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Vanishing Points

Devices, gadgets and everyday things might be the most obvious tangible entities of Mundania. Present technology. Perceivable and touchable. But what does it mean that something is tangible, and for whom and when is it tangible or graspable? How can different aspects of technologies be controlled in Mundania, and by whom? What do different people have to know about the technologies they live with? What can they know? The aim of this chapter is to approach these questions by closely engaging with some of the devices, materials and details of Mundania, and to start thinking about how they often seem to vanish.

Hands-on

To grasp something is to gain control, to have it at hand. To notice, comprehend and get in touch with it. To engage with processes, relations and devices (Dahlgren and Hill 2022). There are power dynamics at play here. Who can grasp what, who or what is under influence, and what do different people come to grips with? What does it mean that something is hands-on in a society permeated by complex technologies?

Many societies of the early 2020s are built on vast interconnected technological and organizational systems. Large-scale systems are furthermore built of miniscule components that are impossible to notice or adjust without advanced instruments. Top-secret facilities like data centres and connection points, housing a plethora of interconnected infinitesimal components.

The technologies of Mundania are ungraspable due to scale. Too large or too small. They are also ungraspable due to spatial or conceptual perimeter control. Many sites and whereabouts are secret, shielded and fenced off. The assemblages of technologies are huge and microscopic, distant but also close. When close and at hand, often also boxed in, sheltered and shielded. 'Warranty void if seal is broken.'

Even though much of the world of advanced digital technologies is out of grasp, the word 'digital' pertains to something utterly concrete and

human, namely fingers. Digital comes from *digitus*, the Latin word for finger. Throughout history, the fingers of a human have often been used for counting, and early calculating devices like abacuses are used with fingers. Devices for calculation operated by fingers are early and graspable forebears of today's systems of computation.

While more and more devices and systems become based on voice control, finger-based operation is still a central way of dealing with present digital devices. Taps on keyboards, gestures on touchscreens, trackpads and the physical handling of devices. There are many designs and constructions that have been developed between the abacus and the smartphone, constructions involving a plethora of components and features. One such basic component is the press button. Our world is permeated with these. A press button or a switch often has a diminutive simplicity in its physical design. But what can a button do? The small physical appearance of a button does not immediately reveal all the workings and manoeuvres it can evoke. Buttons are minor, but often significant.

In a history of the power button, Rachel Plotnick shows how press buttons were far from any mundane phenomenon when they started to be broadly implemented some centuries ago (2018). A press button could be and can be highly controversial. Someone presses a button and initiates a process. Or someone flicks a switch, and something happens. This minor bodily action can be an action of command and control. Systems based on certain kinds of minor manual actions could facilitate much larger effects than the small bodily move would reveal.

Plotnick relates button pressing to a fantasy of what she calls *digital command*, through which '[certain] hands could direct anyone or anything to submit to their will' (2018: 227). A button can be an instrument of power. All, of course, depending on what the button is connected to. It can start machineries or processes; notify, open or close down; activate or terminate. Plotnick writes about the politics of pushing. How influence and authority could be mediated by the fingertip. The more advanced the systems that utilized buttons became, the further the reach and consequences of digital command stretched. Button pushing spurred action across distance, and the effects generated could be beyond what a button pusher perceived and experienced directly via eyes, ears or the rest of the body. As button pushing moved closer to people, and became part of everyday lives, the reach of actions extended further (2018: 228–229).

The fantasy or the imaginaries about digital command spurred ideas about armchair commanders. Workplaces and domestic settings were soon filled with buttons and switches that facilitated a plethora of actions at a distance. When an electric light was switched on, a stretched-out electric system was employed, engaged and consumed. This included transformers, wirings, electric insulators and distant powerplants. Somewhere in the landscape of

electric distribution there might have been porcelain insulators. Mounted up on poles. Visible, but unreachable. When pressing a power button, a person was also engaging with the insulators in the landscape. Buttons became means to also engage people at a distance. Sometimes indirectly, sometimes directly. By pressing a telegraph key, messages could be sent to other parts of the world. This message across distance could spur action, set stuff and people in motion. The telegraph key was an early remote control, connected to a vast system, a Victorian internet (Standage 1999).

Today many homes are speckled with press buttons, small devices connected to larger systems. A good question is who use to press the different buttons in a certain space. Who are the different button pressers in various contexts and who were the button pressers centuries ago, the ones operating or evoking processes and systems at a distance? The remote controllers. What competencies or positions are required to become a button presser? Who are not allowed to press certain buttons?

