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The futures of dark skies

Nick Dunn and Tim Edensor

Introduction

Throughout this book, we have encountered numerous ways in which dark skies are conceived, encountered, perceived and form communities around them. The approaches collected here represent a significant cross-section of the diverse inquiries concerning dark skies and the various entanglements they coproduce across time and space. The capacity of the arts, humanities, and social sciences to offer fresh perspectives and critical accounts of dark skies is evident in the different chapters compiled in this book. In addition to the new understandings they individually provide, collectively they suggest ways in which we might form a more holistic, relational, and nuanced knowledge of dark skies. This is important and urgent. Dark skies are under threat. The exponential growth of light pollution, coupled with a lack of awareness and understanding of its negative impacts, has led to profound social, environmental, and health consequences and critically, greatly diminished access to dark skies. Pivotal to addressing these issues is the need to form a more diverse and subtle understandings of darkness itself (Dunn and Edensor, 2020). Since darkness is multiple, situated, and contested (Morris, 2011), so too are the manifold ways in which its presence is debated in both positive and inimical ways.

The associations and values attributed to dark skies are now under wider exploration through different academic, aesthetic, creative, ecological, and socially inspired reappraisals. As knowledge about our impact as a species upon the planet grows, we are in danger of losing connection with the very source of darkness that has been with us and our countless ancestors since human beings first evolved and indeed, long before that. Dark night skies are essential to the rhythms of life on Earth, with the evolution of living things stemming from our planet's rotation around its axis as it revolves around the sun. Dark skies are vital to the health of our planet, its ecosystems, and its many inhabitants, including humans. This problem is no longer confined to what happens on the ground. As chapters by Neha Khetrpal and Dwayne Avery emphasise, the proliferation of satellites and space debris in orbit around the Earth is also impacting on the night sky. Initially, this was thought to be increasing the overall brightness of the sky at night (Kocifaj *et al.*, 2021), threatening ground-based astronomy as well as a diversity of stakeholders and

ecosystems reliant on dark skies. More recent research indicates that this type of light pollution will have major implications for the loss of astronomical data (Barentine *et al.*, 2023), having direct consequences for our knowledge of the world around us and the universe beyond.

Dark skies are also an integral wellspring of inspiration, providing a powerful connection to nature and offering opportunities for recreation. As we have emphasised, this is leading to an extinction of experience (Soga and Gaston, 2016) amongst humans. In some cultures, sky traditions remain an important aspect of their social customs, cultural traditions, and religious beliefs but are threatened. Accordingly, dark skies represent a form of heritage that deserves commitment to their preservation and safeguarding for future generations of humans and non-humans.

The chapters included in this book provide numerous examples of interdisciplinary inquiry that seek to elucidate on specific experiences of our relationships with dark skies and underlines that this a key more-than-human relationship of which we are a part. The diverse approaches here accentuate the importance of acknowledging the plural and located aspects of dark skies. We relate to the sky at night from specific locations, and so the surrounding environment and the weather conditions particular to that time directly inform our experience of the night sky, whether as one of darkness resplendent with stars and other celestial bodies or as one with circumstances that obscure our access to such encounters. Embracing the diversity, plurality and situated qualities of places within which dark skies may be experienced, the contributions to this book collectively offer much-needed alternatives to prevailing conceptions and open up new trajectories for future research, as we identify in the following sections of this chapter.

We focus on four key themes that have emerged. First, we identify some of the diverse geographies and histories through which dark skies have been conceptualised and experienced. Second, we explore how the quest for dark skies and their management is motivating the broader reconfiguration of the relationship between light and dark. Third, we explore how the chapters in this book reinforce the need to hasten the reconnection of people with dark skies, and we identify the key processes of reattunement, re-enchantment, and redistribution of the nocturnally sensible as processes through which this might be accelerated. We conclude by emphasising that this also requires the development of inclusive dark sky communities from the local to the global so as to incorporate the diverse approaches and acknowledge the divergent desires that dark sky sites fulfil.

Multiple histories and geographies of dark skies

The relationship between dark skies and human beings is a story of manifold narratives, reflecting the diverse histories and geographies of their role in cultural associations, social traditions, religious beliefs, and scientific understanding. The various connections with dark skies across time and space are providing new perspectives that widen our knowledge and understanding of their role in different cultures throughout histories as we discuss in our introductory chapter. The multifarious engagements that humans have with dark skies span historical, artistic,

conceptual, and sensory modes of connection. That some of these practices and their values have endured while others have altered in relation to shifting contexts enables us to view the past as a series of domains, many that lie outside of the dominant boundaries of Western thought. Moreover, the diversity of relationships with dark skies is not limited to humans, with many non-humans having vital connections to the nocturnal rhythms of the planet and the essential qualities of natural darkness that can enable them to flourish or perish.

