A Tactile Awareness.
Aoife Marnane.
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Introduction.

Greek philosopher Aristotle deduced in his major treatise De Anima that without the sense of touch there could be no other senses "The first sense, the root and ground as it were of the other senses... the one which entitles a living thing to be called sensitive". Our sense of touch has had a varied past, often underestimated; it has fallen in and out of favour though out history. Modern sense of touch is suppressed under the hegemony of visual advertising and consumer culture. My thesis attempts to address the idea of a new haptic age, in the context of the built environment. The hand has become a mere tool for flicking from screen to screen disconnected, as the mind is to physical reality; this to me is profoundly disturbing. The sense of touch has fundamental significance to humans deriving from its epistemological function, making possible an awareness of surroundings and a consciousness of self. We must re inhabit the built environment with a new physicality and tactility in order for the body to reclaim its place as the centre of experience.

Born in 1908 Maurice Merleau Ponty was a French philosopher, in his landmark book Phenomenology of Perception he refers to a ship that has run aground. From a distance Merleau Ponty doesn't perceive the different parts of the ship and instead sees the ship as a whole, "As I approached I did not perceive resemblances or proximities which finally came together to form a continuous picture of the upper part of the ship". Merleau Ponty felt, that the ship was "on the point of altering". If one was to think of the ship as a building and this point of alternation, this moment of flux, as the point at which the building detail is perceived, then perhaps rather than this moment being an entirely visual experience, it could become much richer with the emphasis of tactile stimulus.

Allegory of Tactus by Marten De Vos (1532-1603)

The etching symbolises the contradictory nature of the tactile sense one hand a source of salvation on the other the cause of damnation.
“In the same way we shall need to reawaken our experience of the world as it appears to us in so far as we are in the world through our body and in so far as we perceive the world with our body, but by this remaking of contact with the body and with the world, we shall also rediscover ourselves”.

In the chapter Association and the Production of Memories Merleau Ponty discusses the illuminating experience of the conscious body in direct contact with the world. In modern life our sense of touch is often deprived, life is centred on vision and the stream of images that are constantly available to us. The world has become a place where the capabilities of the body are neither understood nor appreciated. Instead of helping us to perceive the world around us the human hand now helps us to reach across biological frontiers into a virtual world of the internet, social media and gaming. The hand has become an instrument of technology further alienating and desensitizing us from reality. In his book Space and Place Yu Fi Tuan remarks “Architecture teaches people to know better who they are and how they ought to behave. Architecture is the key to the comprehending reality.” Visual space needs to be expanded and enriched by physical means, in order to reawaken the stifled senses. Touch carries an unavoidable intimacy and identification; it is harder to be detached from reality if ones sense of touch is being stimulated.

Large TV Screen attached to the Duomo Di Milano in Milan, Italy.
It is very easy to ‘tune out’ in modern life, for example: forgetting a car journey after entering a trance like state, that Yi Fu Taun entitles ‘Highway Hypnosis’. People in many ways sleep walk through their daily life. The world has become such a succession of nonsensical and fast paced images that life has become more like a REM (rapid eye movement) sleep, a prolonged somnambulism. Measurements with electrodes show that sensory information continues to enter the brain of sleepwalkers. The sleepwalker’s bodies then make appropriate responses but the brain does not consciously register this information as it does when the person is awake. This description from *Space and Time*, resolves with today’s technology driven society so completely compelled by the phones, TVs and other devices, that we have entered a dreamlike state. The ability to imagine and daydream are some of the most human and essential mental capacities, however, excessive and meaningless pictures in the current culture of images flattens imagination. The mental world should be refined out of sensory and kinaesthetic experiences as well as visual ones.

The city is a succession of layers, use and memory. It is a perfect and vivid instance of reality. According to Juhani Pallasmaa in *The Thinking Hand*, we transfer all the cities, towns and places we have visited into the incarnate memory of the body. All contact with the world is felt through the skin; the tactile sense influences and reinforces all the other senses. It is the body that navigates the world and this connection with the body can sometimes be stunted. Each part of the city has combinations of multiple elements and materials; the juxtaposition of elements offers a unique tactile quality and a precise emotional condition. The city and the body supplement and define each other according to Juhani Pallasmaa in *The eyes of the skin*. This is not fully appreciated or utilised in the modern city as it becomes more modern, the visual has become more dominant. High-rise glass buildings help navigation by eye, but can tactile objects help to navigate the body? Can a position be guaged, a history and a function with just a touch?
Speed and Desentitization.

