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DOI:

[10.1111/lic3.12654](https://doi.org/10.1111/lic3.12654)

*Document Version*

Publisher's PDF, also known as Version of record

[Link to publication record in King's Research Portal](#)

*Citation for published version (APA):*

Boyson, R. R. (2022). Air and atmosphere studies: Enlightenment, phenomenology and ecocriticism. *Literature Compass*, 19(1-2), [e12654]. <https://doi.org/10.1111/lic3.12654>

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## ARTICLE

# Air and atmosphere studies: Enlightenment, phenomenology and ecocriticism

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**Abstract**

This essay examines the treatment of air and atmosphere in literary scholarship of the late 17th- to mid-19th-century periods, from the first, early Enlightenment discovery of the air's chemical structure and the coining of the word 'atmosphere', to the dawning of Victorian industrial pollution. As climate has become the predominant focus of environmental campaigning, and as air pollution and air infection have become near-universal concerns, the air itself has gained a corresponding increase in academic attention. Part I of my essay begins by sketching out the longer history of this interest, showing that air and atmosphere are complex words that have longstanding philosophical and literary histories alongside their everyday 'real' meanings. I explore the place of air studies in the History of Science, and look at how this discipline and English studies have enjoyed a close proximity with regards to the major chemical discoveries of the Enlightenment period. Part II defines the field of 'atmosphere studies' as it has emerged from 20th-century philosophy, and its importance to contemporary geography, anthropology and architecture. The complexity of the idea of 'atmosphere' is, however, rooted in early 19th-century aesthetics, and hence, I argue, literary scholarship of this period makes a crucial contribution to this broader atmospheric enquiry. Part III explores how literary critics and

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historians have begun to respond to contemporary discourse on air as primarily an issue of climate change and pollution, and suggests that there is a new eco-realism or literalness in discussion of atmosphere, borne out by increasing reflection on the carbon impact of academic work itself. I sketch out some suggestions for future research and emphasize again the importance of the 18th- and 19th-century legacies for understanding and even acting upon the contemporary air and climate crisis.

**KEYWORDS**

air, atmosphere, climate, ecocriticism, environment, phenomenology, pollution

## 1 | INTRODUCTION

Air might be thought of as a humdrum, everyday phenomenon; crucial to all life, yet colourless and barely perceptible. Yet air has always had a vivid metaphorical character alongside the empirical fact of it, registered etymologically in some of the root-words for the 13th-century English word 'air': noxious odour, external appearance, open place and tune of a song. Likewise, the 17th-century English word 'atmosphere', or 'vapour-ball' (1638) appears to be primarily a scientific term, and has also been used figuratively since at least 1800 to denote a mental or moral environment, and for a literary quality or tone, as Coleridge used it in the *Biographia Literaria* (I, IV, 84, 1817). Air has a place in many ancient philosophical and cultural traditions, such as Buddhist breath practices and ancient Greek elemental theory. From the point of view of modern European culture, however, air became notably visible and discursive through the natural philosophical experiments of the late 17th century. Hence Part I of my article focuses on the historiography of air chemistry, and its absorption and debate by literary scholars over time. I begin with MH Abrams's earlier claim that romantic interest in air was essentially anti-science, a position quite different from contemporary scholarship, which has repeatedly asserted the inextricable connections of those 'two cultures'. I explain how 17th- and 18th-century air chemistry has been central to the development of History of Science as a field, and consider Steve Connor's and Jayne Elizabeth Lewis's book-length studies of air in literature and science. In Part II, I turn to the term 'atmosphere' and consider its wider aesthetic and affective connotations. I show here the importance of the philosophical tradition of phenomenology in bringing the air to awareness or apprehension, and how this has generated a new field of 'atmosphere studies', crossing the disciplines of geography, aesthetics, architecture and anthropology. This field is of special interest to literature scholars, since the intellectual density of 'atmosphere' develops in early 19th-century criticism, as Thomas Ford has recently emphasized. I also highlight the way that Romanticists interested in historicism and mood have attended to their close connections to atmosphere and climate. The phenomenology of air is not only about philosophical aesthetics or the 'spirit of the age': air is experienced as *smell*, and I sketch out a series of important works in 'sense studies' that have further illuminated the experience of air in the 18th and 19th centuries. In Part III, I turn to the politics of air, and in a sense to the *literal* meanings of air, as ecocritical and climate-crisis perspectives have become a main strand of English studies. I look at the way literary scholars are beginning to respond to contemporary concerns about pollution, as well as thematics of breathing in the context of Black Lives Matter and the air-borne pandemic, and I find here a new eco-realism or literalness, in opposition to earlier more playfully metaphorical treatments, a somber realism borne out by increasing reflection on the environmental impact of academic work itself. In conclusion, I offer some thoughts about the future directions of this broad aerial field.