In examining one of the many historical contexts through which people have engaged with dark skies, Neha Khetrpal's inquiry into ancient Indian civilisation illustrates that pervasive contemporary negative perceptions of the night emerge from specific historical and cultural contexts; they are not reflective of wider cultural and social practices that took place after dark. These beliefs, rituals, and imaginaries continue to contribute to cultural development, but critically, they also foster growing awareness that we require new tools and paradigms for conducting research into the spatiotemporal nocturnal dimensions of human life. By tracing the relationship with dark skies from ancient celestial observations, Khetrpal investigates how night aesthetics and imaginaries are transferred across generations through material forms while underscoring the loss of both as a result of changing attitudes towards the night. Setting out the contemporary implications for reconnecting with dark skies, she pleads for a nocturnal anthropology that acknowledges this as a form of heritage worth preserving, for it will contribute to attempts to challenge the multiple problems caused by excessive illumination.

The interpretations, values, feelings, and practices that surround dark skies in present times are similarly variable and yet distinctively modern imaginations continue to be dominated by the idea that cities are supposed to be bright. This is compounded through the widespread and rapid growth of urbanisation that has obstructed our aesthetic and imaginary connection to dark skies. Yet the definition of a dark sky is fuzzy because of the circumstances in which it is beheld. Yee-Man Lam's research shows that more broadly, depictions of a "dark sky" paradoxically include both the surrounding earthly darkness that permits us to see the stars of the night sky and the pervasive darkness that conceals such celestial views. More specifically, she examines the term "dark sky" in the context of Hong Kong and across both its Chinese-speaking and English-speaking cultures. Hong Kong is widely cited as one of the most light-polluted cities in the world, and a key finding is that there is no equivalent to "dark sky" in the Chinese-speaking context, only a "night sky", which is neither dark nor starry. This absence may seem to be a simple one of nomenclature, but it perhaps reflects a symbolic and more problematic issue—that the darkness here is no longer present to be appreciated and we need to reconnect with gloom rather than accept an illuminated sky as an instrumental backdrop to urban life. In assessing the global spread, ubiquitous in many geographical contexts, of the foregrounding of illumination as integral to nocturnal experience, the scale of the challenge to reappraise darkness and dark skies is evident.

Yet the divergence of values, interpretations, and experiences of darkness underline that geography and history are important in grasping the effects and qualities of dark skies, further accentuating our claim that darkness is multiple and situational.

In this book, amongst other settings, we learn of the diverse dark skies of ancient India, Essex, Lancashire, Cumbria, Mayo, the Welsh Borders and Snowdonia, New Zealand, Canada, the USA, Germany, and Hong Kong. And we venture into designated dark sky places, woods and forests, urban metropolises, English and American national parks, bird reserves, Irish and Welsh dark sky towns, borderlands, Indian temple complexes, and megalopolises.

We underscore this point to move away from any essentialist conceptions of darkness and dark skies; rather we celebrate their multiplicity. Critical in conditioning the experience of darkness are the different experiences of the diurnal and seasonal distribution of sunlight and the angle at which the sun hits place in accordance with latitudinal, longitudinal, seasonal, and environmental contexts. They shape the conditions of twilight, midnight, deep night and dawn, and many minor stages in-between. This is exemplified by the very different expressions of twilight that can be experienced in different realms. Peter Davidson's (2015) highly nuanced account of the subtle, ever-changing, and manifold sensory and metaphorical potency of twilight particularly captures the shifting experience of gloom as the sun goes down in contexts that range across different latitudes and landscapes. Davidson depicts the shifting hues and emerging shadows with thick, poetic descriptions while drawing on a wealth of historical, literary, and artistic representations to explore the sometimes intoxicating, sometimes melancholic affective and sensory impacts of the disappearing sunlight and the emerging darkness. Other writers also seek to capture these distinctive, evanescent moments. The accelerated speed of the advent of sunset in Aotearoa is captured by Lees (2022, p. 29), who describes the sun setting "at a low angle, filtered through the hazy dust and water droplets" of the atmosphere. Rather differently, Durand (2021) notes the luminous blue hour in which water and sky seem to merge that is celebrated across northern countries as a mystical, divine, and aesthetic time. Yates (2012, p. 143) focuses on the hugely diverse appearances and atmospheres of daybreak that emerge following his nocturnal ramblings, contrasting the winter's "brief blossoming of gaslight blue before the sun comes up" with a June dawn that "seems to begin as soon as the evening twilight tapers to a fingertip along the northern horizon". We might also identify the non-visual sensations that foretell of the end of darkness, sonically, for instance, by the distinctively situated birdsongs of the dawn chorus that herald the advent of daybreak or the clinking sounds of the milk delivery in the early morning hours of the United Kingdom.

