the laboratory, and archaeologists in the field, as it would allow archaeologists to use facts without intervention by scientists. "The reader may think that we are engaging in caricature here,

66 I addressed this point in chapter one to illustrate the problem of modern science.

but unfortunately we are not" (ibid.).

The authors' distinction between archaeological science, and scientific archaeology, serves to address the necessary interdependence of archaeologists and archaeological scientists, even though this interdependence is strained. To illustrate this, the authors give the in appearance simple example of discovered rock temper in a Lapita pot. Understanding the materials of such a pot involves many different sets of theory, i.e. crystallography, polarised light theory, mineralogy, and petrology. And, in order to situate such a pot, one has to know "the geology of the Pacific," plate tectonics, and geochemistry (ibid., p. 4). They also stress that scientific instruments are very specific in their generation of facts, and cannot individually contribute to what Haraway (1988) would call the 'worlding' of the pot.[67] Not only do archaeologists need to work together with many different scientists to arrive at an understanding, they would also need to be archaeologists, and scientists knowledgeable in the local practices of those disciplines mentioned, in order to answer research questions adequately. It also shows that archaeological scientists can come up with interesting, and relevant questions to archaeological excavations, from the laboratory, and that its science is not subordinated to excavation work, but interdependent with it.

Continuing a discussion on materiality of the pot in particular, but also in general, the authors address Cyril Stanley Smith, who "[f]rom the early 1970s [...] advanced the radical view that many technologies were not invented for the functions with which we now associate them, but as ways of extending sensuous engagement with the material world through the

67 I proposed in chapter two, and three, that it is preferable to think about these different techniques as haptic encounters of knowing with *partial* bodies, in relation to the pot-body's singularity and multiplicity. However, what is important here is the interrelation between various disciplines in the fabricating of facts. This discussion therefore engages with similar threads as chapter one of this thesis, focused specifically on archaeological theory.

creation of new shapes, textures, colours, and sounds" (Smith, 1982; Killick and Fenn, 2012, quoted in Martinón-Torres and Killick, 2015, p. 5). It is the sub-discipline of ethno-archaeology, which is concerned with the extension of sensuous engagement.[68] Apparently the concept of materiality in this sense has been used in archaeological theory for more than 40 years. The concept of materiality came about since the 1970s, and thus earlier than its appropriation by STS, while "none of them [STS scholars] acknowledge prior use of the concepts in the archaeological sciences" (ibid., p. 5). Of particular affront to the authors is Ingold's (2007) critique of archaeology's lack of interesting and multidiscipilairy contributions to theory on materiality, while failing to reference any of the existing studies. The strained relationship between archaeological science and STS seems to rely on a tiring continuation of the 'Two Cultures' problem, in which older scientists and archaeologists in particular would claim "that archaeological science is empirical and a-theoretical – or, at best, uncritical of its own limitations and disdainful of humanities" (ibid., p. 9). The position of the authors is one, which deems such dualistic and suspicious thinking irresponsible, and calls for a closer collaboration between the laboratory sciences and field archaeologists. Archaeologists should include scientists in the questions, theoretical interpretations, and analyses, because it is unthinkable for contemporary

68 This illustrates that an engagement with the senses in archaeology is not new in any way: "This theory has since been confirmed for fired clay ceramics (Vandiver et al. 1989), lime and gypsum plasters (Kingery et al. 1986), glass (Nicholson 2007), and metal (Stech 1990). Smith inspired a group in the eastern USA that included materials scientists (David Kingery, Robert Gordon, Michael Notis, Donald Avery, Robert Maddin), archaeological scientists (Heather Lechtman, Nikolaas van der Merwe, Pamela Vandiver, Vincent Pigott), and historians (Jules Prown, Eugenia Herbert) to investigate linkages between the material properties and the social significance of materials and manufactures (e.g. Lechtman 1977; 1984; Kingery and Vandiver 1986; Kingery 1996). During the 1980s these scholars trained a younger generation of American archaeologists to combine anthropology, archaeology, and materials sciences, and to apply their interdisciplinary training to studying the social contexts of technology and the social roles of materials (e.g. Childs 1991; Gordon and Killick 1993; Hosler 1994; Epstein 1996)", in Martinón-Torres and Killick (2015, p. 5).

archaeology to exist without the archaeological sciences. Moreover, the authors propose that "the seeds of archaeological theories are planted in laboratories," because of scientists' intimate understanding of materiality and its relationality (ibid., p. 10).

It is admittedly indeed easy for a thesis like this one, which draws heavily on philosophy and studies in STS – both of which have at least a partly justified reputation as averse to technical, and scientific details – to underestimate the sensitivity and knowledge of the laboratory sciences, with regard to questions of materiality in archaeological practice. Important philosophers in STS, and Latour (1986) in particular, lead to frustration and rejection because either they are factually wrong – and hence show not to care about indigenous archaeological problems, or they "tell[…] us what we already know" (Barrett, 2016, p. 8). Simultaneously however, contemporary archaeologists are searching for a new relevance for their discipline, which can add "an otherwise unavailable perception and level of understanding" (ibid., p. 2). Archaeology therefore should not be only anthropology, nor only be part of the humanities, nor only functionally concerned with explanation or black-boxed scientific analysis. In other words, archaeological understanding can only be partial; but understanding of what parts, and how, defines archaeology? In order to get a satisfying answer to this question, it is vital to move away from "foundational principles", "pioneers", distinctions between method and theory, and (sub-)disciplines, even from ethno-archaeology, and as such to decolonise archaeology from theoretical debates which do not serve the discipline (Hamilakis, 2016). As an alternative, Hamilakis (ibid., p. 3) proposes *archaeological ethnography* as de-colonial archaeology, which takes field sites, amongst other spaces, as meeting points for material encounters, not only with excavations as such, but also with "people and

communities of diverse origin and background: professional archaeologists, socio-cultural anthropologists, scholars from other fields, artists" in order to sustain a "productive *dialogue*."

Such a productive dialogue between STS scholars and archaeologists is particularly significant for archaeological ethnographies, which draw heavily on STS (see Garrow and Yarrow, 2010; Harrison 2011; Harrison et al., 2013, quoted in Webmoor, 2013, p. 111). The (asymmetric) tension of the dialogue between archaeology and STS is however, in Webmoor's (ibid., p. 106) terms, not sufficient as it shows disciplines which engage only "with one another in passing." Rather than the passing tension of a weave, archaeology and STS would both benefit from a frictuous knotting together. Archaeology would complement STS, by contributing to scholarship on temporality, symmetry, and various other themes, while archaeology might gain the transversal relevance Barrett (2016) is searching for (Webmoor, 2013, p. 114). Webmoor's (ibid.) point here is to generate friction in an encounter, which binds archaeology and STS just like STS has been bound by to a plethora of other disciplines. And yet I find the notion of a symmetrical relationship with regards to the knot between archaeology and STS disconcerting. STS instead has, it seems to me, a very asymmetrical obligation to archaeology, not as a discipline or field, but as an (also scientific) practice engaged with knowing and materiality in various ways. The benefit of STS is, I propose, that it by definition should never be a separate and singular discipline, but instead a parasitical practice (Serres, 1982; Brown, 2013), which can modestly recombine what it might also mean to do archaeology. The knot then does not lie in-between constructed disciplines, but rather in studying a shared materiality, and temporality, diffracting it in the process (Barad, 2007, 2014). The focus should lie, I suggest, on a kind of symmetry between

practitioners, and an intermittent touch between their practices.

4.4 The Symbolic, and Mattering of Time

A review of materiality intends to make a shared object of archaeology and STS more clear. Ingold (2007), however, argues in his *Materials against Materiality* that most academic literature on materiality or matter does not discuss what things are made of at all. As I have addressed earlier in this chapter, it is important to state that Ingold's (ibid.) claim is counteracted by archaeologists, as ethno-archaeology has long since been very specific with regards to 'what things are made of' (Martinón-Torres and Killick, 2015, p. 5). And yet, even if Ingold (2007, p. 2,3) should have 'done more research,' his point is rather different, as he argues that the abundant use of materiality is an "academic perversion" which has drowned out "*materials and their properties*" for the sake of "*the materiality of objects*." Referring to the conference on Rethinking Materiality at the McDonald Institute for Archaeological Research, Cambridge, in March 2013, he critiques Renfrew's (in Renfrew and Scarre, 1998) material engagement theory for polarising mind and matter, and leaving out the fleshiness of human bodies.[69] Reminiscent of phenomenological critiques on metaphysics (cf. Heidegger, 1962), the concept of materiality bifurcates nature into an ephemeral and observant mind versus a material world, according to Ingold (2007). Taking a rock as an example, Ingold (ibid., p. 10) addresses the impossibility of touching the materiality of the rock, concluding that "[t]he surface of materiality […] is an illusion," and that as such materials are everywhere, yet materiality is nowhere. Furthering this phenomenological argument, he asks how we

69 Material Engagement Theory focuses on knowing through the history of the mind, in relation to the material world, taking as primacy a division of the mind and world, as internal and external symbolic storage facilities. See also Malafouris (2013).

should then conceptualise the properties of materials. Taking *qualities* and *histories* as central to talking about materials, Ingold (ibid., p. 14) proposes that these qualities and histories continually unfold out of living environments, and are therefore important to respond to changing materials in living worlds. He asks what is *left out,* when we talk about materiality in an archaeological sense, as landscape and artefacts. Gibson (1979, p. 23, quoted in Ingold, 2007, p. 5) is important for this question, because he adds geographical additions – surfaces – stating that "[s]urfaces are where radiant energy is reflected or absorbed, where vibrations are passed to the medium, where vaporization or diffusion in the medium occur, and what our bodies come up against in touch." Here, surfaces do not separate materiality from the immaterial, but instead only from other surfaces, other points of touch. Touch therefore is central to a theory on materials. If, as Ingold (ibid., p. 45) suggests, a general physics of the world conveys that surfaces in their particularity separate other surfaces, and "ripple out like waves," then indeed "what is most deep is the skin" (Paul Valery, quoted in Deleuze, 1990, p. 10). Ingold (2007) however warns his readers, as well as social scientists, again against slipping into metaphysics. Given the dominant history of the constitution of the body of the scientist as detached from the world, as discussed in chapter one, this danger might be almost permanently present. And yet, I wonder, if it is really a danger to speak about materiality, and metaphysics. It seems to me that the primacy of materials over materiality, against metaphysics, is a kind of red herring, in a conflation of Material Engagement Theory with metaphysics per se. I would propose however that archaeology can provide significant 'spells,' a term I borrow from Stengers (2011), in order to guard from the irrevocable coupling of metaphysics and a metaphysics of the symbolic. It is therefore necessary to speak of material renderings of

environments such as skins, wool, hair, bone, horns, hooves, claws, sinews, feathers, dung, fish, egg and diary produce (Ingold, 2007, p. 8). However, it is perhaps more crucial to research how archaeological excavations craft relations between these, and many other surfaces.[70] In archaeological fieldwork, soil, dirt, and the organisation of a field site pertain to this thought in terms of materials. In particular, I will take to heart Ingold's (ibid., p. 6) assertion that "the materiality of the world is not culturally *constructed* but culturally *excavated* – not, of course, in archaeological sense [...] but in the sense that the forms of things are hollowed out from within rather than impressed from without." Here, I would propose that the materiality of the world is precisely excavated in archaeological sense. Excavation, as an addendum to haptics as addressed in chapter three, can extend beyond archaeological fieldwork to more general thought on materials, which does not oppose materiality.

With regard to archaeology however, questions about materiality and excavation evoke other questions about the relation of matter to an understanding of time, which is such a central concern of archaeologists. My point here in thinking materials in relation to time is to open up a space for haptics to enter the archaeological record. Lucas (2005) shows that time is often taken for granted in archaeological research, in the sense that it is assumed to be epistemologically independent of excavations. Archaeologists can draw on many conceptualisations and categorisations of time, for instance absolute chronologies (historical and scientific time), and relative chronologies (periodisations, typologies, stratigraphies, and others) (ibid., p. 5). The problem Lucas (ibid., p. 10) outlines with regard to chronologies is that they conceptualise time as linear and uniform. Lucas's (ibid.) problem is that time in archaeology is a

70 See chapter five.

totalising concept: either civilisations progress or regress, and the particular ways in which they do so justifies different periodisations. He (ibid., p. 20) shows how Zeno's paradox explains that dividing time into smaller and infinitely succeeding moments enacts false moments of rest, and kills movement and change.[71] This aporia means that attempts to capture time negate its flow. Does this however relate to time as experienced by archaeologists in the field? Are their methods of recording objects attempts to capture and divide events, and thereby negate them? Lucas (2008, p. 61) asks this question differently, by proposing that the problem is how scaling time makes the relation between change and continuity oppositional (ibid., p. 61). He questions, in an amphibious style, what it would mean for archaeological concepts of time and events, when archaeology is indeed "grounded in the concreteness of the data we deal with" (Lucas, 2005, p. 60). He points out that relating short-term conceptualisations of time (events and practices) to longer-term conceptualisations (structures, processes) creates dual and incompatible ontologies in archaeological sites. As such, time as an opening for experience is consolidated by structures and processes which are pre-determined. His solution to bifurcating temporal ontologies is to 'flatten' time. He points out that processualism on the one hand subordinates events to processes, "effectively stripping the event of any significant explanatory power" (ibid.). Post-processualism, on the other hand, makes the mistake of reclaiming the event, but only for use by human agency, he proposes. So the pessimistic image is that either the archaeological event becomes subsumed under conceptualisations of structure, or its effect is negated by, as Harding (2005) describes, time becoming synonymous with

71 Zeno's paradox states that dividing the time it takes for an arrow to reach its target, immobilises the arrow. The distance the arrow crosses reaches zero, when moments of flight are divided again and again into increasingly static moments. This relates to my discussions on the body, in particular in section 2.5 of this thesis.

'ethnographies'. It is noteworthy that neither structure, nor ethnographic research are per se problematic, but rather that there should be a distinct difference between things as they are happening on the one hand, and accounts and arrangements of those things on the other hand. The event is thus pinned down between processual and post-processual thought. So, how is it possible to escape these two ontologies, and, how can time flatten the in appearance dual nature of the event without opposing it to structures or practices?

Of importance here is the archaeological record, or palimpsest, which is a record of how something has continued, as well as changed over time. The archaeological record is organised with respect to historical sequences in what archaeologists refer to as *path dependency.* An escape from this dual ontology then means that history nor sociology will be able to provide an answer to this question independently, which resonates strongly with Wylie's (2002) position. The recording of changes and continuities is one of archaeology's functions, and inalienable to its practices. Here Lucas (2005, p. 62) takes a very material approach: events in archaeology should be rethought as archaeological events, since often they are simply taken as "historical or sociological events inferred through archaeological data". The event as a primary archaeological event, taking into account the palimpsest nature of recording, leads to a particular relation between the objects archaeologists dig up, and their events. To illustrate this, he gives the example of a dinner event in relation to residuality, and attempts to distinguish between what is knowable of this event, and what is not. A dinner might end with food scraps being given to the dog; a pile of dishes might be washed up, and cutlery be put away and organised for reuse. What is residual to such an event ("washing up and the dog's dinner") might be the objects for a later recurring event. So what

is residual here? What can archaeologists extract from such an event into the palimpsest? Which material traces are there to follow to construct archaeological theory out of? Although archaeologists have become very skilled at reconstructing events, according to Lucas (ibid., p. 62), the vast majority of events leave simply no (perceptible) trace. Even if these events leave traces, one should not take the objective traces for the event itself. Lucas continues by arguing that it is hence not *objects* as such, which are of interest to archaeology, but rather their *material organisation*, or in words seemingly borrowed from Deleuze and Guattari (1988), he states that "we must consider events as *material assemblages* of people and objects *that persist* for shorter or greater duration [...] if by assemblage we understand a set of material relations or organisation *evident* in the archaeological record" (emphasis added). Particular material organisations in archaeology, and possibly also elsewhere are very ephemeral: even if objects do not survive, the assemblage might be recognisable. Talking about material organisation in terms of residues then involves an inclination to change. Lucas (2008, p. 62) contrasts assemblages of books on book shelves (quite ephemeral and reversible) with the assemblage of cars driving on the right or left side of the road in particular countries (less easily reversible). The relationship between degrees of reversibility, and amounts of residue in archaeological assemblages is inverse: higher degrees of reversibility leave less residue and vice versa. He then relates the reversibility of events to the material specificity of their objects. A book can be on any shelf and read by a plurality of readers. A specific part of a car however can only function within a very particular, and non-reversible assemblage. Relating these concepts once again to archaeology, Lucas argues that archaeology (as opposed to sociology or history) mostly deals with events, which have a

very low degree of reversibility and that the archaeological record is hence "self-filtering" (ibid., p. 63). Taking such a conceptualisation of the irreversible event as liberating, he states that these are probably the most important for the level of "temporal resolution" attainable by archaeology. Although this reasoning seems slightly tautological to me (i.e. archaeological palimpsests can only deal with highly irreversible events, because of the nature of the palimpsest; hence irreversible events are most important for the palimpsest), I would still question whether the archaeological event as argued by Lucas (ibid.) is that dissimilar from the event understood by sociology and history. Are sociological events more reversible? Beyond that, is it useful to separate disciplines in such a distinct way, when speaking about time? Retaking the example of the book shelves, in which the objects (the books and the shelves) are easily moveable, and therefore have a high degree of entropy within the assemblage, I propose that the forces leading to any particular assemblage of books and shelves are not at all easy to reverse. Lucas (ibid., p. 62) argues that he can take away some books he is tired of, in order to illuminate the arbitrary events, associated with the assemblage of his books. I would agree that these events might be highly arbitrary. Yet what made him tired of, or question particular books within the assemblage remains unaddressed. And, his argument that if he takes away certain books, "it is as if they never existed" (idem) seems to me to do grave injustice to the multiplicity of planes books can inhabit, beyond their purely physical location in a room, on a book shelf. Lucas clearly understands the sociological and historical event in the sense of changeable narratives, while the archaeological record is of a different kind (e.g. a path dependent palimpsest).

In his earlier book *The Archaeology of Time,* Lucas (2005, p. 116)

presents the palimpsest as embodying a multi-temporality beyond linear conceptualisations of chronology. What would then be a better way to understand time in archaeology? He asks several fantastic questions in order to get closer to his problem: how do past societies engage with material culture which was already ancient in their time? And, "[i]f someone were to invent a time machine, would archaeology become redundant?" (ibid., p. 118). His take on the multi-temporality of the archaeological record is that it lies in the present, about which he argues that "[…] the archaeological record is all around us, it is always in the present – sometimes buried, sometimes visible, sometimes undisturbed, sometimes a living part of our daily lives." (ibid., p. 120). Following this line of thought, archaeology might be a way of looking, of gazing backwards, for the sake of the present. History then deals with history, while archaeology deals with a *prehistory,* inhabited by objects which are not yet historicised, or rather *de-constituted* (ibid., p. 124, 129). Prehistory is the Other, the Heathen, the Native, "Nature," and as such effectuates archaeology's status as a science within European scientific colonialism (ibid., p. 135). As an ontological category, prehistory "resembled that [time] of the primitives who inhabited the edges of the world and a time much closer to nature (and therefore the object of science) than history" (ibid., p. 125). Because of its scientific character, archaeology effectively denies time in an abduction of objects, which are made into completed and abject modern artefacts. The scrapes and fragments of objects (the residue of their eventuality) from the field are ideally represented by archaeology as pristine objects, which represent prehistoric ages *as they were*, statically, and paradoxically, contemporary. Archaeology hence arrests the past in this theory of time. Reconstructed objects are being safeguarded from the passage of time by technological actors, for instance in museums: "[…]

glass cases, humidity controls, there is an air of fragility in their appearance [...]. The more complete and pristine an artefact is, the greater our feeling of awe; this is because we recognize that the passage of time should take its toll on objects and yet, here it is, complete and almost as if it was made yesterday" (p. 128). The feeling of awe associated with victories of modern day archaeological science to transverse time might be what makes archaeology tick, not only for archaeologists, but also for students and public museum visitors among others. It is a testimony of how modern times are grander than ancient times to such an extent that science can incorporate pre-history, even though this is mostly based on rubbish.[72] Quite literally, archaeology mostly deals with unwanted and discarded rubbish – Lucas (ibid., p. 129) argues that all archaeological remains are in a sense rubbish, and part of alienated material culture. Foremost critical about his analysis is designating an active force to archaeology, a force of *de-constitution.* Although rarely explicit in archaeological theory, de-constitution should be taken as an active archaeological force designating found objects to be "objects of prehistory, of another time" (ibid., p. 129). Sensing, touching and the interpreting (making pristine) of objects is framed within such a force of de-constitution. De-constitution is the method by means of which archaeology makes objects into prehistoric, and therefore archaeological objects, after which reconstitution through hard labour attempts to make 'rubbish' into something more interesting.

Crucial to archaeology however remains the archaeological record and its palimpsest nature as a way of shaping, framing, re-membering, and crafting events of the past. The palimpsest is the main record responsible

72 A more critical approach (Kaulingfreks, Spoelstra and Ten Bos, 2011) analyses the modern museum, and its organisation, as destructive of the singularity of objects, and consequently involves a loss of the sense of wonder present in pre-modern organisations of the museum.

for translating field discoveries to museums, research papers and other forms of knowledge, simultaneously establishing this knowledge as pristine and contemporary. As such, archaeologists have a responsibility to the archaeological record. At this point, Lucas' (2008) fantastic example of a time machine does not seem all too far fetched; rather than travelling back in time to discover how ancients lived, the palimpsest allows enduring ancient objects, and events to travel forward to modernity in a path to necessary completion, facing the problems of knowing, addressed in chapter one of this thesis. Taking back the discussion of materials, time, and their relation to touch, two possibilities to deal with the archaeological record stand out. If constructing the archaeological record is indeed necessarily a modern venture, and archaeological fieldwork is more than a modern contribution to the world picture (see Heidegger, 1977), it might be best to sideline it, and to make it more peripheral to archaeological excavation. But perhaps it is possible to include the record as something crafted by archaeologists touching and working on a site, if it can be extended to include speculative thought with regards to materials and time. These two possibilities are of course far from mutually exclusive. Rather, it should be reclaimed from modernist discourses, which aim to reduce, on the one hand, materials to materiality, and on the other hand, time to an ever-lasting modern present colonialising a pre-historic past (Hamilakis, 2016).