## 2 | AIR, ROMANTICISM AND THE HISTORY OF SCIENCE

M.H. Abrams's classic 1957 article on Romanticism was titled 'The Correspondent Breeze', a borrowing from Wordsworth's *Prelude's* 'corresponding mild creative breeze'. Re-employed for Abrams's 1984 essay collection, that title summed up an interpretation of Romanticism almost as influential as his other compact title-arguments: *The Mirror and the Lamp* (1953); *Natural Supernaturalism* (1971). Abrams begins by remarking that even in 1834 the diction of breathing was acknowledged as both clichéd and tricky: 'to breathe' has become 'a verb poetical which [means] anything but respiration' (Henry Taylor): '[t]he symbolic equations between breeze and breath, respiration and inspiration, expiration and death, the reanimation of nature and of the spirit ... are older than recorded history' (Abrams, 1957, pp. 113, 121). He proposed that Augustine's *Confessions* introduced into literary history the autobiographical use of air, by linking a change in season with a 'freshness' that overcame the medieval condition of 'accidie' (listlessness or torpor). Nonetheless, Abrams felt the question as to why Romantic lyric was so 'thoroughly ventilated' demanded an answer, and concluded that it was a reaction to what Wordsworth called the 'despotism of the eye': 'The wind, as an entirely invisible power known only by its effects, thus played its part in the Romantic revolt against the world-view of the Enlightenment'. Inhaled, the moving air promised to 'fuse materially, as well as metaphorically... the "spirit" of man with the "soul" of nature' (Abrams, 1957, p. 129).

Whilst there is an undeniable continuity with present scholarship in Abrams's philological and phenomenological approach (note also his prescient attention to atmosphere in another classic essay, 'Structure and Style in the Greater Romantic Lyric', 1965), the idea of Romantic wind as a spiritual resource against reductive science no longer resonates. In the intervening half century, the notion of 'two cultures' is now only ever used as a straw-man, and the study of the close associations between poetry and natural philosophy has proved enormously productive. Joseph Drury has recently offered an excellent historiography of the field of literature and science from the 1940s tradition of Marjorie Hope Nicholson and A.O. Lovejoy, to fears about its demise in the 1970s, to its revival, through English and History of Science's mutual interest in French theory from the mid-1980s (Drury, 2017). No longer seeking to show the influence of science 'on' literature, scholars have spent the past few decades analysing a trove of neglected scientific texts in literary ways, and revealing that metaphor and rhetoric are essential even in empirical practice and writing (for three examples, see Buckland, 2013; Chico, 2018; Griffiths, 2016).

The very discipline of the History of Science was arguably inaugurated in the mid-20th century, and then transformed in the 1980s, by research on the history of air chemistry. Robert Boyle's air experiments of the 1650s–1680s have always been canonical to the story of English science, for they led to the foundation of the Royal Society and 'modern' practices of empiricism; and the 'second pneumatic revolution' of Joseph Priestley and Antoine Lavoisier in the 1770s–1790s has been almost as central to the received narrative of scientific modernity. In the 1980s, Foucault's insights about the function of power in the production of knowledge, along with Bruno Latour's early work and new Marxist and Cambridge-School histories of the 17th-century, inspired the sociological approach of Steven Shapin and Simon Schaffer. Their 1985 study of early modern science, *Leviathan and the Air-Pump*, re-examined the losing side of the scientific argument (Hobbes's), arguing that Boyle's experiments, and those of the Royal Society at large, did not simply reveal, but actively produced, 'matters of fact', through performance, rhetoric and the notion of credible witnessing. Their book was dynamically influential on a generation of scholars. Bruno Latour's groundbreaking *We Have Never Been Modern*, which explores the 'delicate shuttle' weaving together 'the ozone hole... the moral law... the autonomous text'—science, politics, culture—began with a long chapter on the book's argumentative 'beauty' as well as its limitations (1993, pp. 5, 16). Whilst *Leviathan and the Air-Pump* received further critiques and modifications—some discussed in a preface to a new edition in 2011—it forged a reputation for the History of Science as a field that, through close reading, would challenge modern institutions and their power structures. Hence, recent studies of literature and science in the long 18th century frequently have begun their narrative with Robert Boyle, and engaged with Shapin and Schaffer, sometimes offering a defence or rehabilitation of Boyle in line with the English-studies turn away from ideologically suspicious readings. A common approach is to focus on his non-air writings, and a common thread is that Boyle and other early modern scientists were consciously and unconsciously

indebted to the literary practices of their time, with the follow-on point that figuration was key to empiricism (see e.g., Chico, 2018; Preston, 2015; Read, 2013; Smith, 2015). A different direction, but also a rehabilitative one, has been pursued by two works on the radical political and ontological implications of Boyle's corpuscular philosophy (Schmidgen, 2013; Thompson, 2017). These latter approaches draw from modern theories of matter's agential force (much of which itself comes from history-of-science approaches including Latour's), displacing liberal narratives of the individual human subject, as exemplified in the work of Jane Bennett, Donna Haraway, Michael Hardt and Antonio Negri.