Up until the mid-20th century most homes did not have electricity. Before the push buttons became widespread and commonplace, inventors, producers and people in general were grappling with questions about the uses of push buttons. Who should have access to them, what should they be used for and how should they be designed and experienced (Plotnick 2018: 232)? Buttons have been flanked by strings to pull and levers to turn throughout the history of manual control. Which manual skills and postures, which alignments, are fostered by these different devices? What are the choreographies and relations of different manual controls? As part of a mechanical design, the power of a process could be immediately related to the manual power required to initiate the process. Such as a huge lever used to start or to release some powerful physical process. In a world with vast interconnected systems, a slight swipe on a smooth glass-covered screen can initiate way more powerful processes.

The early years of push buttons were also accompanied by hyperbolic promises of ubiquitous automation and an abundance of electrical services. These claims often stood in stark contrast to the somewhat cumbersome everyday experiences of imperfect systems (Plotnick 2018: 230). According to Plotnick, 'a wide chasm existed between the ways people talked about and romanticized buttons for being "simple", "mundane", and "magical" and the terms of their actual use. Buttons often malfunctioned, caused confusion and miscommunication, exacerbated conflict end generated concern' (Plotnick 2018: 230).

When these systems of automation and electricity became more commonplace and reliable, they were slowly mundanized. They became part of everyday life, but increasingly hard to grasp. Since the 1950s, when push buttons started to be implemented at a larger scale, they have become more and more embedded in people's everyday life. Think about all the

push buttons that exist in different domestic settings in the 2020s. Which of all these buttons raise concern, are noticed or are the subject of discussion? Once again, who pushes the different buttons? What are the reaches and workings of them? Buttons can be points to start thinking about the ordering of domestic practice. They are also mundane beacons of hidden and often unnoticed systems, mundanized to a high degree. Try a button quest in the place you are in. Buttons are one of the most widespread features of Mundania, small details that come in new guises and variations, as manual command and gesture are employed in new ways.

Get a grip

May 2022. Out in the stairwell where I live, the lights are connected to a timer. On one of the walls of each floor, there is a button. Circular black plastic, with a red glowing light in the middle. When I press the button, the red light turns off, and instead the white light from the ceiling lamps is spread throughout the space. When the button is pressed the timer starts. This system is decades old. Some components have been replaced with new ones. Older components have been combined with newer ones as part of maintenance work. (The word 'maintenance' is also related to hands. The word comes from the Latin *manu tenere*, to hold in the hand.) Without continuous and concrete manual engagement with most systems, components would decay, break apart and fail to function (Jackson 2014; Martínez and Laviolette 2019; Pink et al 2018; Trentmann 2009).

The power button armature in black plastic, with its red glowing light, has a vintage design. It is made to look older than it is. It gives a subtle hint about the age of the underlying system, initially installed in the 1950s. This is made evident when the button is pressed. The system has a mechanical clock that starts to tick. Tick, tick, tick, tick. … A loud ticking sound is emitted from a meter mounted on the wall of the basement floor. The sound is reverberated in the space. Impossible to ignore. It gives a clear indication that something is going on, a process has been started. Like a taximeter announcing that energy is consumed. Every tick counts. Through sound it announces that the power button has initiated a process, that it has started something. This is, of course, also evident through the function of the system. The staircase is flooded in light once the button is pressed. The light is accompanied by the ticking sound.

I walk out and onto another staircase in the neighbouring house. Here is a similar timer system. The same ticking sounds. I walk down the staircase to my studio and open the door. The sound disappears when I close the door behind me. A music studio is a good place to start examining buttons and manual controls. Among the devices here in the studio is the *Vermona Retroverb Lancet*. It is a small rectangular box, an analog multi-effect processor

to be used for sound and music. The small sturdy metallic enclosure has several buttons, knobs and switches. It is made by a small company and workshop in the eastern parts of Germany. It is designed and assembled manually in the workshop. On the company website, Vermona writes: 'Retroverb Lancet offers a comprehensive arsenal of many-sided effects for different applications. The spectrum by far surpasses classic reverberation, filter sweeps or overdrive because you are able to tweak and bend any parameter fast and intuitively to your liking' (Vermona Retroverb Lancet n.d.).

To intuitively tweak and bend parameters, I use the knobs and buttons for manual command and control. The cream-coloured knobs are placed on top of the small metal box. It has an aesthetic that evokes associations with the control panels of earlier industries. Maybe an old powerplant or some of the control rooms of a large factory. There are some aesthetic resemblances to the lighting system on the staircase. Somewhat vintage.