A further factor in shaping the experience of dark skies and darkness are the divergent affordances of the landscape. The shadows of the forest conceal the light from the sky and generate a deep blackness under their canopies, pools of water that stretch across moorland glimmer and reflect skies, and the looming shapes of mountains obliterate the moon. Islands also offer distinctive experiences of dark skies, as Dixe Wills (2015) describes in his visit to the Scottish island of Coll, recently designated a dark sky community, and as Ada Blair (2016) explores in her study of the similarly designated small English Channel island of Sark, which, she asserts, offers positive experiences of wellbeing, communality, a return to child-like sensations, and spiritual enhancement for residents and visitors.

Particular landscapes remain saturated with mythic associations when darkness falls—marshes, moors, old woods, deep riverine valleys, megaliths, stately homes, and ruins of diverse age are replete with intimations of the uncanny and the haunted. The imposing rock silhouettes of Iceland assume forms that are held to resemble petrified trolls. Wills (2015) provides an example of such storied landscapes, spending a night at the edge of myth-saturated Dartmoor's ancient Wistman's Wood. With its stunted, twisted oak trees, after night falls it has been imagined as a misshapen arboreal realm that hosts devil dogs and pixies.

As in Hong Kong, visual experience of dark skies is also variously conditioned by levels of artificial illumination. James Attlee (2011, p. 3) contends that only in "the great deserts and oceans" can the moon be fully appreciated under dark conditions, while Paul Bogard (2013) witnesses star-filled skies in the vast blackness of Death Valley, California, although he finds that other formerly crepuscular American national parks have been invaded by light pollution. Across the earth, we can still point to Chile's vast Atacama Desert, deep-sea trenches, and caves that remain largely devoid of light. In many northern settings, the pervading darkness of the polar night also replaces the baleful effects of over-illumination. By contrast, Judy Spark (2021) describes the experience of spending the night in a camping ground on the edge of large city, "just out of the orange city fog, just on the edge of the darker countryside". The urban skyglow radiates nearby but the city's lights do not fall on the rural spaces close at hand, generating a peculiar sense of detachment.

Reconfiguring the relationship between light and dark

The encroachment of skyglow testifies to the serious problems of over-illumination across the world that many chapters discuss in this book in pointing to the demise of dark skies. One key consequence is that dark and light remain prominent dualities in many framings. These oppositional dynamics are complex, but typically, they can reinforce power relationships, persistent cultural associations, and enduring social values. Western in origin, these binaries are rooted in regulatory ideas about diminishing oppression and violence yet also tenaciously express popular notions that light symbolises clarity and coherence.

This spatial expansion of light is not recent by any means. Between the 16th and 18th centuries in Europe, changes in attitudes and beliefs towards the night were especially significant in shaping perceptions of darkness that largely endure to the present day (Koslofsky, 2011). These societal transformations prompted new opportunities for leisure and labour requirements, which, in tandem with technological developments in artificial lighting, reframed the night as an extension of the day, fundamentally altering many of the positive connotations of darkness that formerly existed. This binary situation continues to be strengthened by the ongoing colonisation of the night (Melbin, 1978), which continues to render darkness as synonymous with regression, impoverishment, or unproductive time (Crary, 2013). Yet many subaltern and alternative positive evaluations of darkness have always challenged these orthodoxies; indeed, in present times, paradoxically, as illumination is frequently used to extend visibility and surveillance and light pollution is

rapidly increasing, darkness is being promoted and savoured as a luxury (Beddington, 2023).

It is evident from the growing body of scientific research that most of the problems caused by light pollution are preventable. Globally, light emissions represent 246,238 gigawatt hours of energy which is 1% of global emissions (Sánchez de Miguel *et al.*, 2021). Amidst the current ecological crisis, it is easy to overlook the need for natural darkness since, compared to climate change, acid rain, exotic species, and habitat destruction, it can seem less urgent. Yet this underestimates the role of the rhythms of light and dark in supporting the planet in three significant ways. Firstly, they enable the primary productivity of food webs, producing oxygen and regulating carbon cycling and sequestration. Secondly, they encourage more and greater diversity of interactions between species. Thirdly, they help ensure ecosystem resilience.