4.5 Reclaiming the Archaeological Record

Therefore, reclaiming the archaeological record requires attentiveness to the materials of everyday excavations, as well as an openness to lived time. At this point this discussion approaches the experience of excavating, leaving behind a struggle for unsustainable generalisations

from a theoretical perspective. This is not to say that theory is absent. On the contrary, if doing theory is also a practice, and if care not to slip into a metaphysics of symbolism is necessary, as Ingold (2007, p. 3) warns, it becomes crucial to think of theory as actively done while excavating. This kind of theory is distinctly different from the theory made by sitting at a desk and writing it. Instead of the pen or a word processor, this kind of haptic theory in archaeology is 'written'/excavated by archaeological tools, and techniques in relation to the excavation. As Matt Edgeworth (2012, p. 77) puts it, "there is a hard materiality that refuses to be accommodated by cognitive moulds." Here the recalcitrance of matter in acts of touching is addressed. And, "at the same time there is a flow of materials" (ibid.), which permeates and disrupts theory from the ground up. While persistence and change might be dualistic in detached kinds of theory, they cannot be separated when doing excavation work, but are done differently depending on employed techniques.[73] For this reason excavating should be considered "a core method" (Edgeworth, 2011a, p. 44). In order to illustrate this, Edgeworth (2011a, 2012, 2013, 2016a) draws on phenomenological and existential theory, as well as Ingold's (2013, p. 132; quoted in Edgeworth, 2014, p. 84) concept of the meshwork. The meshwork is not a network, as its lines do not in fact connect, but are instead spatial lines independent of one another. They are rhizomatic (Deleuze and Guattari, 1988, pp. 1–25) lines of movement, which form knots instead of nodes. The meshwork's independence from stratified archaeology means that even if its lines form knots, its ends are loose and never determined or captured by its connections. "What is life, indeed, if not a proliferation of loose ends!" (Ingold, 2013, p. 132). Returning life to archaeology, and reclaiming its record means an obligation to stay in touch with

73 See field notes T1.

excavations (Edgeworth, 2011a, p. 45). As such Edgeworth (ibid.) breaks with a dominant version of history revolving around debates between scientific archaeology (e.g. positivistic) and archaeological science and theory. Specifically, he takes Heidegger's (1962, p. 342) notion of truth in pre-Socratic terms, which rests on a verb signifying the uncovering, un-concealing or bringing into openness of a world. Of particular interest is the notion that this verb does not centre on human agency. Rather, un-concealment or dis-closure relates, in Edgeworth's (2013, p. 34) words, to "[t]hings that are hidden break into space. They are torn out of hiddenness, or struck by openness." To break, to be torn, struck. Here is an affective sensibility to a world, which seems to go beyond pristine scientific discourses. Discussing an excavation in Carthage supervised by Edgeworth (ibid.) illustrates how un-concealment occurs in collaboration with the site. He talks about a small void opening up, while the archaeologists worked on the site. This void was not something the archaeologists initially focused on, as such voids are often arbitrary and uninteresting by-products of their work. Yet the void kept expanding day by day, as if by its own volition, demanding the attention of the archaeologists. Simultaneously, it gained form and became less amorphous. Edgeworth (ibid.) then asks the question of agency, and acknowledges the construction of the void is a collaboration between archaeologists and environment, while it effectuates its own emergence. Not only does he speak about the smoothness of the walls, he also felt "a slight sense of claustrophobia, a certain feeling of panic" (ibid., p. 36). Even more interesting perhaps are the archaeologist's final significations of what they found, and the strange absence of affects in these significations.[74] The clearing was a Roman cistern, a utilitarian water

74 Which are reminders of the erasing of affects in i.e. Leistner's touch, discussed in the introduction of this thesis.

basin which was “re-used as a crypt in Byzantine times” (ibid.). Edgeworth (ibid.) goes beyond modernist descriptions in the way he intertwines affect into the archaeological process of uncovering the earth, and his subsequent descriptions are more than phenomenological in their inclusion of affects: bodies disclose the perceived world, which was not only hidden by soil and nature, but also by those relics of the past, which have obscured perception. Indeed, the “'presencing' of material evidence [...] does not occur separately from the 'entering into' the material field by archaeologists” (ibid., p. 38). Edgeworth (ibid.) reclaims an existential encounter, as an immersion into a site, which contributes to knowing from the ground up.

Moreover, Edgeworth (2011a) saliently politicises archaeology, in relation to the ecology of contemporary academia. More explicitly, he addresses an educational lack of academia to sufficiently teach archaeologists their most important craft. “A problem is that the very structure of the archaeological profession encourages us to do exactly that – to lose touch with excavation, impelling us on a career progression into management or teaching.” (ibid., p. 45). The field however “'kick[s] back' against applied ideas, models and theories” (ibid.): excavation as a, I propose, *haptic* craft is anti-procedural, and its particular and peculiar practice cannot be completely captured. Excavation teaches archaeologists a kind of haptic knowledge, which can simply not be taught in the classroom. The crafting of archaeological knowledge, in which archaeologists, excavations and other inhabitants are in a process of becoming, alongside one another (see Latimer, 2013), can thus also not be transferred to bodies by means of classroom teaching. In order to learn how to excavate, it has to be practised. Yet, how far does the privilege of excavating go? Rather than providing an answer to this question, the

question itself does perhaps uncover a potentially romanticist notion of excavating: the field with inherent, and inalienable qualities waiting to be justly uncovered as a modern identity (Taylor, 1989). Instead, the task according to Edgeworth (2014, p. 89) is to follow the material flows in landscapes as nomads. These flows constitute Ingold's (2013, p. 132) meshwork of a world, a concept which is helpful to think excavations with. Ingold (ibid.) draws on Deleuze and Guattari's distinction between smooth, felt *and* striated, fabric. The meshwork is a smooth anti-fabric, like a taunt thread or cord, drawing together "speculative reason and bodily kinesis" (Mitchell, 2006, p. 345, quoted in Ingold, 2013, p. 134). Excavations as meshworks are populated by abstract lines which "'*delimit[...] nothing, that describes no contour,* that no longer goes from point to point but passes between points, [...] that is alive as a continuous variation', that is *abstract*" (Deleuze and Guattari, 1988, p. 499; quoted in Ingold, 2013, p. 135). The point of the metaphor of the meshwork's abstract lines is to come closer to excavations as a collective verb. It serves to move away from a theory, in which archaeologists draw the lines, organise their excavations, and have the agentic power to do so. This does not mean that archaeologists should not draw lines any longer, but it rather serves to keep at bay empiricist notions of doing science. In the recognition that it is the excavation itself which is (in Deleuze and Guattari's terminology) a *machine,* of which the bodies of archaeologists are just one part, the meshwork of an excavation can be said *to line* (ibid., p. 136). Because *lining* is a continuous process of becoming, it is salient to say that on "an archaeological site, everything is in flux" (Hodder, 1997, 1999, quoted in Edgeworth, 2012, p. 86). Here Edgeworth (ibid.) shows how theory by Deleuze, Guattari, and Ingold is rather superfluous for archaeological excavations, as archaeologists follow experiential lines through *cuts* of

material on a day to day basis. He proposes that "[a]rchaeologists engaged with the evidence, through their work upon it with trowels and spades and other tools, are caught up with that movement" (ibid.). Edgeworth (ibid., p. 92) aims to achieve inflections between theoretical thought, and archaeology practice "as a way of opening the world."

4.6 The Alchemy of Things: A Question of Relations and Objects

Recognising the limitations of epistemic systems in this way, Ingold (2013, p. 29) turns to alchemy, as take on material becomings. He (ibid.) shows materials characterised by *form-taking activity,* as they are affected by forces and constraints. Following the flow of matter, and cuts (Strathern, 1996; Edgeworth, 2012), gives rise to "artisans and practitioners," who use their "intuition in action" (Ingold, 2013, p. 29). Alchemy escapes essentialism by looking at what matter does, or in other words, how it moves and affects other matter. The historical reality of matter then changes depending on what, and how, it affects bodies, which resonates strongly with chapter three (on haptics). The point is, Ingold (ibid.) stresses, to see the *perduration* of materials, and imagining the potentialities of materials, by following where they lead, in acts of correspondence with those materials. He (ibid., p. 45) shows that it is fruitful to think of only materials, forces, and constraints, and in corresponding with them – touching and being touched by them – archaeological knowing gets done. However, how to think things, and objects, when materials are emphasised? Is archaeology not most of all the discipline of stable things, and their historicity, as suggested by Olsen and his colleagues (2012)? Their book (ibid., p. 1) *Archaeology: The Discipline of Things*, expands on feelings of unease with "the state of things" in

archaeology, and in particular with trans-disciplinary attempts (i.e. Ingold, 2013) to describe what archaeology has always already done. The authors (2012) aim to reclaim archaeology, by addressing its important reliance on the ontological turn (see Woolgar and Lezaun, 2013), in order to counteract

> *[…] an old and deeply rooted inferiority complex among some archaeologists, encapsulated in a self-image of archaeology as a second-rate, social science. This is often accompanied by an embarrassment that archaeology studies "just things" in contrast to the supposed cultural richness and subjective presence of text and voice.*
>
> (Olsen *et al.*, 2012, p. 2)

Their optimism lies in a turn to ontology to reinvigorate archaeology, focusing on care for, and obligation to, things (ibid.). By recognising that "persons are things too" (Webmoor and Witmore, 2008; Ingold, 2010, p. 6, quoted in Olsen *et al.*, 2012, p. 13), archaeology can move not beyond the constitution of things, in a search for relevance in for instance anthropology, but instead re-claim what archaeological excavation practices always already did. Saliently, their take on subjects and objects as results of purification processes in the foregrounding of things, resonates with my analyses in the first part of this thesis, and highlights an important reason for speaking of 'the body' in an ontological sense. Their move (ibid.) to object-object relations contributes to a 'knowing from the ground up' (see Wylie, 2002), and investigates ways to symmetrically recompose what is 'human,' and what is not, in an objective sense. Here, Object-Oriented Ontology (Harman, 2005), established in a contemporary philosophical discipline called speculative realism (Meillassoux, 2010;

Bryant, Srnicek and Harman, 2011), offers Olsen and his colleagues (2012) a path to radically rethink objects as ontologically independent from human relations, representations, and articulations. Notably, Object-Oriented Ontology supports a reclaiming of a more autonomist kind of archaeology, distinct from anthropological and sociological contributions to the significance of relations. Even though this thesis takes the radical rethinking of objectivity beyond representations to heart, framing objects as ontologically primary to relations offers a new problem regarding the touching body, rethought in chapters two and three.

Louis Morelle's (2012) analysis on speculative realism proves helpful in analysing this problem, in relation to thinkers in STS. He (ibid.) shows Latour's philosophy to be a variant of speculative realism's Object-Oriented Ontology, in a movement criticising Kant's philosophy of correlations. Speculative realism attempts to do away with any kind of monism and dualism, embedded in many contemporary philosophies, instead proposing an "ontological liberalism" (Morelle, 2016). Liberal ontological theories like speculative realism fill the world with an abundance of radically existing, and unpredictably differing objects, harbouring a reality distinct from human existence, and indeed, every other existence in the face of one another. The reasons for undertaking such a project (e.g. the move away from Kant) again touch closely on my own in this thesis. The speculative dimension of the project of this realism, which does not shy away from metaphysical speculations, regarding the constitution of existing objects, is also crucial to telling different stories of the doings of science. It is however Peter Wolfendale's (2014) *Object-Oriented Philosophy: The Noumenon's New Clothes,* which aptly analyses the dystopian world underlying this ontological liberalism. In this dystopia, philosophy is taken as an independent discipline, able to

answer a question like Latour's (2000, p. 297) "How many humans and non-humans are to be taken into account?," presupposing individual existences of humans, non-humans, and objects, without a reference to an embedded reason of relations, not to mention haptic and experiential encounters between bodies. As Morelle (2016) shows, it is unclear how Object-Oriented Ontology departs from a new Kantian approach to the 'thing-in-itself,' or *noumenon*, as it splinters the *noumenon* across a myriad of entities, again falling into the trap of a philosophy from 'a view from no-where' (cf. Haraway, 1988, 1997).

For archaeology, such a liberal ontological primacy of objects would mean that any object has symmetric value, at least from the outset. In practice, it would still require archaeologists to make distinctions between what is a thing, and what is not a thing, and what is an *important* thing; a practice which is not at all that obvious, when faced with messy soil, subjugated to intervention by human and non-human actors throughout time.[75] Taking Object-Oriented Ontology in archaeology as a discipline of things, radically serious, obscures the actual encounters between archaeologists and 'things,' during their excavations. The question for archaeology from this vantage point then involves the *relation* between relations and things, which the word 'encounter' seems to emphasise, at least as a metonymical point of entry for relations *and* things.[76] Following Olsen and his colleagues (2012), archaeology is in search for a stronger disciplinary identity, which can be proud of its own work, without relying on non-native theories on relations, problematising their work at every step. Ingold's (2013, p. 29) concept of alchemy seems to provide such an answer. It takes the specificity of materials not as attributes of these

75 See field notes R2.

76 I will address the encounter in-depth in the methodological reflections.

materials, but as histories (Ingold, 2007, p. 32), not separated from concepts, but instead mixed into them. Taking encounters in the field as alchemical practices also foregrounds the contingency of knowing as doing, moderating the universality of possible archaeological claims.

4.7 Diffractions: Remembering Alchemy

This chapter analysed archaeology as an amphibious ecology of thought from the ground up, drawing both on insights from archaeological practice, as well as on philosophical thinking (Wylie, 2002). It engaged with archaeological theory, in order to rethink the ethico-political conditions (Puig de la Bellacasa, 2009) of archaeological knowing, in terms of archaeology's potential commitment to haptic knowing. It has made clear that traditional archaeological temporalisations cannot provide an answer to what archaeology actually does in contemporary times (Renfrew and Bahn, 2005). Searching for an alternative in STS shows its bad track record, when it comes to taking archaeological concerns seriously (Martinón-Torres and Killick, 2015). More serious attempts from archaeologists to enlist STS involve a frictious, and symmetrical 'knotting together' of common concerns (Webmoor, 2013). I have suggested that archaeology might benefit from a parasitical approach in philosophical STS (Serres, 1982; Brown, 2013), more in line with transformative thought of archaeological concerns, from insights of the body's indeterminate relation to practices. This parasitical approach might reclaim the archaeological record, and *time*, from modernist attempts to arrest events of archaeological knowing (Hamilakis, Pluciennik and Tarlow, 2002; Lucas, 2005, 2008; Lucas and Snaesdóttir, 2006; Hamilakis, 2013, 2016). A danger has been diagnosed in the radical metaphysics of Object-Oriented philosophy (Morelle, 2012, 2016) in archaeology (Olsen *et al.*, 2012), which

underestimates haptic encounters between archaeologists and their excavations. Matt Edgeworth's (1991, 2012, 2013) thought takes excavation sites as openings, reclaiming archaeology through phenomenological following of landscapes. Both Matt Edgeworth's (ibid.) and Tim Ingold's (2007, 2013) thinking resonates with haptic theory, focussed at a relational objectivity of archaeological excavation work, while reclaiming history from modern disenchantment, through archaeology as alchemical practice.

Ingold's (2013, p. 29) concept of alchemy, of course, is a very untimely approach to scientific questions of objectivity. I suggest that it is exactly its untimeliness, and its extension of haptic theory, which might be interesting for researching archaeological practices. As a concept for relating to materials in the doings of objectivity, alchemy invokes a very non-modern conceptual vocabulary. Saliently, alchemy reconstitutes lived experiences of time, allowing multiple doings of a singular archaeology, not related to an eschatological completion of the temporality of objects, for instance in modern museums (see Kaulingfreks, Spoelstra and Ten Bos, 2011). I propose that the problematic relationship between things and relations, as outlined by Olsen and his colleagues (2012), is what makes archaeological excavation so interesting, as it highlights the alchemical 'becomings' of things out of recombining materials, and is as such creative of material histories. Furthermore, alchemy provides an addendum to haptics, as I analysed in chapter three. Whereas chapter three emphasised the haptic becomings of objectivity through moving and sensing bodies, alchemy foregrounds the *perduration* of touch in material sense. Alchemical perduration shows that what is stable about touch, is the continuity of historical change.

Methodological Reflections
On Following Encounters in Excavation

*"*What is required by your hold?*": such a question affirms and presupposes that the others' dreams, like yours, are created according to the means of their own adventure, and to this extent this question constitutes a test: it is a question […] that one dreamer can address to another dreamer, for dreams do not abstract from the means, but rather dissolve the dreamer's identity in adventures that restore to the "means" their mode of actual existence: that of propositions that possess individuals far more than individuals possess them. This is why, when philosophy has succeeded doing what it can do, not only is wonder still there, but it henceforth infects all the statements whose vocation was to explain the world, that is, to disenchant it.*

(Stengers, 2011, p. 518)

I. 'Following After' Excavation Paths

In this chapter I set out a methodology of going into the field, in the ancient Greek sense of the word. This means that I will not so much take methodology as a systematic treatment of an investigation of the field,[77] but instead discuss the *methodos*, or "following after" a path of wonder and curiosity, starting with the conceptual chapters, and extending to my encounters with, and within, two archaeological excavations. In other words, my methodology consists of immersing myself in excavation practices, and curiously relating thematic diffractions of the conceptual chapters of this thesis, with experiences with archaeological knowing. The experiential accounts in the next chapter continues the inheritance to thematic and situational analysis. As such, my analysis of the encounters does not juxtapose theory and practice, but rather takes immersion in excavations as a continuation of the conceptual thematic analyses and diffractions. The notion of the encounter, central to my engagement with conceptual themes related to bodily knowing, lies in a philosophical take on, and metaphysical commitment to, the shared primacy of worlds of archaeological knowing, and theories related to an 'unsolved' question. This 'unsolved' question of the archaeologists' (un)knowing touch in excavations, justifies the 'following after' a path of haptic encounters with archaeological knowing. The methodos of going into the field is then founded on the realisation, that a richer conceptual ecology infects a richer experiential encounter, without reducing it to grand notions of philosophical idealism. My methodos is therefore a speculative craft in a following of encounters with archaeological knowing.

77 As discussed in the introduction, the speculative analysis underlying this thesis more generally borrows from situational and thematic analysis.

II. Craft, and Participant Observation

A methodos of 'following after' new pathways mixes conceptual insights with lived reality, and emphasises archaeological knowing as co-constituted by *conceptual relations,* and *lived relations* (Latimer, 2013, p. 80, moving with Strathern). The question is then, what this co-constitution of lived relations and conceptual relations enacts, or in other words, how encounters with archaeological practices in the field extend their touching bodies further. The question is then, what this co-constitution of lived relations and conceptual relations enacts, or in other words, how encounters with archaeological practices in the field extend their touching bodies further. It is important to underline that this extension of bodies is a ground for "intermittent detachment and disconnection, as much as attachment and connection" (ibid.). The notion of craft, I propose, relates *relation* to specific material enactments or displacements, diffusing the idea that relation can hold any value in itself (ibid.). Practices of craft do not distinguish between method and theory, as Ingold (2013, p. 4, 2014, p. 390) asserts by quoting C. Wright Mills (2000, pp. 195–226). Mills (ibid., p. 224) is significant here for thinking (sociological, intellectual) research as craft, more specifically with regards to the importance of a playful recombining of things from a theory, crafted with as little reference to rigid procedures as possible. It is in this way that archaeological knowing, and my own research on haptic encounters with such knowing, attempt to craft their objects of study, by the dual constitution of conceptual and lived relations. Taking into account lived relations, the next chapter describes my goings into the field, and what I learned from archaeologists and their practices, with regards to my questions about haptic knowing. The analysis of theories throughout the

earlier chapters of this thesis then makes salient conceptual relations come to matter, alongside experiential "lessons in life" (Ingold, 2013, p. 5). He prefers these lessons over what he calls the obscenity of 'qualitative data,' which prohibit "observing from the inside." It should then not be forgotten that encounters in research are also encounters in life (ibid., p. 386).

Ingold (ibid.) explicates that this means that research ought to be done with ontological commitment to the worlds responsible for our education. Education requires *exposure* to a world, and *attendance* to "what others are doing or saying and to what is going on around and about" (ibid., p. 389). He calls this mode of research *participant observation*, which he proposes can rethink the doings of knowing in the contemporary academy; a place so used to the rupture between a life and imagination.[78] Participant observation, in this sense, acknowledges not only that knowing is done collectively, with a wide range of others also exposed to worlds, it also foregrounds the irresponsible path of critiquing other practices, by turning one's back to practitioners of science. The responsible relationship demanded by encounters is a way to "keep the hold" (Stengers, 2011, p. 518), and thus to keep learning by participating and observing with the doings of others. Ingold (2014, p. 388) reclaims observation from the clutches of detached and distanced vision, by pointing out the obligation to fulfil the ontological commitment "of what we owe to the world for our development and foundation."[79] My commitment to practices of archaeological knowing is then not to the discipline of archaeology, but instead to the doings of archaeologists, and

78 This rupture reminds of the bifurcation of nature, and the dichotomies of modernity, addressed in chapter one.

79 Ingold's (2014) actual critique is on the dominance of ethnographic research in this paper. The thread I highlight here however has to do with the researcher's position in research practices.

other bodies, in the field.

III. Reflections on Ethnography and the Limits of the Networked Field

Focusing on the doings of archaeologists means that this project borrows from ethnography (and in particular from more recent writings on multi-sited ethnography) the importance of "attention on the construction of the ethnographic object" (Hine, 2007, p. 655). Through examples of ethnographic studies by Amit (2000) and Urry (2000), Hine (2007) argues for alternatives to formulating this ethnographic object, and in particular to the tradition of taking the laboratory as the most crucial field site in STS. She suggests that multi-sited ethnography has plenty to offer for imaginations of these alternatives. Doing multi-sited ethnography is, she (ibid.) shows, a matter of doing adequate research: "The strength of this approach comes from a willingness to pursue connections rather than accepting field boundaries that might on first sight seem obvious." It is the multi-sited approach to ethnography, according to Hine (ibid., p. 656), which allows for the crafting of a research object, which justifies the complexity of social life, while focusing that object on one particular problem or concern.

This thesis however focuses on only two sites of archaeological excavation, and not on sites belonging to multiple disciplines. Crucial to multi-sited ethnography though is that its terminology as defined by Marcus (1995) moves from 'ethnography' to 'imaginary,' which is shared by my project here, as it focuses on the constructed, nature of the research project, and not on the 'truthfulness' of events.

This focus connects to what in Actor Network Theory is known as

(generalised) ontological symmetry (Law, 2004, p. 152, 2009, p. 145; Latour, 2005, p. 76) between human and non-human actors, and perhaps also sites of research, to not *a priori* judge them to be asymmetrical in terms of importance to a research object. "To be symmetric, for us, simply means *not* to impose a priori some spurious *asymmetry* among human intentional action and a world of causal relations" (Latour, 2005, p. 76). This principle is central to thinking in terms of *networks* in ANT, which is "of use *whenever action is to be redistributed*" (Latour, 2010, p. 2). ANT and multi-sited ethnography seem in accordance with regard to their function of enabling transformations in understanding with regard to action: the ability of the Columbia space shuttle to fly into space, in Latour's (ibid.) example for instance, is shown to require a complex organisational network of diverse actors. By extension I could say that the ability of archaeologists to excavate a field site, including their body's abilities to sense and move as archaeologists do, also requires a complex network of empirical actors organised in particular ways. One might think of the legal organisation of excavations, the manufacturing of archaeological tools, data analyses in laboratories, storage facilities for archaeological samples and recording sheets.

Yet it might be said that my research stopped at the literal limits of the two excavation sites. Moreover, it does not adhere in the practical sense to the principle of symmetry, as I favour encounters on the field site over translations of these encounters elsewhere. However, in paraphrasing Serres's philosophy, Law (Law, 2009, p. 144) makes clear that the relation between various symmetrical agents in ANT research is one of *translation*. More specifically, he proposes that in the translation of words, or perhaps even concepts, there is an element of betrayal, as "to translate is to make two words equivalent. But since no two words *are* equivalent, translation

also implies betrayal: *traduction, trahison*" (ibid.).