One of the knobs on the box is marked 'cutoff', another one 'resonance'. These are two common parameters to control an analog filter. When the knobs are turned, the sound running through the Retroverb Lancet shifts character. The knobs influence the resistance of components and the currents running through the connected circuits. No digital circuitry or software is involved. It does not house the intricacies of digital equipment, but analog does not mean simple. The combined minute manual movement of knobs can create a plethora of different effects. Sounds can rapidly turn from whisperingly soft and soothing to thunderously loud clamour via such small manual movements: 'even the simplest analogue filters mess with your sound in complicated ways', as it is put in an article on sound design (Reid 1999).

The resonance knob especially has a high sensitivity. Just a slight turn can change the sound dramatically. In some settings the sound turns from a murmur to an ear-shattering squeak. After some practice I have learned how to handle all the knobs. I start to get a grip of the device. It starts to feel familiar. What was first felt as volatile and awkward becomes, in a sense, part of me. The knobs become extensions of my body through which I engage with the inner workings of the circuitry. I can use the controls to turn the Retroverb Lancet into an instrument. A way to manipulate and manufacture sounds.

Buttons, knobs, and switches indicate that below the surface there are circuits and components. The box from Vermona houses several electric components such as resistors and capacitors. The visible controls are also components. Potentiometers and rotary knobs are staples of musical instruments such as synthesizers and effect processors. They have also been common in people's everyday life since electrical devices started to become more widespread. Components have been used to control sound; in other devices they have provided other kinds of manual regulation.

The gradual turning of a knob is a mundane action, but it has some evocative power. In the beginning of the 20th century the radio tuning control knob was introduced. With the radio technology, a slight turn of two fingers holding a knob could tune in radio signals from faraway, evoking electricity and antennas and the interplay between resonance and radio waves. The sounds induced by manual control came into the room through headphones or speakers. Vibrating membranes of speaker elements reproduced the broadcast sound. The manual turning of knobs happened in union and interplay with the sounds from the speakers. Feedback and frequency shifts, resonance and resistance. Rotating knobs and vibrating membranes. Shifts in sounds heard could trigger shifts of fingers on knobs, and vice versa. Listening to radio as well as music production are learned practices that are manual and embodied and involve various technologies (Björnberg 2009; Reyes 2010).

This learning aspect becomes even more evident when the numbers of controls increase. A consumer radio has relatively few possibilities for manipulation, compared with electronic music devices. When starting to use the Vermona device, I had to manually learn how it behaved when I touched it. I had to spend time with it, engage with it to make it mundane, to make me feel comfortable in its presence. I could read the short manual that was shipped with the device to understand some of its workings. But it was when I engaged with it manually that I started to get a grip, when I aligned with it. This is how media and technologies turn into everyday features, how power buttons and rotary knobs become mundane. Through manual and embodied engagement. Some devices require more commitment than others. There is a big difference between the touch of buttons on the power switch controlling the light in my staircase and the Vermona filter. Different conditions to gain results. These devices can be integrated in life in different ways. As instruments to engage with or as simple functional devices that you meet daily and fleetingly.

At some point even the most mundane functional devices have felt new and awkward. Even the power switch in the stairwell has been new and mysterious. Like all fairly advanced technologies and media. In a study of the mediatization of everyday life in 20th-century Sweden, ethnologist Orvar Löfgren underlines how novel and odd the first broadcast technologies were experienced, how they opened up worlds and changed lives:

> A farmer remembers his first contact with a radio receiver as an 8-year-old boy, back in 1926: 'I was lent one of the headphones. Oh, Jesus, damn it! You entered directly into heaven as you listened!' … Many have described the magic of the first confrontation with this new media: 'We felt that something new and grand and mysterious had come into our lives … to be able to sit at home and listen to

> speech and music from a long distance, it was something of miracle'. (Löfgren 2021: 40-41)

The listening to a radio could when first encountered be experienced as a miracle. Sound flowed out of speakers. But it was through fingers that control was attained. The turning of the tuning knob on the radio could have an evocative power. It could be both fantastic and mundane. It required some skill but was still quite easy to use. The question is who did the turning and tuning and who listened in different contexts.