Recent research reinforces the negative impacts light pollution is having upon human health (Brown *et al.*, 2022) and that anthropogenic activity, especially light pollution, is having on non-humans (Gaston, Gardner and Cox, 2023). Besides contributing to the increase in carbon dioxide in the atmosphere, light pollution disrupts the natural patterns of humans and non-humans. The ecological impact of artificial light at night on influencing the behaviours, physiologies and ecosystems of non-humans has been well-demonstrated. Yet the potential of light pollution to alter plant phenology and its corresponding cascading effects on herbivore is less clear, though there appears to be correlation: the relationship between light pollution and plants has thus yet to be proved (Ffrench-Constant *et al.*, 2016) and requires greater research.

Therésa Jones and Marty Lockett highlight the vital role of light/dark rhythms in shaping daily, monthly, and seasonal cycles before explaining how artificial light at night disrupts these natural cycles. They emphasise the harmful link between the presence of light at night with shifts in growth, development, and survival in non-human animals, alongside the suite of health consequences that affect all animals, including humans, such as increased risk of disease, loss of immune function, reduced fertility, disrupted sleep, weight gain, and (in humans) impaired mental health. Jones and Lockett then discuss the conflict between human desire and decision-making power for nocturnal brightness and offer suggestions for better balance of light and dark through mitigation and resolution that would dramatically benefit all life on Earth. Building upon this theme, Kimberly Dill presents an environmental ethical framework to analyse how the loss of natural darkness negatively impacts upon the conservation and restoration of biodiverse forested ecosystems while simultaneously damaging the relationships that humans form with them. She explores how the drivers of ecological change, including dramatic increases in light pollution, have measurable effects on network resilience. Dill illustrates the interdependencies between plants and pollinators, with the loss of one having significant, even irreplaceable, consequences on the flourishing of the other. Embedded in her analysis is an implicit gesture toward the malign climate impacts of light pollution. In particular, she reminds us that forests function as carbon sinks for the sequestering of atmospheric carbon dioxide into the trees, grasses, shrubs,

and mycelial networks that compose them. Hindering the regeneration of forests, which under naturally dark conditions could serve as effective carbon sinks, reinforces the need for the preservation of natural darkness as fundamental to forest, human, and global health.

A major challenge in combatting the rise in light pollution and the resultant disappearance of dark skies concerns our awareness about the loss, for we have largely become unreflexively habituated to levels of light that would have been previously unimaginable. It is difficult to recognise how much darker the nights once were, even during our own lifetimes, due to how light pollution increases and spreads, illustrating the insidious processes through which it has become seemingly inseparable from a modern and globalised world (Dunn, 2019).

Yet given the destructive environmental effects resulting from the continuing spread of illumination across dark spaces, new thinking amongst policymakers, environmentalists, technologists, and light designers is imperative. Dark sky places have been exemplary venues for reconfiguring the relationship between light and dark, providing ideal settings for the creation and installation of alternative, responsible, more sustainable forms of artificial illumination. The benefits of this are two-fold. First, the design and implementation of different lighting practices promotes accessibility, drawing in a wider array of people than who would normally visit such locations, thereby enhancing our knowledge and extending experiences of dark sky places. Second, these alternative lighting installations can serve as prototypes for a broader rethinking and reconfiguring of our relationship with light and dark beyond these specific settings. They provoke us to reimagine how our world might be if there was a more nuanced and balanced relationship with artificial light after dark.

The appetite for responsible lighting and alternative approaches to designing with darkness in ways that produce more varied, sustainable, and aesthetically pleasing nocturnal environments is growing (Dunn, 2020; Lowe and Rafael, 2020; Edensor, 2022; Zielinska-Dabkowska, 2022). In their chapter, Tim Edensor and Dan Oakley reconsider the role of illuminations in festivals within dark sky locations, setting out how we might approach creative ways to enjoy such interventions while supporting the fundamental aspect of the dark as integral to these experiences. They discuss how conflicts may arise with the introduction of inappropriate artificial lighting into places of designated dark sky status and call for more influential guidance for light festival organisers and technicians to deploy less intrusive lighting to enhance conservation and protection. Edensor and Oakley then present a series of more progressive approaches to engaging with darkness by privileging sustainable lighting that minimises the impact on living beings at night besides creatively enhancing the aesthetic, historical, and cultural characteristics of nocturnal place and maintaining the ambience of darkness. Kerem Asfuroglu, meanwhile, draws upon his extensive experience as a lighting designer working with several dark sky communities in the UK and Ireland. His chapter highlights the importance of specific, placed-based aesthetics and material qualities, environmental imperatives, social agents, and political contexts in providing guidance when devising lighting schemes for dark sky places. His three innovative case studies

are emblematic of the much-needed transition toward more sustainable, aesthetic, convivial, and place-specific lighting design and implementation.