Modern life is based on a culture of velocity. The evolution of speed can be traced back to many inventions; each era has moved at a faster pace than the one before from the elevator, to the automobile, to the zipper and now to high-speed Internet access.\textsuperscript{12} The automobile is perhaps one of the first purveyors of acceleration widely available to the general public, with it came the promise of life lived at a new level of intensity. Instituting itself in daily life, speed was immediately and enthusiastically taken up. Easily adapted to, it became too familiar too quickly and its thrill quickly dissipated.\textsuperscript{13} Increased acceleration is constantly required and so the evolution of speed continues. A new sense of distance and space has been established and people must match their own energy to the rate of technology.\textsuperscript{14}

In many ways, it was with the popularisation of the car that consumer culture began. It brought with it the invention of the moving image, giving birth to a whole new way of perception. The way people experienced space was changed forever in favour of rapid movement. The concept of space and time were diminished. Distances became less important and the world became smaller, the vastness that once was, became controlled and managed. As the landscape whirled by in a blur, people began to learn to enjoy a place just by looking at it and became insular and isolated within the cocoon of their technology. The experiences of space and time have become fused into each other by speed and as a consequence we are witnessing a distinct reversal of two dimensions: a temporisation of space and a spatialisation of time.\textsuperscript{15}
Since the late 20th century, fine craftsmanship has been in decline. Time and effort spent on production is not considered beneficial in the 21st century. Rational and timesaving processes are favoured for the mass production of goods. The appreciation of skill and craft; promoting quality over quantity should be advocated instead of mass production based on financial gain and short-term economic practice. Slowness should be considered an artistic value in itself: persistence through many hours of mishaps and setbacks is considered as part of the process. This encourages a more gently paced lifestyle and mode of thinking borne out of patience and respect for the material. Our natural preference for craft has been suppressed by modern culture. As Pallasmaa puts it, we must "Slow down experience, halt time and defend the natural slowness and diversity of experience".18

Touch reminds us that we are not observers but participators. The idea of slow encourages richer experiences of life, slowing down and savouring the simple pleasure that the sense of touch can offer. Slow is also about understanding, exploring and an awareness of self. Speed and technology feed a human desire but this ‘food’ is of poor nutritional value. In the book Touch, Gabriel Josipovici examines personal tactile experiences. Josipovici speaks about the disadvantages of watching films “that having left our bodies behind on the seat of the cinema, nothing that happens on screen can truly affect us”.19 Such disadvantages can also be applicable to modern technology such as the laptop etc. Architecture offers the opportunity to engage the body again through the delicate instrument of touch. The tactile sense allows us to be seduced, to wander and to saunter where as a world based on visual stimulus often implies a set direction.
With this in mind, I would like to reference British romantic landscape painter J.M.W. Turner’s painting *Rain, Steam and Speed: The Great Western Railway* as an analogy to our current use of technology. In this painting Turner is attempting to understand what appeared at the time, to be great speed, and its effect on the landscape of which he was so familiar. The landscape and the clouds have merged into a hazy image; vague landmarks remain only partially visible through the fog, vaporised by speeds power. There is a sense of material instability about the train; its speed made it almost inconceivable. In the painting the landscape has become indistinct, meaningless and easily forgettable. Speed has moved beyond human perception in to an unknown and transparent realm.

