



## Lives under the Sun; The sensory qualities of daylight in designing the everyday

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## **Abstract**

People's sensations of daylight and their practical, daily engagements with the sun and the daylight are described in this article. Based on a qualitative research project in Denmark the article shows how some Danes experience the world through the sun and its daylight and illustrates its significance to their bodies and lives as they describe it. By taking a biomimetic approach a metaphor is presented that, like plants, some people crave daylight in order to feel well. By showing people's engagement with the sun and its daylight the phenomenon of natural light becomes imbued with sociality and it is described how people design their everyday in accordance with the sun. The sensation of daylight normally taken for granted and acknowledged as a physiological element in our being-in-the-world is foregrounded and shown as a sense in people that may have a physiological origin when daylight hits the eye, but whose impact on people and their lives may best be investigated psychologically and socially, as when studying how daylight sensation is practiced by people and how it entangles and intertwines with their everyday lives.

(word count: 182)

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## **Lives under the sun; The sensory qualities of daylight in designing the everyday**

*“Put the pale withering plant and human being into the sun, and, if not too far gone, each will recover health and spirit.”*

(Nightingale 1860: IX, Light)

Humans live their lives under the sun and depend on the daylight transmitted by it. This dependency exists because daylight interacts with essential parts of our natural biological system necessary for the functioning of the metabolic and immune systems in our bodies. Many enzymes, hormones and vitamins seem to need daylight to function properly. One example is the relationship between sunlight and vitamin D: Without sunlight, our body cannot produce vitamin D and a deficiency of this vitamin can cause rickets. Another example is the need that some enzymes have for daylight in order to be activated, like the enzymes responsible for healing jaundice in newborns. Because of this, babies with jaundice are placed under a blue light to cure the disease. A third example is recognized to be seasonal: The biological effect from access to daylight becomes perhaps particularly obvious in spring; that spring is the time for falling in love is, to some extent, also because of the increased sunlight. The light that goes through our eyes ends as electrical signals in the pineal gland of the brain. When stimulated by increased light the pineal gland sends out melatonin to areas in the brain known to be involved with feelings of love, and an increase in dopamine and serotonin appears in the body<sup>i</sup>. It is precisely these neurotransmitters that many people seem to lack during the dark and long winters in the Nordic countries or in high latitude areas in general. As a substitute for unavailable daylight light therapy is recommended, artificial light with a lux corresponding to natural daylight, as a medical treatment against Seasonal Affective Disorder (also called ‘winter depression’) (Magnussen & Boivin 2003; Rosenthal et al. 1984, Rosenthal 2006).

The use of daylight for health or therapeutic reasons, heliotherapy, is not a new phenomenon. It has been used for thousands of years based on tacit knowledge and layman experience<sup>ii</sup>, but today we know scientifically that daylight has a positive influence on our efficiency and learning, as well as on our mood: Humans prefer light over darkness (Beute and de Kort 2013). Studies have shown light to have a direct effect on human health because of the way it influences the circadian rhythms (Moore-Ede et al. 1982) and a review of health outcomes of nature and daylight shows that daylight may have some stress-reducing health effect on humans (Beute and de Kort 2014). Precisely because of the dependency of daylight it appears strange that the *social* significance of daylight to people, such as its relation to comfort, how the daylight in practical ways affects people’s lives, or how they think of and use the daylight at home, is very little researched by the social sciences. The above health focus on daylight may in fact be the cause of this neglect, since the health orientation seems to have constituted daylight as a research area for the natural sciences<sup>iii</sup>, and for architects<sup>iv</sup> and engineers, hereby turning daylight into a phenomenon devoid of sociality. An anthropology of natural elements such as the air, sun, water, fire, earth (Bachelard 1964, 2002, Hauge 2013a, Ingold 2000, 2007, 2013) would, however, argue for the need to investigate the *social* qualities of the particular phenomenon and the potentially important insights from how people live with and through these natural elements and use them in their daily lives, and what they say, feel and think about

them. Despite this, people's entanglements with daylight, their thoughts, feelings and specific actions, such as how to avoid glare from the sun, what they do to let daylight into their homes, their joy from seeing a sunrise from the kitchen window or feeling the warmth from sitting in a sunny window, have so far been neglected. This is no surprise of course, since it is not the aim of the natural sciences to deal with socio-cultural aspects of natural phenomena. It does, however, seem unbalanced when taking into consideration that a part of people's lives and wellbeing depend on daylight and access to it. It is precisely the physical and emotional dependency combined with the large seasonal variations in the quantity of sun that make daylight important to people in high altitude areas such as Denmark (Hauge 2013b). Consequently, this article highlights social aspects relating to the natural phenomenon of daylight.