The slight shift in position of fingers gradually shifted sounds that emerged from speakers. Static and modulated noise shifted in character and suddenly voices or music could emerge from the crackles and the hiss. Sometimes the sounds faded in slowly or they just occurred abruptly, evoked by a kind of manual surfing of airwaves. Sounds that came from different places, from different transmitters and creators. Solemn voices, cheerful music or dramatic stories. Different soundscapes. The tuning knob not only was a way to capture different radio signals, it also was a way to tune in different moods. Rotary knobs can be not just manual but also affective devices. This manual invocation of different moods, not just information, has gradually become part of everyday routines. Radio introduced new ways to correlate public with private, when 'sounds flowed in and out of the home in ways that did not make the domestic scene more privatized, but turned it, rather, into a laboratory for handling the outside world and organizing social relations' (Löfgren 2021: 38).

The relations between public and private as well as relations between the everyday choreography of manual engagement and the emergence of sensory and affective experiences have shapeshifted when new technologies have been introduced. Radio was a forebear of television, another way to bring new information and sensations, moods and experiences into people's lives. New ways to interrelate bodily moves and manual adjustments to the emergence of new media and technologies. How to turn knobs and how to sit in front of the screen. How to move in a room, how to furnish a room.

At the end of the 20th century the reception of audio visual signals was commonplace in most Swedish homes. Radio and television devices had become staple commodities. The reception of distant electromagnetic signals that were transformed into sensory experiences had become part of everyday life and another set of layers of Mundania was established. Button-based action at a distance was accompanied by sound and video from speakers and screens. The flick of switches and flickering screens, the turning of knobs and shifting sounds that saturated rooms.

Screens have become companions to manual button control in the 2020s. Smartphones, tablets and computers, as well as large-scale screens in public and private spaces, have become so common that it is a hallmark of life

in many places where people dwell or roam. It is hard to imagine that before projectors or the television were introduced about a lifetime ago, no screens with electrically generated moving and shifting images existed. Today the screen has become crucial for human experience, communication and sociality in large parts of the world. It is one of the most mundanized technologies around. To manage it we need manual control. Buttons have been around longer than screens.

Fleeting buttons

Screens and buttons permeate Mundania. Often, they have become amalgamated. Pressable buttons appear *on* screens. This was impossible when television first occurred. You could not influence, move, or shift separate elements on the screen of early televisions. The broadcast signal was transformed and experienced, but it could not be altered in any detailed or advanced way. The possibility of manipulating what appeared on screens became publicly available with the first video games. These got mainstream popularity in the 1970s. Arcade games and console games were developed, and at that time devices like joysticks made it possible to shift, move and influence what was experienced as discrete elements on the screens. These possibilities were developed further in coming devices. During the following decades, personal computers (PCs) were equipped with Graphical User Interfaces (GUIs). Now paraphernalia such as the computer mouse were developed. A kind of office variation of the joystick. By using a mouse, a visual cursor or pointer could be moved and positioned over a specific point or area on the screen. When the pointer reached the area, it became ready for engagement. This area could be programmed to function as a button. By pressing a button on the physical mouse, the on-screen button could be pressed, and some process could be initiated. In similar ways, other features on a screen could be manipulated or 'touched'.

These have been the basics of engagement with screens in homes and workplaces for decades, and the idea of screen navigation has become taken for granted. Instructions such as 'move the pointer up to the left, open the menu and press *X*' would have been totally incomprehensible some decades ago. Since the early video games and GUIs, the ways to engage with screens have changed dramatically.

The features of the screen are ephemeral, fleeting, in the sense that a combination of ongoing electric processes must constantly continue if the features are not to disappear. Turn off the power and the features disappear. A fleeting button on a screen is often referred to as being virtual. According to Paul Dourish, the invocation of the virtual has been the central discursive move of digitality (Dourish 2016: 35). This has happened to 'the extent that digital phenomena are rhetorically opposed to non-digital equivalents, and

that they further are connected through a notion of displacement, virtual objects – virtual books, virtual worlds, virtual organizations, virtual spaces, virtual meetings, virtual communities, and so on' (Dourish 2016: 36).

On-screen buttons are fleeting and more ephemeral than physical buttons. Often, they are called virtual. But they are not less material. Quite the contrary. Ethereal and fleeting digital entities, rendered as visual elements on screens, are based on intricate material assemblages. The same goes for other systems, based on what is experienced as ethereal or ephemerally ungraspable. Think about radio, wireless networks or devices. It indeed takes a lot of wire to make something wireless. Paul Dourish argues that what is often seen as virtualization, in fact is a rematerialization (Dourish 2016: 36).