The British air chemists that followed Boyle have also received cultural-historical attention. Joseph Priestley, the multi-talented Dissenter, set out his crucial discovery of 'dephlogisticated air' (i.e., oxygen) in *Experiments and Observations on Different Kinds of Air* (1774–1786); he has received a range of treatments, for instance in a scholarly biography by Robert Schofield (2004), in a more cross-over style group biography in Jenny Uglow's *The Lunar Men* (2002), and in a Foucauldian framework by Simon Schaffer (1990a, 1990b). Thomas Beddoes, friend of S.T. Coleridge, founded the Pneumatic Institute in Bristol, which aimed to cure medical conditions through the inhalation of different combinations of gases: he is the subject of Mike Jay's *The Atmosphere of Heaven* (2009). Humphry Davy, first superintendent of the Pneumatic Institute before commencing his illustrious Victorian career as a celebrity scientist, continues to fascinate. Literary scholars are still particularly interested in Davy's 1799 experiments with nitrous oxide (which he first dubbed 'laughing gas' and considered might be valuable for anaesthesia), which speak to utopian imaginings and practices of the self (Fulford, 2018). Davy's writings have been the focus of several recent large-scale collaborative projects, that is, *Collected Letters* (Fulford & Ruston, 2020), and the ongoing AHRC-funded *Davy Notebooks Project*; see also Frank James and Sharon Ruston's historiographical survey prefacing a special issue on Davy (2019).

Two full-length literary-critical works have surveyed the air chemistry that began with Boyle, offering related but importantly different accounts of the meaning of air in culture. Steven Connor's *The Matter of Air* (2010) is a deeply philosophical yet also playful study, drawing on Gaston Bachelard, Luce Irigaray, and above all Michel Serres, the late French poet-philosopher of science. Connor's 'Opening' is onto the 17th-century scientific appearance of air, considering how the (previously omnipresent, indivisible) air was made an object of study, by being enclosed in Boyle's pump (p. 16). Phenomenological questions of inner and outer, openness and closure, run throughout this history of episodes in the junctures of air, art and thought. Structured through short chapters or vignettes, the book covers case studies of 19th-century men with paranoid delusions of aerial mind control; the trail of nitrous oxide running through psychology and philosophy from Thomas Beddoes to Hegel and William James; modernist ambivalence about 'haze'; auditory technology; the cremation movement of the 1840s and modern pollution; explosions, fireworks and cinema; and the notion of consuming airs. The argument running through is that 'air has a particularly intimate affinity [...] with thought', and since air was 'materialized' by science in the 17th and 18th centuries, this made for a reflexive turn, a 'subduing of thought to and by itself' (p. 63). When Connor concludes with a look at the present, he speculates that contemporary art's 'fascination with the forms of the airy and the insubstantial' is perhaps a 'poignant attempt to re-establish the kind of distance' from our souls that the air used to figure (p. 336). As I shall argue below, these theories of the saturation of the air by the human and the yearning for an 'otherness' in our surroundings are key phenomenological arguments.

Jayne Elizabeth Lewis's *Air's Appearance* (2012), whilst more strictly genre and period-based, is like Connor's book in close dialogue with the history of air chemistry (Shapin, Schaffer, Latour), and notably playful yet complex. *Air's Appearance* begins with histories and definitions of air, before going into close readings of literary works, set alongside Boyle and Priestley: Boyle and Milton's *Paradise Lost*; Pope's *Rape of the Lock*; Defoe's *Robinson Crusoe* and *Journal of a Plague Year*; Fielding's *Tom Jones*; Lennox's *Female Quixote*; Joseph Priestley with Ann Radcliffe. Where Connor sees air as deeply interconnected with metaphysics, Lewis sees air as having an affinity with language: with writing, representation, and indeed English literature as a whole. Hence although her study refers to the scientific neologism of 'atmosphere', she is at pains to show how literary atmosphere was not passively reflective of, or secondary to, those ideas in natural philosophy. She argues for a co-emergence of literary and scientific atmospheres, weaving together the threads of English letters and natural philosophy whilst keeping them visibly distinct. Pneumatic

chemists were 'also compulsive writers and self-conscious literary stylists'; they had to bring air into being through language, yet in so doing made it stranger and more mystical (p. 3). As she admits, other aspects of science are also figurative, but she argues for a profound and self-reflexive relation lying in the fact that air is the 'original medium' of language. Rather than—as in a standard cultural history—air being a fact or theme that might appear 'in' writing, Lewis insists on their co-dependency; for writers in the period, atmosphere was appearance, making visible 'the inevitably mediated nature of what we call experience' (p. 5). Lewis's style is punning and accretive rather than assertive; the book makes important suggestions around the connection between air and the impact of invisible forces on women's agency, as well as the nature of readerly affect and involvement.