Even though this thesis does not offer the benefit of going beyond the boundaries of the field sites (per ANT), and does similarly not analyse multiple and different sites of science in relation with a specific object of research (per multi-sited ethnography), it does adhere to a multidisciplinary perspective aiming to 'betray science,' by betraying those boundaries "that might at first sight seem obvious" (Hine, 2007, p. 656). As noted in the preface of this thesis, one of these boundaries is the boundary between the archaeological excavation site as a place where 'knowing' happens, and the archaeology as it is taught in the academy. This boundary can be more abstractly seen as the boundary between practice and theory, a relation which has not yet been settled satisfactorily even in ethnography (ibid., p. 655).

The construction of the object of research in this thesis has been performative of a particular kind of reality, resonating with concepts from multiple disciplines. Borrowing from ANT as well as (multi-sited) ethnography, the adequacy of this object of research lies in a different kind of Enlightenment, for which archaeology has been particularly prolific, as it draws 'knowledge' from such a rich field of theory as well as practice. My extended period of engagement with archaeological literature, seminars, and academics, beyond the field sites, has formed a connection between this different kind of Enlightenment in the form of teaching the craft of archaeology from the ground up. It is through archaeological theory that the connection between the doings of archaeologists on site, and their thinking came alive for the project of a different Enlightenment based on haptic knowing.

IV. Introducing the Excavation Sites

The Burrough Hill Iron Age Fort

I followed two groups of archaeologists and their tools to two distinct field sites. One of them, the Burrough Hill Iron Age Fort, is a training excavation for first year undergraduate students, and more senior students, who did not take this module in their first year. The site, located in Leicestershire near Melton Mowbray, had been visited and excavated for five seasons, until coming to an end in the summer of 2014, which happens to be the season I joined them. The Burrough Hill Iron Age Fort excavation (BHIAF) was a combined effort by archaeologists from the University of Leicester's School of Archaeology and Ancient History, and the University of Leicester Archaeological Services (ULAS), an independent professional unit for commercial excavations. BHIAF is well known amongst the students of the School, as first year undergraduate students amongst others are required to join this excavation for their degree. The excavation has a complex schedule, for many weeks during the summer, as multiple groups of students visit, and learn the hands-on basics of what it means to do field archaeology. The staff, students and myself were picked up by coach from the University of Leicester campus, and driven to the field site each morning.

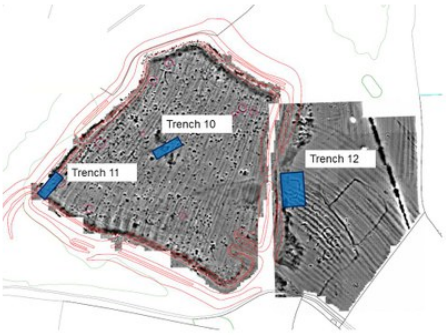
Welcome to the 2014 Field Season

Aims

This fifth and final season of excavation will carry on from the 2013 work to gather more information about the hillfort's interior and exterior. By targeting specific areas, using the geophysics results as a guide, this year's aim was to increase understanding of the nature of the hillfort occupation. By the end of this year's excavations the project will have examined a variety of archaeological remains in different areas within the hillfort to give an even fuller understanding of the site's use.

This year's trenches.....

Trench 10 is located in centre of the hillfort and is intended to evaluate a large amorphous result from the geophysical survey. This looks like a linear spread of large pits and it may be the result of a prolonged period of quarrying, probably for ironstone.



We know from historical records that Burrough Hill was periodically quarried for building stone in relatively recent times and this may be part of that period of activity.

On the other hand it may be related to Iron Age or Roman quarrying, perhaps to remove stone for rampart or other building maintenance. This small trench will enable better understanding of the character and date of the activity in the centre of the hillfort and potentially help in identifying what different areas of the interior were used for.

Trench 11 is located in the south-west corner of the hillfort and will extend last years Trench 8 westwards to further investigate this part of the earthworks.

A second entrance?

An interesting feature of the south-west corner of Burrough Hill is a gap in the ramparts giving access to a narrow trackway leading down the hill slope. This may be Iron Age in origin as the trackway leads down to natural springs, potentially the main source of water for the hillforts occupants.

In 2013 one of the objectives of work in Trench 8 was to gain a better understanding of this area of the rampart. Was this an original entrance and if so, how did it look in the Iron Age? Was this a later insertion and if this was the case, when was the rampart dug through?

As is usually the case with archaeology, the 2013 work raised more questions than answers! The rampart core was very similar to other areas we have looked, made of dumped layers of soil and rubble, but the inner edge was faced with a well-made drystone wall, similar to the one revealed in the main hillfort entrance.

How does the wall relate to the rampart core and when was it built? Could it have formed one side of an Iron Age entrance or is it blocking an earlier gap?

Trench 12 is located outside the hillfort to investigate geophysical survey results showing a large ditched enclosure. The relationship between the enclosure and the hillfort quarry ditch is uncertain, so one aim of the work in this trench will be to understand which came first. If the enclosure proves to be the earlier feature it could potentially pre-date the establishment of the hillfort. If later, it may be associated with the increasing evidence for Late Roman occupation of the northern side of the hillfort.

Image 1: Overview of the aims and trenches of the Burrough Hill Iron Age Fort 2014 (*Burrough Hill Iron Age Hill Fort Project website*, no date)

I spent five days observing the archaeologists and site and occasionally participating in their work, to get an introduction and a feeling of what it means to do field archaeology. The excavation in the summer of 2014 was led by four supervising archaeologists, two of whom are the field directors Chris and Dave, as well as two assisting PhD students, Claire and Becky. Three of the supervising archaeologists were in charge of the three separate trenches (trench 10, 11 and 12 respectively) across the Hill Fort site, and one roamed all trenches, in order to assist the practising students. The trenches each had a very different character, as their soil was different in terms of its consistency and historicity. Trench 12 for instance had soil, which was relatively hard and difficult to get through. Combined with a bleaching sun, which turned the soil even drier and made progress slower, student's bodies became less able and motivated to undertake the tough manual labour to properly excavate.[80] The three trenches were cleared of half a meter of topsoil beforehand, by a digger machine, after which the trenches and dumped soil were fenced by a small wooden palisade. After short introductions at the start of the day, the students dispersed across the three trenches in small groups, after which the supervisors explained to them what they were going to do, and where. BHIAF was a rather conventional training dig compared to the second excavation I visited, since the supervisors often very explicitly 'managed' the students, informing them where to go and what to do, keeping in mind that they were first year undergraduates, and their experience with archaeological excavations was often on a level with mine, so little to none. Even though the accompanying archaeological tools like trowels, shovels, mattocks and buckets are relatively simple tools in terms of their technological complexity, *using* them (aside from

80 See field notes M1. I will discuss the relation to the soil in chapter five.

the differences between trenches) is subject to a wide range of implicit knowledge, making proper guidance arguably more necessary. Next to the human bodies present on site, the area was inhabited by cows and sheep. Every morning we encountered quite a few patches of dung, as heavy cows did not care about small wooden palisades, and were apparently fond of playing in dug trenches.[81] This obviously also meant fences had to be repaired and new make-shift gates built, leading to quite a bit of confusion, as to where to enter the trenches, since entrances shifted every day. The cows and sheep were also keen on visiting the trenches in large groups and observing, while making sounds as if they were commenting on the practice. The excavation itself provided a point of touch between learning at the academy, and being exposed to an entirely different form of learning.

The Ardnamurchan Transitions Project

The second excavation project I visited, the Ardnamurchan Transitions Project (ATP), is located on the remote peninsula of Ardnamurchan, in the north-west of Scotland. The project, a collaboration between universities of Leicester and Manchester, CFA-Archaeology and Historic Scotland, has run since 2006, and aims to reveal "how people lived in this landscape through time, especially at moments of dramatic social change" (*Ardnamurchan Transitions Project website*, no date). A difference between the two projects is that the BHIAF project aims at understanding the material development of the fort on site, while ATP investigates the dramatic social change of the location.[82] The sites deal very differently with their research questions, because of this different focus. The BHIAF

81 See field notes A8.

82 See field notes G5-6.

project is more occupied with descriptions of materiality, while archaeologists at ATP focus more on speculative interpretation of social change, drawing on authors familiar to me (e.g Latour). As a result, ATP includes all periods of history in their scope, including Neolithic, Bronze Age, Viking, and Industrial periods. This difference resonates with the organisation of ATP, in which students are often asked to interpret, and reflect on finds, and transcend hierarchical teacher-student relationships. Since ATP is very remote, the staff and students stay together at a house and camping site where they cook, eat, socialise and live. ATP also has three project supervisors, Frank, David and Eric, as well as a PhD student, Mark. Beyond the staff and students though there are some professional archaeologists and volunteers who joined and left the excavation during the two week period that I joined the project. Learning takes place very differently in ATP because of its focus on reflection and interpretation, which is mirrored on the many recording sheets which archaeologists fill out when uncovering new contexts, and which I was told are quite unique to this project. This organisation of the project as well as it gorgeous location made it a very pleasurable experience.

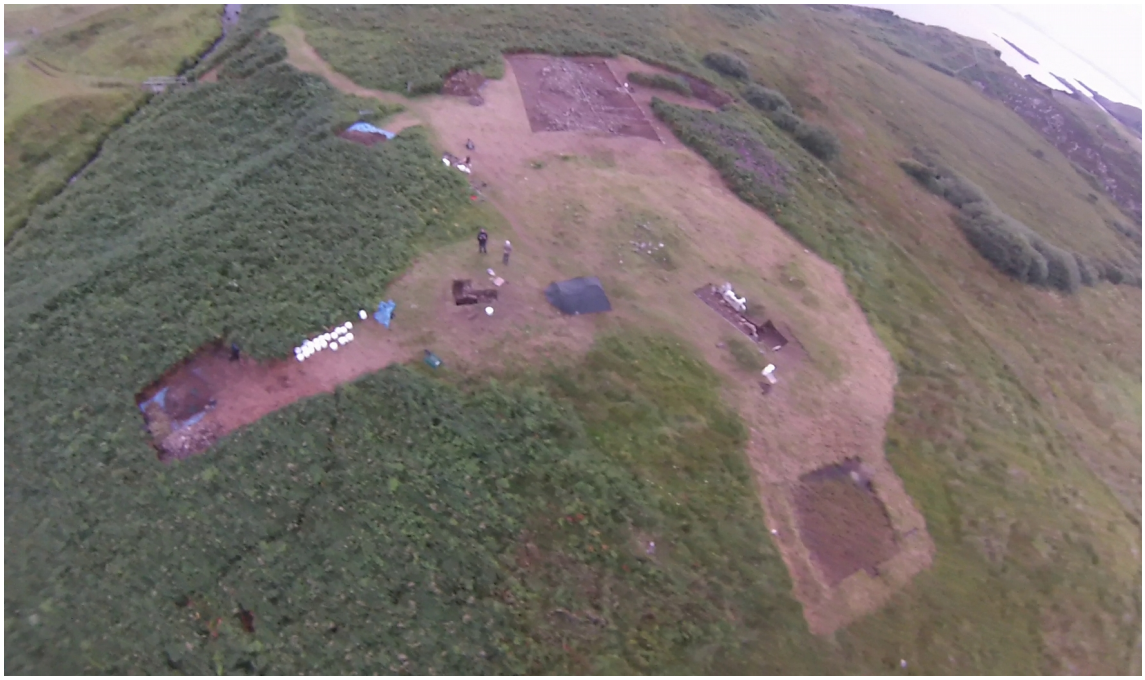


Image 2: Aerial shot of the Ardnamurchan Transitions Project by the late Simone the Drone, who sadly flew off after this shot for future archaeologists to find.[83]

83 The photograph depicted in image 2 is copyrighted material of the Ardnamurchan Transitions Project. Permission to use this photograph for this PhD thesis has kindly been granted by the project.

Fences are absent here, since there are no other large mammals around to interfere with the site, during the night. The largest trench of the site consists of a huge figure 8 mound, a Neolithic monument of large and irregular stones, and can be seen on the top of image II. There were two other trenches, separate from the figure 8 mound, one of which was thought to be reused by Vikings in later times, the other being some sort of storage pit. The final trench consisted of a small burial chamber attached to the north side of the huge mound. The figure 8 mound consists of a deposit of bones from approximately 3000 BC, while 100 years after that a second deposit of stones was put into the stone chamber. Around 2000 BC a beaker cist sealed the stone burial chamber. The same archaeologists populated the separate trenches throughout the dig, while the three supervisors visited all the trenches. Later during the excavation however, some archaeologists found their belonging on a particular trench, while roaming less frequently. Other natural and unnatural agents ranged from the drone Simone, and incredibly annoying hoards of midges, to lizards, other small creatures and almost omnipresent and hard to remove roots. Since ATP is so remote a machine digger could not be utilised, so students and staff had to manually remove the turf and topsoil during the first day, which was returned to the site at the closing of the excavation. ATP became a more remote place, after the Highland clearances of the nineteenth century, which led to ninety people from the area being cleared by landlords and sent to the cities, since it was more profitable herding sheep in the area. The area has a rich history, and is relatively uninhabited in contemporary times.

V. The Gathering of Materials

During the excavations I relied most heavily on my notebook. I used my notebook very liberally, and wrote down quotes, paraphrases, keywords, names, concepts, ideas, feelings, thoughts, and anything else which could give me an inkling of a hold on touch in excavations. These quotes and paraphrases consisted of what archaeologists said to one another (or to themselves) during the excavations, and what they said to me in conversations. At other times they entailed connections I made between what happened on the spot, and concepts, which I thought might lead down an interesting path. I also had many informal conversations with archaeologists before, during, and after the excavations, and by email, which I wrote down in my notebook. Also some of the conversations I had with a few of the archaeologists in the pub and in their house on Ardnamurchan, Scotland, and in the bus to and from the Iron Age hill fort in Leicestershire, I noted down. Finally, my notebook served as a means to relive my experiences and collaborate again with the excavations, when on the way back from Ardnamurchan, on the train, ferry, and bus, and many times later at my desk. In this sense, my notebook also served to think through how I could craft a "comprehensive" story about the excavations. The interpretation, or rather crafting, of the analysis process, therefore did not occur 'later' at the office, but rather throughout the entire process of the fieldwork, and by extension throughout the PhD.[84]

Since the amount of text and experiences I gathered was substantial each day, I organised my notes at the end of the day, by expanding on, and contextualising them in a document on my laptop. Furthermore, I used the proprietary qualitative data analysis software NVivo to organise my notes

84 See the next section, on the design of this research, for a more specific description of the organisation of this research.

into many categories, which allowed me to make the gathering more manageable. I only used NVivo for its ability to make and analyse nodes of the text I entered, and not for any more complex functions it might offer. Significantly, these nodes or categories immanently surfaced after reading through my notes several times, and on the basis of brainstorms on the content of the categories. This is why I initially had almost as many categories as I had notes, which I then grouped with care, not to reduce or generalise on the experiences for the sake of the category, but only with an eye on their potential to collaborate comprehensively. Moreover, the organisation of notes got even messier, as I introduced the diffractions of the conceptual chapters into the mix, in order to experiment with possible connections, and disconnections between concepts, and notes from the field. By adding these concepts, and treating them symmetrically to the findings of the field, I was able to both analyse the findings differently, as well as rework the conceptual chapters of this thesis. My point here was not to 'curate' the thesis, as scientific journal articles are often curated (Feilden, 2017). Instead, the analysis process by means of creating, and organising nodes in NVivo, and reworking the entire thesis on the basis thereof, served to 'curate' the thesis, in order to find out what was necessary to say, and how to say it better, regarding this very specific project. It was a process of organisation in the sense of Strathern's (1996) cutting, and thereby including and excluding (ir)relevant parts for this thesis. This was a very troublesome process, and it took a lot of time to experiment what worked together for this particular project, and what did not.[85] In these cases, I selected my findings, as best as I could in relation to the themes of this thesis, even though I have findings to spare. I also made choices during the excavation about what was interesting, what *might* be

85 It is important to admit to the partiality of this project in this sense.

interesting, and what was definitely not interesting. The cutting already happened there, and of course even before, in the very outline of this project. These choices excluded what I thought was irrelevant to my research. For instance, the students at the Burrough Hill Iron Age Fort often discussed things unrelated to the excavation, including very particular things concerning their experiences of student life, sports, pub life, university modules, etcetera. While I excluded the particularities of these conversations from my field notes as significant for excavations, this has 'coloured' the path I took, as I was drawn more and more to those taking excavation work more seriously. Here, also, it is necessary to mention that these choices did not have anything to do with my 'freedom of choice,' as a researcher. Rather they were the result of my theoretical position, which makes possible certain important dimensions over others.

As support for my field notes I made about 300 photographs of the excavation processes, and of several archaeological tools, techniques and findings, as well as of the gorgeous 'nature' or environment embedding the excavations. I selected only thirteen of these photographs for the analysis in chapter five. I selected them first of all on the basis of their quality – about fifteen of them were simply vague or overexposed. After this pre-selection, I added them to NVivo, and referenced them with the concepts in this thesis, as well as with the notes from my notebook. These photographs are amateurish at best, and should not be taken as representations of anything at all. They instead serve simply as points of connection, and guides for the stories I gathered, and then attempted to craft. The photographs therefore complement the field note nodes, and I hope they can make my stories of the excavation more concrete for the reader. Following Gillian Rose's (2001, p. 53) visual methods, I take the photographs only in their compositional modality, e.g. I focus on

interpreting them “as they are.” The photographs serve at most as a provocation for the senses (see also Pink, 2006), and as points of entry for a partial immersion in the field. They are therefore contrasts in a predominantly conceptual thesis. The photographs help to tell a story, connected to the event they portray. I provide therefore no discussion on other possible interpretations of the photographs, and no reflexive discussion on the procedures, or techniques, of taking the photograph (ibid., p. 52), beyond the following consideration. I considered handing over my camera to archaeologists, and asking them to make photos of what they considered significant for the excavation (see participatory photographic methods in Margolis and Pauwels, 2011, p. 462). Handing over my camera with a particular question important for my research would definitely have given interesting contrasting photos. However, two considerations kept me from doing so. First of all, photographs already constitute an important and official technique for archaeologists to record their work. This is not necessarily an argument against asking them to make photos for a different project with a different research question, of course. It might have made them pause, think, and consider what other important dimensions *their* ways of recording normally exclude. This method might have provided a different encounter which might have disconnected and reconnected them in different ways to their excavation. However, I decided this was not what my research should be doing. I did not wish to evoke a particular contrast into their work in this way, but instead I wanted to learn about what contrasts occurred more immanently from their work. This is the reason I will instead contrast the photographs I took with some archaeological photographs taken by professional archaeologists of the same excavation in the next chapters. Secondly, archaeologists are so limited in their time during excavations. I

considered it to be too intrusive to ask them to interrupt their practices, and ask them for a different way of 'seeing' (ibid.). The photographs are then particular *renderings* (see Myers, 2015) of the excavation, which do not stand on their own, but are intertwined with experiential renderings of the encounters on the field.

CHAPTER 5

Encounters in Excavation

I am one of those, put me at the edge of a trench and I think I know what is happening, but put me in the trench and I 'just know'. Or at least that's how I feel.

(David, 2014, email correspondence)

This chapter features an analysis of my experiences during the archaeological excavations on Burrough Hill in Leicestershire, UK, and on the Ardamurchan peninsula of Scotland, both of which I joined in August 2014. As my methodology focuses on the following of many animated encounters, my findings do not have an ontological status of 'data'. What this means is that the objectivity of the encounters I bring into relation with one another is not already a set or collection of findings, separate from the conceptual path I took to 'extract' them. Rather, in accordance with haptics (see chapter three), my aim is to re-animate my experiential findings, and recombine them in ways, which situates them alongside this study of haptics encounters with archaeological knowing. My methodology will as such follow encounters or events by means of photographs taken by me (and some taken by others), which are rendered thematically. These photographs function as contrasting 'hooks' into practices of archaeological excavation at these two sites. These 'hooks' allow me to touch on events happening during the excavations, diffracting concepts of importance. The motif of *continuity* is of particular importance throughout this chapter, as it weaves the findings together.

5.1 Stratigraphic and Relational Transformations

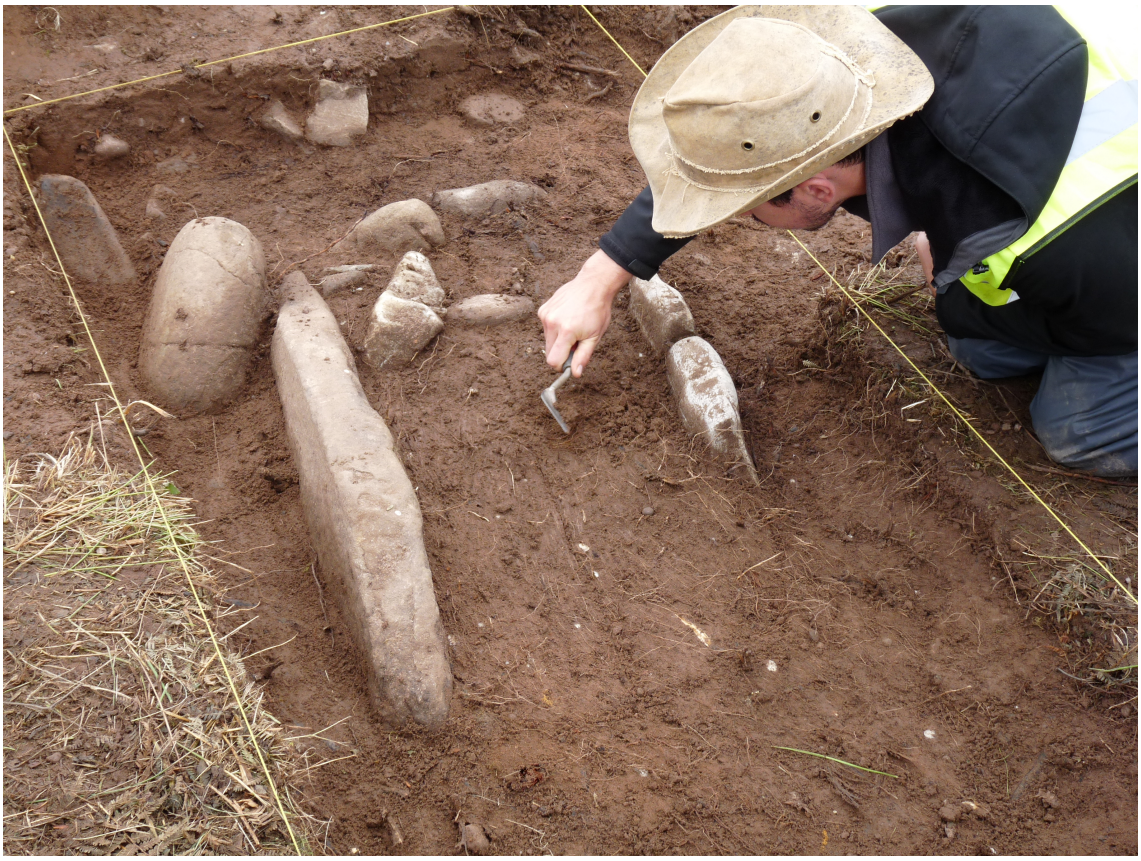


Image I: Student archaeologist Glenn is marking a cross-section with his trowel in the early days of ATP 2014.