As part of Mundania, elements like on-screen buttons are often approached as tangible, ready for action. Despite their virtuality, these might feel extremely concrete. Taken-for-granted parts of the everyday. But the extensive systems maintaining elements like fleeting buttons are often overlooked. This makes a button on a screen something very different from a button mounted on a wall some decades ago, even if they might theoretically have the same function. A press button a hundred years ago could be connected to a widespread distributed system. With contemporary on-screen buttons, the complexity of the system might have increased exponentially. They involve many more devices and much more labour and material than former, simpler systems. This is, however, seldom sensed or made sense of. When a button on a screen is pressed – let's say a button related to AI-, cloud- and web-based services – all the processes that are invoked beyond the screen and the room are hard to sense or to make sense of, and impossible to grasp in their entirety.

Getting the features right

April 2022. I'm sitting by the kitchen table, writing on my laptop. I move the cursor over the background of the Microsoft Word document, using the trackpad of the computer. Slight swipes with the index finger. The smooth surface of the trackpad recognizes the smallest of moves. The cursor appearing on the screen has the shape of an I-beam when it is positioned somewhere in the text area. The beam is an extension of my finger, moving effortlessly according to my intentions. It is a quite pleasurable sensation to see how the beam moves in a similar fashion as my manual movements on the trackpad. It feels smooth.

When I move the cursor to the left or right edges of the document, the cursor shifts guise to a double-oriented arrow. It happens immediately, without any lag. I can move the cursor back and forth: left, right, left, right, beam, arrow, beam, arrow. Here at this specific vertical sliver of the screen, the size and shape of the virtual document can be shifted. Just beyond the

edge, the cursor shifts to the guise of another arrow. Now pointing diagonally upward and to the left. Here the cursor has different features and functions. At some parts of the screen, it indicates that now the cursor is located in the Mac Finder. The premises of Apple. I have become accustomed to all these swift graphical changes and shifts of the cursor on the screen. It is part of the taken-for-granted and the mundane. This is how I engage with the tasks I'm concentrated on now. I usually do not think about the shape of the cursor. It is just there, and it shifts appearance in predictable ways.

The very look and feel of buttons and other graphical elements on a screen are extremely important to evoke what could be called 'the right experiences'. Elements, like a cursor, should react as expected. Look, appear, and change according to what is anticipated by a person in a certain situation. Even small discrepancies and deviations from expectations can, however, make something feel awkward, annoying or cumbersome. Here, things might vary. Different people's capabilities and preferences shift. Do you foremost use your left or right hand, how do you experience colours, which size of details and features do you prefer?

Despite variations, some designs have gradually become de facto standards and become widely disseminated, such as the windows, objects and features of computer and smartphone screens. Several of these features have prevailed for decades, while others have changed. New generations of software often come with slight and sometimes more extensive shifts of the screen arrangement. Recurrent adaptation to the changes of software features has become a condition of life in Mundania. Changes are, however, also debated and contested.

A very common design trick is to use metaphors from an earlier and well-known context in a new setting to make it feel more familiar. In software design and on computer screens, concepts such as desktops, canvases, trash cans, folders and windows have (re)appeared to make the new environments feel comprehensible. A specific aspect of this transferring practice is the use of so-called skeuomorphs. A skeuomorph mimics the form, shape and qualities of an object from another medium or the physical world in a new context, like on the screen of a computer or smartphone. According to Wikipedia, 'The term *skeuomorph* is compounded from *skeuos* (σκεῦος), meaning "container or tool", and *morphḗ* (μορφή), meaning "shape". It has been applied to material objects since 1890' (Wikipedia, skeuomorph, n.d.). The term has now for some time been used to describe interfaces of digital devices and internet-related phenomena (Larsson 2013; Willim 1999).

When it comes to graphical design of smartphones and computers, Apple has been a point of reference for some years. For decades Apple have used skeuomorphic design in their operative systems. The first generations of iPhones and several versions of Mac OS drew heavily on graphical imitations of other materials and textures such as leather bindings of books, paper

scraps and green felt. When new devices and systems were introduced, these features were thought to be aids for people to embrace first the personal computer and then the smartphone. Skeuomorphism was used to create a smooth transition for new users, by referring to earlier artefacts, technologies and milieus (Pogue 2013).

Even such a seemingly trivial aspects as the colour of the background on a screen can be an example of design that has some skeuomorphic dimensions. The white background in software like Microsoft Word could create associations with sheets of white paper , white A4s or US letter, like paper on the desks of most offices in previous decades. When the possibilities of inverting screen colours as part of 'dark mode' settings appeared, this associational link was broken. Dark mode was introduced so that users could choose a darker screen appearance to reduce eyestrain when working in poor light conditions, or to simply offer a new aesthetic look. Now it became evident that the background colour of a document on screen had a more complicated and somewhat arbitrary link to the world of white physical paper. This could become obvious when a document including different colours that had been produced in 'dark mode' was printed on a white sheet of paper.