Based on a qualitative research project in Denmark performed from May to August 2012 among 13 families, using in-depth interviews, observations, photos and postcards for storytelling<sup>v</sup>, I will show how daylight is perceived, used, coped with, and negotiated by these people in their homes, thus exploring the social character of a natural phenomenon. By drawing on biomimetics (Benyus 1997) I will use a metaphor from biology and dare an analogy between plants and the behaviour of the Danes, claiming that the Danes participating in the study crave daylight for feeling well. With phenomenology (Merleau-Ponty 1970) and the concept of dwelling (Ingold 2000), which implies that people engage in their environment and create possibilities for dwelling at home so as to be able to feel comfortable and at home in the world, I will illustrate people's day-to-day entanglements with daylight and thus highlight the social qualities of daylight. My argument is that daylight is more than just another sporadically perceived sensation of a natural phenomenon; it is *a sense* in people and like all other senses a bio-social-cultural one (Smith 2008).

While including the 'bio' aspect investigating daylight this way and seeing it as a sense does *not* imply that it is devoid of cultural impressions. Research in the senses in an anthropological perspective have shown how the senses are historically and socio-culturally embedded in not just people's lives but in society, reflecting and mediating cultural experience (for studies on how the senses mediate culture and cultural experience see e.g. Classen 1993, 1997, 2012, Corbin 1986, Howes 1991, 2003, 2004, Smith 2008, Stoller 1989<sup>vi</sup>). Consequently we must also understand the role of this sense of sun and daylight in history and across cultures to demonstrate the double role it plays, mediating cultural experience (Mighall 2008) and making us experience the world. The use of daylight throughout history and how the social significance of daylight has been culturally shaped is briefly described in an introductory note to this article. Here focus is on people's everyday life entanglements with daylight, aiming at foregrounding sensations that appear to have customarily been seen as so basic to bodily existence that they have been taken for granted, only of interest to the natural sciences. The article thus contributes to an anthropology of the elements where both the topic of inquiry, daylight, and the lives people live are seen as mutual constituents of each other, as partners in an on-going, dynamic entanglement. I make the foregrounding by investigating the qualities of daylight, placing and exploring the sensation of daylight in people's active lives at home and by taking a phenomenological perspective. Consequently, I shall briefly situate my article within the phenomenological tradition and clarify the theoretical outset so as to show the basis for my claim: That the Danes in the investigation in certain ways behave like plants and that daylight constitutes a sense. I shall then present the

analysis of the qualities of daylight and finally conclude if there is anything new under the sun.

## A biomimetic and phenomenological inspiration

*“It is a curious thing to observe how almost all patients lie with their faces turned to the light, exactly as plants always make their way towards the light”* (Nightingale 1860: IX, Light)

Not only had Florence Nightingale observed that sunlight seemed to attract the attention of her patients, she also saw positive effects of it<sup>vii</sup>, making her refer to the sun as a sculptor: *“It is the unqualified result of all my experience with the sick, that second only to their need of fresh air is their need of light; that, after a close room, what hurts them most is a dark room. [...] People think that the effect is on the spirits only. This is by no means the case. The sun is not only a painter but a sculptor.”* (Nightingale 1860: IX, Light).

Florence Nightingale seemed to be inspired by nature in her observations of human beings, somewhat similar to the idea of biomimicry. Biomimicry, also called biomimetics, is the study of the structure and function of biological systems, mostly as models for the design and engineering of materials and machines. Janine Benyus (1997: Introduction) coined the term ‘biomimicry’ as follows:

”men and women who are exploring nature’s masterpieces – photosynthesis, self-assembly, natural selection, self-sustaining ecosystems, eyes and ears and skin and shells, talking neurons, natural medicines, and more – and then copying these designs and manufacturing processes to solve our own problems. I call their quest biomimicry – the conscious emulation of life’s genius. Innovation inspired by nature. In a society accustomed to dominating or “improving” nature, this respectful imitation is a radically new approach, a revolution really. Unlike the Industrial Revolution, the Biomimicry Revolution introduces an era based not on what we can extract from nature, but on what we can learn from her.”

While the above refers to a way of copying nature to design *things*, I use the biomimetic approach as a way of comparing the Danish informants with nature – to show how human beings have ingenious, socio-biological ways of engaging with the environment, designing *lives* according to and with the environment. Like Nightingale, I use the analogy of a plant for describing how nature deals with the sun and the daylight it needs for the photosynthesis and compare this with the behaviour of the Danes participating in the study. For this reason I shall briefly summarize how most plants on earth relate to the sun.

Plants search for the sunlight, depending on it for their growth.<sup>viii</sup> Light-sensitive pigments are sitting at the tip of the leaves or buds, which makes it possible for plants to bend up to 90 degrees towards the light. This kind of growth directed towards the sun is called phototropism and the process is set in motion by a particular growth hormone in the plant, called Auxin, derived from ‘auxein’ which stems from Greek and means ‘to grow’ (in general, not only plants). For the plants to grow upwards, they have a receptor that responds to the force of gravity (geotropism). The entire system is organized to get and use as much light as possible, but all plants have developed their own strategy. The quest for sun is seen in shapes too; for example, a

long tree trunk or plant stem make the tree/plant grow its crown on top where it gets the most sun. Leaves, however, are flat because they get little sunlight. Leaves have their flat side towards the light and sit offset from each other so as not to shade. The capability of growing through the intake of sun thus reflects what I refer to as ‘auxination’, that trees and plants ‘auxinate’.