In this section I will discuss practices of stratigraphic and relational transformations at the Ardnamurchan Transitions Project. This photograph (image I) was taken by me during the early days of ATP in August 2014. This particular trench, a presumed neolithic[86] grave, was of particular concern for the archaeologists, involved in excavating it. The large upright stone on the left side of the picture was partially discovered in the large figure eight mound,[87] and part of the original excavation plan. The stone however got out of line, and was unruly as it ventured out of the large trench into the epistemologically dark and obtuse 'wilderness': permission to excavate the lower half of the trench, just below Glenn's trowel, had not been granted by Historic Scotland,[88] the heritage organisation in charge of the local area. It took some days to get permission to excavate this trench, but archaeologists do not have days to waste, waiting for permission. Beyond the bureaucratics of obtaining permission however, doubts festered whether it was at all desirable to excavate this particular trench: its location so close to the surface led the archaeologists to hypothesise that grave robbers might already have emptied the spoils hundreds of years ago. The need for permission, the limited time for excavating, as well as the possibility of an empty grave *mingled*, and led to doubts and stress: their labour would perhaps better be spent elsewhere – the cost to excavate this trench might be too high. It is crucial to note that these constraints, surrounding the particular trench, and its place in the figure eight mound, and the larger excavation,

86 The neolithic era ranges from approximately 10000 BC to 2000 BC.

87 The figure eight mount is the large body of stones on ATP 2014. See also the section 'Introducing the Excavations' in the methodological reflections.

88 Historic Scotland was the government agency in charge of preserving and caring for Scottish heritage until 2015. (*Historic Environment Scotland website*, no date)

repetitively circulated between bodies of archaeologists, and were changed by the encounter with the upright stone in the unruly trench. These constraints constitute the relational interplay between the trench, and the archaeologists, and were in no way easily or quickly counteracted. Moreover, the point is not to counteract them. Instead, Glenn, and his colleagues involved in excavating this trench, had doubts, which are formed by their desire for a *response* from the site, e.g. that it would return something, which could affect the archaeologists in an *archaeologically* meaningful way. What 'archaeology' means at this point is decidedly undecided: rather, the mingling of constraints are ways to figure out what 'archaeology' could do amidst these constraints. Indeed, their bodily practices are in limbo, in the process of addressing these constraints. As such, the mingling of doubts, time pressure, and bureaucracy constituted the tenacity of the hold archaeologists have on this trench. Furthermore, the hope to continue their excavation of the area in years to come also relies on continued justifications of archaeological significance. So it is not only the past, and the present, which are of concern, but also the future. The encounter with the upright stone itself, including the totality of its affects, *makes* the trench, its archaeologists, as well as what we continue to call 'archaeology'. The encounter between upright stone and archaeologists did not lead to a possible choice on whether or not to excavate. The relationality between bodies – e.g. stone and archaeologists – infused by the encounter, rather *demand* excavation. As such the lack of time, stress, and potential refusal of Historic Scotland were conditional constraints set by the encounter, which brought into becoming a relationality between archaeologists and the stone. Even though not-yet-archaeology, bodies who do not know yet, are affected by this variety of constraints, which cannot be taken as separate from the excavation

practices themselves. There is, in other words, a *society* (see Shaviro, 2007) made here, involving bodies of archaeologists, the stone, time, the possibility of doing interesting archaeology, as well as Historic Scotland.

Image I makes visible more subtle ways this (what I would call) haptic society is carried forward, as we see Glenn *cross-sectioning* the trench. Cross-sectioning involves only excavating a quarter, or half of a trench, while leaving the other half untouched. In the words of Glenn, cross-sectioning means "messing up one half so we still have the other half."[89] As it is impossible to excavate the site a second time,[90] cross-sectioning is a precaution favouring the continuation of the excavation in the case of accidental destruction of one of the two parts. Albeit potentially accidental, this kind of destruction is a necessary aspect of archaeological practice, as I was told by a variety of archaeologists during both excavations. Cross-sectioning 'cakes' the trench, allowing archaeologists a view at different contexts from the side, and within the trench. As such this technique enables continuation of the excavation, black-boxing part of it as untouchable, while simultaneously making possible a touching on the trench. Cross-sectioning is therefore a technique of keeping one part distant, and making the other part *excavatable*. Archaeologists establish themselves as 'keepers' (see Latimer and Munro, 2009) of the trench, by means of the archaeological technique of cross-sectioning, to continue an ongoing series of touching-relating. Perhaps it is therefore not quite a tool of destruction, but rather a daring way, in which archaeologists add material objectivity to a trench, and ensure a continuation of sense, by means of an intervention. Cross-sectioning finds new patterns, colours, textures, new ways of engaging

89 See field notes N1.

90 e.g. the irreversibility of the event.

with the site. In this sense, it seems that not only is cross-sectioning a technique to carefully continue the relation with the site, it is also speculative, in the sense that it endeavours to make both bodies of archaeologists as well as excavations able to respond in new ways. The statement that archaeology is also destructive then is a very curious one, when instead this 'destruction' "create[s] topological transformations of spacetime" (Manning, 2009b, p. 215), adds layers to its stratigraphy, and thereby carries on relationality. Even if 'nothing' of interest is found as was indeed the case when Glenn and some of his colleagues finished the cross-section, the technique still enabled a continuation of the excavation work.

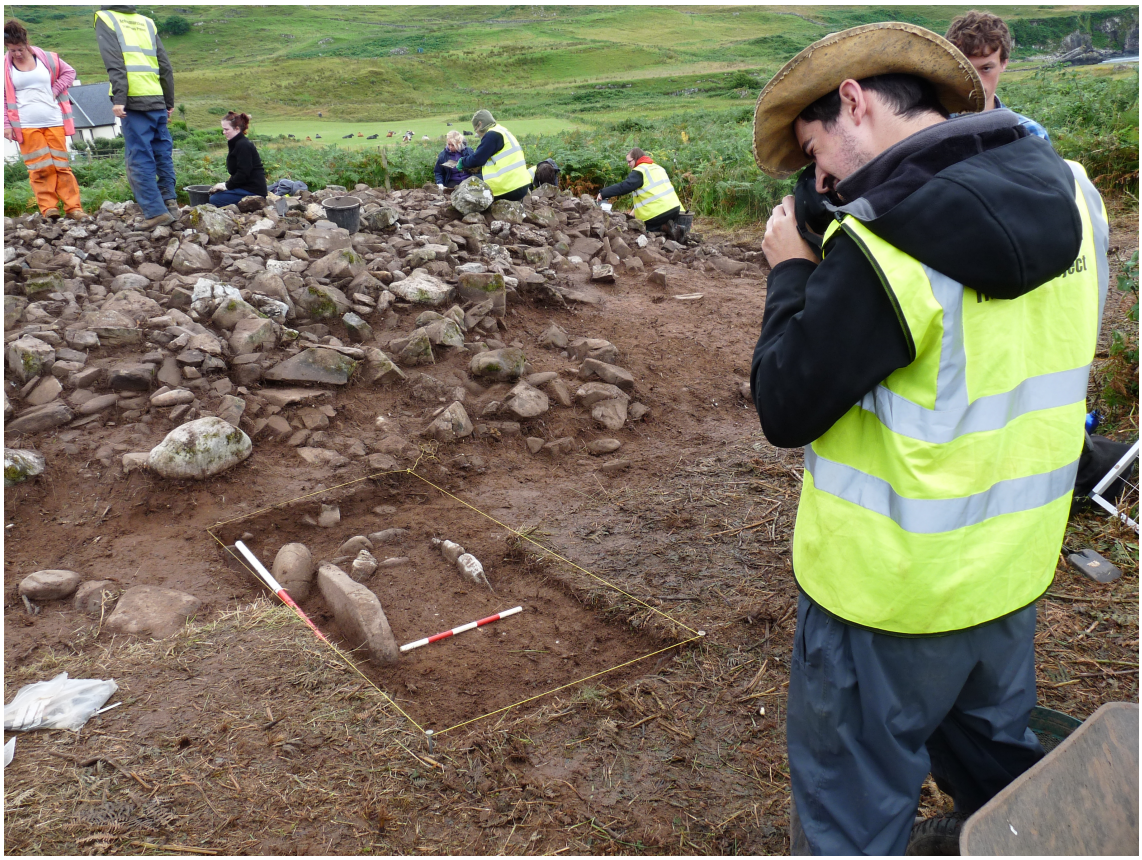


Image II: Glenn takes a professional archaeological photograph of ‘his’ trench. Other archaeologists are working on the mound.

Taking professional archaeological photographs[91] is another method to continue touching, and elaborating on the events of the excavation. Photographing happens often, and requires cleaning up and organising a trench in a geometrical, as well as scientifically meaningful sense. It allows for a peculiar kind of snapshot, in which dirt is distinguished from soil, and meaninglessness from meaningful. Ideally, what is excluded from the photograph defines what is dirt and meaninglessness, disconnecting it from material science. My photograph of Glenn, taking a photograph, is many times more contingent, but it also situates his practice, in a world in becoming. As can be seen in the photograph, the yellow section lines, as well as the scaling colour bars, determine the separation of dirt and soil, meaningful, and meaningless. The trench is photographed, because the next step involves cross-sectioning it, and 'destroying' part of the trench. It is therefore, again, a form of 'keeping' an artefact of what will be lost. However, I propose that nothing truly gets destroyed. The practice of taking a photograph like this is fascinating, as it signifies a cut between trench 1, and a new trench 2 (Strathern, 1996; Mol, 2002).[92] The trench multiplies through this labour, gaining another 'body' as it were. Before photographing, trench 1 is actively manipulated, by means of trowelling and other practices. One can sit in trench 1, walk across it, trowel its soil, and clean it. This new trench (2) is one recombined by a scientific practice of recording. It is then characterised by what archaeologists refer to as the quality of the pristine,[93] implying that one should not walk in it, or obstruct

91 Taking a professional photograph like this is a methodologically complicated practice, with a lot of subtleties regarding lighting, positioning, perspective, magnification etcetera. However, I will here follow the encounter framed by taking this particular photograph.

92 Significantly, the number two here serves to create a contrast, and not as a limitation, as there are many ways the trench recombines throughout its diversified 'life'.

93 See field notes P10.

it in other ways, as it is indeed *clean*. It is as such a different rendering (Myers, 2015) of a trench, one (1) which builds on a more intimate manipulability of it, and another (2) which is the rather contingent body affected by this manipulability. There are however no distinctly different practices, which constitute different trenches in different locations, as ontologically distinct trench-bodies (see Mol, 2002). Rather, the two trenches are common to, as well as different from one another. The act of taking the photograph is another one in a continuation of sensing activities, and the different trenches (1 and 2) are more suitably defined in terms of relational knowing. I would propose that the cutting and consequent multiplying of its trench-body serves to upkeep the *margin of indetermination* (Simondon, quoted in Manning, 2009b, p. 212, see section 3.6) in which the body of the archaeologist, and the trench-body can continue to be in touch through the possibility of their ongoing differentiation.

If there are two related trenches here however, it begs the question what happens to the body of the archaeologist, especially regarding its practice of photographing. Obviously sight as a sense of the camera-body plays a role in taking a photograph like this. Glenn, as the camera man, had been excavating this particular trench for a few days, and will join his colleagues cross-sectioning it later. As part of the excavation practice, Glenn is not neutral as a photographer. The photographs he makes are not distanced representations for him and the archaeologists present. In the spirit of Ingold's (2013, p. 22) assertion that the design process is part of the making process, and not distinct from it, photographing is a practice of building on the relation between Glenn and the trench. Glenn took a 'step back', and taking a photograph adds to, rather than subtracts from, the relational objectivity between him and the site. The eye-and-lens does not

"fuck[…] the world to make techno-monsters" (Haraway, 1988, p. 581), as Glenn's distancing pose is not the distancing of the modern imperialism of the gaze.[94] Even though taking a professional photograph is framed by specific rules of engagement (see Dorrell, 1994), what the photograph shows is a particular sense of the trench in a series of other senses, before cross-sectioning, and after initial cleaning. Moreover, Glenn is implicated in the photograph, as his affectual investment renders the trench differently. Saliently, what Glenn's photograph does *not* show is the occasion leading to such a photograph, and the occasions *it* will lead to. Photographing therefore is an activity which makes an occasion, separating it from other occasions. Drawing on Whitehead's analysis of *objects as events* (see Shaviro, 2007), the photograph imbues the materials of the upright stone, and its environment, with a potential future, as well as a past. It only makes sense to photograph in a professional way, after other activities have completed – activities such as removal of topsoil, and cleaning up by means of trowel. Furthermore, making a photograph allows for a continuation of 'more invasive' techniques such as cross-sectioning. As such it ensures a continuity to the excavation process. And yet the photograph does not show the 'personal touch' of this archaeologist – but rather Glenn's affectual commitment to the process of excavating. The significance of this particular archaeologist, Glenn, taking the photograph seems to lie in the furthering of continuity for both him as well as trench. The sense of sight of the archaeology-camera-body is as such a part of haptics, meaning a part of a particular series of relational activities, which recombines the objectivity of the trench, and allows for its continuous animation and re-animation. The doubts, constraints, and questions of archaeologists addressed earlier in this section, as well as stepping back

94 See section 1.4.

for taking a photograph for instance, have not been detrimental to their touch, but rather the opposite: doubts, insecurities and questions enable potential techniques (like half-sectioning or photographing), in order to craft something more out of a trench as well as body. Hence, some kind of bodily knowing *becomes,* relating excavation and archaeologist. This knowing is necessarily tacit (see Collins, 2010): the process of knowing is not explicated, nor would it make much sense for archaeologists to explicate it. It is not known yet here if taking the photograph will lead to some kind of knowledge, that will be considered meaningful for the purported aims of digging this particular site, or with regards to the research objectives of the project. In these practices, archaeologists like Glenn rely on the tentativeness of their photographing, cross-sectioning and other techniques. They become like moles to continue their in appearance sometimes contingent techniques, to entice the excavation into giving interesting replies. However, these techniques are still well-regulated activities: I do not suggest that this particular trench was so special it required a photograph, because *all interesting* trenches should be photographed in regulated ways. What I am proposing however is that *interest* happens in processes, which populate the in-between (Manning, 2009a, p. 23), also because of the practice of photographing. Of note here is that photographing is a particular kind of interruption, which feeds into the continuity of the excavation.

Image III[95]: A professional picture of a different trench at ATP taken by a senior archaeologist.

95 The photograph depicted in image III is copyrighted material of the Ardnamurchan Transitions Project. Permission to use this photograph for this PhD thesis has kindly been granted by the project.

Image III shows, for contrast, a professional archaeological photograph taken by a senior archaeologist. This photograph is more clearly interesting from an epistemic position: the animal bones in this trench are actual finds of note, which after the recording process will be extracted, and bagged for analysis in the lab. They are tagged with numbers recorded on planning paper. The location of the finds is recorded as well. Regardless of the dirt still attached to the bones however, the cleaning done to them makes them considerably nude to the extent that, looking only at the picture, the *in situ* bones give the impression of being eerily exposed, like they might be in a museum exposition. The excavation practice includes very careful and delicate trowelling, cleaning, as well as labelling to not disturb any original context, and by doing so the *in situ* becomes a matter of exposure of the importance of the bones, with regard to the environment, in which they are found. The rocks and the soil underneath serve as a kind of contingent cushion for the bones to rest on. The wall of the trench in the upper part of the picture, as well as the central focus of the photograph itself, support the significance of the finds. Image III hides a lot more, compared to image II: the soil, the labour, and even the camera-body has become more obscure, even as the bones stand out more clearly. It somehow seems to lack skin. Naturally, this picture does not exist in a vacuum: it is not the only one in the set, nor do archaeologists make any knowledge claims, based on a single picture. In other words, this photograph (image III) will become part of a populated world, with other data. There is thus no critique of the picture, but rather a distinct difference in the worlds these pictures show obligation to. Image III shows an obligation to the processes of historiography, a framing of disenchanted natural events, for recognition by a scientific mind. Image II, made by me, is amateurish and even contingently made at the time,

portraying a very different archaeological society. Image III, on the other hand, is part of a professional assemblage providing one or several gears of a machine of archaeological knowledge, by virtue of the clear and traceable referencing of material evidence. This picture shows a distinctly different world, in which *soil* and bodies are peculiarly delegated to a periphery, but which could not have been made, without the myriad of bodily interventions, and haptic societies. For all its staticity however, it could not have come into being, without messy practices leading to its framing. By contrast, in the next section I will discuss the overflowing affectual contingency of encounters with soil.

5.2 Consumption of Soil, Soiling Rats, and a Sheepish Performance

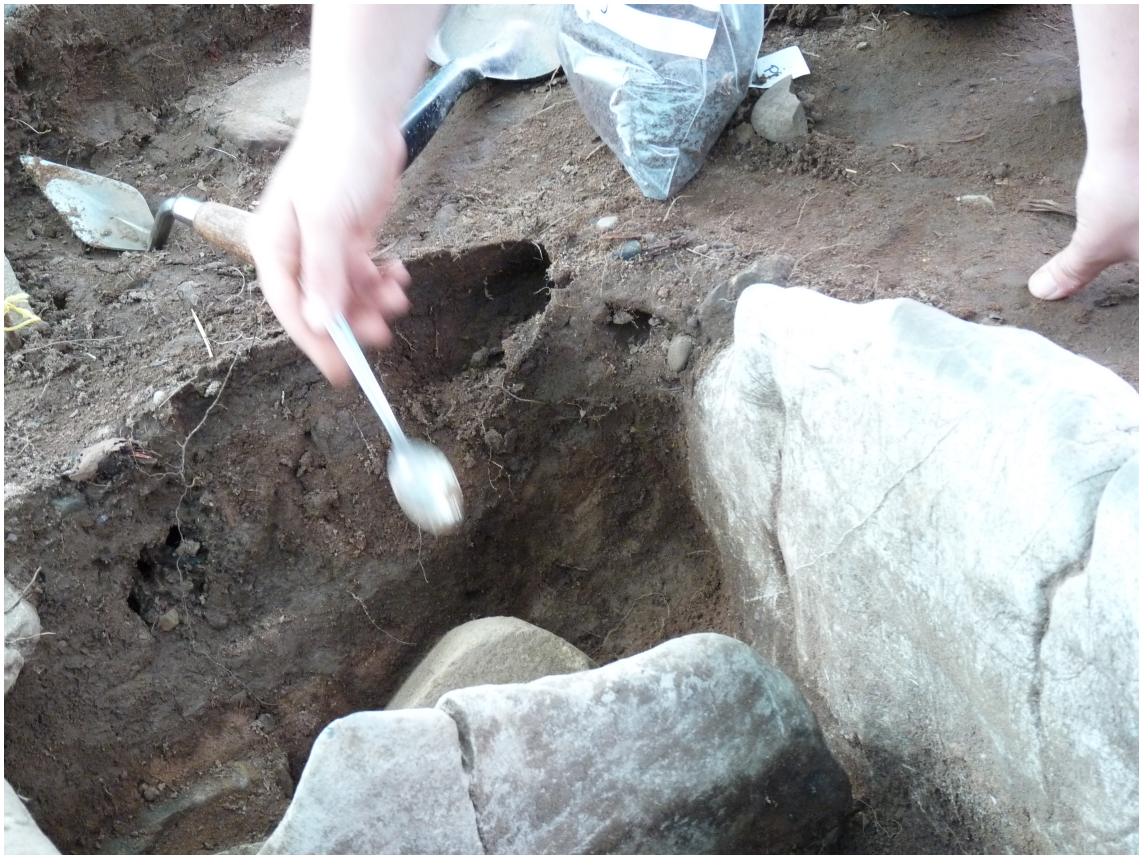


Image IV: The sampling process: scraping and bagging spoonfuls of soil.

Returning to the same trench with the upright stone, my question here relates to the movement of, and relation between, touch and soil. I will follow the sample of soil, and its unexpected encounters. Image IV shows the trench in the process of sampling. A few days after Glenn took his photograph (image II), a sense of disappointment came over him and his colleagues.[96] The grave was indeed 'empty', half-sectioning it was a 'waste of time' as it likely had been robbed of whatever used to be in there at some point during the Middle Ages. Their disappointment testifies to the caring relationships between archaeologists and trench, which not only includes a careful practice, but emphasises the affective investment of the archaeologists (see Puig de la Bellacasa, 2015). The sampling process shown in image IV only starts after this disappointment has set in, an affectual register initiated by 'hitting the bottom' of the trench. Here we see a spoon in a hand taking samples of soil, which are later analysed in a laboratory for isotopic traces of carbon and nitrogen, to check for residue of animal remains. Archaeological theory on the Neolithic explains, as I was told during the excavation, that dead animals and humans were often buried together. Here, sampling is a technique which contributes to a *distribution of the sensible* (Rancière, 2004). Samples going into the laboratory make possible a sensing of molecules, beyond the sensorium of the human body. The technique relies on laboratory science to broaden the sensorium of the bodies of the involved archaeologists and scientists, by means of relational extension (Latimer and Munro, 2009): molecular compositions in the soil become part of the archaeological relation, by an inclusion also of laboratory techniques. Here, the soil is consumed by the sampling machine in an *all-you-can-eat* fashion, which is more than a metaphor. Firstly, the entirety of the trench was sampled, and as such *all*

96 See field notes E6.

the soil in the trench (from a particular stratified point of course) was taken out, in order to cover the smallest possibility, that the tiniest part of the trench would harbour residues of animal bodies. Secondly, the soil is placed in the stomach of the sampling machine, e.g. the many plastic bags visible in image IV. These bags are stored in a room in the large nearby shed. However, the shed also serves as dinner table for rats in the area. To many an archaeologist's dismay, the night after the sampling bags had been stored in the shed, the rats became involved in the sampling process.

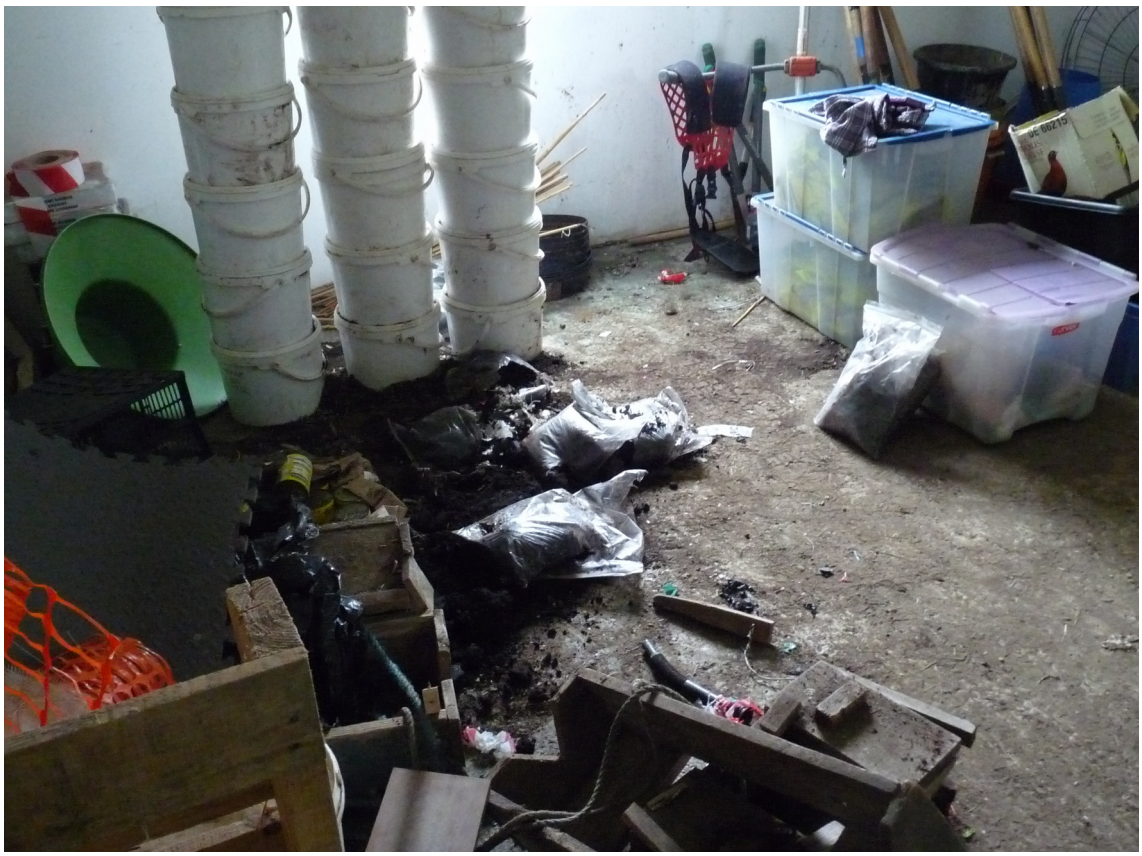


Image V: Several of the sampling bags, pictured in the centre of the photograph, have been ravaged by rats.

