6 Sensing dark places

Creating thick descriptions of nocturnal time and rhythm

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Introduction

Darkness is relative. It usually refers to the presence of little light rather than its complete absence—from an architectonic horizon silhouetted by urban sky glow or arboreal shadows feeling their way through a moonlit forest to the crisp firmament of a clear and moonless night. Even when confronted with a complete absence of light, deep in a cave or in a windowless room, we experience light—those orbs, shimmers, and sparks floating before us created not by light from our environment but by the perceptual noise of our sensory apparatus. It is this spectrum of dark illumination that this chapter aims to address, asking what value darkness holds and how this can be captured and communicated. It considers how we can create thick descriptions of darkness and the purpose and value of doing so. Rather than approach darkness as in opposition to light, darkness is approached as a nuanced scale that slips from the bright illumination of the midday sun to the deep night when we rest in the shadow of the earth. It will consider the tints and shades of environmental light as one moves through night and day. Equally, it will consider the presence of human sources of illumination, some of which might be thought of as light pollution, although perhaps dark pollution would be a more accurate term.

This chapter discusses three approaches to the experience and description of darkness—walking, photography, and unattended light sensors—and how these approaches intersect and diverge. It will draw from a research project and fieldwork undertaken in Leighton Moss RSPB Nature Reserve in Cumbria's Arnside and Silverdale area of outstanding natural beauty, weaving this into a discussion of the particularities of experience and description that walking, photography, and unattended sensors can bring to our understanding of darkness and its value in specific places. It will then consider how these three approaches might be brought together to create a thick description of the night that is greater than the sum of its parts and how this might help us to become attentive to darkness and its value for both humans and non-humans. Finally, it considers how such descriptions might be useful in terms of informing urban design and policy in ways that are sensitive to the values and challenges associated with darkness.

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The value of light and darkness

Sunlight is the source of energy for almost all life on earth, whether directly, as in the case of plants via photosynthesis, or through the ingestion of plants by other organisms. The variation in natural light throughout the day and night is also of fundamental importance to life. The diurnal variation of light through the night and day acts as a *zeitgeber* or time giver that entrains the circadian rhythms of almost all organisms. Over the 3.8 billion years since life emerged, variations in light have come to choreograph many biological functions, from "sleep/wake cycles, sexual behaviour and reproduction, thermoregulation, and metabolic control such as energy intake/expenditure, glucose metabolism, lipid metabolism, and food and water intake" (Foster and Kreitzman, 2017, p. 36). Seasonal variations are also crucial in determining the timing of lifecycle events—when buds open, when animals reproduce and migration or hibernation patterns. These phenological cycles are driven by the changes in the diurnal cycle of light and dark throughout the year and the corresponding changes in temperature. These cycles and rhythms are all directly driven by the rotation of the earth on its axis and its orbit around the sun.

For millions of years, humans, like other life forms, have been bound to these rotational and orbital cycles. In recent centuries humans have developed technologies that increasingly allow us to subvert these biological imperatives and inhabit the night, if we so wish, as if we were nocturnal creatures. We are nonetheless diurnal; indeed, our eyes do not have *tapetum lucidum*—the crystalline retroreflectors that greatly improve the night vision of many nocturnal animals. To inhabit the night, humans rely on making the night brighter. As we have become better at doing this, we have changed the qualities of the night at an environmental scale, affecting not only our own circadian rhythms and behaviours but also those of other organisms and ecologies. This is increasingly recognised as a serious issue of many dimensions, from harming human health and wellbeing and disrupting ecologies to a loss of the night for terrestrial astronomy. It has also led to the loss of the night sky from social and cultural perspectives, eroding the sense of wonder and perspective that comes from the experience of being beneath a truly dark sky. Nonetheless, the perception of night-time lighting is strongly linked to human perceptions of safety and security on one hand and societal and cultural vitality on the other. Darkness, meanwhile, is often maligned as risky or dangerous, a place that invites accident, misfortune, and nefarious activity. This view of darkness fails to recognise the positive value of darkness in terms not only of its biological necessity for humans and non-humans but also its social and cultural importance—as a site for imaginaries that shift humans from centre stage and situate them in a more-than-human world, from the vastness of the universe in which we travel to the myths and mythologies of spirits and beasts. Such shifts in perception are pertinent as the effects of human exceptionalism become increasingly apparent through environmental degradation and climate change.