Naturally Auxin only exists in plants, but in the analysis of people’s entanglements with daylight I use ‘auxination’ as a metaphor for the feeling of well-being that people refer to, a representation of a mental growth hormone: Their sense of daylight. Using Auxin metaphorically on humans is both bold and reductionist; none the less, it illustrates the point of people craving sunlight on an existential level.

Furthermore, claiming that daylight reflects a sense of its own requires a brief elaboration, since it contradicts the old, common idea of humans having five to seven senses: Sight, smell, taste, hearing and touch that all relate to sensing the environment, and sense of balance and sense of body that make us able to place ourselves within the environment. What constitutes a sense is a matter of some debate, leading to difficulties in defining what exactly a sense is, but there seems to be a general agreement that a sense reflects “any system that consists of a group of sensory cell types that respond to a specific physical phenomenon and that corresponds to a particular group of regions within the brain where the signals are received and interpreted” (Wikipedia 2014). This definition suggests that we have far more senses than the common five to seven, such as: Pressure, thermoception, proprioception, nociception (pain), itch, thirst, hunger, equilibrioception, stretch receptors, the sense of time, etc. If we have the receptors needed for the sensation, we may experience it<sup>ix</sup>.

Rather than categorizing the human response on daylight as belonging to the sense of sight the above definition makes it possible to see it as an individual sense, one we may name luxception<sup>x</sup>. Also, not only are cells present in the human eye and pass on signals gained from the sun and its daylight to the brain, but people explicitly refer to using daylight, as they say, “*to avoid feeling blue*” during winter and are very strategic about this. I claim that this reflects their sense of daylight, as represented by their mental and physiological need for it and the cell response referred to in the definition above.

Getting as much daylight as possible during winter is one way of interacting with the environment. People’s interactions with the environment, here their daylight encounters and actions relating to daylight constitute a natural outset for studying their relations with it. These relations may be intuitive or intentional, but since daylight is a natural, sensory phenomenon that permeates their bodies and is transmitted into their homes as something light, bright and warm, people’s bodily perceptions of sun and daylight need to be investigated. This may, however, pose a methodological problem that relates to transparency (Merleau-Ponty 1970): In general, perceptions of daylight may not be something people reflect much on; daylight is a sensuous object that may only during conversation become transparent as something going through or affecting their bodies and minds, integrated in such a way that it may not be experienced as an object or a phenomenon; rather the world is experienced through it. As described by the classic case by Merleau-Ponty of the blind man and his cane: Once skilled at using the cane, the blind man does not experience the cane as an object; instead, he experiences the world at the end of the

cane. The cane has become transparent to him. Likewise it is to be believed (and was seen) that in some ways people act towards the sun and daylight in intuitive ways, since daylight permeates the body and becomes part of it, similar to the blind man and his cane: The body mediates the world and its environment (the sun and daylight), showing processes of unfolding and becoming. This article precisely aims at describing human perception of daylight in the *lived world* and that people are, in Merleau-Ponty's words, *intertwined with the world*. Merleau-Ponty says that the world given in perception is 'the concrete, inter-subjectively constituted lifeworld of immediate experience. Moreover, it is a world of familiar cultural and natural objects, of other people, *the world in which I act*' (ibid: xvi-xviii, my highlights). Adopting this perspective I shall highlight *acting* as a way of showing how people are intertwined with the world in this case through actions relating to daylight.

People perceive/sense the warmth of the sun and are able to see the daylight coming from the sun with and through their bodies, and, occasionally, respond to these perceptions of daylight by performing certain actions, such as reducing the glare on the flat-screen by drawing the curtains, wearing sunglasses against an intense light from the sun, or placing their chair in a sunny spot to enjoy the warmth, etc. They may even have painted the room in a special colour so as to allow for the daylight to reflect the colour in a more intense way. They refer to daylight as something that may dissolve the horizon and occasionally make it difficult for them to focus their gaze and see the things surrounding them. This way of taking in the daylight makes their bodies represent a structure of experience through which the world is experienced, and as such transparent. The body is transparent in the sense that one looks through it to the world: "At this level, pre-reflective bodily experience is precisely the experience of the world as given through the 'transparent body'. The latter is not perceived as an object but experienced specifically as a subject perceiving and acting, that is, in-the-world." (Legrand 2007: 504).

Still, despite the fact that their bodies are 'transparent', permeated by the sun and its daylight, people still involve materials as a part of their reaction patterns; Curtains are drawn, chairs are moved around, or they themselves move around and change seat, computers and TV screens are placed where glare is avoided. That daylight affects the materiality that surrounds people shows that the entanglement between humans and daylight is one that is often mediated through materiality, as will be illustrated below.

After this theoretical outset the analysis and empirical descriptions of people's lives with daylight will now be presented, with a general introduction to the analysis first.