**Attention and Embodiment.**

Dutch painter Rembrandt, considered one of the greatest painters in European art, thought of touch as an important subject in his paintings. Works such as *The Return of the Prodigal Son* and *Jacob Blessing the Sons of Joseph*, call attention to the activity of touch in our experience of the world. Touch is portrayed intimately with the use of hands often being the focal point of his paintings. The prominent hands in Rembrandt’s paintings are not deployed in expressive gestures or a sign or symbol of social class; instead they are depicted as the instrument with which we touch or grasp. Rembrandt represents touch as the embodiment of sight and the analogy between sight and touch had its technical counterpart in Rembrandt’s handling of paint. His exploration of the reflection of natural light off high relief to intensify highlights and the cast shadows unites the visible and the substantial. Rembrandt’s investigations into the intimacy of touch highlight what is lacking in modern life. Life moves at an accelerated pace and time is not spent savouring our senses. In order to acknowledge our sense of touch we must slow down and pay attention to the experience of living.
Memory and Reflection.

Merleau-Ponty argues that "to perceive is not to remember", however I think that the senses can evoke a memory.20 By contrast Marcel Proust writes about involuntary memory being triggered by sensory experiences in In Search of Lost Time - The way by Swann’s. The novel tells two related stories which centre around the main character Marcel; that of Marcel in present day and of a younger version of Marcel and his childhood memories and experiences in the French town of Comby. One of the books main themes is memory. The story is told through “gusts of memory” experienced by Marcel triggered by sensory experiences. Pallasma alludes to this in his writing "We can be equally moved by something evoked by our memory as by the actual experience".21 In the beginning of the book Marcel is transported back in time to a memory of his childhood after breaking his usual afternoon routine and having a madeleine with some tea. The biscuit reminded him of his childhood when he was given a madeleine every morning by his aunt. 22 In the beginning of the book Marcel is hazy from sleep and tries to reconstruct where he is using his body to help him remember, “its memory (the body) the composite memory of its ribs, its knees, its shoulder blades offered a whole series of rooms in which it had at one time or another slept”.23 Throughout the book Proust highlights the importance of the senses in memory and self-reflection.

Merleau-Ponty talks about reflection as a way to understand and structure an experience. The act of remembering can often be triggered by a sensory experience that correlates to an original memory. This feeling of nostalgia brings with it a moment of profound engagement as one tries to pinpoint what is so familiar. An abstraction of a previous experience through touch could be a way of reinforcing previous experiences. This reflection through touch would increase involvement and create a personal and intimate experience. There is always going to be an intimate relationship between us and the objects that surround us. This relationship should be taken advantage of; the built world could become a place of richer engagement if one's own memories were evoked by tactile abstraction. The impact of art is based on identification of self with the experienced object or the projection of the self on the object; this impact can also be encouraged through architecture.24 Sensing, Merleau-Ponty says, exercises a cognitive function what you sense represents something to you.25

Using plaster and concrete I made rectangular texture samples that explored tactile memory. The samples vary in size corresponding with the different movements of the hand. Some are meant to be held in the hand while other bigger pieces are suited to passive touch. The samples display some of the key elements of our sense of touch, texture, pressure or hardness, temperature, weight as well as having an edge or contour. The first sample I made was of fallen leaves as the experience of playing in leaves as a child constituted a happy memory. My instinct was to try to capture the tactile nature of the leaves; their texture was the most substantial in my memory. By abstracting the leaf you are forced to think about the texture of leaf and the texture of the plaster in a new way, it becomes an exploration of material giving new meaning to both and reinforcing the experience. Can abstraction create a new memory and meaning? Can a building hold memories in its fabric? By trying to take away the visual aspect of the leaf I was attempting to focus solely on the texture, to capture an experience into a more permanent form.
Hand Journey Studies of Made Pieces.
Pleasure, Comfort and Catharsis.

Marinetti was an Italian futurist born in 1876; he was a prolific writer and wrote many manifestos on modern living. In his manifesto *Tactilism* F.T. Marinetti gave examples of ways in which he had tried to educate his tactile sense. Marinetti tried many different experiences to stimulate and improve his sense of touch, including walking around his house in the dark trying to discern different objects. He created a scale of touch, categorised stimulants and made art installations called 'tactile tables'. He advised that the use of colour was to be avoided in tactile tables, as he believed colour lent itself to plastic art. Tactilism he said was the art of pure touch. In the book *Eyes of the Skin* Palasmaa eludes to a similar philosophy "deep shadows and darkness are essential because they dim the sharpness of vision, make depth and distance ambiguous and invite unconscious peripheral vision and tactile fantasy".