Unattended sensing

Sensing the Luminous Night was a pilot project that developed new methods of capturing variations in light at night, both natural and artificial. The research developed and installed a range of unattended light sensors in Leighton Moss RSPB Nature Reserve and developed a timepiece to communicate the data captured in a meaningful way. The sensors make periodic observations, capturing diurnal, circalunar, and annual rhythms of natural and artificial light, while the timepiece makes these temporal rhythms legible. Together, the sensors and timepiece were developed to augment our perceptions of darkness, facilitate social and cultural engagement with the night, and promote awareness, education, and discourse regarding the value of darkness.

On a practical level, the project installed long-range wide-area network (LoRaWAN) infrastructure for the sensors and an all-sky astronomical camera. It prototyped sensors that capture and transmit various parameters related to light during the day and night (lux, hue, 10-channel light spectra, ultraviolet and infrared light, temperature, humidity, and barometric pressure) and developed timepieces that visualise sensor data in terms of time and rhythm (Griffiths, 2023). In sympathy with the nature reserve's strong connection with birds, the sensors were housed in simulacra of eggs and fruit. A timepiece was chosen to communicate the data because clocks and watches are intuitively understood from both an embodied perspective and as an abstraction of times and timescales that we do not directly experience. Such a time-based approach can powerfully engage individuals with the natural cycles and rhythms of light and dark that we are familiar with and those of anthropogenic activity in our environments.

The timepiece shows time according to each of the various sensors, which capture observations every few minutes. The timepiece displays each reading as a dab of light on a screen (Figure 6.1), with the present moment always at the top of the screen and past readings slowly spiralling inwards. Each turn of the spiral represents a single rotation of the earth on its axis. As time goes on, readings accumulate to show the changing length of night and day and the variations in light during the day and night, such as daytime UV, seasonal changes in vegetation, the phases of the moon, and skyglow from nearby sources of anthropogenic light. Future work will install parallel sensors in a dark sky reserve to illustrate how much lighter the night has become due to human activity, even in a relatively dark place, such as Leighton Moss RSPB.

Through the various sensors, the timepiece brings several timescales into view: the momentary experience of environmental light as the sensor makes an observation; diurnal changes in light, both natural and artificial; circalunar variations in light, as the moon waxes and wanes; the annual changes in the length of day and night; and the phenological changes in the landscape over the year. The sensors were designed to capture observations over long periods and given time should show changes that occur over years, such as the year-on-year increase in intensity of artificial light (Kyba *et al*., 2023).

Meanwhile, the all-sky astronomical camera takes a long-exposure photograph every 30 seconds between sunset and sunrise. The camera points directly up to the