### 3 | ATMOSPHERE, PHENOMENOLOGY AND THE SENSES

As Lewis acknowledges, the term atmosphere belongs to a linguistic nexus including ambiance, climate, medium, milieu and mood, with a long critical history from the 18th through to the 21st centuries. As I noted at the outset, atmosphere's *literary* usage began as early as 1817 in Coleridge's *Biographia Literaria*; atmosphere was also an important modernist literary and aesthetic trope (see, for instance, Empson, 1930/2004, pp. 8–23; Woolf, 1925/2019, p. 18). Atmosphere has more recently become an important theme of aesthetics which has sought to re-inscribe the environment and the architectural, as well as the sensory, to art criticism, which from Kant onwards had frequently been set aside. Because of this link with—and sometimes, opposition to—late 18th-century aesthetics, 'environmental' sensuous atmosphere has offered a rich way of interpreting 19th-century poetics, presciently by Timothy Morton (see below). Atmosphere has also been significant for literary critics focused on Romantic historicism and its associated metaphors of climate and spirit, neatly summed up in Hazlitt's indelible formulation 'The Spirit of the Age'—the title of his collection of 'Contemporary Portraits' of British thinkers (1825). First, however, I will explore the specifically philosophical lineage of atmosphere, before returning to its use in literary criticism.

The Austrian philologist Leo Spitzer analysed the nexus of terms across European languages in an encyclopedic two-part essay, 'Milieu and Ambiance' (1942a, 1942b). Spitzer compares 'milieu' (literally, middle-place), then a fashionable literary-historical concept associated with Hippolyte Taine, to the ancient Greek word *periechon*, 'that which surrounds, encompasses', often rendered as atmosphere or climate. The essay aligns itself with the Greek appreciation of the "caressing" quality of space' absent from the thinner Roman terminology for air ('they rather tended to cling more to the soil' Spitzer, 1942a, pp. 15, 17). Spitzer recognizes a further narrowing of the term to *ambiens* by the time of the Renaissance, and with Descartes's theory of the *matière subtile*, penetrating all bodies within an atmosphere, Spitzer argues that the atmosphere lost its spirituality as well as its distance. After Newton, 'man is alone in an infinite chilly cosmos' (1942a, p. 41). Yet, once the French 'milieu' becomes a 'biologico-sociologic' term in the later 19th century, and 'ambiance' was used afresh by Goncourt, Spitzer finds a return to some of the term's original Greek warmth (1942b, p. 177). As these quotations imply, Spitzer's argument goes well beyond the purely linguistic to allude to phenomenological arguments about the human's belonging on the earth, for example, in his notion of milieu as a *surrounding*, revealing the 'attitude ... in man, who likes to feel himself protected by a shell, and one which still makes him prefer to sleep with his back to the wall' (Spitzer, 1942b, p. 194).

The phenomenological tradition (from Edmund Husserl) is a key framework for Spitzer, which has underlain much late 20th-century thinking on air, inasmuch as phenomenology seeks to show, or bring into the light, a neglected aspect of everyday experience. Maurice Merleau-Ponty's emphasis on the perceiving human body and the fabric or flesh of the world is also an important influence. Luce Irigaray's *The Forgetting of the Air in Martin Heidegger* draws from feminism, Greek and Indian thought on breathing to extend Heidegger's ground-based ontology, suggesting that the first breath marks autonomous life as well as 'a sharing of the world that surrounds me and the community that inhabits it' (1983/1999, p. 22). More recently, Peter Sloterdijk, the controversial libertarian 'cynic' of Enlightenment reason, has expanded an air-related spherology in the three-volume series *Bubbles, Globes, Foam* (2011, 2014, 2016). Many of his key ideas about atmosphere are condensed in his short book *Terror from the Air*, which finds, between

the introduction of chlorine gas into warfare in 1915 and the development of modern air conditioning, the ending of the possibility of a benevolent or Other atmosphere, in a 'post-metaphysical civilization' (2009, p. 110). A motif of the book is Herder's claim, in *Outlines of a Philosophy of the History of Man* (1800), that man is 'but a pupil of the air' (2009, p.48).

The phenomenological account of atmosphere has become a key theme for disciplines from aesthetics to architecture and geography. It has proved a fruitful expansion of 'affect studies', since atmosphere has a strong relation to emotion and mood (much like weather); it invites a framework of porosity and contagion against a classical subject-object divide. Gernot Böhme is a philosopher of science and aesthetics whose writings on atmosphere from the 1980s and 1990s are gradually appearing in English (*Atmospheric Architectures*, 2017a; *The Aesthetics of Atmospheres*, 2017b). The latter book inaugurated a new Routledge series called *Ambiances, Atmospheres and Sensory Experiences of Places*, so far comprising nine books on topics with a broadly affective-spatial approach to art, traffic, sound and architecture. The philosopher Tonino Griffero also focuses on atmosphere and aesthetics, and edits a series called *Atmospheric Spaces* (Mimesis International) which has seen 10 publications since 2017. This series includes Hermann Schmitz's *The New Phenomenology* (2019), whose earlier work on emotion as atmosphere has shaped German-language atmosphere studies, including Böhme's. The link between affect and atmosphere has been richly theorized by cultural and critical geographers such as Derek McCormack (2008, 2018) and Ben Anderson (2009); the geographer Peter Adey's *Air: Nature and Culture* (2014) is a general cultural history of air with a particular interest in the growth of cities (see also his 2013 article on 'Megacity' air). Air is also a human practice, and hence a topic of anthropology: Tim Ingold has described air in the context of breathing and weather (2010, 2020), and the Science and Technology Studies-rooted anthropologist Timothy Choy has explored the political ecology of 'breathing-with', the literal meaning of 'conspiracy' (2020, Choy & Zee, 2015).