Asfuroglu's enthusiasm for designing for dark sky places chimes with the broader revaluing of darkness that is being more substantively taken up by professional lighting designers and articulated through their organisations. One important group, LUCI (Lighting Urban Community International), identify seven goals in their *Declaration for the Future of Urban Lighting* (Ross *et al.*, 2023). Under the goal of embracing net zero lighting, they emphasise that members should "[a]pply design and planning approaches that enable us to achieve more with less light. Such approaches include: developing sustainable lighting master plans, preventing excessive private outdoor lighting, glare, and using dimming strategies". They call for a general reduction in brightness and in the numbers of luminaires deployed and for the creation of dark infrastructures, such as unilluminated wildlife corridors. They specifically draw attention to commercial lighting, a great contributor to light pollution that, they argue, should be more tightly regulated. The second goal, "Minimising Light Pollution for All Living Entities", calls for a reduction in environmentally harmful bluish-white LEDs. By also focusing on light festivals in their declaration under the goal of "Harnessing the Transformative Potential of Light Art", they contend that such occasions offer experimental possibilities for future lighting that might open up new experiences of urban space. Further, they ask how the development of ecologically oriented approaches to illumination in festivals may act educatively in foregrounding questions about the balance between light and dark, and they call for greater participation from local actors while championing place-based and community-driven approaches.

Such perspectives have also been adopted by local authorities; in Eindhoven, a Lighting Master Plan specifies that "a respect for darkness is a key tenet", with the most immediate effect of this maxim a reduction in illuminated advertising. Influential light designer Roger Narboni (2017, p. 51) has pleaded for a "nocturnal urbanism" that protects and preserves darkness and supports green spaces and blue areas such as parks, canals, and rivers by reducing illumination. Similarly, the lighting design firm Concepto (2012), at which Narboni works, have developed a master plan for Rennes, France, that introduces *dark zones* into the city core. And as Claire Downey (2021) reports, in Paris "public lighting contracts (including street lighting) are set to expire in 2021, entailing a wholesale rethinking of how the city is lit", a process that will seek to establish a different balance between light and dark, where the latter is not conceived as that which must be extinguished. In the UK too, Dark Source (2020) have initiated a number of projects to install creative and ecocentric lighting that span dense urban environments, small villages, and dark sky parks. The inspirations developed by these designers and artists suggest that there is enormous potential for devising approaches in dark sky parks that either sidestep the use of illumination entirely, maintaining darkness, or deploy it in subtle, minimal ways to accentuate gloomy qualities. It seems that light designers too are conceptually grasping darkness as a continuum composed of diverse shades, intensities, and depths rather than a singular blackness and are seeking to encourage people to become attuned to its multiplicities.

In his chapter, Taylor Stone argues that solutions to dark skies should be conceived as reconfiguring practices of maintenance and repair. However, while this also embraces the redesign of urban illumination technologies, the emphasis is on a more overarching notion: the repair of our relationship with the urban night and darkness. This should partly be perpetrated, he considers, through processes of rewilding that include humans as integral to urban wildscapes and not separate from them. Stone further maintains that policies should avoid attempts to recreate historical forms of darkness by focusing on the processual, situational contexts for reshaping urban illumination, thereby remaining open to the multiple possibilities that might arise from design and technological innovations.

Reconnecting with dark skies: reattunement, re-enchantment, and redistribution

As we state earlier, the unreflexive, habitual apprehension of nocturnal environments that pulsate with electric light consolidates common-sense understandings that emerge from a modern, safety conscious mode of design that banishes darkness to the margins. Accordingly, though dark skies offer many obvious benefits, this remains a significant obstacle in their appreciation and engagement. One key element to overcoming this barrier is through the curation and staging of encounters with darkness through creative work that conveys the multiple nuances of its astronomical, environmental, symbolic, and aesthetic aspects. Creative engagements that help people reconnect with the different characteristics, forms, and temporalities of darkness, and where and how it might be experienced divergently, are vital in opening up new dialogues and elucidating fresh perspectives. The role of artistic and creative practices to enrich theories and methods can explore how dark places might be imagined and conceived through alternative ways of environmental, cultural, and spatial knowing.

In her investigation of Galloway Forest Dark Skies Park and the Northumberland Dark Skies Park, Ysanne Holt attunes us to the potentialities of this borderland region's dark skies as a means of thinking across and beyond borders and boundaries, underscoring the ecological sense of the interrelations of humans and non-humans and of material and immaterial forces. Holt identifies these dark sky places as providing fertile, deliberative spaces within which we can imagine future alternatives, better forms of connectivity, and a stronger embodied awareness of our own existence in fragile and vulnerable environments. She demonstrates the wider relevance and implications of interconnected ways of thinking, being, and doing within and across sites, fields, borders, and boundaries, and supports the broader need to develop alternative, future-oriented forms of placemaking in response to the challenges of climate change.