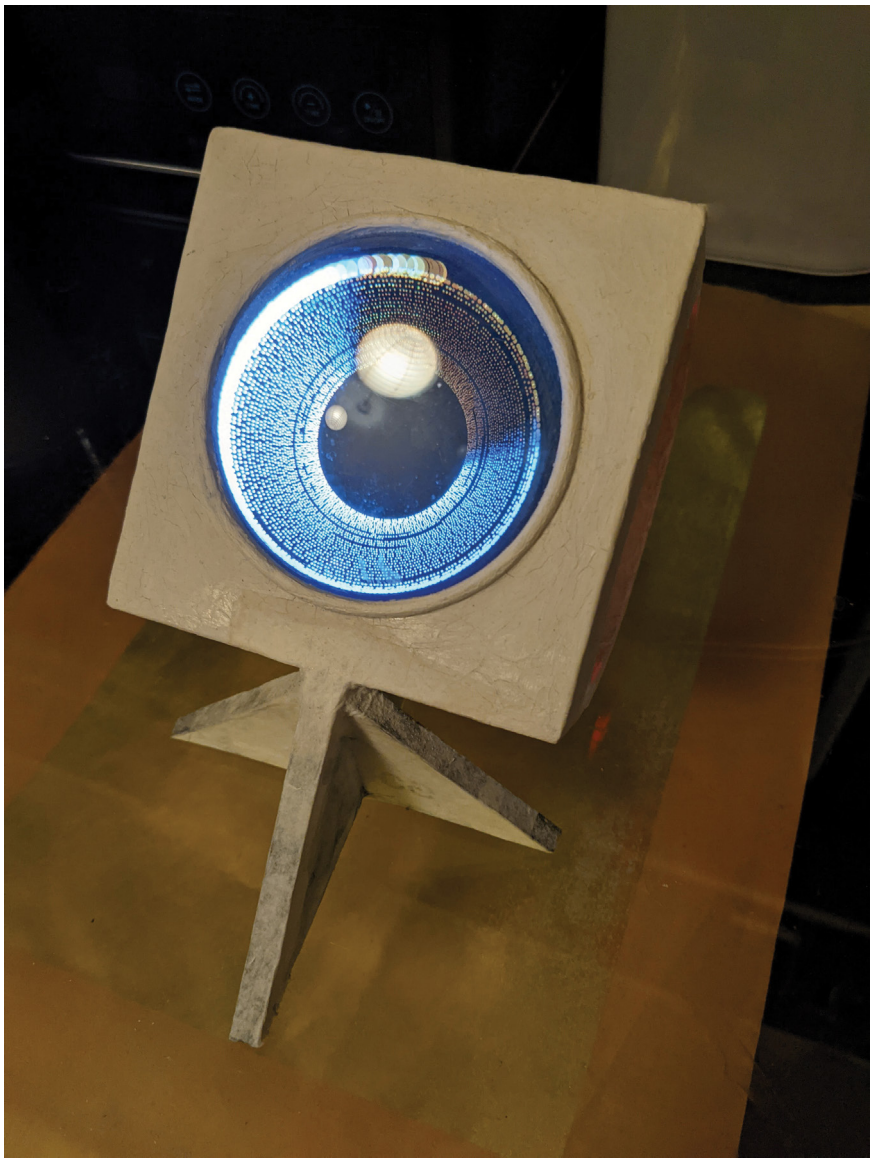

Figure 6.1 Timepiece showing 24-hour changes in ambient environmental light over a period of approximately 30 days.

sky with a 180-degree field of view, creating a circular image framed by the silhouetted horizon. On a clear night, it captures the Milky Way or the movement of the moon across the sky. It also captures the sky glow from various urban settlements and the nuclear power station in Heysham to the west as well as more nuanced details, such as trains, cars, aeroplanes, and occasional meteors moving through

its field of vision. Each morning, software automatically collates all the images that were captured into a timelapse video. This might show the night sky wheeling above and the regular passage of the local train service. Sometimes, it will show brisk clouds rushing across the sky, a bird's claw as it alights atop the dome, or raindrops collecting on the camera's transparent dome, small lenses themselves that distort the light from the sky through their luminous bodies.

The all-sky camera creates a detailed record of the night, which can be cross referenced to the timepiece. This can help to identify or confirm the source of particular changes in light and dark. While the clock gives a view of the night as a gradually changing continuum that choreographs behaviours and biologies, the all-sky camera gives a lively view of the night, full of weather, movement, and continual change. Although the pace is an illusion—the timelapse compresses the whole night into several minutes—the camera does give a particularly engaging view of the passage of the night and the cosmological, meteorological, and anthropogenic processes that animate it.

Together, these two forms of unattended sensing—the light sensors and the all-sky camera—provide a view of the night that emphasises duration, whether that be the short duration of a single reading or exposure or the much longer durations of diurnal and seasonal rhythms. Bringing such timescales into view creates temporal imaginaries within which we can locate direct experience.

Photography

The unattended sensors described earlier are used to create images and imaginaries that carry the changing patterns and rhythms of light and darkness over time. How do these differ from those created by the embodied experience of walking a landscape at night? Before answering this, we will first briefly consider a space between immobile sensors and the unconstrained mobility of walking, asking how the use of *attended* light sensors—digital cameras—might be used to experience, describe, and imagine dark places. Here, we focus specifically on a collaborative photographic practice in Leighton Moss RSPB (Figure 6.2). We approached this as experimental, playful, and open-ended, exploring the convergence of conviviality, technics, imagination, and a dark landscape. We will discuss just a few of the many observations that we made, hoping to nonetheless illustrate some key points regarding the relationship between photographers and the night that a camera helps to construct.