Nineteenth-century scholars interested in both affect and historicism have found 'atmosphere' productive. Thomas Pfau's book *Romantic Moods* (2005) emerged out of the lasting Romanticist preoccupation with Kantian aesthetics and the Frankfurt school; in exploring the possibilities of non-subjective emotion, it reveals a particular interest in the term *Stimmung* ('attunement'), closely related to ideas of mood, atmosphere and climate. Emily Rohrbach (2016) has suggested that writers of this period, conspicuously Keats, register history as a foggy 'mist': elusive and non-linear. Thomas Ford's 2018 book is a major contribution to the semantic history of 'atmosphere' and its relevance to the Romantic aesthetic. Drawing on intellectual history and philology, Ford suggests that both atmosphere and *Stimmung* acquired their shimmering complexity around 1800, as metaphoric but still problematically material terms. Wordsworth's identification of poetry with an 'atmosphere of sensation' makes him the figurehead of this topic, read alongside the great aestheticians Kant, Keats and Adorno, with interesting discussion of Herder, Goethe, Novalis, Luke Howard, Thomas Beddoes, Humphry Davy and Michael Faraday. Informed by deconstructive arguments as well as theories of mediation following Niklas Luhmann and Marshall McLuhan, the book argues throughout that atmosphere creates, and yet melts, conceptual categories and disciplines.

This idea of atmosphere as escaping binaries also has implications for gender. Justine Pizzo has argued, in several chapters and articles linked to her forthcoming monograph, that from 1840 to 1900, female subjectivity was strongly linked to climate, in both medical discourse and in the Victorian novel, creating the figure of the 'ethereal woman' (Pizzo, 2019). Whilst, of course, the Victorian ideology of women's pathologically sensitive bodies is well known, Pizzo argues that understanding the *atmospheric* and meteorological context of beliefs in female 'periodicity' and susceptibility to hysteria gives us a new account of female potentiality, as one that escapes materialist restrictions. An essay on *Bleak House* considers how the atmospheric and narrative volatility of Esther Summerson (= ether, ester, blue sky) might allow her to '[speak] through - and in spite of - her gendered embodiment' (2014, p. 93). In another article, Brontë's character Jane Eyre (= air) is said to possess an 'atmospheric exceptionalism' which generates a possibility of a 'subversive Atmoscene' (2016, pp. 84, 97). A chapter linking Brontë's *Villette*, Dorothy Richardson and Virginia Woolf argues that the realist novel's 'ethereal woman character' inaugurates the modernist stream of consciousness: '[t]he atmosphere becomes, in other words, a feminine space where spirit and matter meet' (2019, p. 192). The notion

that women's overdetermined materiality gives them an overdetermined relationship to climate is a compelling one chiming with other recent work on gender, air and immateriality (Boyson, 2021; Rigilano, 2016).

Atmosphere is also a subject addressed by sense studies, since air is a medium of perception, from sound to smell, touch and vision. In social and material history, the Senses—said by some to offer a more particularized account of embodiment—have arguably taken on the conceptual status of the Body that was so omni-present in the 1980s and 1990s. With respect to the history of olfaction, for which Alain Corbin's celebrated *The Foul and the Fragrant* (1986) was for a long time the critical touchstone, a raft of impressive works in recent years has surely quelled the oft-repeated assertion that smell is the most neglected of the senses. Works in material and social history have offered significant insights into medical, social and phenomenological aspects of the air and atmosphere. Holly Dugan (2011) offers what could be called a prehistory of perfume from 1440 to 1660 (since perfume was only commercially available from around 1630), structured through six scents (incense, rose, saffras, rosemary, ambergris and jasmine), with six associated technologies or objects, and six locations. Emily Cockayne's social history of sensory nuisances in early modern England (2007) includes much stench. Smell as a facet of 18th-century urban experience and travel has been treated extensively by Clare Brant (2004, 2008, 2014, 2019). Jonathan Reinartz's 2014 historiography analyzes the theorization of smell in a range of contexts, including religion, perfumery, race, gender, class and urban space. More recently, William Tullett (2019) has made a powerful argument that the meaning of smell changed considerably over the course of the 18th century, going from an essentially medical symptom and tool (smell as disease), to a significant indicator of social identity. He contests Corbin's argument that smells were devalued in the turn towards sensibility, delicacy and a nascent 'hygiene': the idea that a disembodied Enlightenment also meant a 'deodorization of modernity'.