Marinetti created a scale of touch; with his writings he attempted to give a vocabulary to an experience that is hard to describe addressing the fracture between thought and feeling. He divided touch into six categories with different materials, which he then described with adjectives. He used words to describe the direct feeling i.e. cold as well as giving them animated feelings such as 'confident' and 'affectionate'. The result is a concise summary of the different kinds of touch experienced. There often seems to be a gap between the experience of touch and the language used to describe it, as it is an experience that resists ready communication.

### Marinetti's Scale of Touch

**First category:** extremely confident touch, abstract, cold.
- Sandpaper
- Silver-coated paper

**Second category:** touch without heat, persuasive, reasoning.
- Smooth silk
- Silk crepe

**Third category:** exciting, lukewarm, nostalgic.
- Velvet
- Wool from the Pyrenees
- Wool
- Silk-wool crepe

**Fourth category:** almost irritating, hot, determined.
- Granulous silk
- Flaited silk
- Spongy cloth

**Second scale, volumes**

**Fifth category:** soft, hot, human.
- Suede
- Horsehair or dog hair
- Human hair
- Marabou

**Sixth category:** hot, sensual, spirited, affectionate.

This category has two branches:
- Rough iron
- Soft brush
- Sponge
- Wire brush
- Flush
- Human or peach fuzz
- Bird down
Marinetti was trying to bridge that gap by using abstract language to try to describe the direct feeling which many people struggle to relate to language. People can articulate ideas but have difficulty expressing what one knows through one’s senses. People tend to suppress what they cannot express. John Hull is a writer and theologian born in 1935, who went completely blind at the age of forty-eight. Over the next three years he kept auto cassette diaries that were eventually turned into a book about his experiences. In *Rainfall and the Blind Body*, Hull writes a personal account of his blindness and the simple pleasures he receives from his sense of touch. Hull remarks that he didn’t fully appreciate his sense of touch when he could see “I began to appreciate the illumination and sense of real knowledge that comes through touch.” He describes his experiences in great detail. Touching was a method of catharsis for the author; he truly savoured pleasurable tactile sensations, ‘I like to hold and re hold and go on holding a beautiful object, absorbing every aspect of it’.

Buildings are often just symbols of wealth and status; this symbolism is devoid of real meaning. The modern office building caters mostly for sight. The lighting is artificial so that there isn’t a shine on the computers. On hot days the windows are closed so the air-conditioning can be switched on. The furniture is all made of similar materials; the flooring is carpeted, cushioning the noise of movement. It is easy to fall into a day-dream, when one’s footsteps can hardly be heard. A constant temperature is maintained in order to save people the bother of adjusting to different conditions. These conditions lead to detached and insular behaviours, people feel uneasy and disconnected at work. These physiological factors are also compacted by serious physical factors, the use of synthetic materials, poor ventilation, lack of natural light and the over use of fluorescents leads to ‘sick building syndrome’ causing absenteeism and serious illnesses. The modern building is too absorbed with comfort or optimum work conditions, rather that the human being. We have become too comfortable, experiencing contrasts are pleasurable and it is easy to appreciate and enjoy comfort after having experienced discomfort. As Influential Irish designer and architect Eileen Gray declared, “One must build for the human being.”

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28 Tsao, Yi-Fu. Space and Place: the perspective of experience. (Minneapolis: University of Minnesota Press 1967)
29 Cavender-Claborn, Jean., *The Aest of Touch* (New York: Berg, 2005) pg 208
30 Cavender-Claborn, Jean., *The Aest of Touch* (New York: Berg, 2005) pg 208
Knowledge and Learning.