The nature reserve is very dark at night, and one must navigate via the sound of the ground underfoot, slight differences in contrast and the silhouettes of trees that give some slight indication of clearing or footpath. This encouraged us to settle in just a few locations—mainly a tower and a hide—rather than constantly roaming. These two sites suggested various image-making approaches. On a clear night, the tower—a three-storey structure open to the sky—offers views of the night sky and the hills that frame its edges, silhouetted by various shades of skyglow. Here, the camera became a collaborative form of surveying, searching for light and trying to identify its source. The camera was a prop through which to inhabit a space of

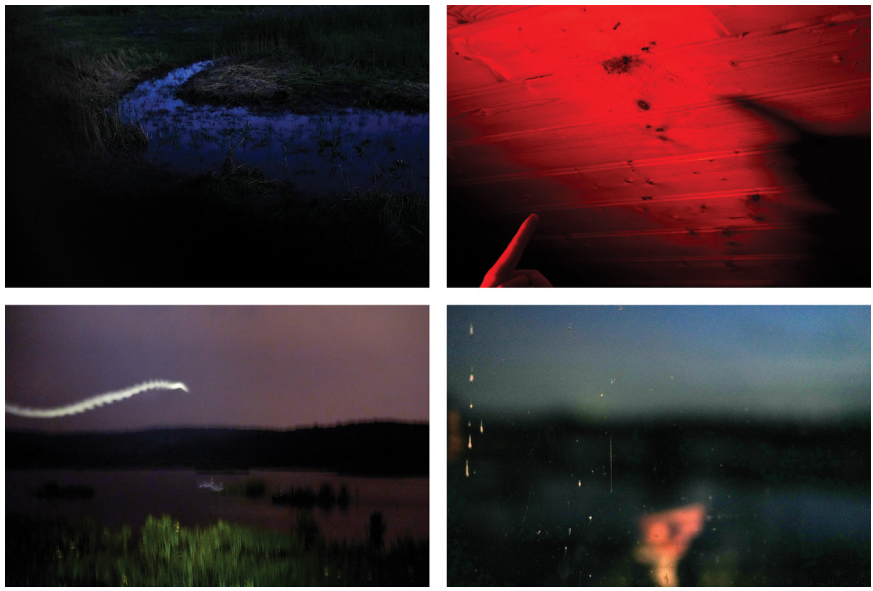

Figure 6.2 The landscape at nightfall—capturing the transient period between day and night. Clockwise: as the day fades into darkness, the water in the reedbeds comes to light; locating spider habitats in the hide; our image reflected in the hide window over the landscape; an insect's trajectory illuminated by flashlight during a long-exposure capture.

observation, not only through the lens but through shared presence and talking about what can (and cannot) be seen. We generally chose not to use tripods, preferring to be fully aware of the body's presence, capturing this through blur and shake or else using the affordances of the body and the space itself to prop the camera. The act of photographing becomes a collaboration with the distant landscape, the immediate site, and the body, as one braces and holds one's breath while pressing the shutter.

One visit saw heavy rain, and we went straight to the hide. Here, we had a view out over reedbeds occupied by various waterfowl. We began to capture long-exposure images of the landscape before us, casting a powerful flashlight in the heavy rain and capturing the trajectories of raindrops, tracing arcs as they struck the horizontal surface of lowered viewing windows. These images captured illuminated raindrops and the flicker of the LED flashlight, transforming their traces into a Morse code of light and dark. Switching to a red LED, we began to illuminate the immediate landscape, transforming the murky silhouette of a nearby sycamore tree into a preternaturally glowing red maple. As our torches fought the muddied light beyond the window, the resonant other worldly call of a stag drifted from the gloom into this briefly luminous space. As the night went on, we stopped and chatted. Outside, a row of birds settled into the night on wooden beams protruding from the water. Occasionally, they would rouse into a cacophony of noise, as if

bickering about who should sleep where, and then just as quickly settle once more into silence. This went on for perhaps 20 minutes, and they were oblivious to our presence, despite the occasional sweep of red or white light from the torch.