## The sensory qualities of daylight

*"Umm, just imagine yourself in a spot of sunshine. One should have been a cat."*  
(Sofie, with eyes closed and a smile on her face)

Investigating daylight to some extent involves investigating darkness (which in this case corresponds to days with little or no sun and thus lack of daylight). During all visits I spent time with people at home during the day so that some daylight would be there but occasionally the weather was both dark and rainy, preventing the daylight from entering the home. Furthermore, some of the houses visited were quite dark, yet this had little, if any, impact on our conversation on daylight; people were in general highly reflective about the phenomenon of daylight itself and had no problems talking

about the sensation of it, even if it was not there during our conversation. People did, however, talk of daylight in ways of negation: As a concern for lacking it or as a longing for more sunny days. All the participants referred to health issues relating to the question of getting enough daylight and many were quite emotional about daylight, something they themselves attributed to the fact that the sun and its daylight can be scarce in Denmark and therefore probably more appreciated when actually there. Since dark days are common to the Danes daylight was seen as a rather rare, seasonal phenomenon. This may have made them more attentive to the qualities of daylight. Understanding the significance of daylight to people thus seem to require some knowledge of how they feel about dark days/lack of daylight, since the quality of daylight is shaped according to perceptions of dark days.

As mentioned above an impressive interest appeared when talking with the Danes about sun and daylight at home<sup>xi</sup>. All spoke of daylight as something they were aware of, many referring to it as *“so rare that we simply have to pay it attention”*. Naturally people also referred to feeling annoyed by the light, when there was a glare or it was too sunny, but in general daylight had positive connotations, whereas the negative characteristics, like the fear of skin cancer, related to the sun. Daylight was described as *“essential”*, providing them with *“life and energy”*, feelings of *“happiness”*, *“joy of life, you feel uplifted from sitting inside in a sunny place”*, *“health and cleanliness”*, and as *“a source of inspiration”*. Both the health concern and their emotional and reflective ways of talking about daylight seem to support my claim to see daylight as a bio-social phenomenon integrated in people’s lives and reflecting a sense important for their well-being.

With the above attributes it can hardly surprise that people take great care to get as much daylight as possible into the home, like Sofie, who lives with her family in a house in the countryside, describes in the following quote:

*“We have the light and the air, we really have the pleasure of the big sky, and that’s wonderful. It’s really something we enjoy, so we only have curtains to avoid a glare and in the windows facing the road. And here in the kitchen we changed the door to a glass door so we get more daylight than before. We also try and minimize all the odd stuff in the windowsills, because they steal the light too. It’s about getting the heat from the sun and keeping the direct sunlight out.”* (Sofie)

Maximizing the amount of light that enters the home seems imperative to Sofie. This may relate to the fact that the sun itself and the daylight it mediates can be sources of inspiration and comfort to the residents. Helena lives in a town in the countryside where she works as a reverend in a parish, and she explains:

*“I really enjoy that I have the morning sun and in the afternoon too here at my home office. It’s important that I have a lot of windows because I often get inspiration from nature. Daylight provides me with a special calmness and joy, and I often use light in my sermons. The church is designed with a special attention to the incoming light. I find it SO interesting that relatives have told me after burying someone they loved that even in their grief, they felt joy from being touched by the warm sunbeams in the church. The sun comforts and warms us. There’s consolation in daylight, it’s a travel away from darkness. In daylight lies a blessing. It’s also mostly in sunny places the children choose to play.”* (Helena)

The above quotes introduce to the empirical analysis by referring to important characteristics of the sun and its daylight; that these sensations have social features

attached, facilitating inspiration and comfort, and are phenomena that may even console or empower people in their mourning.

With reference to inspiration spurred by the sun and daylight, it has been said: “*Where there is sun there is thought*” (Nightingale 1860: IX, Light). This may well be true, but people not only referred to the mental contributions of having sun and daylight in their lives and at home. They also spoke of more functional features that daylight seemed to affect or enable, such as providing the home with light “*more pleasant to see by than artificial lighting*”, and giving character to the shape of the room and its colours. Daylight shapes the room because it provides the room with shadows and spreads out different types of light in the home (Bille and Sørensen 2007).

The pleasure of sitting in a spot of sun and the ability of the natural phenomenon of daylight to provide comfort to people will form the first part of the analysis, ‘Healthy daylight’. The second part, ‘Types of daylight’ will illustrate different types of light and how these types of light interact with the materials in the environment. The third part, ‘Following the sun’, aims at showing how daylight appears to resonate with people, prompting them to pursue and interact with daylight. Naturally the three parts are intertwined and consequently some overlapping may occur.