Aristotle believed that man has hands because he is an intelligent animal, he thought of the hand as the physical counterpart of human reason which was the instrument of the soul. It was through the hand that man created civilisation, the human hand was not a specialised instrument like the claw of a predator or the hooves of a herbivore. Aristotle considered the hand an instrument at a higher level because it was not one instrument but many. Language found its origins in the hand, which best embodies the nature of touch. Studies have shown that the hand and language are intrinsically linked. In prehistoric times the hand was essential in the development of tools. According to anthropologist Sherwood Washburn in his book *Ape into Man a study of Human Evolution*, language originated in early collective tool manufacture and that the development of language is linked with the co-evolution of the hand and brain.33

Merleau Ponty argues that we should regard the body as more than just a biological and physical unit, but as the body which structures one’s situation and experience within the world. In the book *Phenomenology of Perception*, he explains that both empiricism and rationalism fail to explain perception. Empiricism is the belief that experience is the primary source of knowledge, while rationalism states that reason is the primary source of knowledge and knowledge doesn't depend on sensory perceptions. Empiricism according to Merleau-Ponty doesn't explain how consciousness determines perception, while rationalism doesn't explain how perceptions determine consciousness. “Empiricism cannot see that we need to know what we are looking for, otherwise we would not be looking for it and intellectualism fails to see that we need to be ignorant of what we are looking for, or equally again we should not be searching”.34
Perception seems to transcend both reason and experience; it is structured by our surroundings and can be focused by our attention. According to Merleau-Ponty bodily experience gives perception a meaning beyond what is established by thought “all knowledge takes its place within the horizons opened up by perception”. The hand is central to the tactile sense. In the book *The Thinking Hand* Pallasmaa speaks about the ‘knowing hand’ in relation to verbal and nonverbal knowledge. Human fingers are amazingly dexterous for example, typing an experienced typist hands fly across the keyboard, but when asked to take a step back and find the individual keys the task is completed with hesitation. Infants discover the parameter of their world through their sense of touch. The hand often knows more than the mind. George Lakoff argues in *Philosophy of the Flesh* that reason is not disembodied and arises not only from the brain but also the body and bodily experience. And goes so far as to state that reason is shaped by the body. The body ‘thinks’ in the sense that it identifies and processes information about a person’s position in the world.

Knowledge has a physical element; some skills require transference of knowledge beyond that of verbal teaching. According to Kant the hand is the visible part of the brain. Words can only help so much, learning in many cases is doing. The senses help our bodies to learn the skills of the master, for example in carpentry. During a conversation with my brother, who is training to be a carpenter, I asked him to describe the skills he has learned from doing. “I suppose I learned how to hold each tool, how much pressure to apply, which timber to use and for what, how smooth to make it”, “like I would watch the lecturer do it (demonstrate woodwork) but I didn’t learn it until I tried myself”. I asked him how his sense of touch impacts his learning to which he replied “I don’t think I’d be able to do anything without getting a feel for the material”. Much of my brother’s learning is centred on touch; this kind of learning is it under-utilised and can be facilitated by architecture.

Carving, photographed 2013
Conclusion.

“Touch is not only the basis to our species, but the key to it”.38

Human perception is inherently multi-sensory we perceive the world simultaneously with multiple senses. The information gathered by our sense of touch is combined with information gathered by each of our other senses to create a robust percept, however the visual sense has become dominant over all others. Unfortunately it is often architecture that stifles the senses, many modern buildings are put together quickly with little thought, seeking the easiest solution for the storage of people. The first impression of architecture is of course, a visual one but in order to experience a more holistic architecture our sense of touch must be engaged and valued. It is the job of the architect to create spaces that not only provide shelter but to engage the human emotionally and to create an extension of reality rather than mask the truth with reductive superficialism and atheistic. A building should focus and command attention, with attention reality can come into focus, and create a sense of intimacy and embodiment. I believe that the sense of touch is the key to reawakening our intuition and sense of self, as touch is not a single perception but many.

Our sense of touch is the basis on which we interpret life, our internal representation of the external world. Touch is the bridge between our self-conscious thought and our intuition and emotions. The hand, the instrument of touch, moves with a complex precision that’s irreplaceable and feels with a delicate intuition that’s indefinable.39 Touching and manipulating with the hand yields a world of objects. Considering the world in terms of objects rather than pictures leads to a richer experience, so that we can speak of life as a series of feelings rather than just a succession of thoughts and images. As Frederick Sachs writes in *The Sciences* touch is the first sense to ignite and is the last to burn out, “long after our eyes betray us our hands remain faithful to the world”.40

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Projects.