The fragility of the environment is a theme that also emerges in the reflective account of Louise Beer who examines how living under the dark skies of Aotearoa New Zealand has influenced her artistic and curatorial practice and how her artwork invites onlookers to explore their own changing relationship with the night. Through her work, she demonstrates how representations of dark skies and

light-polluted skies can resonate with notions of the climate crisis and deep time. Much of her work recognises grief as a vital aspect of the human condition, that is once highly personal and universal. The loss of dark skies, therefore, is positioned as part of our ongoing anguish about the climate crisis as our fundamental connection to the night sky disappears. While reflecting on her personal understanding of life, death, darkness, and light, Beer's artistic practice invites the audience to explore their own changing relationship with the night.

Rather differently, Ellen Jeffrey's research examines the concept of nightfall as the journey of a place towards shadow and darkness. As a time of transition and heightened sensitivity, she draws upon her practice as a dance artist to explore what we can learn of the nocturnal world by dancing in the dark. Jeffrey considers whether by conserving the night's darkness we might also conserve ways of moving through the world. The ways we kinaesthetically relate to place are particularly resonant in the dark where the imagination anticipates form and space rather than recognising it. Meandering, wandering, and slowing down are vital aspects of this embodied approach, and these are reappraised and proposed as essential to our encountering and understanding of the more-than-human environments we live with. By engaging with night as a world in which what is visually perceived no longer equates to clarity and accuracy, her investigation posits the dancer's movement in the dark as a patterning of sense making and making sense of the temporalities of a nightscape.

How can we capture the nuance and value of darkness and to what end? Rupert Griffiths, Nick Dunn, and Élisabeth de Bézenac's inquiry into different ways in which depictions of darkness can be collected and combined seeks to create a thick description of dark places. Drawing on fieldwork that utilises unattended sensors, photography, and walking, evocations of darkness are presented that reflect systematic environmental observation, imaginative interpretation, and bodily rhythms and sensation, respectively. Through bringing these practices together, equal value is placed upon on the material and imaginary dimensions of the night and darkness. They discuss how such situated understandings of place grounded in the lived experience of humans and non-humans might be applied to inform urban design and policy strategies that consider the urban environment as a more-than-human ecology. Griffiths, Dunn, and de Bézenac argue that being able to capture different registers of the nocturnal environment can convincingly inform how design conceives and responds to the coproduction of place after dark. Such approaches will be imperative if we are to find effective ways of regulating light pollution through policy (Morgan-Taylor, 2023) and developing appropriate technological solutions to address its ongoing deleterious effects on other species and ecosystems (Jägerbrand and Spoelstra, 2023).

Holt, Jeffrey, Beer, Griffiths et al., and McGhie and Marr reveal how artistic installations and collaborative practices in dark sky places need not rely on any illumination at all, drawing out the experiential possibilities for multisensory experience. In the introduction, we identify how a wealth of activities in the dark, including eating, listening, touching, walking, and moving in other numerous ways bring out such sensory engagements, in addition to stimulating the visual apprehension

of dark space in new ways. Such experiences can undercut the normative sensing of the world and enrich the sensory experience of what initially feels strange: entering the dark worlds that emerge after night falls and reconfiguring our apprehension of the world. In his contribution to this book, Taylor Stone argues that new stories about urban darkness need to be narrated that help us reimagine how dark environments might be considered, interpreted, practised, and designed otherwise. Such alternatives will also be vital, and artistic endeavours, immersive movement, light design and landscape architecture in dark sky places offer potentialities for redistributing the nocturnal sensible.

In this context, a consideration about the unequal distribution of light and dark, and the values, interpretations and feelings that surround them, is usefully contextualised by Jacques Rancière (2009, p. 13), who explains how both sensory experience and making sense are inherently political since they concern “what is seen and what can be said about it, around who has the ability to see and the talent to speak, around the properties of spaces and the possibilities of time”. He claims that such regimes of the sensible are shaped by particular values espoused by the powerful, who are able to configure environments as common sensical realms that are difficult to imagine otherwise. The production of nocturnal space and the creation of forms of illumination and darkness that appear to be part of the way things are and should be constitute such sensory regimes. This produces the illusion that “the configuration of a specific space, the framing of a particular sphere of experience, of objects [is] posited as common and as pertaining to a common decision” (ibid., p. 24). Accordingly, the orchestration of space through material production, design, interpretation, and policing forges a sensual, material realm that demarcates what is seen, smelled, heard, and touched. This produces “spatio-temporal-perceptual complexes that invite and encourage some attentional engagements and inhibit others, that *shape* our attentional performativity” (Hannah, 2013, p. 242) and activate particular affective and sensory responses. According to Matthew Gandy (2017, p. 354), this distribution of the nocturnal sensible is “integral to the changing sensory characteristics of late modernity”, its quotidian “affective dynamics”, and rhythms and “pervasive atmospheres of distraction”, anaesthesia, and predictability (Edensor, 2014).