Skeuomorphs have occurred in many settings, and they have had their proponents and critics. With the introduction of iOS 7, the operating system for iPhone, in 2013, the so-called death of skeuomorphism started at Apple. Before this, they had received critique that skeuomorphism had gone too far, that it had become ornamentations without functions (Pogue 2013). The new chief designer at that time, Jonathan Ive, also preferred more minimal designs, avoiding unnecessary ornamentation and references to historical artefacts and products. This preference for minimalistic design could be noticed among several Apple products, such as screens and remote controls. The number of buttons and points of manual control was diminished. As the reduction of skeuomorphs happened, several people were cheering. This is how the earlier skeuomorphism at Apple was described in *The Guardian* in 2013:

> Loosely speaking, skeuomorphism means 'making stuff look as if it is made of something else'. In this context, it is the logic that dictates that Apple's iBooks app resembles a cheap pine bookshelf, for example, and its Notes app resembles a yellow legal pad with lines and a margin – of the type last seen in about 1978.
>
> Look closely, and skeuomorphism is all over Apple and other user interfaces – the little shadows cast by windows, the highlights on virtual buttons designed to make them look shiny, like real buttons. Originally this was to help us neanderthals make sense of the dazzling new technology before us, as in: "Oh, I get it. That looks like a button, so

> I'm meant to push it." But Apple got skeuomorphism-drunk, plastering the screens of its futuristically minimal devices with incongruous faux wood, leather and green baize. It got ugly. (Rose 2013)

Skeuomorphs and the shapes and appearance of features, like so many aesthetic choices, aroused feelings. For some, the flat design could be experienced as more tasteful and smoother. Maybe also more future-oriented, with no exaggerated historical references. Questions about aesthetics and good and bad designs and experiences are however seldom simple. Trends and cultural phenomena are never clear cut, in unison and totally homogenous. There was no total death of skeuomorphs in 2013. Skeuomorphism was still important in design in the 2020s. The trashcan, folders and desktop were still design elements in digital environments that clearly referred to physical designs. Several software environments also used other detailed symbols from the world outside computers. But the trend away from skeuomorphism was dominant among several of the major providers of consumer software during the 2010s. In 2019 the neologism *neumorphism* (or neomorphism) also appeared in UX (user experience) circles. Neumorphism was based on the idea of quite a minimal design that took some inspiration from skeuomorphism. Instead of a totally flat design, buttons and other features were designed so that they looked slightly elevated from the background, like embossed structures, giving the impression of depth and 3D without using all the details that dominated skeuomorphism 10 years earlier. With macOS 11, also called Big Sur, Apple was also bringing back some skeuomorphic elements in 2020.

Discussions and controversies about design, aesthetics and how novel designs and technologies should be have obviously occurred before. The discussions about skeuomorphs and about decoration and faux textures and details can evoke associations with early modernism, maybe with the ideas about simplified forms and the rationality and functionality of the German art school Bauhaus during the early 20th century. The omission of unnecessary detail could maybe also be associated with Adolf Loos, an architect based in Vienna and active during the early 20th century. He strongly advocated architecture without clutter and ornamentation. In his lecture from 1910, *Ornament and Crime*, he took thoughts about evolution as the point of departure to explain how humans went through different stages that led them away from primitive ornamentation and towards more sophisticated designs characterized by smooth and clear surfaces (Loos 1908; Canales and Herscher 2005). Loos argued that the progress of culture could be associated with the deletion of ornaments from everyday objects. According to him, it was a crime to force craftspeople or builders to waste their time on ornamentation that would soon become outdated, out of fashion and obsolete.

Design trends and aesthetics do not, however, follow any rulebound evolutionary path, as is sometimes imagined and proposed. There is an ongoing entanglement of reiterations, opposing trends, slow as well as abrupt shifts, and a plethora of parallel preferences and designs emerging, transmuting and disappearing in different social and cultural contexts.

What skeuomorphs can show is that the most minute details can be contested and are often associated with broader ideas about what is and what is not preferable. Ornaments, skeuomorphs or minimal elements are small but important features. The appearance of that which people engage with is a prerequisite for mundanization. When elements appear in what is experienced as 'the right way', they can become taken-for-granted and more or less ignored. This can make life with devices and systems into smooth and comfortable experiences. Buttons are pressed and screens are swiped while people experience that they are doing something else, such as communicating with someone or creating something. The price of the smoothness and comfort is an unawareness of large parts of the things that are used. The shifts and appearances of the most minute details, such as graphical elements of a computer screen, are some of the often overlooked aspects of Mundania.