These short examples illustrate how the practice of photographing positioned us in the environment and transformed it, sometimes using light (the flashlight), sometimes through sound (listening to the landscape and talking). The act of photography is a very specific way of being in the night, perhaps best described as an immersion. It requires and indeed creates full presence, sustained attention and a physical engagement with place and its agents. The photographic images, the temporal act of creating these images and the imaginaries that emerge as we do so inform and contribute to a thick description of the night environment, emphasising its potential for fictions and the imaginary. The camera itself both constrains and choreographs embodied rhythms of movement and stillness. These trajectories start and end with the dark pause of the shutter, an instant that presses the photographer's visual imagination against the landscape, leaving an indelible mark of one upon the other—the photograph itself. This slowing down of pace to capture an image allows the photographer to soak in new information and look for the particularities and idiosyncrasies of a place and the small details that animate images. The act of photographing was not taken as a means of creating a loyal representation of vision (our eyes are infinitely more sensitive) or a representation of an objective experience. Rather it was taken as an act of fictionalising the landscape through both intentional composition and fortuitous or accidental encounters. This act was one that nonetheless created heightened awareness and an intimacy with the shades of darkness that give substance to the landscape at night.

Walking

Night has been discussed as a place in its own right, fostering creative engagements and interpretations (Briggs, 2013; Bronfen, 2013). Although much has been written about walking as an (auto)ethnographic method for excavating the relationship between the (human) subject and place or landscape (Wylie, 2005; O'Neill and Roberts, 2020), little has been written about the walking in the night or walking with a view to understanding how the changing light of night and day affects our experience of place and landscape (Dunn, 2016; Edensor and Hughes, 2021) What perspectives and encounters does walking offer to an understanding of the night as a particular place and landscape? Here, we provide an example that illustrates how this question might be approached. It is an autoethnographic account of a nightwalk around the Leighton Moss RSPB Nature Reserve landscape. Walking at night enables the nocturnal sensible to be apprehended. It provides an embodied way to experience how different coexistences of light and dark constitute the identity of a place. Such an identity is dynamic, open, and provisional. Therefore, nightwalking contributes to the ways we might rethink how to conduct sensory ethnography (Pink, 2015). While there is a nascent strand of research on walking as a methodology through which to explore the more-than-human world, to date this has only been regarding the daytime (Springgay and Truman, 2018). By applying this

approach after dark, it is our intention to demonstrate how walking can contribute to a thick description of the night and its imaginaries. Further, it enables us to also understand what areas could be augmented with additional methods.

A cold and dry night in late April. The sound of human feet along the boardwalk to the viewing platform offers a rhythmic dull thud announcing our presence to the non-human bodies fluttering and scurrying nearby. Behind us, the landscape seems to draw itself together, the darkness helping to gather its skirts up. Ahead of us, the moonlight stretches out, burnishing the occasional cloud with its silvering luminescence. It seems very quiet here. Standing still, we begin to tune into the soundscape. We listen carefully. We can hear the flora moving in the gloom, tendrils of dark green seem to flutter in the air around us. Whatever nyctinasty has been occurring around here with the onset of darkness, the message has not reached the wild garlic whose warm, pungent aroma drifts along to the left. Moving slowly towards the reed beds, unseen waterfowl stir and compose themselves. They ruffle about near the water's edge, aware of our company. As the path unfurls ahead, the viewing tower folds its way towards the sky, its stable and sharp geometry at odds with the undulating grasses and foliage around. Onwards and upwards. The horizon shifts with each step and turn until finally settling as we reach the platform and stop at its edge. We become profoundly aware of our bodies again, firm silhouettes against the night sky. From here, the dark mirror of the saltwater lagoon stretches across the landscape, smooth and crisp. Beyond, the hills tumble along and down into gloomy smudges. Above, the bruised sky shares its dark greys and murky blues and yellows. The wind seems to move through us, its soft caresses at ground level now firmer and indifferent to our bodies. The rushes offer their rustling applause as we descend the steps.