The present situation is thus one in which we are losing the darkness (Smith *et al.*, 2023), and negative connotations still require unravelling and unpacking to aid our understanding of the potent affective and sensory dimensions of darkness. To facilitate such a process, the works, writings, events, and exploratory mobilities we have discussed, along with many others, can foster new modes of attunement (Brigstocke and Noorani, 2016) that redistributes the aesthetic possibilities of dark places, encouraging us to sense and inhabit nocturnal settings differently, and provoking critical approaches to normative ways of seeing, making and being in the dark. Many contributions to this book reattune us to the sensory and affective pleasures of darkness and dark skies and contribute to a broader project: to profoundly shift the baseline of experience concerning darkness and reshape our values in relation to the protection of dark skies and the environment.

Further, having discussed in our introduction Weber's thesis that modernity heralded progressive disenchantment with the world, we argue that dark sky places offer great potential as realms in which we experience *re-enchantment*. By extending and heightening our sensory capacities through encountering design, movement and stillness, and artistic installations and practices that attune us to dark places, we might experience such re-enchantment. Under such circumstances, Jane Bennett (2001, p. 5) notes, we "notice new colours, discern details previously ignored, hear extraordinary sounds, as familiar landscapes of sense sharpen and intensify". During such experiences we may become "transfixed, spellbound", not only by being charmed and delighted but through the peculiar experience of "being disrupted or torn out of one's default sensory-psychic-intellectual disposition".

Contributing to critical interventions that work to reattune and re-enchant people to darkness while redistributing nocturnal experience are recent events staged at designated dark sky spaces. An expanding array of dark sky festivals feature a compendium of potential activities in which visitors may engage. For instance, Exmoor Dark Skies Festival (2023) stages astrophotography, stargazing, lectures, dining, wildlife walks, ghost walks, night running, storytelling, singalongs, craft workshops, and baking competitions. Another noteworthy series of events took place across the UK in 2022, an extensive programme staged by arts group, Walk the Plank, at 20 different landscapes across the UK. Green Space, Dark Skies (2022) attracted thousands of people to walk through a range of dark sky settings, national parks, and marginal sites. Each participant was furnished with a "geolight" and instructed to act as a "lumenator" via headphones. Filmed above by a drone equipped with a camera, large patterns of light were captured across the landscapes by the formations enacted by the walkers. One outcome was a film broadcast on BBC television that conveyed an impressionistic portrait of these diverse landscapes at various stages of dusk and darkness, of the crowds of participants and the light displays they collectively created that animated the gloomy spaces through which they moved. Walking through crepuscular landscapes, their experience was successively shaped by being immersed in darkness, being part of a large torch-bearing party and performing with these lights to co-create a spectacular temporary artwork. This large-scale programme exemplifies one way in which the redistribution of the nocturnal sensible will require us to reconnect with the nocturnal commons. This requires a wider global community of public and professionals to be involved as the *who* in such processes, as we now discuss.

Conclusion: building dark sky communities

Success in designating and developing dark sky projects resides in a nuanced understanding of their situated natures, bringing together the knowledge and skills of a host of professionals and local people. The communities that form around dark skies are essential to their ongoing preservation and safeguarding of their qualities. These may comprise people and groups who are relatively fixed in terms of geography and have a particular attachment to a locality or workplace, but also include

mobile groups that seek to build and sustain their affinity with dark skies according to various motivations and desires.

In this book, we grasp a sense of the expanding array of different communities that testify to the growing diversity of the practices, interests, forms of expertise, and political objectives that surround dark skies. While astronomers and stargazers have been most prominent in promoting dark sky places, these have been supplemented by indigenous communities who seek to preserve and transmit their understandings of the night sky, local authorities and tourism promoters, diverse artistic practitioners, creative non-fiction writers, light designers and festival organisers, ecologists and archaeologists, those performing religious rituals and therapeutic processes, nightwalkers and runners, and local people.