Several monographs have focused on olfaction's linguistic and literary representations. Emily Friedman's monograph on smell in the 18th-century novel (2016) offers chapters on tobacco, the smelling bottle, the smell of other bodies, the new smell of sulphur (earthquakes, hot springs and industry), with a conclusion (along the lines of Corbin) arguing that scentless-ness, epitomized by Richardson's *Clarissa*, increasingly became valorized. Work on smell and Romantic poetry includes essays on Percy Shelley and William Wordsworth (Boyson, 2011, 2013). Before becoming prominent as an Object-Oriented-Ontology thinker, Timothy Morton attended to the atmospheric environment in his second monograph, *The Poetics of Spice* (2000), with a fascinating chapter on Keats's scented, sonorous atmospheres: 'The poetics of spice, then is an *ambient* poetics, not a rhetoric of disguise but an atmospheric' (2000, p. 223). Morton's interest in atmosphere informed his nascent ecological theory as a mode of collapse of subject and object, as well as his recurrent idea of 'nature' as fetishistic and fantastic. Janice Carlisle discovers an extremely odiferous literature of the 1860s in her study of the 'osmology' (smell-based ordering) of eighty high-Victorian novels, with full readings of works by George Eliot, Charles Dickens, George Meredith, Charlotte Yonge and Margaret Oliphant (2004). She finds a highly consistent pattern of smell reference, in which smell is a clear codifier of class and gender relations, in particular revealing the middle-class male character's ambivalent, melancholic relation to commercial success, to the working world 'below' him, and to female embodiment. Catherine Maxwell also argues for a strong interest in perfume emerging from the 1860s, in her richly researched *Scents and Sensibility in Victorian Literary Culture* (2017). Here she explores the connections between commercial and natural perfume and the movements of aestheticism and decadence, with a particular focus on the figure of the *olfactif*. Chapters cover the historical context of scent in the Victorian era, violets and memory, Swinburne and Pater, body odour, tuberose, Michael Field, Oscar Wilde and Arthur Symons, Virginia Woolf and Compton Mackenzie.

#### 4 | AIR, POLITICS AND POLLUTION

Whilst perfume has its own politics, there has been a clear shift in recent work to think about the larger geo-political factors in air, speaking to the literally global meaning of 'atmosphere'. The literary scholar Hsuan L. Hsu has brought together smell and 'atmospheric violence' in a highly original study which covers 19th- and 20th-century olfactory

detectives in literature; 20th-century 'environmental justice fiction', contemporary olfactory art, 'atmo-orientalism' from the 20th century to the present, and the possibilities of 'decolonial air conditioning' (2020). A number of scholars have responded to the awful words uttered by Eric Garner in 2014 and George Floyd in May 2020 which have become the international slogan of protest against police brutality: 'I can't breathe' (e.g., Choy, 2020; Hsu, 2020, p. 12). A special issue on Breath appeared in the Summer 2020 edition of *Romantic Circles' RC Unbound* mini-journal ('A sheaf of fugitive posts on urgent issues and events'), offering reflections by Bakary Diaby, Daniel Diespelare, Kerry Sinanan and Lenora Hanson on lived racism in academic life, George Floyd, quarantine teaching and looting (Youngquist & Wang, 2020). The Indian-influenced breath philosophy of Luce Irigaray, as well as the science and technology-based philosophy of Peter Sloterdijk mentioned above, has been taken up in contemporary contexts by the political geographer Marijn Nieuwenhuis who has explored the politics of air and breathing in a number of articles, including on modern China and on histories of gassing (2018, 2019). My own work-in-progress, on the political philosophy and phenomenology of Enlightenment attitudes to atmosphere, seeks to historicize and revivify the longstanding metaphor of air-as-freedom.

Erin Lafford and Rhys Kaminski-Jones recently reflected on compiling their *Romanticism* special issue in the middle of a global pandemic, and the stark awareness it has generated of the 'unequal distribution of atmospheric risk' (Lafford & Kaminski-Jones, 2021, p. 121). Their editorial introduction to *Change of Air* notes 'a vibrant aerial turn at work in the study of 18th-century and Romantic culture' (p. 117). Taking their cue from the period's ubiquitous recommendation of a (therapeutic) 'change of air', to 'pluralize and materialize ideas of a supposedly Romantic lyric airiness' (pace MH Abrams), essays by Mary Ann Constantine, Rhys Kaminski-Jones, Harriet Guest, Erin Lafford, Rowan Boyson and Thomas Ford explore 'air as an important medium of local, regional, and national difference' (p. 117). Key Romantic aesthetic traditions - Ossian's Celtic culture (Kaminski-Jones, 2021), Gilpin's picturesque (Lafford, 2021)—are re-read through their mists and fogs, showing the medico-environmental attitudes that dominated the culture. The contribution of air and atmosphere to ideas of freedom, history and modernity is considered in essays focusing on the philosophy of Wollstonecraft, and Marx, Babbage and Ruskin (Boyson, 2021; Ford, 2021). Particular locations of air discussed in detail include the Welsh mining regions, where Catherine Hutton is read alongside Anna Tsing and new materialism (Constantine, 2021); and the curative sea air of Bognor, where detailed historical study reveals practices of social exclusions (Guest, 2021). The issue confirms the vital importance and interest of thinking about the social and political affordances of specific airs. In the category of explorations of air and place, one might also place Adam Grener's chapter on Dickens' *Dombey and Son*, on 'the important role the atmosphere plays in mapping the connections between domestic, national, and imperial spaces in the novel' (2018, p. 122).