## Healthy daylight

*“It feels healthier with all this brightness, ease and clarity”* (Cecilie)

Cecilie and her husband live in an apartment in Copenhagen, at the top floor, with a wide view and daylight pouring through the apartment. She explains that this was a major reason for buying the flat and that the light makes it more pleasant to be home: “*I have a favourite window and that’s partly because of the light. Also the frame of the window; that the light is parted exactly the way it is, exactly here. It makes it nicer to be here. It’s something to do with atmosphere. [...] We have little need for lamps now, and it feels healthier with all this lightness, ease and clarity*” (Cecilie)

The health issue appears many times in the empirical data, often recounted as a shortage of daylight. Many informants refer to sun and daylight as something they feel they lack. This may be real: Seasonal Affective Disorder is caused by too little daylight resulting in a low production of serotonin. Depending on latitude, the amount of people suffering from seasonal affective disorder (SAD), or from a milder form called sub-syndrome SAD (or S-SAD) (Avery et al. 2001a, 2001b) is estimated to be around 5-8% of the population in Denmark, with as many as 10-15% suffering from S-SAD. Young adults and women seem particularly affected by SAD (Roecklein & Rohan 2005). The numbers may in fact be higher, since a more or less vague sense of feeling “blue” or being tired during the entire winter may be information that never reaches the doctor.

Henrik and Mette live in a detached house with their two children in a small town. They have made several changes in their home and also an extension of the house. Henrik took great care in designing a large window that now provides daylight in the living room, the kitchen and the extension throughout the year and explains further about his interest in daylight:

*“I generally pay quite a lot of attention to daylight. Right now it’s a real big issue at work, because management have made the windows dark, it’s like a film they’ve put*

*on all the windows so we won't get distracted or to avoid a glare or that it gets too hot for us. But I'm in the IT department and look into screens the entire day, so for me it's really important to have a view and some natural light. Some weeks ago I could enjoy the fields and the light, but now it's all dark. I'm actually wondering if it will make us depressed. All of a sudden I've got a really lousy working environment.”* (Henrik)

Henrik refers to the significance of having daylight not just at home but at work too, showing that special functions may have particular demands, physically and mentally, for daylight. Being aware of the significance of the sun and daylight for one's health may partly explain why 70% of the Danes in a population survey made in 2008 by a chain of real estate agents refer to light and influx in rooms as 'the most important factor for your perception of the living room in a house' (HOME 2008). Helle, who bought a ground floor of a house in Copenhagen, seems to confirm this finding:

*“We get all this light in. It puts you in a good mood. It was one of the reasons for buying the house.”* (Helle)

### Types of daylight

*“The light must in, but it's ok, nice, if it's filtered through something, I think.”* (Peder)

Jørgen, whose preferred light is “*scattered light*”, lives in a house from the 40ies and, like Peder, he enjoys light that passes through something, like when light shines through the crown of a tree. This is what he calls “*scattered or filtered light*”, and he feels this type of light particularly pleasant, as opposed to the sharp, direct light that he and all the other informants find unpleasant to the eye, “*too intrusive*”.

Helle and her family bought the ground floor of a house in Copenhagen, and the old, coloured windows was one of the reasons. Helle enjoys not having the direct sun into their rooms:

*“It's beautiful with the coloured glass and the old windows, but they also require a lot of maintenance. Luckily we don't get the direct sun here”* (Helle)

So sunlight and daylight do not fit into one fixed category, 'natural light', and they may have negative connotations also. Different types of sun- and daylight seem to exist, showing the diversity of the natural phenomena and of the sensory perceptions of people as well. Among light experts daylight is categorized into three groups: Sunlight, skylight and reflex light, but ordinary people are not aware of these categories and distinctions. They have their own ways of categorizing, and in the interviews people described daylight in words like: “*scattered light*”, “*filtered light*”, “*sharp light*”, “*light that blinds*”, “*direct light*”, “*direct sun*”, “*a glare*”, “*seasonal light*”, “*healthy light*”, “*pleasant light*”, and “*negative light*”. Mette explains about “negative light” that incoming daylight also reveals when it is time for cleaning and that, sometimes, glazed window glass could be a relief in that sense.

The informants also pointed to the fact that light gets its individual character from interacting with the materiality it meets, such as the windows, the room itself, and the interior and colours<sup>xii</sup> here. Jørgen describes it this way:

*“The daylight gets its character in combination with the walls and from the way the light is broken and reflected.”* (Jørgen)

Jørgen and Eva have recently got new windows in their house, resulting in “*a totally*

*new home, with all this new light. We so enjoy the light of the seasons*". Different types of daylight reflect the seasonal environment: from the strong and intense light during summer, to the misty daylight in autumn, to the scarce daylight during winter, occasionally reflected onto the snow and to the daylight in spring that often gives a certain scattered light into the homes, since the sunlight is filtered through blooming trees. The daylight was thus also appreciated for its ability to provide information on the weather and season. The importance of getting knowledge about the world from the natural elements corresponds to other findings on how people use the fresh air from outside into their homes (Hauge 2013a), but is not the focus here; by taking a biomimetic look at the two phenomena the aim is here to show sun and daylight as imbued with sociality by showing people's social, mental and physiological entanglements with the sun and daylight.

### Following the sun

*"I move with the sun."* (Cecilie)

Countries on high latitude like Denmark have a scarce amount of sun. It was expected that many informants would speak of the high significance of the daylight (all did) precisely due to its scarcity. But many also spoke of enjoying following the sun. They spoke of this both in the sense of keeping watch with its movement on the sky during the day, for instance to figure out at work if they would be able to have time in the garden while it was still sunny, but also physically following the sun inside the home, seeking places of warmth or cold for pleasure (as described also by Heschong 1979).