1. Collective Office Space, 02 offices Limerick

For my first commission I wanted to study the modern office, which from experience I found to be an unpleasant sensory deprived space. The office consists of cubicles, a small recreation/collective space and a meeting room. I focused on the collective space in the office, which consisted of two couches and a coffee table, the windows are permanently closed and there is little connection to the outside world. This space is ignored by workers, who typically have lunch or breaks at their desks which didn’t allow for any collaboration between employees. This kind of isolation reduces creativity and team work all essential to a successful office space. I wanted to create a tactile space that played off Marinetti’s Scale of Touch and allowed for time spent alone and collectively. The temperature changes allow workers to make personal choices on what’s comfortable for them rather than a temperature being imposed on them.

For my second commission I decided to look at the idea of the resource class room in a Boys school in Adare. My main concern was integration between children with special needs and the rest of the school. The resource class room felt very disconnected from the main school. I decided to focus on children on the autistic spectrum, who are most commonly integrated into national school. The main issue for these children is communication, I wanted to create a space that could help to bridge this gap. With autism the hand is often disconnected from the owner and suffers don't tend to modulate the senses well. Sensory integration is commonly used as a treatment but is not combined into the school or class room. I tried to create a sensory integration space that all children can play in, but that offers a chance for communication for autistic children as well specialised play and learning.
3. Main Studio Project : Saint Johns Hospital, Limerick

Tactility holds a unique position in modern architectural discourse. Mainly associated with place, rootedness, corporeality, intimacy, sensuousness and craftsmanship. My thesis attempts to address the idea of a new haptic age in the context of a hospital. Modern health care mainly focuses on the treatment of disease rather than on the individual person and the physiological and physical act of healing. Build on the medieval walls of Limerick, Saint Johns hospital is Limericks secondary hospital and has been constantly extended and added to since its completion in the 1800s. The result is a mass of facilities that are both disorientating to the patient and the hospital staff. I propose a complete reinterpretation of the hospital, removing many of the extensions creating a therapeutic garden and route around the original hospital building and convent. I then chose to focus in on a small part of my program a bath house, which can be used for physical therapy and rehabilitation. The aim of the project was to explore an architecture that is physically engaging, tactile and promotes embodiment, so body can reclaim its place as the centre of experience and healing.
Early Work.
Laws of Thermodynamics

1st Law - Internal energy of a system increases if heat is added to the system or if work is done on the system; it decreases if the system gives off heat or does work.

2nd Law - Heat will flow from a hot object to a cold one until they are in thermal equilibrium.

Internal Energy = Heat + Work

2nd Law - Heat will flow from a hot object to a cold object but not in the opposite direction. No machine can run on 100% efficiency.

Final Drawings.
Copper $k = 40$
Cork $= .07$
Concrete $= .4 - .7$
Cedar $= .12$
Felt $= .04$
Limestone $= 1.26 - 1.33$
Soil $= 1.1$

The human body is a system and produces metabolic heat. Standard metabolic activity for a sedentary person at 20 degrees in watts:
Sensible $- 100$
Latent $- 40$
Heat Flow
Resistance
Clothing
- Shoes: 0.02
- Underwear: 0.07
- Shirt: 0.2 - 0.25
- Trouser: 0.2 - 0.25
- Jacket: 0.25 - 0.35
- Socks: 0.04

The human body is a system and produces metabolic heat. Standard Metabolic activity for a sedentary person at 20 degrees in watts.

Sensible - 100
Latent - 40

Factors in thermal comfort
- Physical Activity
- Clothing
- Health
- Time spent in a room
- Seasonal and room climate

U-Value
Resistance = k (conductivity) x d

U = (Rso (outside) = Rsi (inside) + R1 + R2

Factors in thermal comfort
- Physical Activity
- Clothing
- Health
- Age and Gender
- Time spent in a room
Core Body Temp: 36.5 - 37 degrees
Skin Temp: 32 - 34 degrees
**Tactile Table** - Each sensation correlates to a space in the building model which sits on the table.
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