The morning after, several bags had smaller and bigger holes in them, and the room in the shed, where they were housed had become a complete

mess (image V). This occasion was exciting and interesting for me, because it served as a fascinating experience of an encounter with unexpected guests. I was careful not to show my pleasure to the archaeologists however, some of whom took this event as a big disaster. Soil was everywhere, some of it still in the surviving sampling bags, and some of it across the floor. One problem for the sampling machine of archaeology is that the destroyed bags, even the ones which had only a tiny hole in them, had become scientifically useless because of (possible/definite) contamination. More interestingly however is that the sampled soil had been *in situ* (in the trench) for an indeterminate amount of time, a time during which it was not 'the soil in the grave,' but rather a place open to any kind of temporary visitors: animals (worms, humans, rodents, and more), rain water, heat of the sun and the earth, atmospheric pressure, academics, molecular processes of many kinds, Vikings, and others. It is a remarkable feat of archaeology to mark its hold on an excavation, which distinguishes these between *in situ* and *ex situ*. The soil in the bags, *ex situ* from the excavation, even if used in a complex multitude of animal ways in the past, are still considered *in situ* for the archaeological sampling machine, while their opening by rats is an act of contamination, which ruins them entirely. The similarities to eating are striking, considering that opening up the stomach from the outside of any body would be a violent rupture of that body. Moreover, it is not only the opened bags which are now in question. Because the sampling rate had to be 100% in order not to miss potential residue of animal or human remains – e.g. in order to support a knowledge claim in terms of either/or – the value of the surviving bags was also compromised. Most significantly however, is that the remaining bags were still sent to the lab for analysis.[97]

97 See field notes E4.

Knowing this, and returning to the contrast between the professional archaeological photograph (image III), and my own photograph of the student archaeologist taking such a professional photograph (image II), I wonder how these two situations can be analysed together. It seems that the desire for continuity of knowing, rather than a strict following of protocol, invokes the scientific sampling machine. To be sure, there is a paradox between what is said to be required by these archaeologists, i.e. fully sampled soil, and what is actually done by them, *in situ* of their excavation. This paradox is reminiscent of theories which point out the difference between the representation of science and the actual science done by scientists – or for that matter the difference between what anyone says they do, and what they actually do (see Haraway, 1988, p. 567). As such, the invention by the unruly rats most certainly left a mark on how the excavation continued – even if they will likely not be featured in archaeological articles or conferences. But, what is more, is that the rats teach that there is a role for laboratory science, even if its 'object' of research is messy, contingent, and so partial. Science can, and does relate with unruly animals like these rats. Or, rather, by mingling molecules they carry with archaeological samples, the rats can teach scientists that acquiring 100% sample coverage, or a pristine photograph, is not the point of the technique of knowing. The rats hence cannot be excluded from laboratory research, as the occasion, in which they contaminated a part of the samples, has already happened. Retrospectively, the rats (or other animals) might have already contaminated the soil, while it was *in situ* in the ground. As such, the occasion with the rats happened in the life of the excavation, before it passed. "Once an occasion happens, it is already over, already dead. Once it has reached its final 'satisfaction,' it no longer has any vital power"

(Shaviro, 2007, p. 3). The ‘vital power’ of the rats’ intervention (as occasion) therefore lies in the occurrence of what they did, e.g. the tearing apart and contaminating the sampling bags, and not in laboratory analysis. The possible lack of representation in academic articles or conferences therefore might exclude the rats as actors, but the residue they leave cannot be separated from the ‘resulting’ knowledge any longer. In an attempt to untangle the reach and effect of the *touch* of the rats on the practice of sampling, the ‘vital power’ of the unruly occasion dies down and becomes something of a residue, or a “‘datum’: a sort of raw material, that any subsequent occasion may take up in its own turn, in order to transform in a new process of self-creation” (ibid.).

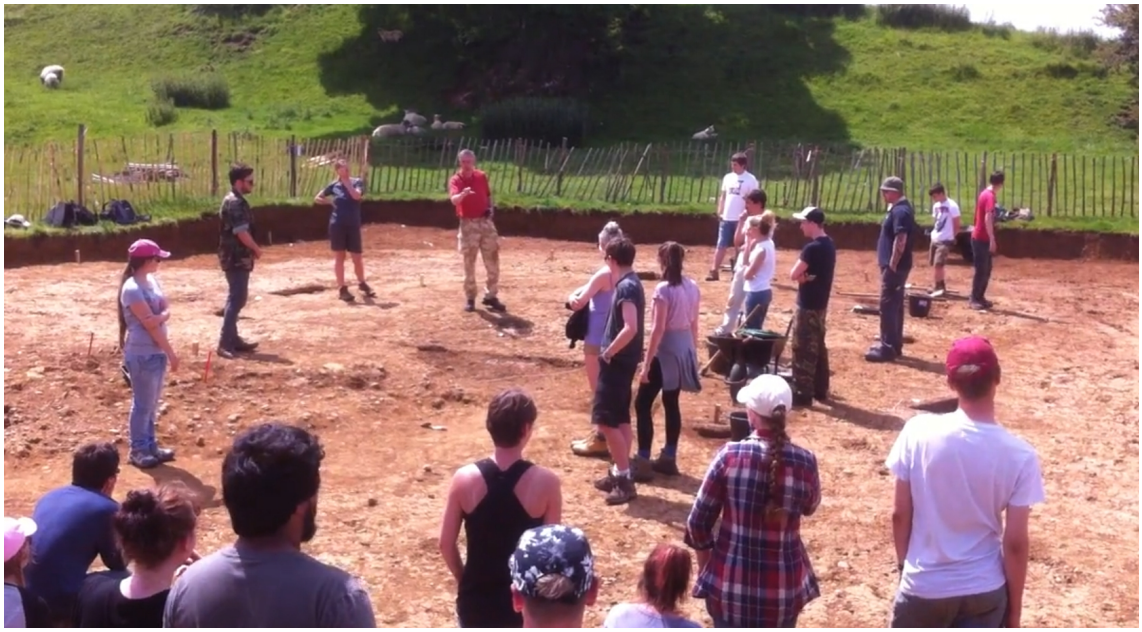


Image VI: Gathering of mostly first year undergrads listening to an explanation by supervisor Chris.

An animal intervention of a different kind occurred at the Iron Age Hill Fort excavation in Leicestershire. Image VI shows one of the supervisors of the excavation, Chris, explaining to the students and me what was going on in this particular trench. At this site, students work in small groups, spread over the three different trenches, where they are occupied with very diverse excavation practices. Some trowel a specific area, others use the mattock to open up the soil, or carry wheelbarrows with soil out of the trench. At this point however, all the students were called together, in order to listen to Chris explaining what was going on in this trench. Significantly, during the performance the nearby sheep started becoming more and more vocal. Up until this point the sheep had been quiet, and acted, perhaps, more or less how one might expect sheep to act. This occasion however was of a different register. This new human performance clearly affected them rather intensely. The sheep responded

to it by bleating, answering some sort of speculative call.[98] The sheep interrupted the teaching performance, which was not affirmed as such by the archaeologists. Instead, Chris raised his voice in an attempt to keep going. The sheep's noise had no chance of becoming signal. The bleating might not even have been experienced as noise by the archaeologists, who appeared strangely unaffected by it.[99] The bleating overpowered the voice of Chris however, and I wonder who really heard what he said. Recollecting my own experiences during this occasion, I can say that the message of the supervisor, even slightly before the sheep's intervention, was difficult to hear in the wide open, and somewhat windy area. What is then the vital power of this occurrence? What kind of residue takes a hold on their bodies, after it passes, and everyone goes back to their other tasks? The sheep's noise here, in combination with Chris attempting to give an explanation, might have simply served as a short break from the excavation work; a break, where noise is allowed to happen, and distance is taken from the making of archaeological meaning and relevance.

98 This occasion might even have been a mirror for the sheep, a realisation that it was not their 'sheepness' which made them sheep, but instead the historical performances over millennia which led to them to their sheepish position. See also *"Sheep Do Have Opinions"* (Despret, 2005).

99 "It is true, we have forgotten noise" (Serres, 1995, p. 12).

5.3 Switching Grooves and Contingent Potential

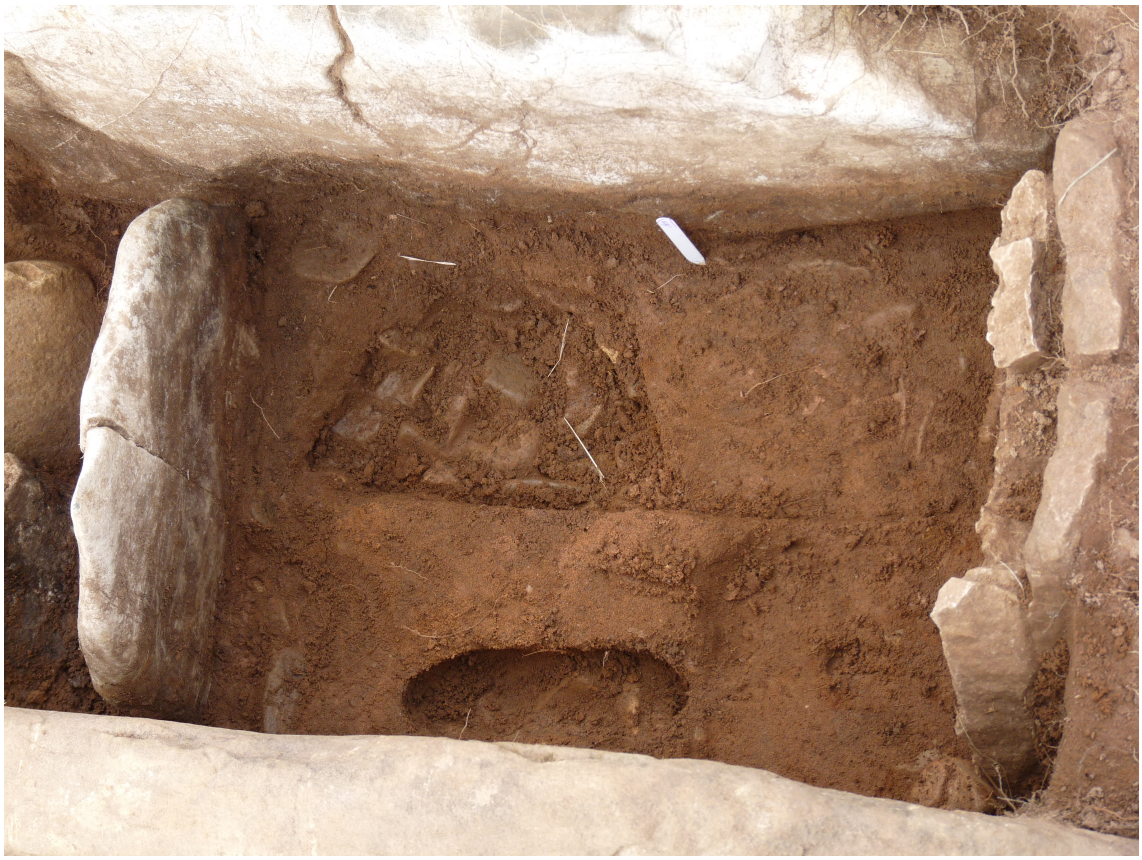


Image VII: The trench, cross-sectioned with the upper half and the rodent furrow on the lower half excavated

This image (VII) shows the trench of images I, II, and IV, after it has been cross-sectioned, and partially excavated. The line of the cross-section still cuts the trench in half, although excavation has progressed to both sides. I mentioned earlier in this chapter that the trench turned out to be empty of archaeologically interesting objects. However, as image VII shows, different contexts were found in the trench. The difference here between 'nothing' and 'something' is a particular groove,[100] related to the difference

100 The notion of groove appears from the field, as an alternative to bifurcation, signifying a 'motility' (Latimer, 2007) to move across. The groove will return in the next sections.

between what archaeologists say they do, and what actually ends up happening in relation to the excavation. Or, in other words, the distinction between 'nothing' and 'something' relates to the what is taken as worth including in archaeological knowledge, resulting from the excavation, and what is not worth including, and remains unsaid. Then there is the groove between soil in the trench, soil in the sampling bags, and soil outside of the sampling bags, after the rats molested them (section 5.2). A more material groove is present between the inside and outside of the excavation territory, where archaeologists jump inside the trench, and experience it as a singularity, a world on its own. These grooves are in no way bifurcations, but are transgressed continually as they affect the bodies involved in them. Thinking with grooves allows more in-depth descriptions of the switching of positions (Latimer, 2007) between 'something' and 'nothing,' by archaeologists, and researchers more generally. The latter groove shows itself also in the slow progress of excavating, and recording in the face of this potential 'nothingness.' For instance, supervisor Beth asked her fellow archaeologists, during the excavation of this trench, to "have faith that there is something in the cist,"[101] implying the later possibility to switch to material and conceptual relations, which could make sense of their work. Glenn and his colleagues had been dealing with some kind of furrow (the deeper excavated lower part on image VII), attempting to figure out whether it was a human (Viking) intervention in the ancient monument, or instead an animal intervention by a rodent. In other words, they were trying to figure out if this was "an intentional cut" or an unintentional one.[102] Figuring out which side of the groove they are working on – the exciting or unexciting side –

101 A cist is a walled storage pit. See field notes F8.

102 See field notes O4.

took a day of affectually switching between the unknown and the known, recombining their bodily attitudes as the process continued. This switching has a strong relation to the materiality of the trench. The upper part of image VI shows a combination of rocks, which signify the bottom of the trench. These rocks envelop the archaeologists, in the process of the rodent-question, with disappointment. "I don't like the look of this," Glenn reports.[103] If it would be a bottom, the trench would be pronounced empty, and the question about the origin of the furrow would be inconsequential, because there would be no possible path to continue questioning the significance of the furrow. In their discussions on whether the proposed bottom was in fact the bottom, a line of thought was considered. First, the bottom did not look like a bottom, because the stones found on this layer were rather uniquely placed, possibly intentionally so – e.g. by humans. This could imply that the bottom was in fact the new top of another context. Yet, I was told by Glenn that the bottom does appear to be a bottom, as more and more solid rocks are found on the lower end of the trench. The bottom/top is in suspense in this moment, and with it the possibility of continuing bodily encounters with the trench. I have found this to be crucial to archaeological practices of knowing: their practices seem to be about crafting possibilities of practical continuity, not in terms of an increasingly more affected body (see Latour, 2004), but as ways to figure out possible affectual recombinations. In other words, the *what if* question is important: what if these stones signify a bottom – what if they signify a top? Under what conditions could the bottom be a top, or a bottom?

These conditions of excavation, or in Stengers's (2011, p. 518) terms, the *hold* on the excavation, are subjected to continuous renderings. In

103 See field notes O1.

light of this, the notion to first plan (e.g. draw) this context, and then perhaps remove the other half of the cross-section was set in motion. Supervisors gathered and together it was decided that the stones were indeed the bottom. The thought process here was that the stone slabs on the sides were loosening, indicating that the stones on the bottom were used as a foundation for the grave. Yet, the archaeologists told me that it was unlikely that the stones on the bottom are in fact natural. The decision on what is a 'natural' ground surface or bottom is quite contingent in terms of the available time, interpretations, and framing of research questions. It is easy to imagine a different material definition of the bottom of the kiln, if there would not have been a deadline, or frustration regarding time lost deciding on the nature of the rodent furrow, or if there would have been multiple finds in this particular grave. Not only do such contingent events frame archaeological excavation practice, and provide every site clearing with its own sense, it was also argued at Burrough Hill that such events might well have shaped material assemblages in ancient times. How do archaeologists decide, therefore, on what find was deliberately placed, or simply dropped by accident, and organised interestingly because of a set of accidents?[104] Assemblages of this kind involve a groove between contingency and intentionality on a backdrop of potentiality. Archaeological knowledge at ATP is constructed by discussing, and diffracting on patterns of material events, which reframe what I call contingent potential during excavations. I propose contingent potential here as a concept which highlights both the continuity of excavation practices, as well as the contingent mode of knowing by means of the archaeological touch. It emphasises the non-linear and lingering nature of relations of knowing, involved in the

104 See field notes G3.

recombination and animation of excavation practices.

This contingent potential shows in questions about the relations of design and construction. So, when Frank raised a question about another topic, the construction of Neolithic roundhouses, he wondered whether or not these complex architectural building events are improvisations, or instead the result of well thought-out blueprints. Being well versed in STS literature, Frank's thoughts touched on these buildings being the result of fluid constructions, without the need of an idea or final form. The roundhouses might then be composite results of whatever functionality people required, and added to them at specific moments. In terms of contingent potential, it becomes possible to think relationality beyond linear development, which moves from blueprints to construction and finalisation. The concept rather discloses the becoming of the roundhouses, in a way which recombines them, and the bodies inhabiting them, as new events, with residues of older event;, i.e. storms of intense rain, an increase or decrease in population, and physical conflicts, arise and become part of objective life. These events groove the bodies and their environments in the form of interruptions, but the point of these grooves is to highlight the continuity of changed practices. In a similar fashion, the bodily craft of excavating can be taken as a fluid construction in which co-production happens, together with those co-producers deemed too natural – for instance the strong roots of plants found scattered just below the surface of ATP – and whose role is often purified at a later stage. As Mark, a PhD student at ATP informed me, the strong roots of plants infested the entire excavation, (in my words) providing a spatial rhizome connecting different times. Such an actual rhizomatic growth grafts multiple grooves throughout a particular site, making the site itself into a shared space of archaeologists, seeking to know, and plants as connectors

of ages, resistant to the archaeological touch.

As another example of this, Chris, the supervisor at Burrough Hill, told me how some academically strong students have problems "seeing the patterns," and vice versa, how academically weaker students have an easier time recognising patterns.[105] He told me that you need to have a "mental template in order to sculpt the pattern and get it right." Apparently, the archaeologist's body needs to be grooved by material reality, and not by conceptual contents, to able to see the pattern, feel it, and create it, in order to replicate what is there on a recording sheet or plan. Some students seem to have a knack for it, while others might never get it, he explained. What "academically strong" or "weak" means here is of course unclear, in particular when discussing fresh undergraduates at the Burrough Hill training excavation, who are only at the start of their studies. But his conceptualisation of skill, or the lack thereof, might refer to the problematic ontological infection by a distancing modern science, which makes some students unable to switch between perspectives.[106] The trick would then be, to transcend not the groove, but the insurmountable *distance* the modern groove represents between academic knowing, and knowing from the ground up. Saliently, Chris's initial dichotomisation between "mental template," and a world of archaeological significance, seems to refer to a problem of relations, or a problem of the contingent potential of practices of archaeological knowing.

105 See field notes L2.

106 See also chapter one. It would be too simplistic, I would argue, to say that these students 'do not know yet,' considering the tremendous value of not-knowing, which is in accordance with Chris's description.

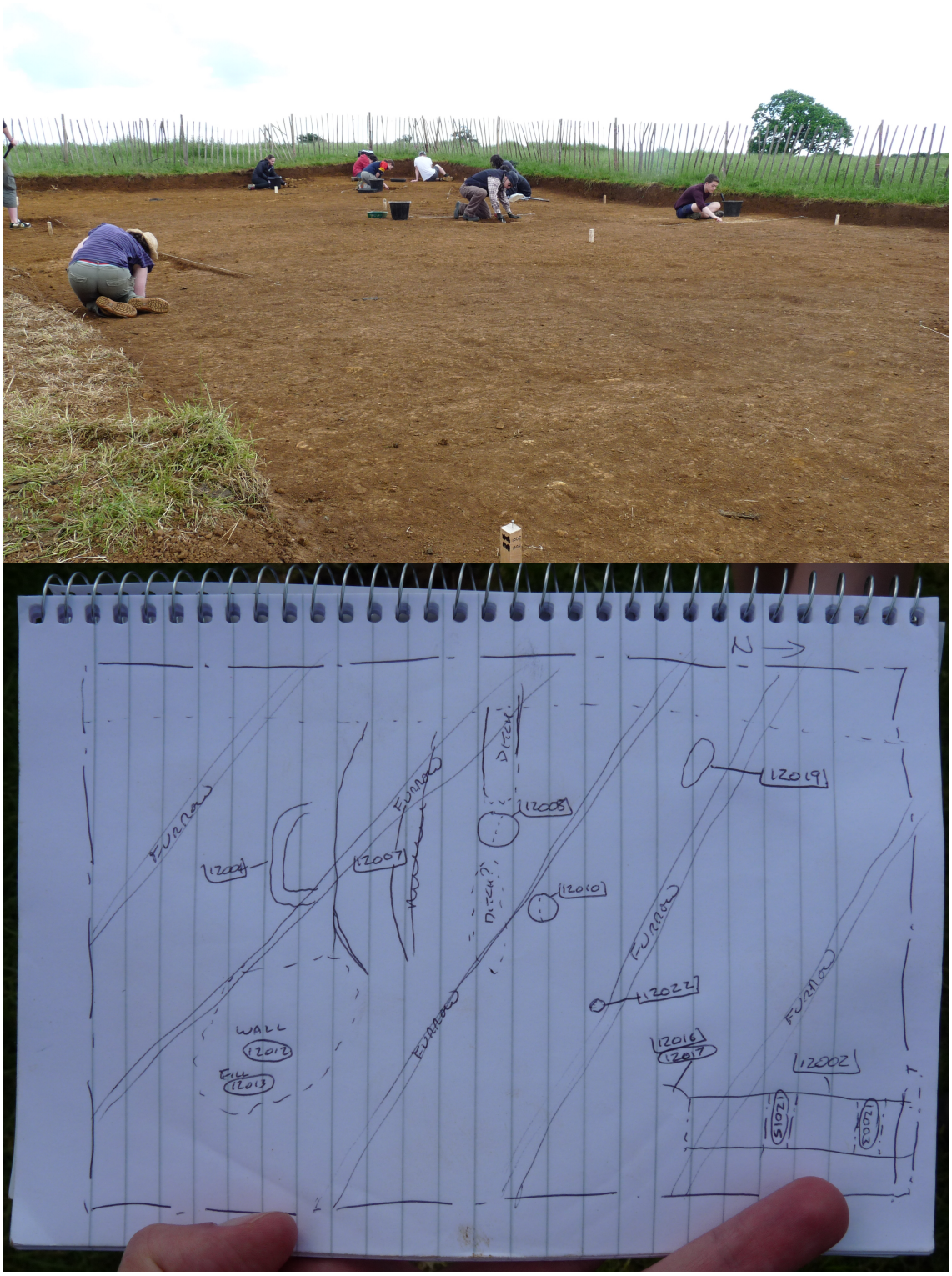


Image VIII: Supervisor Chris showed me his initial drawing (below) of trench 12 (above) at Burrough Hill.