Architectural design rules tend to promote that houses be placed on the ground according to the movement of the sun, also often involving the rooms: The bedroom is situated in the chill north-east direction, the kitchen frequently faces east, and living rooms south-west so as to enable influx here from the afternoon and evening sun. However, most of the informants had moved into already built houses or flats where it was not always possible to have the specific rooms in the light-wise most favourable position. Still many referred to moving in a kind of synchronous way together with the sun. Cecilie explains:

*"These windows and the grand view have probably given us a more intimate knowledge of the weather and the shifting light. We've got a different rhythm now. I move with the sun. It's fun to see that when my husband returns from work, he and Theodor [their son] automatically seek the light. There's more physical play here in this room, all the toys move in here even though there is less space to play on. We follow very different routes, but I think that what we probably have in common is following the sun."* (Cecilie)

Ginette lives in a house by herself in a town in the countryside, and like Cecilie she expresses the pleasure of following the sun. Working long hours and often arriving at home when it is dark has made Ginette particularly fond of her kitchen that has a view of the sunrise. This brief moment of taking part in the beginning of the day and seeing the dawning light is highly appreciated:

*"To me it's really important I have daylight where I actually am. The daylight gives me joy and the window is its transmitter. This house is pretty old, but I have big windows, also here in my kitchen facing east. My breakfast is important to me. I have some time to myself before the busy time at work and I enjoy it a lot. I can see the sunrise, you know. It really makes you feel uplifted. I've designed my rooms according to the sun; in the afternoon and in the evening the sun is in the living*

room.” (Ginette)

Tove and John live in a house from 1936 where they have renovated the basement and implemented new windows to increase the influx, creating rooms that ‘follow the sun’ in the sense that the office gets the late afternoon sun. Tove explains:

*“We can use the basement much better now, it’s not just a place to sleep, because now we have the light and that means I can use it as an office, it’s bright enough, even when I get home from work, so you don’t sit here and get depressed.”* (Tove)

Tove also describes how she follows the sun on behalf of her plants that are placed strategically in her house so as to get different amounts of sun. In windowsills with little daylight or sun, she has put plastic flowers:

*“Well, I really fancy orchids, but they can’t grow in these windows, it’s much too warm and sunny. And since I don’t want to miss the daylight I have to cheat with the plants.”* (Tove)

So the daily influx may also set limitations to people, but it is not regarded as a problem but rather something that needs to be dealt with creatively.

### Summary: Living with daylight

Like plants, the Danes participating in the study appeared to follow the sun for auxination. For plants, to grow upwards their entire system is organized to use light as much as possible, but all plants have their own strategy. This we see among humans too: Indulging in sun bathing is certainly an individual matter of course also due to the skin being more or less fragile, people being more or less shy, more or less heat resistant/tolerant, etc. Many informants referred to the pleasure of sitting in a spot of sun, finding a sunny corner, lifting their heads to the sun. Despite differences in how much sun people liked, all the Danish participants in the study expressed a need or a craving for daylight in order to stay healthy and avoid SAD. Some had invested in new windows to get more light, others preferred windows without curtains to allow for as much light as possible. All were remarkably attentive to sun and daylight, referring to it as a source of energy and inspiration. All three analytical parts thus seem to support the idea of daylight representing a sense among people, anchoring them in the world not merely as perceived sensations that remain within their bodies and minds, but by daily considerations and actions that precisely relate to the sun and its daylight.

### Nothing new under the sun?

#### Some concluding remarks

The sun has always been a central element in the lives of human beings. Our ancestors adapted to the natural cycles to be able to survive and we still depend entirely on the energy and the biological processes in nature spurred by the sun. The daylight stemming from the sun plays a major role as an external regulator of our inner, biologic, circadian rhythm, and also when it comes to our mood. The sun and daylight are important parts of people’s lives in the sense that these natural phenomena influence on the lives of people, the design of their lives, their wellbeing. This prompted the biomimetic inspiration that enabled the comparison between plants and humans who both turn to the sun and engage in a symbiotic relation with the sun and the daylight. Like plants (some) human beings auxinate.