Threading between high grasses the boardwalk turns to gravel and compacted earth. We can sense water through the grasses and their gentle swaying invites our hands to move within their fibrous filigree. Far away, the call of an owl punctuates the night sky across the water. As we emerge from the parallel walls of reeds and grasses, the path sweeps into woodland. We enter its soft edges, and the landscape appears to wrap around us, a patchwork blanket of darknesses. Distance becomes harder to discern in here, the gloom rolls out in all directions, uneven. Now the ground yields to our boots as the tiny slide and stop of each forward motion navigates the mud. Tenebrous fingers of trees rush overhead to hold the night sky back. Fuzzes of bushes and undergrowth blur the edges of land and not. We become part of this sponginess, not entirely sure where we begin and the surroundings end, but instead there is an oscillation between the two. An interplay that stirs the senses and reshapes identities. The collective effervescence of this place in the daytime is replaced by something more subtle and sublime after dark. The air tastes of wood and wetland, its density almost perceptible in the mouth. The cushioned sounds of the landscape in the gloom are occasionally interrupted by the staccato flap or scuttle of our non-human neighbours in the nocturnal world. Focusing on what we can hear, smell, touch, and taste, we briefly feel assimilated into the landscape until the splosh of a puddle reminds us of our human awkwardness in this place. Following the slow rise of the path up to a road, the spell of the sensuous quietly retreats as we are confronted by the slick band of asphalt gliding away on either side of us.

Thick descriptions of the night

We have borrowed the term *thick description* from anthropology, where it refers to an ethnographic method for describing and interpreting culture (Ryle, 1971; Geertz, 1973). Unlike *thin descriptions*, which describe social observations, thick descriptions additionally describe the wider cultural context of such observations to interpret the meaning and value of actions and behaviours. Here, we use this term loosely, stretching and expanding it in several ways. First, we expand the context beyond human culture to include the environmental and planetary contexts within which human culture is held. Second, in addition to embodied field observation, we take the practice of observing to include mediated technological observations that extend our senses and imaginaries of darkness and the night, in this case via sensors and cameras. Third, in addition to texts and fieldnotes, we also record observations and make interpretations through data visualisations and photographs and reflections on the practices that create them. Finally, and perhaps most importantly, we take these practices—unattended sensing, photography, and nightwalking—to be not only the source of observations from which meaning and value can be drawn but also as sites where meaning and value are produced and enacted. By bringing these practices together, each attentive to our environments in different ways, the material and imaginary dimensions of the night and darkness are equally valued. Bringing these three practices together creates a site where embodied experience, memory, and imagination intersect with non-human and environmental scales of time and space—scales that sit outside of our direct embodied experience but that are nevertheless central to our biologies, behaviours, and societies and those of non-humans.

Capturing observations, whether by sensor, camera, or body, transforms landscape and subject in ways that combine notions of facsimile, imaginative interpretation, and fiction. At one end of our spectrum of night observations are sensors. These sensors capture data in a systematic, methodical, and consistent manner. Once installed, there is no human interaction with them—they simply do what they were programmed to do over and over. Of our methods, this is the closest to scientific observation. However, the approach taken to data visualisation takes the collection and communication of data as a social and cultural activity that, via the device of a clock, locates meaning in everyday life rather than in models of the environment drawn from data. It also provides a context not only for daily human activity but also the activities of all manner of birds, insects, plants, and animals. Photographic practice then intersects these shared environmental rhythms at a specific place and time—a couple of hours here and there in the night. Our presence immerses us wholly in these hours, obscuring the context of longer periods of time—the cyclical progression of days, months, and years. Nonetheless, the lineage from sophisticated professional cameras to the one-pixel cameras of the sensors connects us back to this context. A line is drawn between the wider environment and our fleeting presence via light-transforming technologies, whether camera or sensor. This presence also intersects perambulatory bodies with senses relatively unmediated as they move through landscapes (bar the important and transformative technologies of footwear and clothing). Thus, three trajectories are drawn: one

from disembodied data collection to embodied observation, one from environmental rhythms to bodily rhythms and sensation, and one from apparent facsimile of the environment to imaginative interpretation and fiction. Together, these create a thick description of the night that is attentive to and interpreted though multiple temporalities, bodies, and technologies.