Continuing with this discussion on the grooving of relationality by design and construction, I move to the sketch Chris showed me of a pattern of soil. This photograph on the bottom in image VIII, taken in trench 12, might end up in a notebook, after an archaeologist like Chris has taken an in-depth look at the soil patterns, and starts sketching. Chris told me that he was especially interested in figuring out the dating of this "large ditched enclosure,"[107] which geophysical survey[108] showed to be present. The dating of this enclosure is important for archaeologists, as the position of the trench just outside of the Hill Fort, made them wonder if the trench pre-dated the Hill Fort, or instead post-dated it, in which case it could be evidence of Roman occupation. The skewed lighting and bland colour spectrum of my camera, as well as the diagonal direction in which I took the photo notwithstanding, I was astonished when Chris first showed me his sketch. I took a photograph of his sketch, and walked around the trench to figure out which parts of this rendering referred to which particular distinctions in the trench's soil. Even though I think I recognised some of the furrows Chris marked, I could not have related this drawing to the trench in my wildest dreams. The notion of the furrow is important here, as it signifies a well-known element of Middle Age practices of ploughing. Chris did not go in blind, copying distinct elements of the trench into his notebook. Instead, the notion of the furrow is already a rendering of a rendering of a rendering, all the way down, as Natasha Myers (2015) might say. What this means is that these furrows render 1) particular ways of relating in terms of organising the soil, the trench, and the wider excavation, as well as 2) a history of what happened there (i.e.

107 https://www2.le.ac.uk/departments/archaeology/research/projects/burrough-hill/fieldschool-2014, accessed June 2016.

108 Geophysical survey is a sensing technique for the mapping of archaeologically interesting structures.

medieval farming), and moreover also render 3) archaeology's practices of curious knowing, 4) my experience of astonishment as someone who is not an archaeologists, and now 5) the rendering of archaeology in this thesis. Furthermore, another rendering 6) was done by geophysical survey, which indicated a "large ditched enclosure". The geophysical survey did not exactly render the furrows as such, but it does render archaeologists' interest in this trench, and is as such connected to the series of renderings. It is important to remember that I also entered in the midst of things, as the Burrough Hill excavation was in its fifth and final season, even though the excavation of this particular trench only started in August 2014. As such this particular excavation, and the known practices of societies of the past, are part of a richer history of becoming, which is not shown in the sketch, nor in my photograph. What I want to emphasise in these different renderings of furrows, is their peculiar function as renderings, in particular because the furrows are not of great significance for the questions regarding the 'original dating' of this enclosure, which aims not to shed light on medieval usage, but on possible usage of the enclosure pre-dating the Hill Fort, or post-dating it during possible Roman occupation. Of much greater interest to Chris and his colleagues are the archaeological contexts[109] on his sketch, signified by particular shapes and context numbers. These contexts are why these furrows are significant for archaeologists' touch in excavations. Even though not explicitly part of their research questions, the furrows showcase an excess in the engagement of archaeologists with the soil; an excess, which texturalises and grooves the trench in a rather playful way, not meant as factual representations, but instead as directional orientations for their relationality. The different renderings the furrows therefore make

109 A context in archaeological sense refers to a 'feature' (e.g. a distinct and interesting organisation), and the environment it is placed in.

possible, rather than visible, a playful and contingent intra-action between the soil, and archaeological practices of knowing. The furrows make it possible to switch between the possibility of Roman heritage, and a possibility of Iron Age remains. The furrows are singular cuts, and allow archaeologists to find their bearing. The trench is cut by the furrows, discriminating different areas of interest, and even cutting through contexts in the more central area, as seen in image VIII. Even the furrow moving through contexts 12006 and 12007 does not obfuscate the contexts. This crossing of furrow and contexts is not a problem, as the objectivity of the furrow firstly does not require any material subsisting: it is not important to remain at all, but its affects and effects have an objective function, even when they are materially 'destroyed.' Secondly, the furrow is part of a different stratigraphic layer of soil than the context. The furrow is hence more soil than feature; more texture than context.

5.4 Sensing the (un)known: What happens when nothing happens?

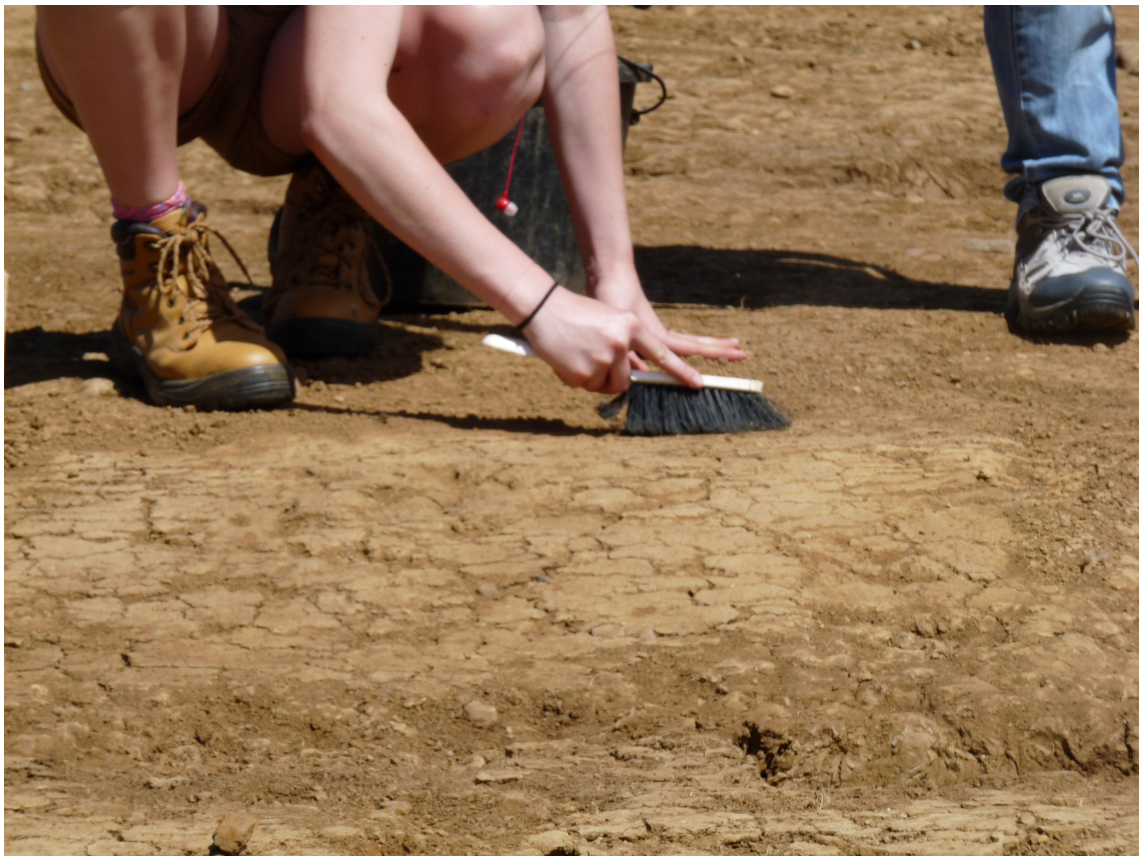


Image IX: Grooves in trench 12 at Burrough Hill, with lighter (dry) parts, and slightly darker (wetter) parts.

I have proposed excavation techniques as methods for archaeologists to increase response-ability with soil. Archaeological techniques of excavation texturalise the soil, and bring about contrasts rendering a trench able to respond to the touch of archaeologists. What archaeologists know is intertwined with these techniques of textualisation and rendering. As archaeologists at both Burrough Hill and the Ardnamurchan Transitions Project told me, proper archaeological excavation practice entails excavating with respect to stratigraphy, layer by layer, "*from the known to the unknown*."[110] The justifications given by archaeologists is that excavating stratigraphically makes perceptible different contexts, based on different textures, while respecting the distinctiveness of each context. Stratigraphy is as such a way of organising an excavation, of delineating what is known from what is unknown. In this section I will discuss this differentiation, and how bodily practices of excavating relate to the notion of the (un)known. Firstly, I learned that the significance of stratigraphy has to do with a slow becoming of knowing. The process of distinguishing stratifications is a process that cannot be rushed, if one is to get closer to a site. An important part of distinguishing stratigraphic layers is the edge: where one context starts and the other ends. As I want to guard against bifurcating textures into primary and secondary qualities, I include in the concept of texturalisation both differences in the becomings of the soil, as well as differences taking a hold 'on' bodies of archaeologists. In other words, the process of (un)knowing happens in relations, which texturalise the bodies involved. Image IX shows the archaeological process of "taking out the brown,"[111] working from the known – the brown soil – to the unknown,

110 See field notes O5.

111 See field notes P3.

until colours change, and a contrast forms. The image shows a layering of drier soil below the wetter and darker soil. Yet on hot days the earth can become very dry and rock solid, as was the case most of the days I visited Burrough Hill. Excavating layer by layer leads to real material constraints for archaeologists, as it was exceptionally hard to excavate the resisting earth. Techniques to augment the soil are therefore employed, to facilitate texturalisation, and continue working from the known to the unknown. One of these techniques entails the watering of the soil, as the next image (X) shows.

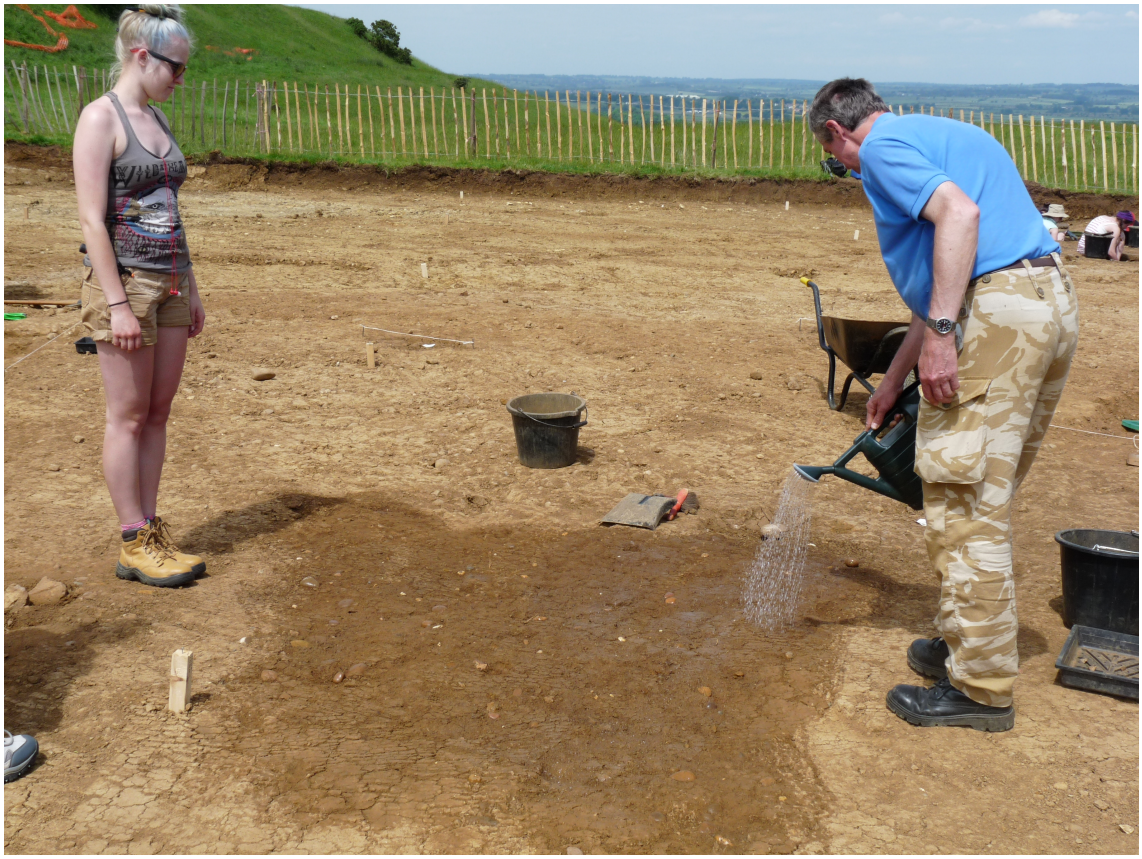


Image X: The technique of watering the soil at Burrough Hill.

Image X shows Chris's response to the dryness in the form of watering the soil, as a way of making the soil more amenable to the excavation attempts of him and his colleagues. Moreover, Chris told me that watering the soil allows for differences in soil colours to stand out more visibly, revealing areas of interest (or rather, *texturalising* them), which were otherwise subsumed by the warm sun light.[112] There is a material connection here between the difficulty of excavating, i.e. digging with a trowel, the resisting soil, and the difficulty of seeing patterns because of the heat. The warm sunlight makes differences in the soil more bland, and difficult to engage with. Archaeologists' eyes are likewise hampered by the bright light. The water, as a response to these issues, brings the solemn soil to speak in shifting contrasts – that is the theoretical proposal here. But, the composite of practices, made into a society by interactions by the sun, the earth and soil, archaeologists, and water, does not only make visible a different way in which the soil is stratified. The practice of watering adds another, more ephemeral, layer to the stratification of the soil. The watering of the soil is a rather apt example of an alchemical practice, in Ingold's (2013, p. 28) terminology.[113] In alchemy, the focus lies on what materials do, especially as a mixture with other materials. Here, the composition of a dry and stratified soil, and a hot sun, react with the water from the watering can. Alchemy points to the importance of the change in functionality of the soil, and is an affective matter. Affected by the water, the soil's attributes change in an intensive way, which reminds of how bodies can be affected, addressed in chapter two. My point here is that an alchemical approach emphasises what soil can do, in terms of its productivity, supported by the excavation

112 See field notes C8. Here, the field notes also show that the sun can be an ally, as at ATP one student archaeologist exclaims: "This looks way more like a feature in the sun!"

113 See also section 4.6.

practice. Regarding this, the changing extensiveness of the soil is a matter of degrees, while a change in the way the soil can be affected, is a matter of the transmutation of an extensible body of soil. Chris suspects that this (in my words) alchemical practice of watering will reveal soil patterns, which previously could not be distinguished by the human eye, and as such make sensible something, which could not be sensed before.[114] In this case, the watering did not seem to be very effective for the goal Chris had in mind, at least not regarding the *seeing* of different pattens with human eyes. Chris, his colleagues, and myself, could not really see any new patterns emerge as a result of the watering. Standing there, looking down at the soil, it just looks wetter, and darker, but it is not a wetness and darkness, which affect knowing.[115] The objective change of the soil requires instead a re-commitment to the recombined soil, in the form of trowelling. In other words, archaeological knowing requires more effective and affective practices of engagement, and distanced sight is fairly poor with regards to such relating.

What is noteworthy here is the practice of trowelling. Watering, and likewise the practice of cross-sectioning and photographing, are precursors as well as 'post-cursors' to re-engagement with the soil through acts of trowelling. Throughout my field notes, references to the continuity of trowelling emphasises the major concern of the practice for archaeologists. Trowelling is a somewhat peculiar practice compared to other practices of archaeology. The practices of cross-sectioning, sampling, photographing, and watering, addressed earlier in this chapter, are well defined in terms of their teleology. When one of these techniques is employed, their starting and ending points, as well as their aim, are

114 See the distribution of the sensible (Rancière, 2004, 2013).

115 See field notes C2.

quite clear. Trowelling also might be characterised in this way at times of cleaning, before taking a professional photograph. However, occasionally nothing was happening, or so it seemed,[116] during extended periods of silent trowelling, making me wonder what actually *was* happening. This kind of trowelling, as an open ended practice, is different from the practice of 'cleaning-trowelling' with a specific goal in mind. Saliently, excavators hear music in their heads during these times, and propose that "digging is the most relaxing thing in the world." Even though 'digging' can refer to many practices, or a collective of archaeological practices, this exclamation was made during collective trowelling at ATP, and is evidence of an engagement with the soil, which I would characterise as "slow science" (Stengers, 2005). I also experienced time slowing down when trowelling in this open ended way, becoming more ephemeral, and the act itself impairs sight.[117] One cannot see much when so close to the soil. Or, rather, I would propose that there is too much to see. Being so close to the soil means that potential contrasts increase, making a trench more messy. What initially looked like one dark, stratified, patch of soil turns out to be quite something else. As such, trowelling close to the soil is a way of purposefully making room for prehensions by the bodily sensorium, without focusing on only one of the senses – e.g. sight. The crouching position, taken by archaeologists when trowelling, redistributes distance in this way (see Puig de la Bellacasa, 2009), and recombines the sensed objectivity of a trench. Even when many interruptions occur in the form of recording, taking a break, or discussing further action, trowelling seems to be a crucial practice which ensures continuity with the trench, until the environment, e.g. site, soil, or trench, and not the archaeologist, answers

116 See field notes P9.

117 See also section 1.4.

with a diffraction, and 'something else' emerges, something of interest. This is, of course, a partially ideal way of thinking, as it is also possible that "nothing is found," or trowelling has to end because of time constraints (as addressed earlier in this chapter). Trowelling might be seen as a temporary, but extended practice of merging, blending, or mingling with the site in a sensory way. While trowelling, the trench appears in its "presentational immediacy" (Manning, 2009b), as a free space for sensory engagement. Manning's (ibid.) mention of the hallucinatory character of touch makes sense in this context,[118] and trowelling through the soil methodically can get a body into a state of intensity where the environment, sometimes, is able to speak to the excavator-body, in ways which can be translated as archaeologically relevant. Hallucination here refers to the opening of an affectual passage between excavator and trench, in which the repetitive movement of the trowel, such a simple tool, aligns with a circulation of affects in a practice of knowing. Edgeworth's (2012, p. 79) paper *Follow the Cut, Follow the Rhythm, Follow the Material* also reserves a special place for the practice of trowelling, "with the trowel becoming an extension of the body for perception as well as action." Surely, trowelling can be a moment of playful relating, and even haptic dancing with the soil, evoking a tune heard in the archaeologists' head. More than other tools, the trowel carries a great affectual 'charge' for archaeologists to the extent that smaller, worn out trowels are a sign of experience and seniority amongst archaeologists.[119] A smaller trowel evidences greater affectivity: the trowel has visited multiple sites, and done a lot of little work. The worn out trowel shows patience, and has perhaps been in many situations where nothing really

118 See section 3.6.

119 See field notes G4.

happened yet. For this reason trowels are distinctly personal as well, and my requests of borrowing one, even though always happily met, led to archaeologists pressing me explicitly to return it to them personally. Trowels are not just left next to a trench, like many other tools, but are carried close to the body.

Trowelling then is a crucial haptic practice for archaeological knowing, as it allows for a sensing and texturing of the body of the archaeologists, including trowel, as well as the 'body' of the trench, e.g. the soil. In this sense, the playfulness of the hallucination of the trowelling practice, and the dedication to the following of soil, requires commitment and patience.[120] As such, 'digging' is a playful, and relaxing activity, but not unconditionally or romantically so. I would propose that watering, cross-sectioning, photographing, and drawing are asymmetrical interruptions, necessary not only for the recording of evidence, but also for a continuation of the contingent potential of the soil, and a re-engagement with trowelling. I do not suggest that these other practices serve only the continuation of trowelling here: they are necessary renderings of archaeological excavations in their own way, as I addressed earlier in this chapter. These practices open up particular ways of continuing the excavation, and leave their mark on the trowelling practice, as well as on other practices of relating to the site. This variety of practices do instigate a multiplicity of bodies, not only of archaeologists engaged in certain practices by taking certain poses, adopting specific attitudes, but also of a transformed trench. I have shown previously in this chapter that this multiplicity of bodies does not imply an ontological flatness of these trench-bodies. In other words, a photographed trench does not have the same status as a cross-sectioned trench, in a series of knowing activities.

120 See field notes E6.

These activities, strung together in a seriality of sense (Deleuze, 1990), *make possible* sensing activities. They are neither mapped as ontologically horizontal, nor vertical, but instead texturalise the sensorium with different intensities. The photographing of a trench makes it possible to continue recombining a trench by means of i.e. the cross-sectioning of that trench, and the continuation of trowelling. The theme of interruption and continuation is important, and relates to Manning's (2009b, p. 222) theorising about the "need for continual infolding of causal efficacy and presentational immediacy." This could give a perspective on the recording practices of excavation work as infoldings, because of a requirement for causal efficacy. In other words, photographing, cross-sectioning, and other activities fold causality into a renewed presentational immediacy of the soil, and make possible a renewal of *sense* in a 'new' trench.[121] Even though I would take trowelling to be one of the most characterising practices of archaeological excavation, which provides access to this presentational immediacy, it requires practices of causal efficacy in order for bodies to re-direct themselves towards the objects in making.

121 See also Stengers (2011, p. ix): "Every synthesis begins "anew" and has to be taken up from the start as if for the first time."

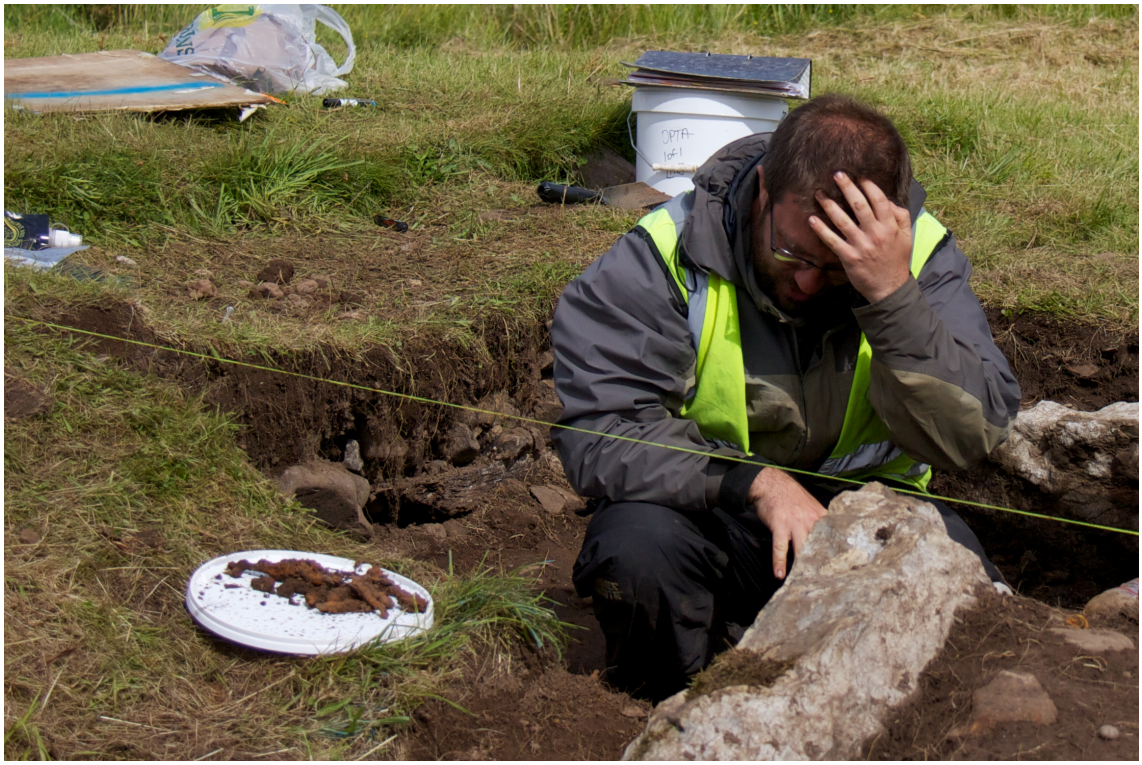


Image XI: Eric, thinking from the midst of things.