New approaches may be useful to understand the significance and profundity of the sun and its daylight as something sensuous to the individual, as a natural element that needs to be investigated on its own terms, but also as an area where other research areas may be required for understanding the phenomenon in depth. When investigating what a natural, sensory phenomenon like daylight meant to people and how it related to their being-in-the-world I found inspiration in biomimetics, but the outset in biomimetics is a nature that adapts entirely to the sun conditions (as the interviewed Danes appeared to try as well). This analogy is of course a problem since people are not able to adapt entirely to the natural environment. Their lives are far too complex, as are their being. 'Being' is not an easy task, being-in-the-world even less, since it requires that we are willing to find the world, sense it, and react on it, filling it with meaning that makes sense to us in our dynamic lives. Hence biomimetics may be a far too simple way of approaching complex, dynamic, natural phenomena that are part of people's chaotic lives. Still, when we talk about studying and understanding people's lives we need to recognize the *design* of lives, that people create their lives creatively through their engagement with the environment, and using a biomimetic approach has precisely given new inspiration to understand people's environmental adaptation. We perceive life by sensing it, for instance through auxination, we enact life by reacting on the sensations as life goes on. It is precisely through our practicing that we bond with, respond to, and comment on the world we live in. Whether chaotic or not people still respond to their environment, enact lives in different thermal zones and climates, and need to incorporate the dynamic environment and its seasons. Our lives are lived with a view to the next day, upcoming events, and the weather of tomorrow, in and between seasons. When lives are lived in accordance with the natural environment human beings often live seasonal lives, like Mauss (1979) showed in his description of the Eskimos whose lives involved an entirely different winter and summer lifestyle with a distinct social morphology for each. The type and frequency of seasons in Denmark also seem to prompt a kind of organization of people's lives, including paying special attention towards the sun and daylight, and in the sense that people basically need to adjust to the seasons and their individual characteristics. There is a saying in Denmark, probably common to many countries, 'the weather is never lousy, but your clothing may be', reflecting the need to dress to the occasion: The weather.

All the Danish informants state that sensing the sun and daylight in their lives is highly cherished and something that makes them feel well. This is a further argument for an elemental anthropology (studying the air, water, sun, fire, earth, environments that are hot, cold, dry and wet, or other natural elements in people's lives like snow and trees) that highlights the intertwinement of these natural elements and people, as reflected in the aim of this article: To show people's sensations *in the living*, their relations to sunlight and daylight and their practical engagements with the sun and the daylight in the lives they live. In other words, experiencing the world through sun and daylight integrated in people's bodies and lives. The 'new under the sun' is that by doing so *sun and daylight become imbued with sociality*. The sensation of daylight normally taken for granted and seen as a physiological element in our being-in-the-world has been foregrounded and shown for what it reflects: A sense in people, one that may have a physiological origin when daylight hits the eye, but whose 'effect' on people and their lives may best be investigated psychologically and socially, when studying how the daylight sensation is practiced by people and how the sensation entangles and intertwines with their everyday lives. This way a more profound understanding of the significance of a natural phenomenon to people may appear.

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## Notes

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<sup>i</sup> More access to daylight is only one element in the increased dopamine production during spring. Dopamine may also be triggered by the general increase in novel information to the brain. These pieces of novel information involve many sensations, such as new and more colors, new smells, seeing more of people's physical bodies, all making people more susceptible to falling in love (Fischer 2006).

<sup>ii</sup> A historical account: For thousands of years people all over the world have revered the importance of light for the functioning of the human body, using sunlight for medical treatments. The first records indicate that heliotherapy dates from about 1400 BC. Hindus treated patients with skin disorders using different plants followed by exposure to sunlight. Hippocrates, in the IV century BC, recommended sunlight to treat a variety of diseases. Ancient Egyptian, Greek, Roman and Arab physicians integrated light therapy in general medical treatments. Although ancient physicians believed the therapeutic effect of sunlight was due to heat of the sun, no scientific explanation for the sunlight therapy existed at that time. At the end of the 19<sup>th</sup> century, heliotherapy was recognised by many physicians. "Open-air" exposure to natural sunlight was widely used for the treatment of wounds during both the First and the Second World War in the United Kingdom, Italy, France and Germany (Bioptron 2007). At the end of the 19<sup>th</sup> century daylight for medical purposes was introduced, apparently prompting sun bathing as a practice in the North Western part of Europe (sitting or lying in sunlight as an aim in itself). The medical classification of sun baths as "healthy" combined with the new, modern concept of leisure time seemed to lay the foundation for a new aesthetics that praised the suntanned beauty, in particular among people with fair skin. Till about 1900 a suntan showed ones low social class since it was a sign of working outdoor, but now a suntan became a status symbol representing leisure time and health. In the early 1900 the upper classes started sunbathing during summer, fully dressed but now without face coverings. In the 1930ies sunbathing included legs, arms and back, which required new bathing suits, shorts, sleeveless dresses and sun cream. In 1946 the industrially produced bikini was introduced to women (yet drawings in Pompeii from appr. 300 BC show bikinis on women) (Kidwell 1963). Free from the medical category sunbathing and tanned skin became increasingly popular, but followed also by an increase in skin diseases in the 1990ies.