Interfaces

The graphical appearance of a screen is often referred to as the graphical user interface. Or the GUI, as mentioned in the section, 'Fleeting buttons'. It has become a widespread word, used far away from engineering and design offices. What can be sensed when dealing with a technology is the interface, or the human–machine interface. Buttons, keys, pads, sounds and sensors. Elements shifting on screens, through speakers or through haptic feedback. It glows, moves, buzzes, beeps, fades and swirls. Worn devices, generating layers of mediation between a person and the surrounding world. These seemingly concrete but also evading aspects, interfaces, are at the centre of human–computer interaction (HCI) and the design of UX. Skeuomorphs are part of interface design. Here, ideas about smooth, effective and good experiences of technologies are often at the forefront. How to design suitable and pleasurable experiences? A set of buttons should be organized in ways that appear as logical, users should get comprehensible feedback from their actions, navigation should be smooth, expectations of functions should be met. The user interface is where a human meets or engages with technology.

This is one way to think about interfaces. But there are more open-ended approaches, like the one proposed by Florian Hadler. According to Hadler, an interface is a cultural and a historical phenomenon.

> An interface therefore is not just a surface or a passive gateway or threshold, not only a mode or a site of interaction or communication,

> but a deeply historical artifact: a structured set of codes, complex processes and protocols, engineered, developed and designed, a space of power where social, political, economic, aesthetic, philosophical and technological registrations are inscribed. (2018: 2)

Alexander Galloway has furthermore suggested that interfaces are more processes than things (2012: vii). In this sense an interface is not only a meeting point or opening between a human and some manufactured system or assemblage. Not just where the finger meets the surface of the button, and where the pressing of a button generates sensory feedback. Not only some skeuomorphic feature inviting a certain action. Interfaces are entrances to larger issues.

In their analyses of interfaces and their aesthetic dimensions, Christian Ulrik Andersen and Søren Bro Pold have aimed to broaden the concept to comprise not only the designed environment between humans and machines, including buttons, screens and sensors. Neither should the interface be reduced to some of the many contact points and exchanges within a computer or between machines (such as APIs, application programming interfaces). They have proposed the concept of 'metainterfaces' to show how interfaces become ubiquitous and hard to grasp, 'networked or dispersed, at once everywhere, in everything and nowhere in particular as in e.g. cloud computing' (Andersen and Pold 2021: 1). The interfaces become part of environments, ambient and impossible to turn on or off through any simple action. Imagine someone walking into a room with several installed and networked sensors that can register and compute movements, sounds, shifts in temperature and so on. Some technologies might be worn, some might even be implanted under the skin of the person. If all of this is integrated in a dispersed system that provides services, then it is hard to point out where the interfaces start or begin. It is hard to discern what are the boundaries of technologies. When such a dispersed, intimate and ambient system is implemented, it raises further questions about mundanization.

Withdrawal

How are ambient technological systems integrated in public environments as well as in domestic settings? What is expected to be perceived, noticed or become matters of concern (see also Latour 2004)? For whom? The dynamics of attention is crucial for how variations of Mundania emerge. According to Hadler, a well-known proverb among interface designers is that the real problem of the interface is that it is an interface (Hadler 2018: 5). The goal of interface design can be to remove interfaces from attention, to make them disappear, to make them ambient, as Mark Weiser and his colleagues at Xerox PARC put it in the 1990s in their proposition for ubiquitous computing and

calm technology (Weiser et al 1999). In a comment titled 'The World is Not a Desktop', Weiser proposed thoughts about the future appearance of computers:

> A good tool is an invisible tool. By invisible, I mean that the tool does not intrude on your consciousness; you focus on the task, not the tool. Eyeglasses are a good tool -- you look at the world, not the eyeglasses. The blind man tapping the cane feels the street, not the cane. (Weizer 1994)

A person who concentrates on the task, not the tool must trust not only the tool per se but all the stakeholders that are involved in the provision of the tool, the technology and the intertwined systems. Anderson and Pold's analyses based on the metainterface also deal with the way that interfaces disappear. The Internet of Things and ideas about smart homes, cities and other places are often centred on the notion that interfaces vanish, and in that sense, they also become harder to grasp. Successful interfaces, however, disappeared long before ideas about smart homes or cities, ubiquitous computing or everyware (Greenfield 2006). When people are concentrating on doing something, they often ignore the devices they use to perform a task. This has also been the case with earlier computer technologies before ideas about calm technologies. When I write this, I do not think about the specific features of keyboard, screen or trackpad of my laptop. This vanishing has to some extent to do with the design of the technologies used, but it is foremost based on habituated action and incorporated practices. Often, people are not attentive to specific features of devices they habitually use, such as buttons or screens. The device (and the interface) becomes like an extension of the body, another entity humans take for granted. The question is when people have to think about the devices they engage with, their bodies, their capacities and the environment they inhabit. People's abilities can shift due to norms and circumstances, and the designs and affordances of things and environments (Egard et al 2022).