Conclusion

This chapter has presented three ways through which we can apprehend the sensitivities of places after dark. Such knowledge is crucial if we are to develop appropriate principles and practices for urban design and policy to support multispecies life during both the day and night. By elucidating on the ongoing entanglements between light and dark, bodies and landscape, and time and space, we have sought to demonstrate the need for thick descriptions to better understand dark places. While there is increasing care and attention devoted to the preservation of darkness in key places, as assiduously championed by DarkSky (2023), this has largely been in relation to rural sites that are relatively remote from urban environments and, by extension, the impacts of light pollution. Yet the conversation with regard designing with darkness in urban places remains nascent. Current practice by built environment professions and policymakers tends to draw upon long-held binary view of light and dark, with ALAN synonymous with safety and security despite successive implementations resulting in urban illumination that is often excessive if not downright careless. Through producing thick descriptions of places after dark to inform a framework for a more temporally sensitive approach to urban planning and policy (Gwiazdzinski, 2015), we can overcome the misunderstandings that are associated with darkness and urbanism. These thick descriptions help us to become more attentive to darkness and its value for humans and non-humans. We propose that such knowledge can inform built environment design practices and policymaking by enabling them to be heedful to the various ways in which coexistences of light and dark and of humans and non-humans shape the places we experience. As light pollution now presents a global challenge, acknowledging the diverse interplay that darkness and light provide is critical for the transitions necessary to tackle its impacts on humans and non-humans in a local and situated manner. For this to be effective and empower us to rethink places at night, especially urban environments, we need new nocturnal imaginaries (Dunn, 2023). Being able to account for the alternative knowledges of different relationships and values across dark places will enable the creation of nocturnal imaginaries that can shape the urban night and vice versa. To conclude, adopting these methods to inform how design can have greater nuance toward the coproduction of places at night would support a more-than-human approach to their ongoing development over time.

References

Briggs, B. (ed.) (2013) *3Am: Wonder, paranoia and the restless night*. Liverpool: Liverpool University Press and the Bluecoat.

Bronfen, E. (2013) *Night passages: Philosophy, literature, and film*. New York, NY: Columbia University Press.

DarkSky. (2023) *DarkSky*. Available at: http://darksky.org/ (Accessed: 1 August 2023).

Dunn, N. (2016) *Dark matters: A manifesto for the nocturnal city*. New York, NY: Zero Books.

Dunn, N. (2023) 'Nocturnal imaginaries: Rethinking and redesigning the city after dark', *Ethnologies*, 44(1), pp. 107–128. https://doi.org/10.7202/1096059ar.

Edensor, T. and Hughes, R. (2021) 'Moving through a dappled world: The aesthetics of shade and shadow in place', *Social & Cultural Geography*, 22(9), pp. 1307–11325. https://doi.org/10.1080/14649365.2019.1705994.

Foster, R. and Kreitzman, L. (2017) *Circadian rhythms: A very short introduction*. Oxford: Oxford University Press.

Geertz, C. (1973) *The interpretation of cultures* (Vol. 5043). New York, NY: Basic Books.

Griffiths, R. (2023) 'Time and the Anthropocene: Making more-than-human temporalities legible through environmental observations and creative methods', *Time & Society*, 0(0). https://doi.org/10.1177/0961463X231202928.

Gwiazdzinski, L. (2015) 'The urban night: A space time for innovation and sustainable development', *Articulo—Journal of Urban Research*, 11. https://doi.org/10.4000/articulo.3140.

Kyba, C. C. M., Altıntaş, Y. Ö., Walker, C. E. and Newhouse, M. (2023) 'Citizen scientists report global rapid reductions in the visibility of stars from 2011 to 2022', *Science*, 379(6629), pp. 265–268. https://doi.org/10.1126/science.abq7781.

O'Neill, M. and Roberts, B. (2020) *Walking methods: Research on the move*. New York: Routledge.

Pink, S. (2015) *Doing sensory ethnography*. London: Sage.

Ryle, G. (1971) 'The thinking of thoughts: What is "Le Penseur" doing?' in Ryle, G. (ed.) *Collected papers, Vol. II: Collected essays 1929–1968*. London: Hutchinson, pp. 481–496.

Springgay, S. and Truman, S. E. (2018) *Walking methodologies in a more-than-human world: WalkingLab*. London: Routledge.

Wylie, J. (2005) 'A single day's walking: Narrating self and landscape on the South West Coast Path', *Transactions of the Institute of British Geographers*, 30, pp. 234–247.