<sup>iii</sup> A new type of cell in the human eye was discovered in 2001. These cells send information about light intensity to the brain centers responsible for controlling circadian rhythms to patterns of light and dark, telling our bodies when to sleep ("it's dark!") and when to awaken ("it's light!"). Related research concludes that people in industrialized countries receive both too little light by day and too much light by night for optimal well-being. One solution to this has been a renewed emphasis on architectural daylight. Daylight is rich in the blue-green area of the visible spectrum (to which the newly-discovered cells are most sensitive) and bright at the times of day that seem most important to regulating circadian rhythms. A review study focusing on the effects of daylight in residences conclude that human well-being relies on regular exposure to light and dark each day; that daylight is the most energy-efficient means to deliver the light exposure; that uncontrolled daylight also cause problems (glare from the sun reduces visibility and causes visual and thermal discomfort); that the optimal pattern of light and dark exposure - as well as the limits at which daylight control is needed - varies by race, age, and individual differences; that the desire for daylight also depends on how building openings affect the appearance of the space, on the function of the space, and on cultural norms about privacy, enclosure and view. It was further found that a view of the outdoors is also a contributor to well-being, particularly if it is a nature scene or similar pleasing sight. Windowless spaces create monotonous conditions that may be stressful (Veitch & Galasiu 2012).

<sup>iv</sup> The importance of daylight for people's well-being and health is reflected in the so called 'health architecture' which focuses on how to increase the solar influx when designing and building houses (Hobday 1999, 2007). Architects are, and probably always have been, attentive to the use of daylight in buildings for aesthetical reasons also, using the daylight to design forms and spaces in architecture and inside buildings (Descottes & Ramos 2011, Plummer 2012), and may often design strategically to get as much daylight as possible or, in very sunny areas, to prevent too much solar influx.

<sup>v</sup> The fieldwork in Denmark was performed on Zealand and participants were house or flat owners. They were selected so as to get as diverse a group as possible in terms of age, gender, family status (living alone, with children, and/or husband/wife), life phase (young or old children), living in the countryside and in cities, and having different educations/jobs. A total of 22 people were interviewed.

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<sup>vi</sup> For an extensive account of various disciplinary approaches to the senses see: [www.sensorystudies.org/sensorial-investigations/the-expanding-field-of-sensory-studies/](http://www.sensorystudies.org/sensorial-investigations/the-expanding-field-of-sensory-studies/) (downloaded on January 20, 2014)

<sup>vii</sup> Some years later, inspired by the idea of sunshine influencing people's health, the Danish doctor Niels Ryberg Finsen experimented with the relationship between sun and pigmentation. He recommended, like other doctors at that time, that smallpox patients were placed behind windows of red glass so the ultra violet rays would not enter the room. This prevented oedema and infections in the patients and helped them get better, even survive. In 1895 Finsen succeeded in curing his first patient with Lupus Vulgaris (skin tuberculosis) with UV light from a carbon arc lamp and since then lighting was used for medical purposes. Lupus Vulgaris disfigured people's faces to such an extent that they were marginalized and isolated in society, also because of fear of contamination. Most of the patients receiving light treatment were cured. In 1903 Finsen was awarded the Nobel Prize in medicine and physiology for showing the ability of light to prevent and cure diseases like lupus vulgaris. The disease disappeared in the early 20<sup>th</sup> century due to a broad action against tuberculosis. The interest in the health potential of artificial light was also socio-cultural in the sense that it followed the development of electricity and artificial light that symbolized modernity and the natural sciences' victory over nature; man's liberation from the dark times and the darkened minds of the past.

<sup>viii</sup> Light is the signal by which plants synchronize their internal clocks to their environment and is sensed by a wide variety of photoreceptors. This is the photosynthesis where plants create the inorganic H<sub>2</sub>O and CO<sub>2</sub> into carbon hydrate precisely by the sun:  $12 \text{ H}_2\text{O} + 6 \text{ CO}_2 + \text{light energy} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6 \text{ O}_2 + 6 \text{ H}_2\text{O}$ . Their growth reflects their circadian rhythms which occur as a plant entrains to synchronize with the light cycle of its surrounding environment. These rhythms are endogenously generated, self-sustaining and relatively constant over a range of ambient temperatures. Humans synchronize their internal clocks to the environment as well.

<sup>ix</sup> Naturally, our sensations depend on our receptors: "We can smell and recognize an odorant in our nose, as long as we have a receptor for that odorant. We have 388 different olfactory receptors so we can detect lots of different smells" (Professor Laurent Morant's home page, as seen on 1<sup>st</sup> May, 2014)

<sup>x</sup> Claiming daylight as an individual sense is not an argument for seeing the senses as individually working. Perception and the whole bodily sensory apparatus should rather be understood as a unity of body-mind-habitus (Jackson 1983), and the senses are best understood in combination instead of singularity (Howes 2003: 47). Nonetheless, trying to understand daylight as an individual sense is useful for understanding the profundity of daylight and the depth of its significance to the Danish people. This matches research on the senses that generally extends beyond the preliminary sensations and into the meaning conveyed and formed by such sensory experiences (Howes 2003: 49).

<sup>xi</sup> The interest in daylight may also be cultural: Daylight enters the home through windows and doors and having many windows and thus much access to daylight used to signify a high social class, status and wealth since glass used to be very expensive (Hauge 2013a).

<sup>xii</sup> Actually, in nature light creates color: Color is defined by the amount of light that an object reflects over a range of wavelengths in the visible light spectrum. Colorful appearances depend on the surface reflecting light rays differently, thus changing the overall synthesis of perception.