Whilst less obviously political at first glance, the emergence of air-ballooning in the late 18th century is far more than a cute period motif: it speaks to a transformation of the sense of space and national borders that was a premonition of those profound changes brought by telegram and rail. Two books have re-told the lively story of aerial imagination and entrepreneurialism that begins with the Montgolfiers in 1783: Clare Brant's *Balloon Madness* (2017), which takes a close look at the imaginative impact of ballooning focused on a key handful of years; and Richard Holmes' *Falling Upwards* (2013), which ranges broadly up to the present. Siobhan Carroll's *An Empire of Air and Water* investigates 'atopias': wild, uninhabitable spaces—polar, sea, air and underground—that in the wake of late 18th-century technological, military and political changes, shifted from being mythical spaces of romance and danger to being 'blank space[s] inviting penetration' (2015, p. 8). The chapter on Air claims that '[a]lmost overnight', the Montgolfier brothers' launch in 1783 transformed the British attitude to the atmosphere from a state of uninterest to feverish imagination of a 'new era of unrestricted global mobility and limitless empire' (p. 121). Carroll studies anxieties around balloons in plays and novels including *The Aerostatic Spy* (1785), suggesting that the atmosphere then slipped out of the popular imagination until the 1816 'year without a summer', when polar winds were linked to atmospheric space. She offers a compelling reading of Shelley's *The Last Man* focused on the tainting of the atmosphere by slavery; once balloons fell out of fashion in the 1840s, she argued, the British shifted their exploratory interest to the polar regions.

The significance Carroll places on the cold, gloomy summer—one that saw devastating global crop failures as well as indirectly generating *Frankenstein*—has been marked by a number of recent authors as well as bicentenary events

in 2016. The eruption of Tambora (Dutch East Indies, now Indonesia) in 1815 caused the dramatic skies immediately visible in September 1815 followed by three years of disastrous global cooling. Its cultural and socio-political impacts have been traced by Gillen D'Arcy Wood (2014) and William and Nicholas Klingaman (2014). David Higgins has offered a short but in-depth literary and theoretical study, with three chapters covering Stamford Raffles, Byron and the Shelleys, and the 'Year without a Summer' (2017). The earlier eruption of Laki (Iceland) in 1785 also contributed to the global cooling of the turn of the 19th century, and has been given a journalistic treatment (Witze & Kanipe, 2014). Tobias Menely has offered a literary exploration of Laki in his recent monograph on the expression of 'geohistorical transition' in changing blank verse modes from the 17th to the early 19th century (Milton, Thomson, Dyer, Grainger, Jago, Cowper, Wordsworth, Smith) (2021, p. 30). In a chapter entitled 'Uncertain Atmospheres: Romantic Lyric and the Time of the Anthropocene', Menely considers some of Cowper's letters from June 1782 which speculate about the prophetic meaning of the strange heat and 'misty atmosphere' of that sulphurically toxic summer, the hottest on record until 1995 (pp. 175–176). He focuses on the indeterminacy of Cowper's description of the Laki haze in *The Task* ('Nature with a dim and sickly eye/[seems] to wait the close of all'), which Menely frames in terms of industrial pollution, English liberty and a prophecy of a cloudless, climate-less 'reparative end of time' (pp. 181, 187).

This work on historical climate catastrophes (a critical category usefully explored by Higgins) marks the altered tone and agenda, from the 'care' ethos of conservation and ecology that shaped Romantic ecocriticism since the beginning of concerted environmental campaigns and consciousness-raising in the 1960s and 70s (Davies, 2018; Forrester & Smith, 2018). The shifting emphasis, from ecology to climate change, has also witnessed something of a thematic focusing upwards from the ground or the green, to the skies; although clearly there are profound scientific and philosophical links between these issues. Partly due to increased funding for the science of air pollution and prominent campaigns within urban centres, air quality has been discussed at length in new works of science journalism (Fuller, 2018; Smedley, 2019). This has been matched with detailed historical-critical studies on pollution, including Peter Thorsheim's *Inventing Pollution* (2006), William Cavert's *The Smoke of London* (2017), and Francois Jarrige and Thomas Le Roux's recently translated history of pollutions, *The Contamination of the Earth* (2020). Christine L. Corton's *London Fog: A Biography* (2015) offers a social and cultural history of the infamous 'pea soupers' or 'London particulars', focusing on their imaginative and metaphoric influence. A signal contribution to charting 19th-century pollution in literature and theory is Jesse Oak Taylor's *The Sky of our Manufacture*, which opens by defining smog (a portmanteau of smoke and fog, from 1905) as 'the intersection of nature and culture' (2016, p. 3). Part I reads *Bleak House* ('fog everywhere'), *Our Mutual Friend* ('London was a sooty spectre') and *Daniel Deronda* ('gas-poisoned absorption') as Anthropocene 'climate novels', in which 'settings, atmospheres and environments [are] agents' (p. 36). Taylor places them alongside Victorian technologies of the environment from the 'tempest prognosticator' to the steam-engine and greenhouse. Part II turns to the Gothic *fin de siècle* and introduces the concept of the 'abnatural', looking at the *Punch* 'Fog Demon' cartoons; *Dracula* as 'the first great oil novel' (p. 9), in which coal is the dead-un-dead; and Conan Doyle's odiferous metropolitan investigations ('[s]imply put, Sherlock Holmes reads dirt', p. 149). Part III considers Conrad's 'planetary consciousness' in his Impressionist aesthetics of atmosphere and Woolf's theorization of the collectivity of atmosphere-as-history in *Mrs. Dalloway*, 'On Being Ill' and *Orlando*. An epilogue considers the 1952 London smog disaster, and reflects further upon the book's epigraph taken from Alice Meynell's *London Impressions*, 1898 (we 'admire the paltry tempest of the smoke... the sky of our manufacture'). He concludes that by aestheticizing 'the effluence of industrial modernity', we also to some degree become aware of it, and its literal significations (p. 219).