Implicitly, then, this book reflects how we need to incorporate more voices, inputs, and perspectives in developing dark sky places and practices, for understanding the histories, cultures, and practices of darkness reflects the considerable diversity and plurality that is too-often discredited and underrepresented. This inclusive acknowledgement also facilitates a broader conceptual approach. For as with visual scrutiny of places and landscapes during daylight, dark sky spaces cannot be objectively classified according to fixed systems of categorisation; conceptions of landscape are invariably informed by situated, culturally specific modes of scholarly enquiry. There is no essential definition of what constitutes a dark sky, no fixed meanings and values that can be imposed upon how they are interpreted and valued. Greater understandings about historical ways of engaging with dark skies from non-Western and indigenous perspectives, and by groups of different generations, ethnicity and gender, and subaltern and marginality, will lead to moves away from standardised and homogeneous processes and towards a more inclusive range of advocates in arresting the widespread decline of the “nocturnal commons” (Gandy, 2017).

In exemplifying local collaboration, Kerem Asfuroglu emphasises the critical role that highly supportive communities and associated local authorities, both who have a stake in the outcomes of dark sky places, are essential to the success of the lighting schemes he designs with them. Diverse communities may also be engaged through collaborative practices and innovative, experimental, arts-based exercises in dark sky places, as chapters in this book reveal. Asfuroglu’s account emphasises that widening participation in dark skies communities is thus a fundamental tenet to reconfiguring the relationship between light and dark. As he explains, besides developing a medley of light technologies and designs to honour darkness, such strategies may require significant local community involvement to assuage concerns about safety, aesthetics, and place-image.

Helen McGhie and Natalie Marr in particular reveal how their respective creative practices as artist-researchers enables them to share insights and challenges of working with partners and using dark sky parks as research sites. They explore how arts-based research can enhance nocturnal recreational activities while inviting stakeholders and different groups of beneficiaries to engage in the co-creation of novel dark sky knowledge and practice. As artist-researchers, they emphasise the co-production of their work with dark sky communities, a process that enriches

their practice, applies creative skills to distinctive environments, and responds to recent calls for interdisciplinary approaches to research.

In their chapter, MacMillan et al. similarly place an important emphasis on community involvement but also seek to expand participation through promoting dark sky settings as fertile realms in which to rethink how sustainable tourism is conceived, produced, and managed. Drawing upon examples from Mayo Dark Sky Park in Ireland, they argue for increasing community custodianship and pro-environmental behaviours to support the qualities of places after dark. They stress the urgent need to develop a framework of ethical principles for dark sky tourism to minimise any impact on the environment. They further contend that the symbiotic relationship between darkness as a resource and as an intrinsic cultural asset can only be sustainable if it draws upon the collective and collaborative knowledge of community stewards, practitioners, and agencies.

The design and management of dark sky places and the range of opportunities they offer must bring in diverse perspectives and crucial counterarguments to question commonly perceived attitudes, as Nona Schulte-Römer explores in her chapter on female perceptions of dark skies. She brings together four experts to discuss gendered perspectives on night-time environments in both urban and rural settings. Their key insights challenge the prevailing assumption that women feel unsafe in outdoor spaces after dark and thus question the over-illumination of places. The discussion highlights that female fears, and human fears generally, are intensified by the lack of vision in the dark, media-shaped imaginations, and social dynamics.

Such examples challenge us to consider how we might better connect up divergent groups, practitioners, and policymakers in encompassing their concerns, ideas, and values in pursuit of a more inclusive approach to dark sky management and designation. This further summons up the notion that the global population can be construed as one vast dark skies community. Reconnecting ourselves with the sheer awe of dark skies, reminding ourselves of the fragile interdependencies between humans and other species, enabling ecosystems to flourish and minimising the waste of resources would rekindle our humanity. Being humble and wise enough to recognise these necessary transformations as progressive rather than regressive steps is crucial to their implementation. The level of cooperation, coordination, and collaboration needed may be daunting, but this does not make the situation any less urgent.

Schulte-Römer proposes the adoption of a cosmopolitics of dark skies that recognises the multiplicity of perspectives, including incommensurable values and incompatible views, through which we might account for tensions and complications in order to struggle towards solutions towards protecting our cosmic commons. By acknowledging the sheer historical and geographical diversity through which people have engaged with dark skies, reappraising the relationship between light and dark, extending and diversifying our encounters with darkness, and developing more inclusive approaches to understanding, managing, and designating dark sky places, we might intensify desires for their preservation as our awareness and knowledge accumulates. We conceive this book as adding to the momentum for

substantive discussion and rapid action, as part of the campaign to move away from over-illumination and towards a renewed appreciation of the crepuscular worlds that emerge after nightfall.

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