Image XI shows this process in action in a quite remarkable way. Here, Eric is sitting in the middle of a trench at ATP. As one of the supervisors of ATP, his responsibilities include the process of translating their excavation work into 'knowledge.' He told me that he could write an entire paper on this particular trench.[122] Eric's dedication renders his disposition towards the site as one productive of archaeological knowledge. There is of course an ordering of knowledge going on here, which has been addressed in STS literature (i.e. Jasanoff, 2004). Archaeologists visit sites of excavation not *only* for the sake of encounters in their presentational immediacy, but they also translate (and infold) this immediacy into academic knowledge, which both justifies the interest in archaeological fieldwork at ATP, and provides a reason to continue it in seasons to come. However, image XI shows Eric doing a few things. Firstly, he is not trowelling, but he is also not engaging in any other typical archaeological practice. He instead strikes a pose similar to *Le Penseur* by Rodin. Even though he is thinking, he is not thinking nudely like *Le Penseur.* That is, he is not contemplating without matter. He is in the middle of the trench, looking down at the work he is a part of, from the midst of things. The image provides a trace of what thinking in archaeological sense might mean. It also shows archaeological thinking as a particular practice, which is not quite knowledge yet. The academic paper has not been written yet. He does not *know* yet, but is rather in the process of knowing, figuring things out as an (un)knowing body (see also Latimer, 2009). What struck me during my witnessing of his archaeological thinking, is that even though the excavation was generally a fast way of doing science – framed by the limited time on site – archaeological thinking requires patience with the soil, and relatedly, a

122 See field notes H3.

bodily endurance different from the endurance one would need to work hard and fast. This does not imply that such slowness necessarily 'takes a long time,' but rather relates to the difference in affectual register of thinking as a practice. Thinking with a trench requires a patience with the soil, as well as a "patience of the environment" (Stengers, 2011, p. 166, thinking with Whitehead), which problematises a clear and categorical way of defining knowledge.

This enduring patience is not always productive with regards to a progressivist politics of time (Puig de la Bellacasa, 2015). Student archaeologists at Burrough Hill for instance had a hard time with the dryness and unmanageable soil, as mentioned previously in this chapter. Over time, and after enduring frustration, the rock hard soil however generated mirth and liveliness, as student archaeologists jokingly contemplated switching to the 'continental method' of doing excavations, which involves harshly cutting down through the soil in order to see if anything comes up in retrospect.[123] I suspect this is probably a common joke told by first year students and perhaps lecturers, in response to the difficulty of dealing patiently with the soil. Also keeping in mind the stress invoked by the limited excavation time, a more direct approach to dig out potential finds might be welcomed when progress is slow. The argument I mentioned earlier in this chapter, that archaeology is also about 'destruction', resurfaces here as an argument against the 'continental method.' Even though excavation practices might be inherently destructive, or so the thought goes, it is important not to destroy assemblages of archaeological contexts, before translations and recordings are made. Such a practice would destroy what Whitehead calls the 'society' (Shaviro, 2007, p. 2) of the trench, and disrespect the so

123 See field notes D6.

carefully constructed stratigraphy by the soil over thousands of years. Whitehead's (ibid.) concept of society is interesting here, as it extends to contextual events in stratigraphic layering of the soil.

Moreover, as Shaviro (ibid.) shows, each society has its own reason, and thoughtless trowelling would prevent a relation to this reason of the soil. Not only can archaeological contexts be taken as textualisations relating the soil to the bodies of excavators, as I proposed earlier in this chapter, but the concept of society also makes it possible to historically connect the occasion in the ground with the excavating of a particular context. This means that an archaeological context is a society in process, in which soil, objects, rodent furrows, environmental aspects, as well as archaeological intervention, are part of the enduring of a society of things and relations. After listening to the archaeologists considering the continental method out of mirth or perhaps slight despair, it became clear that digging into the unknown, without regard for these societies in the soil, would be archaeologically irresponsible, as it would cut through societies and deny a commitment to the excavation's contingent potential through enduring societies of contexts. Animal bones in an archaeological context for instance fold back into many layers of soil, which need to be opened up patiently in order to recombine what happened there, in a process including archaeologists in a texturalised society. Contexts given by these societies are as such more important than the objects residing in them, as without them objects have no reference.[124] Finds themselves, as well as animals, heath from the sun, water, and other possible actors are part of what I would call *soil societies,* and even the lack of finds crafts a sense of the myriad ways a trench has been affected, i.e. grave robbed in the case of the trench in image I. As I showed with the example of the

124 See field notes I1.

sampling bags, destroyed by rats (section 5.2), archaeologists are still able to relate to this soil society, which provides an enduring continuity to their work, even when faced with what they might call 'destruction'.

At Burrough Hill for instance, the destruction of pottery shards occurred regularly, and proved not to be problematic at all, since supervisors created a discourse of learning how to become excavators around it. Relating this to image XI, I can take Eric's thinking with the soil, as intermittently connecting to the soil society in this particular trench. Eric's archaeological thinking resonates with haptic practices of trowelling, demanding a "pace required by ecological soil care" (Puig de la Bellacasa, 2015, p. 691), which requires a bodily slowness able to resonate with the temporality of soil societies. Following Puig de la Bellacasa (ibid.), I propose that archaeology is at times caught in a grooved practice of time, with constraints effectuated by a technoscientific progressivist politics of time, and a time as it is required by an ecological ethics of care. As my conversations with several archaeologists during the course of the ATP excavation highlighted,[125] there exists a particular kind of archaeology, Cultural Resource Management, framed by heritage consultancy and contracting, in which archaeologists are sent to field sites, which have shown to be of archaeological interest. Legally, real-estate companies are required to employ archaeologists to make sure they do not destroy protected heritage sites, before building something new on top of it. In these cases, it is the archaeologists' job to safeguard the archaeological environment against physical destruction. In practice, this means that archaeologists excavate only what is possible to quickly excavate, while making sure that what they cannot excavate is kept in the ground, 'protected for future generations.' As I was told during my fieldwork, this is

125 See field notes J1.

merely a euphemism: archaeologically interesting locations are kept safe, only to fulfil the requirements of contingent policies, after which they become completely inaccessible for archaeological research, and any kind of knowledge beyond the scopes of the fast science, employed by archaeologists during the cover up.[126] This pertains to a crisis of archaeology, in which archaeologists are employed as cleaners, framed by a dichotomisation of soil societies and modern construction work. In Cultural Resource Management, Eric's archaeological thinking (image X) has become impossible. During such work, the building of a relationality with the reason of soil societies is increasingly problematic, because of the dominance of technoscientific reason. The excavation becomes moulded into a foundation for i.e. project development, kept apart from it in order to ensure its non-destruction. Wylie (2002, p. 236) discusses the accountability of archaeology in relation to Cultural Resource Management, and she aptly points out the connection between this 'salvage principle' of CRM, and unarchaeological practices of looting. However, she (ibid.) shows that this is an imminent problem archaeologists of any kind deal with, and have dealt with, as the value of looting, and the appropriation of archaeology by commercial interests, might very well be preferable to not engaging with archaeological evidence at all. Bringing this back to haptic knowing, I propose with Wylie (ibid.) that it might still become possible to engage with these concealed and obscured soil societies, even when appropriated by commercial interests, as these societies could in some form (even if lacking) become part of a future "care time" (Puig de la Bellacasa, 2015) in which technoscientific reductionism is averted. The political point however is to get to such a rendering of care for soil societies, and an opening of time,

126 See for instance the website of Headland Archaeology (www.headlandarchaeology.com), which promises that "99% of us are archaeologists. 100% of us are business-focused."

which is admittedly an untimely desire.

5.5 Untimely Archaeology – Matterings of Place

Giving a place to soil, and becoming intimate with its workings, disrupts a progressive and technoscientific capturing of the excavation practice, which becomes apparent in the contingent potential of excavators' relationality with the excavation. While trowelling myself, in order to experience how to be 'like' an apprentice archaeologist, I repeatedly asked myself in a somewhat anxious fashion: "What am I doing? And what should I do?"[127] Both questions remained largely unanswered, and I still do not know how to properly use a trowel. Jim at ATP showed me how to use a trowel, and gave me some advise. I was instructed to work from the known to the unknown, layer by layer, and lay the context bare without disturbing it. How to hold a trowel, and figure out which side goes into the soil, mimicking the technique, is relatively simple. To embody the trowel however is a distinctly different matter. The days I spent on site before I attempted to 'dig in' were spent looking at how archaeologists touch stuff, talking to them, and discussing, and thinking about haptic relationality, as the previous sections show. By asking those questions of a field site however, I was reasoning with a site, which could not respond in those terms. The soil will not answer fast and categorical questions on how to trowel, because it can only do so, through a slow and patient relating. It seems to me that becoming an archaeological craftsman is in this sense about what happens outside of the boundaries of stratified archaeological theory, when history lets go, and place intervenes instead. What my experiences tell me, is that excavating requires an untimely relation to the soil, in the sense that the construction of history becomes contingent to

127 See field notes R3.

the process of trowelling.[128] Doing justice to the society of the soil, putting oneself alongside that society, means that history as it is known fades partially into the background, in order to get to a dedicated attitude of (un)knowing. Becoming an archaeologist happens in societies, learning the practice alongside other archaeologists, and composite societies of soil. And even though I worked alongside them as well, the conjoining of my fieldwork with the fieldwork of the archaeologists, culminated in an unguided experience of my trowelling. David's take on excavating illustrates this aptly. As one of the supervising archaeologists at ATP, he is, according to his colleagues, one of the best field archaeologists they had ever seen working a site.[129] He used his trowel smoothly, and as an extension of his arm while appearing in full control. Talking to him, and later corresponding with him by email, revealed that he normally works with disadvantaged social groups. He invites these disadvantaged groups, most often local dwellers of the area, to the excavation, and teaches them about the archaeological side of things. He told me that working with local people contributes to the motivation these people have to appreciate the specificity of the site, contributing to a greater understanding of the events which occurred there, than many of the archaeologists, who come and go.[130] Furthermore, he described a very different use of their bodies in the excavation of trenches. He argued that there are a higher proportion of *tactile diggers* in the disadvantaged groups, compared to university students.[131] He explained that these disadvantaged groups seem to feel,

128 See also Sloterdijk's (2012) critical analysis of the primacy of spatiality before temporality in Heidegger's *Being and Time*.

129 See field notes G4.

130 See email correspondence December 2014.

131 Continuing the discussion of section 5.4, on student diggers.

and hear the changes more quickly, as opposed to students, who are better 'seers'. Often David has to explain to the disadvantaged communities that there is something to see at all, suggesting that they do not care as much about sight. Of importance also is David's self-association with belonging to the group of tactile diggers: "I am one of those, put me at the edge of a trench and I think I know what is happening, but put me in the trench and I 'just know'. Or at least that's how I feel."[132] David furthermore talks about a "buffer between you and the archaeology," as the main difference between working with student groups, and disadvantaged groups.[133] He refers to this buffer as an area of negotiation between the excavator, and the site, noting that as supervisors, they are often occupied with explaining to students what they see, and how they know. There are at least two interesting parts of his observations. Firstly, David's 'just knowing' or 'feeling that he just knows' what is going on when he is *in* a trench, is contrasted with being outside of the trench, where he 'thinks he knows'. This emphasises the importance of haptics as an immersive encounter with what I call soil societies, and a dedication to do archaeology as a relational practice with these societies. Secondly, there is the "other layer in between" or "a buffer between you and the archaeology," when trying to *see* what is happening, and explaining to students how he knows what he sees, which is so different from learning by touch. This difference signifies conflicting ways of learning. The process of learning as employed by the students focuses on clarity of understanding, in efforts to make clear what is going on in a trench. This clarity of knowing resonates with Stengers's (2000, p. 8) analysis of the lucidity of modern science. Following Stengers (ibid.), the students' requests for lucidity point to the crisis of modern

132 Email correspondence with David in December 2014.

133 This buffer reminds of the body's margin of indetermination (Simondon, quoted in Manning, 2009b, p. 212, see section 3.6)

science, in which what happens with the soil is bifurcated from its understanding as such. Modern scientific knowledge in this sense depends on explanations by supervisors to students, but also to an increase in articulation of these students, so that they can repeat a refrain of what happened at the site, supposedly signifying a grasp on knowledge. Contrarily, knowing, or rather (un)knowing in the sense of haptics, that is, with a focus on knowing as relating, requires becoming part of the processes of mattering already going on on the site, of which locals are a part of. Disadvantaged people, local to the area, seem to be at an advantage here with regards to their sensing. Following the account given by David, these excavators embody a primacy of touch, and being in touch with the field site as a place. In their practice of touch, the making of objectivity relates to a sense of belonging or dwelling in a place (Heidegger, 1971; Latimer and Munro, 2009), which cannot be signified as simply another archaeological field site. In other words, these (dis)advantaged groups might not be undertaking archaeology as a disciplinary practice, but are rather simply curious to learn something about the world they are part of. Saliently, I found that archaeologists often follow a similar path. There are reasons David and his colleagues are committed to going to Ardnamurchan for many seasons. They follow the contingent potential of encounters in the guise of theoretical and empirical questions, crafting the relation between them and ATP as a specific place. Taking a perspective of haptics, the scalability and reproducability of archaeology as a scientific discipline becomes questionable. When inside the trench, touching the soil, while in touch with matter touching on other matter, bodies of archaeologists connect with an impulse bringing a complexity to their affectual relation. The matter of intuitive work on site, which I have seen David doing, is distinctly different from intellectual knowledge,

which pre-establishes what can be learned from experiential events.[134] David seems to use prehension as a method, in which he coincides with the particular excavating work he is doing. This requires experience and training together with other archaeologists, but not unrelated to place. In other words, taking archaeology as a haptic practice establishes a hold on an excavation, and vice versa.[135] I think that such a prehension is speculative in the sense that it is contingent to affects taking hold of a body. What this means is that the prehensions and circulation of affects cannot be led, but instead have to be followed in order to know haptically. David's "just knowing" implies such a following. Significantly, the contingency does not mean that it does not matter what archaeologists do. Their practice is organised and codified in established discourses of what is allowed to be done in particular cases (see Renfrew and Bahn, 2005). The contingency rather relates to the outcomes of the involvement with the process of the excavation, after a dedicated following of the objectivity of the societies involved. Contingency in this sense provides an opening, and not a determined closure, of questions about history. In the light of this, archaeological practices seem to benefit from the untimely, but not ahistorical, dimensions of these contingent openings.

134 See field notes N3.

135 In chapter three I predominantly discussed touch as method of change, and bodies as visitors. Following my encounters with the excavations, this change requires an addendum, which includes stability and patience, as addressed throughout this chapter.

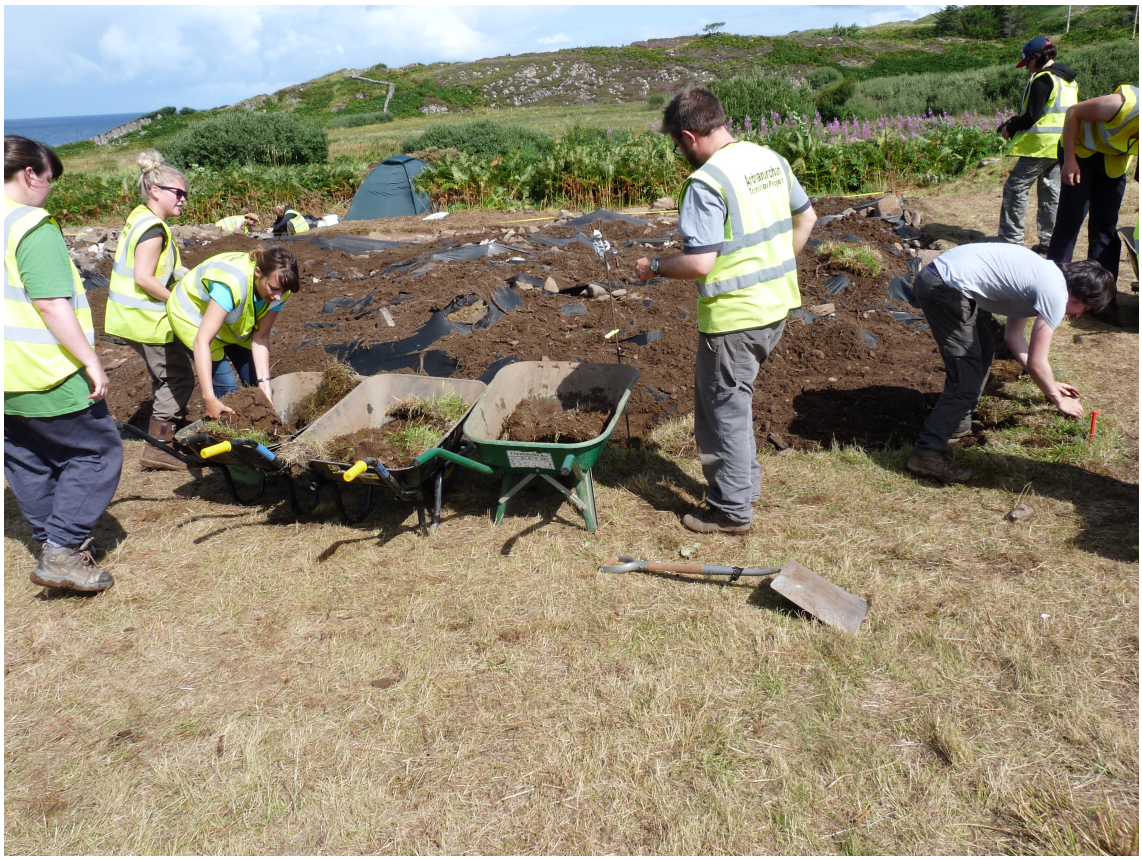


Image XII: The backfilling process

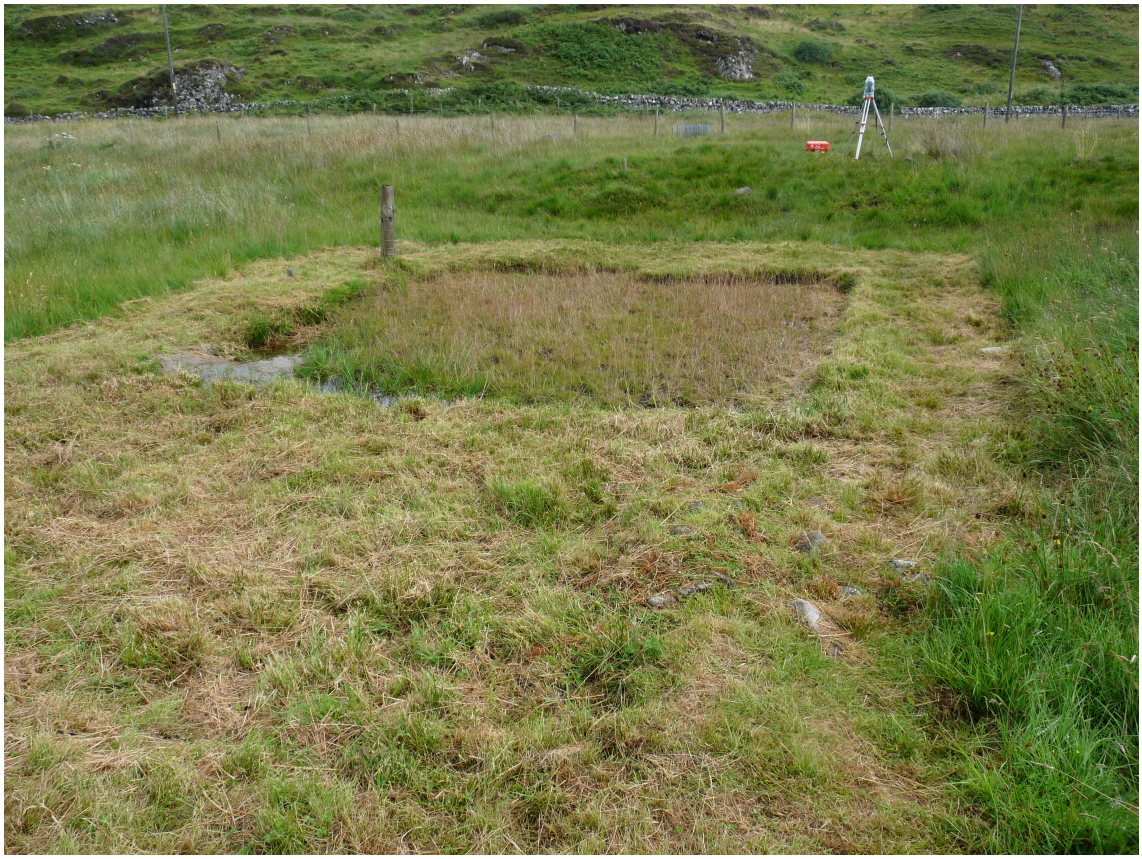


Image XIII: A backfilled trench from the previous season, re-growing.