When things work as expected, when a device is successfully used for a task or as part of some activity or process, it is not really noticed. Not analysed, scrutinized, or examined. It has *withdrawn*. However, if it stops working, if a process is suddenly interrupted, when the flow is broken, it appears again. Withdrawal has been central to phenomenological theories, and one of the most well-cited examples is the use of a hammer. The experienced user of the hammer does not think about the particular features of the tool, but instead it becomes an extension of arm and hand used to hit nails or other stuff. The world is manipulated, altered and modified by the human+hammer. Anthropologist Tim Ingold, inspired by phenomenological approaches, discusses how skilled practitioners become absorbed in activities. He points out that the carpenter does not inspect the hammer when hammering, not

until it misses its mark. Similarly, the musician does not scrutinize the violin while playing, until it goes out of tune, or a string snaps (Ingold 2011: 80–81). Similarly, when I turn knobs on the Vermona device I described earlier, I mostly think about its particular features when it behaves in a way that I have not expected. I may, however, also attentively and reflectively experience it, enjoy my engagement with it, the feel of knobs, its visual appearance, its aesthetic presence. Enjoying it while still concentrating on the task, and not on its specific workings.

The dynamics of withdrawal is in one way obvious, in other ways it is puzzling. It raises deep-ranging questions about presence, awareness, abilities and attention. According to media scholar Shaun Moores, media studies can advance through an increased awareness about these questions, together with a focus on the phenomenological and the non-representational (2021). Moores especially uses the way music pedagogist David Sudnow has written about how skills are acquired in piano playing and typewriting, as well as computer gaming.

Moores suggests that we use phenomenological analysis and a focus on embodied practices and the quotidian to study the role of new digital media technologies (Moores 2021: 65). In his discussion he refers to how Maurice Merleau-Ponty developed a phenomenology about human–thing relations. In *Phenomenology of Perception* Merleau-Ponty also used musicians as an example, and he stressed the importance of embodied knowledge by showing how instrumentalists and musicians such as experienced organ players have embodied knowledge and do not rely on any scheme, analysis or mental map (Merleau-Ponty 1945/2012: 146).

What Merleau-Ponty sketches out is a 'knowledge-in-practice'. Experienced instrumentalists 'have a degree of responsive flexibility, which can be conceptualised as (in a general sense of the term) improvisatory' (Moores 2021: 60). The body of a person has become attuned to things that are used. Bodily postures, gestures and procedures develop through this engagement. Bodies and behaviours are altered through extensive dealings with different devices and technologies, such as cars, smartphones, cutlery, electric guitars, headphones, chairs and sofas. What are the bodies, relations and practices of a tech-infused urban home of the 2020s, or those of a rural peasant's cottage of the 1820s? Or how do technologies merge with bodies in more and more intricate ways, such as digital tracking and monitoring devices and implanted microchips (Fors et al 2019; Petersén 2019)?

Orientations

How is withdrawal related to domestication and mundanization? What can be controlled and comprehended? Tamed? Many technologies withdraw, become part of environments, but are still hard to grasp or comprehend. If a

technology withdraws and 'escapes attention', where is it then located? Is the withdrawal a fallacy of perception, or where do technologies go when they withdraw? To play with the spatial metaphor of the whereabouts of withdrawn technologies in Mundania, we could point out possible *orientations*, alignments or emphases of withdrawal (see also Ahmed 2006). These orientations could be used to sketch out ways to further imagine Mundania.

Three proposed orientations could be: in-between, beyond and beneath. These can be used to think about technological withdrawal, the ambient, the distant and the infrastructural. These orientations should, however, not be seen as outright spatial; they are spatio-conceptual, and fuzzy, residing both in space as well as in discourse and imaginaries. We can use them to evoke ideas about the whereabouts of complex technologies, both geographically and metaphorically. Where are crucial parts of systems located, and where do technologies go when they withdraw? The three following chapters will deal with these questions, based on the three tentative orientations, in-between, beyond and beneath.