At the outset of this survey, I suggested that air and atmosphere were rich terms with which to contextualize and theorize literature, because they have always contained a fine balance of the literal and metaphorical. They partake in a borderline materiality–immateriality that has proved fertile for considering literary and aesthetic experience, the sense of historicity, and the phenomenology of space. These considerations are evident in fresh work on air that does not necessarily engage with climate change: Pizzo's gender-based approach to atmosphere subtly side-steps Anthropocenic interpretations, and Anahid Nersessian has argued powerfully for a non-literal Romantic ecocriticism that focuses on form and phenomenology (2018). Undoubtedly, however, the sharpening sense of climate catastrophe

has dramatically altered the way that scholars are writing about air. One development is a sombre but decisive switch to the literal. This is evinced in Taylor's comments on Woolf: 'Literalizing the metaphor by which we speak of historical or cultural "climate", Woolf provides a model for recognizing the deeper implications of anthropogenic climate change, which amounts to precisely such a literalized metaphor writ large through the atmosphere' (p. 201). Another stark literalness is witnessed in reflections on the ecological issues of scholarship's own production, from Taylor on the way we inhale fragments of the industrial revolution when opening the acid-corrupted pages of the 19th-century archive (p. 199), to Ford's on the carbon costs of an academic hardback alongside the carbon-privileged lives of its readers: 'any text can be analysed as so many kilograms of embodied carbon dioxide' (2018, p. 200). The ethereal air has acquired a new moral weightiness and public visibility. Practices are changing as well: flying to academic conferences, once a widely enjoyed career perk of the transatlantic anglosphere, will in likelihood soon be considered too carbon-wasteful to be justified (Levine et al., 2019).

In terms of future directions for work in historical air studies, I would suggest that the *political* meanings of air as both metaphor and as lived reality, now require much more analysis. Climate and environmental *justice* is now a dominant framework used by campaigners, which aims to recognize the unequal contributions to and impacts from, anthropogenic climate change, amongst different classes and regions of people. Environmental justice also draws attention to the ethical claims and legal rights of non-humans. This is important for historical air studies too, which begin to chart the way that air has been differentially experienced by classes and ethnicities in the past, as well as the present (Boyson, 2021; Choy, 2020; Hsu, 2020). Scholars of 19th-century culture, as Jeremy Davies has trenchantly argued, must now "embrace the world-historical significance of the time and place that [they study]. Romantic ecocritics are ideally placed to examine the cultures of agro-industrial intensification, and of resistance to that intensification, in Britain and its empire" (Davies, 2018, p.12). Likewise, scholars of this period must attend to the physical transformations of the atmosphere in this period, and the power structures and unequal conditions that underpinned those changes.

Enmeshed in the histories of science, aesthetics and the environment, for scholarship air will continue to be, as Shelley described it not once but twice in *Prometheus Unbound*, 'all-sustaining' (1820, 1.754; 2.5.42). Michael O'Neill's study of the 20th-century poetical allusions to Shelley's phrase reminds us of the metaphysical importance of the metaphor: air 'gives promise of origins [...] yet retain[s] a capacity to house the sublime, the limitless, to hint... at traces of dispelled presence' (2007, p. 19). Poetry and other forms of literature help us imagine and apprehend the air phenomenologically, which may also make us more conscious of its degradation, and its protection—as well as the ethical and aesthetic complexities of accommodating to air as *neither* degraded nor unspoiled, but complicatedly mixed and changing. There is much scope for new research which explores the scientific and industrial changes to the atmosphere that went hand in hand with that literature, the ethics and politics of those changes, and the aesthetics that continue to shape our perception of the air today.

## ACKNOWLEDGEMENTS

I would like to offer sincere thanks to Daniel Williams and Jacob Risinger for commissioning this article, and for Daniel Williams' meticulous and timely edits; I would also like to thank Daniel C.S. Wilson for commenting on an earlier draft. I am most grateful to the Leverhulme Trust for funding which enabled me to research and write this piece.

## CONFLICT OF INTEREST

I have no conflict of interest to disclose.

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**How to cite this article:** Boyson, R. R. (2022). Air and atmosphere studies: Enlightenment, phenomenology and ecocriticism. *Literature Compass*, 19(1–2), e12654. <https://doi.org/10.1111/lic3.12654>