This notion of the untimely is illustrated by the practice of backfilling. Depicted in image XII is a snapshot of the final day at ATP, which consisted of covering up the excavation with sturdy black plastic, then depositing soil on top of it, and finally restoring the turf removed at the start of the excavation. Image XIII, by contrast, shows a trench excavated and backfilled a year earlier, and 'nature's reclaiming' of the trench. The myth of modern science, as discussed in chapter one, might explain the practice of backfilling as a separation of the natural and the social. Following this explanation, the black plastic would indicate a layer of separation between what archaeologists are interested in, e.g. the historical remains of people and their practices, and the natural growth of plants, movement of animals, and effects of water, and other biological and chemical processes. This way, the excavation remains undisturbed in the absence of archaeologists, and safeguards the site until the possible return of the archaeologists in the next season. In conversations with Frank I learned that backfilling also served as a way to satisfy Historic Scotland, the organisation in charge of the protection of Scottish heritage. The practice of backfilling itself however tells a different story, showing archaeologists very much engaged with both the well-being of their work, as well as the continuity of the excavation as a landscape. Both the practice of unearthing the site, as well as backfilling it, are the most labour intensive of their time at the site.[136]

Up until the last day of the excavation, my attitude had been rather intellectual. Even though I experimented briefly with manual trowelling, my position as a researcher meant that I mostly engaged in observation,

136 This is especially true for ATP, as the remote location of the site did not allow for machine diggers to help unearthing the site (as opposed to the site at Burrough Hill), and everything had to be done by hand, mattock, shovel and bucket.

photographing, making notes, and talking to archaeologists.[137] I was indeed out of place at the excavation, insofar that I am not an archaeologist, and some archaeologists might wonder what I could possibly be doing, a sentiment I shared at times. However, during the intensity of the backfilling practice, archaeologists all around me were occupied with this collective practice of backfilling. Gone were the times that archaeologists spread out and focused on their own smaller or larger tasks. The process of backfilling created a more integrated site-wide machine, and a comparison to the collective movement of ants, crossed my mind at more than one point in time. There was no time to talk to archaeologists, and even observing them work, while standing on the sidelines, felt irresponsible. I could not hide any longer behind 'being a PhD candidate, interested in the doings and knowings of others,' because those concerns did not matter at that point. In other words, there was a call for less observation, and more participation. Hence I became differently immersed into the field, and I joined them in the process. From operating the wheelbarrow to bring turf back to the site from the shed, while crossing the fluctuating elevation of the terrain, to being a link in the chain and returning the turf to the soil, there was little time for thought or consideration of my research questions. There might very well be reasons to be critical of this immersive process, in which thinking is largely absent, and persons become links in a chain with a very clear teleology, and a rather unifying body-politic. And yet I experienced most of all a relational freedom of movement, for which it for did not matter that I was not an archaeologist, or that student archaeologists were not supervisors, or that some archaeologists are more skilled than others. Steering the full wheelbarrow in particular was quite exciting, as the

137 See the methodological reflections for a more in-depth account of the research design.

muddy slopes, and elevated terrain required a certain rhythm and manoeuvrability, in order not to end up in the thick vegetation. The playful character of this contingent practice should therefore be emphasised, even though it was also physically very demanding work, especially when contrasted by a differently invested academic inquiry. This also points to the untimeliness of archaeology, comparable to the "just knowing" while being inside the trench, in David's story, in which concerns with recording and the creation of academic knowledge fade into the background, and knowing becomes a matter of relating by doing and moving. During the backfilling I felt most in touch with the site, not in terms of the continuity of the history of the site, but rather in relation to the continuity of the excavation as a place. The unearthing, excavation, and returning of the soil and turf furthermore shows how touch is a matter of recombination of a site (Manning, 2009b, see chapter three), in which the site changes register, including archaeologists in the process. Taking backfilling as an untimely practice, extends the sensible to other things growing and moving there as well, and are part of the continuity of the excavation as landscape.

5.6 Diffractions: Contingent Potentials of Continuing Practices

Throughout this chapter I described and analysed my following of haptic encounters with archaeological knowing, during my fieldwork with archaeologists, at the Ardnamurchan Transitions Project, and the Burrough Hill Iron Age Hill Fort excavation, both in the summer of 2014. Several themes regarding archaeologists' touch, and the relation of this touch with their practices of knowing, stand out from the analysis. These themes emerge from an elaboration on thirteen photographs, and my

analysis borrows from thematic and situational analysis.[138]

The main thematic thread running through this chapter is the *continuity of practices*. The mingling of constraints, such as stress, doubt, and the requirement of permission, in order to excavate the unruly trench, in image I in the first section, highlights this continuity as the beginning of an elaboration of attempts to make the site respond to bodies of archaeologists. The practices of cross-sectioning (image I), photographing (image II), and watering (image X), evoke archaeologists as keepers of a trench, occupied with *keeping* the intra-active potential to extend through new practices of relating. Moreover, these practices of ensuring continuity brings into being *societies* of archaeologists, significant stones, soil, tools like the trowel, animals like rats, and sheep, and elements like heat of the sun, and wetness of the water. Laboratory practices are included in these societies, however imperfectly. The notion of consumption of soil in sampling techniques (image IV) shows the proposed scientific requirement that all soil is consumed by the sampling machine. However, the complete consumption of soil by the scientific sampling machine does not appear to be a strict requirement for keeping the intra-active potential of the excavated soil. Through bewilderment and disappointment the archaeologists were able to continue the excavation in another register. These affects in play here show archaeologists dedicated to their work. The 'failure' of a full sampling of the soil does not signify an absence, but rather emphasises the affectual registers involved in their dedication. The societies in the continuity of practices, further highlights the contingent dimension of encounters, and the sensibility of archaeologists. In other words, the *contingent potential* of encounters with knowing does not seem to take the form of archaeological objects or findings, unless of

138 See the introduction, section IV.

course these objects are themselves enmeshed in societies, enabling a continuity of knowing, both on site, as well as in later analysis in the laboratory or the office. This chapter did not address findings in this sense, as they were not highlights of the excavation process. Even though I heard stories about important events of findings, during ATP in previous seasons, the finds I did witness were often quickly bagged, for further analysis in the laboratory, and perhaps to keep them safe. Hence, when archaeologists showed concern for them, it was in order to analyse them after the excavation.[139]

The notion of contingent potential however also emerges from the difference between 'something' and 'nothing,' and the sensing of this difference. Image VII in particular shows the half-excavated trench, with different contexts. There is the rodent furrow, the rocks signifying a top/bottom in limbo, and still the remains of the line of the cross-section. The discussion here was about what knowledge is, and what not. There is thus a *groove* here, but one which is continually transgressed, not so much in attempts to decide on one or another, but in following a flow of changes in affectual register. These changes recombine what knowing is. Archaeologists' 'having faith' in the presence of objective remains in the cist, relates to a feeling of flow, of continuity, and not so much to faith in itself, or the possibility of objects in the trench. It is in other words the potential, and not an object-fetishism, which keeps archaeologists digging. Transgressing the groove between 'something' and 'nothing' then relates to knowing as a destabilised craft of (un)knowing, and not to scientific knowing in terms of distanced objectification as such. This continuous transgression is important for the hold on excavations, as it does not highlight the possibility of there being significant finds, but

139 These finds could without a doubt provide an interesting take on haptics, yet fall outside of the scope of this research about encounters in excavation sites.

rather the continuing by means of distinct interruptions, e.g. questions whether the trench is empty, what signifies a bottom and what not, and whether Chris's lecture 'makes sense' amidst bleating of sheep.

Not all of these interruptions are equally 'valuable' for archaeology. They are however affective, changing the intensive register of bodies. The society invoked by Chris's lecture in the trench, interrupted by the sheep (image VI), as well as the soiling of the sample bags, by the rats in the shed (image V), are frustrating and upsetting to archaeologists, who made such efforts to be precise. Interruptive and unwanted, the soiling, and noise, demands a response from their bodies. This demand affects them, because it is not part of the order of things, and not stratified in what has come to be 'archaeology.' The sheep, and the rats are *others,* outside of the scope of possible inclusion in the making of scientific knowledge, and yet intervening into the heart of these societies of archaeological knowing. What brought the rats to intervene in an event so dramatic for archaeologists, is a matter of speculation. Prolonging Despret's (2004) analysis of the story of Hans,[140] in which she showed the relational 'intelligence' of the horse, it might be too quick a judgement to say that the rats just wanted to eat, smelling an opportunity to do so. There are no accounts here to further develop this speculative line of thinking, yet it seems wise not to foreclose the contingent potential of the rats *responding* in some ways to the practices of archaeologists, perhaps *also* fed by hunger. Taking the bleating of the sheep, on the other hand, as an outspoken response to Chris's outdoor lecture, seems more salient. The demand by the sheep here featured a more outright ignoring by the archaeologists present. The sheep cannot contribute to knowing, and yet seemed to be objecting to the exclusion of *something*. Did the

140 See section 3.5.

archaeologists overlook something? Was there something worth mentioning, and not disclosed to the archaeologists? Their bodies were perhaps not sensible *enough* to consider how to switch to another register, which would allow their noise to become signal.

Of importance then is the *groove between nothing and something*, and to emphasise that this groove is not insurmountable or absolute. Instead, it is transgressed continuously by bodies of archaeologists *changing direction* in the light of other blockages. Archaeological practices of knowing, addressed throughout this chapter, show a 'haptic dance' with the alterity of their trenches. The sun-dried soil (image VIII), blocking any attempts to continue relating by means of trowel, therefore has to be engaged with, and overcome in a different, but still corresponding, way. Overcoming it however does not happen by an increase of force, irresponsibly cutting through different contexts. An intervention by the water can instead recombined the society of actors, involved in the excavation event. The alterity of the soil then recombines in alchemical fashion, and new textures might emerge, enabling a re-commitment to the trench by continuing practices to entice the soil to a 'haptic dance.' Whether the site will engage with this dance, is of course not a guarantee, as the watering depicted in image VIII did not render much of interest. Yet, this practice at Burrough Hill was perhaps primarily meant to render students' bodies sensitive to this possible technique.

As Eric's thinking from the midst of things (image XI) shows, this haptic dance requires a changing of pace, slowing down when faced with a blockage of a different kind, e.g. the question of how to make sense. As a supervisor and academic, Eric's responsibilities naturally include the continuation of the project, as well as the continuation of 'knowing' in relation to the Neolithic and Viking eras, in a more abstract sense. Image

XI as such shows a society of thought, required for the excavation, and knowing, to continue. The academy, as well as Eric's previous research, is as such not external to the excavation, but positioned alongside it. Especially at a site like ATP, heavily involved in the co-construction of knowing and reflecting on archaeological events, the question of how to change direction, and inviting the interpretation of sense to work *with* archaeologists, is significant. This relation between sense, and the making of sense, is a process of *(un)knowing* the excavation. His thinking requires a pace of thinking-time, a time which emerges from a mixing of academic touch into a society on the ground.

This pace furthermore invokes the making of sense, or the crafting of knowledge, from *dwelling* with the trench. His dwelling is what I call *untimely archaeology*, in the sense that it does not seem to happen inside stratified history, however much this history is present in the dispositions of archaeology. Thinking-time seems to require less historical sensibility, and instead a sensibility of (un)knowing for the place of soil, out of which invigorating new knowing can emerge. David's descriptions (section 5.5) provide an apt example of this untimeliness, as his 'just knowing' from the intimate encounter with the soil shows an innate transgression of time, as well as traditional archaeological methods. In his contemporary practice, he 'just knows' what happened there so long ago. His sensibility can first and foremost be described as *curious dedication* to extend to the societies of changing residues in the soil, still in the process of a fluid becoming of knowing.

Image VIII prolongs the notion of the groove, by aptly depicting a *grooving of relations* between different renderings. Chris's drawing (image VII) is a rendering not only of the trench, but also of previous 'knowledge,' infolding materiality differently. The various renderings (furrows,

historical knowledge on farming in the middle ages, geophysical survey, delineated contexts) invoke a curiosity in archaeologists, and me, which leads to another rendering of this trench and drawing in this thesis. These renderings, much like the photographs, are renderings of dedication to different worlds, and the mingling of these worlds. Much like the excessive furrows, the renderings texturalise the trench, and the soil, as well as the bodies of archaeologists who repeat these renderings, and claim them as contingent potential for the emergence of significant knowing.

These renderings are then multiple, but also *asymmetrical renderings*. The transformation of one rendered trench into another, by intervention of cleaning, and taking a photograph (image II), makes the contrast between them stand out. The first trench was dirty, and archaeologists were allowed to walk on it, touch it, and rework its material organisation by archaeological interventions. The work stagnated however, and the intensity of their affectual register subsided. Their relational extension suffered a cut, a disconnect. As such a second trench, cleaned for photographing, became a possibility. The second trench is more pristine, and archaeologists would not cross it with their shoes. The trench rather invites a different touch, through an interruptive practice of photographing, providing the possibility of renewed engagement, and renewed 'dirtying' by continuing the practice of trowelling. There is a seriality to these practices, required to continue the series of asymmetrical touching on the excavation. These practices rely on the body's ability to move direction, and to change register. Even contamination is as such an asymmetrical rendering, as shown again by the intervention of the rats (image V), as well as the contrast between the professional photograph (image III), and my amateurish photograph of

Glenn taking a photograph (image II). The asymmetry here lies in the worlds-in-the-making these two photographs, and the rats and the archaeologists, are dedicated to. The contrasts depict an asymmetrical groove between practices of modern science, attempting to be reproducible, and homogeneous, and practices of dwelling with the excavation. As such the changes in affectual register of the archaeologists, e.g. their disappointment and bewilderment, after the rats tore up the sample bags, might be a result of the rats transgressing the otherwise crystal clear results of the sampling analysis. The professional archaeological photograph likewise renders a clear picture of the contents of the trench. Even though these kinds of cleaned up 'world images' might be a problem, as they leave out the much richer and messier worlds involved in their making, it is in particular an imperceptible residue, which transgresses this groove. Saliently, this residue is not something of 'live' bodies, or even 'live' events, but rather what remains after the event passed, stirred up by archaeological excavations before, throughout, and after the backfilling process (image XII and XIII). As such the soil in the professional archaeological photograph of image III might very well be visited by all kinds of animals, plants and others, prior to excavating and photographing. In other words, there is a continuity of unexpected processes below-ground, in the 'pre-archaeology' of archaeological excavation work, which makes a haptic sensitivity to these practices even more pertinent.

Discussions and Further Diffractions: A Haptic Enlightenment

I. Impact on Archaeology

As discussed in the preface and the methodology, one of the aims of this research is to provide an alternative conceptualisation of Enlightenment, and more specifically concerning what knowing means within a broader conceptual framework of haptics for and through archaeology. This framework focuses on haptic encounters between various theorists as well as experiential data in order to construct an object of research, which re-frames the rationalist logic employed during archaeological excavations. Moreover, this haptic alternative is able to reply to what is needed in archaeology, according to Olsen and colleagues (2012, p. 20): "Thus, what is needed today, we conclude, is an archaeology that looks back at its own past with wonderment, approaches it without embarrassment and contempt, seeks to revitalize its important legacy, and folds this into a future vision for the care of things." As the focus of thinking in terms of networks in ANT has provided scholars in STS with the possibility to reconfigure 'the actor' in empirical research, I would propose that taking a site of excavation as an immanent field – that is as a set of new encounters within existing frameworks, which themselves reconfigure who touches on what and how – is able to re-invest the excavation site with sensory affects significant for knowing. Here, the network's symmetry, and its composition of many actors, is reconfigured in favour of sensory speculation and affects from the field.

However, it is important to note that such an asymmetry is more than a rebalancing of actors, or remaining blind for the influence of

possible other actors. The focus of this haptic Enlightenment rather scrambles the network by placing the researcher, decentralised, inside the network with necessarily limited and partial access and perspective. The inclusion of affects as speculative and even hallucinatory (see Manning REF and 3.7) makes the construction of an object of research in ethnographic sense (see REF) incredibly significant as it takes archaeology as inherently creative as well as messy (see Law 2004). This haptic understanding of Enlightenment does not however have the ability to go beyond this mess, depleting its creativity, in the finishing of the process of research. As researcher, I was part of the gathering of archaeologists on their field site, and rather than 'following the objects' from the field site out, I brought with me certain others in encounters with the archaeology being done in the form of conceptual insights (e.g. chapters 1-4). It is for instance an interest in STS, which I shared with supervising archaeologists at the Ardnamurchan Transitions Project, and which contributed to a local connection. This research is then a betrayal (Law, 2009, p. 144) to a categorical kind of Enlightenment, inherited by archaeology as part of modern science, and not to the archaeology being done on site.

Practically, this thesis could offer insights for the education of archaeologists, in particular by drawing together excavation work and coursework more tightly. This thesis provides a speculative antidote to the bifurcation of nature in the form of scientific archaeology versus archaeological science (Martinón-Torres and Killick, 2015), reductionist archaeological handbooks (Renfrew and Bahn, 2005), and the tiring continuation of the 'Two Cultures' problem, stating "that archaeological science is empirical and a-theoretical – or, at best, uncritical of its own limitations and disdainful of humanities" (Ingold, 2007, p. 9). The

multidisciplinary approach of this thesis, drawing on STS, ontological and feminist philosophy, geography, culture and media studies, and others, provides archaeology with a range of critical allies it is not generally associated with.

II. Final Reflections: Haptics for the Archaeological Record

In this thesis, bodies have been shown to be emergent, and unfinished moving and sensing *organs* or *parts,* never really given only in empirical sense; that is, not given outside of, but rather dependent on, relations with parts of theories, which in turn are not quite sustainable in themselves, until they are made sustainable in practices. The theme of continuity, as a relation between practices of cross-sectioning (image I), and taking a photograph (image II) for instance, emerges through encounters of very different kinds.

Saliently, this theme of haptic continuity pertains to a situated experience of active thought. When interrupted in his walk across the field site (see the preface), David's face and reaction reveal this experience. The notion of haptic thought then highlights the continuity of this kind of interruptive experiences. Similarly, cross-sectioning and photographing interrupt the excavation, for the sake of its continuity. But what is then the significance of the interruption, if it only serves for a continuity? The significance is, I propose, that movement and sensing of bodies is framed by these interruptions, and are part of haptic knowing. In other words, the continuity of the excavation after taking a photograph, or cross-sectioning the site, depends on the interruption in a non-determined way. Even though continuity is to an extent given, the way in which David will reply,

or a photograph will be interpreted, or a cross-section will turn up, is somewhat of a necessary void (see Massumi, 2002, p. 21) to knowing. In this sense, moving and sensing bodies in endeavours of archaeological knowing cannot be known, even by pinning them down. It is better then, I propose in this thesis, to speculatively describe the encounters of bodies of archaeologists in relation to conceptual encounters, thereby providing a different account to the bifurcation between movement and arrest. Likewise, the notion of the 'body of the modern scientist,' framed by the bifurcation of nature, concerns an experience, or a range of experiences, which this thesis deems problematic for the ontology of its categorical bifurcation.

I have therefore discussed haptics as an *alter-ontological* (Papadopoulos, 2011a) approach to knowing and the Enlightenment. This approach draws on Stengers's (2000, p. 39) take on science as an adventure. As this research has attempted to show, the following of encounters implies a continuity of relational, partial, and interruptive encounters, yielding to *worlds in becoming*. I have encountered worlds of archaeology as a set of practices working, and re-working archaeological objectivity through continued extension to e.g. trenches, animals, residues, samples, and soil.

The contributions of this thesis are then to a different kind of (haptic) Enlightenment centre around the following of encounters and haptics as a 'science' of distinguishing between encounters. This different Enlightenment is characterised by a rejection of a priori categories, and instead focus on movement and sensing bodies (see also Massumi, 2002). This Enlightenment accepts a world in which actors might be actors, but in which the relation between their autonomy and heteronomy is questionable, in the sense that their actions depend on the very partial

relations they enter into. As such haptic Enlightenment is not about a symmetry between agents, but rather about the necessity of an asymmetric life, and unfinished experiences permeating quests for knowledge and knowing.

This alternative of haptic Enlightenment can fold back into the archaeological record, and reclaim it for archaeology. That is, it can provide some guiding pointers as to what could be deemed acceptable as archaeological data, and subsequently as archaeological knowledge. Moreover, haptics as addressed in this thesis can do what Olsen and his colleagues (2012, p. 20) call for: "an archaeology that looks back at its own past with wonderment, approaches it without embarrassment and contempt, seeks to revitalize its important legacy, and folds this into a future vision for the care of things." It is my argument that haptics provides a way out of the "processualist and post-processualist dilemma" (Barrett, 2016, p. 3), by adding to a post-representationalist paradigm, which does justice to the sensory richness and continuity of bodily excavation work.

III. Future Significance and Research

Thinking in terms of haptic Enlightenment allows for accounts of archaeology closer to the bodily experience of archaeologists and others working a site of excavation. In order to elaborate on the relation between sensing and knowing, the task was to further discuss a conceptualisation of the body, which can make possible an experiential sensing-knowing, which goes beyond the bifurcations of modern science, and posit this as a presumed (perhaps even *a priori*) connection with practices of archaeology. Taking not just the body, but the *decentred, relational* body as special for practices of knowing, inherits from metaphysical thought, in

which the place of research becomes of primary and abstract interest for the experience of those bodies of archaeologists.

Steven Brown *et al.* (2011, p. 512)(2011, p. 512)(2011, p. 512) discuss prioritising experiences in their analysis of radical empiricism:

Radical empiricism is not, as is sometimes argued, an "anti-metaphysical" or "a-theoretical" procedure of focussing on "what is there" (in the experimental data, or in the audio or video recording). It is recognition of the unfinished, relational, and emergent character of experience. In order to express that it will be necessary to go beyond what can be taped or recorded in order to describe the conditions of specific experiences. As such we will need to invent concepts "along the way" as tools to assist in this descriptive labour such that at any point we can make visible why we have chosen to circumscribe an event or occasion in a particular way." It would be salient to discuss radical empiricism with archaeologists, and especially in educational settings, as the nature of archaeological work is one of the social crafting of objects of research, and emergent in relation to the field site and a multiple of its actors. Moreover, the topic of radical experience in relation to haptic knowing, as conceptualisation of a different kind of Enlightenment, would benefit from additional future research.

Afterword

Knowledge is born happy. It can be shared, happy, without being able to be divided. It multiplies, of itself, the fruits of rejoicing. To wither on the stalk, like so many, amongst a profession that nonetheless only has an exact relation with laughter and eros, you must never have received the sharp, delectable sting of a solution or an idea, never have in fact evaluated its dramaturgical power, its profuse bushiness as soon as you give one. Knowledge is born happy for the attentive solitary or the team at work. In its nascent state, knowledge is happy, natively freed from all guilt. It is, perhaps, happy by nature.

(Serres, 1974, p. 2)

I have attempted to write this thesis as "an inquiry that might produce different knowledge and produce knowledge differently" (Lather, 2013, p. 635, quoted in Honan and Bright, 2016, p. 11). This 'inquiry' has led to a relational analysis of theory; and to an experiential analysis. Symmetric to its written style, the point of this thesis has been to figure out an ethos of *how to do knowing* differently from the spectre of the 'modern scientist.' It is for this analysis of 'knowing differently' that the notion of the encounter has been crucial. Not everything can be an encounter, but surely there are more encounters possible, than in the wildest imaginings of 'modern science.' The chapters therefore touch intermittently on related concepts, and experiential findings, in the following of invented, and real encounters between them. Haptics, as a theory of indigenous perception (Howes, 2005,

p. 6), has been taken along to excavations on Ardamurchan and in Leicestershire, and has been reconfigured in the process. It emphasises that knowing, sensing and relating move together, but not necessarily in unison. Haptics involves changes to the affectual registers of bodies in worlds. These changes invoke a commitment to the continuity of excavation practices. What is *sensed* then, or *felt*, is necessarily a *response*, and a *relation*.

But, how this relation continues, depends on the contingency of (un)knowing. Drawing on Marilyn Strathern (1996), and Joanna Latimer (2009), the contingent potential of (un)knowing lies in a body's relation to unexpected things, to sensing 'anew' and therefore to be interrupted in its habitual practices. In other words, knowing builds on an ethos of (un)knowing. In that sense, this thesis interrupts the ideas that firstly, knowing is the main prerogative of practices of science, secondly, that it is accumulative, and thirdly, that repeatable science is good science.

Instead, good science, as Isabelle Stengers (2000) and Bruno Latour (1993) teach, is science, which keeps the curiosity of scientists, embedded in their environments, alive. Haptics attempts to return to the body the potentiality to craft *objectivity,* through its its transformative relations. The notions of alchemy (Ingold, 2013), as well as hallucination (Manning, 2009b), are important for such a transformative touch, as it invites the (un)knower on an adventure through material relations, functioning as a "lure for feelings" (Stengers, 1999, p. 194). Haptics contributes to a world of knowing, in which humans are not masters of knowledge, but instead are subjected to an ethos of following encounters, and yielding to them, in experiences of objective constraints. It is only through the constraints of these significant, and objectively made, others, it seems to me, that knowing can be joyfully committed to again.

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