

***“But Who Looks East at Sunset?”
Gerard Manley Hopkins and Scientific Perception***

Bethany Nowviskie
University of Virginia Library

delivered at the *Victorians Institute 2010*

Abstract

This essay examines published scientific writings of Gerard Manley Hopkins in the context of his poetry, journal-writing, and correspondence on subjective and objective cognition, or “unusually observant” perception. Hopkins’ response to special atmospheric conditions (the after-effects of the Krakatoa eruption, and the phenomenon of rayons du crepuscule at sunset) is considered in a matrix of Victorian scientific amateurism, conflicting views on observational agency and perspective, and precision in poetic and descriptive language. Key to valid scientific observation, for Hopkins, are internal and perspectival conditions under which the outside world may be “beautifully witnessed.”

In late October 1884, readers of the influential scientific journal *Nature* were enjoined – when attempting to draw conclusions about atmospheric and other natural phenomena – to place their faith in the measurements of “exact instruments” rather than in the “untrustworthy impressions of the eye.”¹ Measured spectroscopy, one correspondent implies, must be preferred to the subjective responses of human observers: colors should be calculable. He dismisses, as

founded more on conjecture and faulty observation than on extrinsic analysis, [the](#) earlier-published [scientific](#) speculations of [a visual artist](#), the painter Robert Leslie, and then sharpens his critique of subjective response by insisting that the issue is not merely “a question of terms.” For this writer, unsystematic observation can become “a hazardous thing” capable of reversing scientific progress. He concludes by drawing an explicit connection between reliance on the personal, “untrustworthy” eye and self-involved belief in an earth-centered, Ptolemaic universe.²

And then this cautious and disciplined scientist becomes Gerard Manley Hopkins: “If a very clear, unclouded sun is gazed at,” he writes, “it often appears not convex, but hollow; – swimming, like looking down into a boiling pot or swinging pail, or into a bowl of quicksilver shaken: and of a lustrous but indistinct hue.”³

The remainder of Hopkins' letter to *Nature* is of a tenor his modern readers might recognize and expect. The poet who wrote so triumphantly and idiosyncratically of skylines in verse, who kissed his hand “to the dappled-with-damson west” and recorded the “lovely behaviour/ Of silk-sack clouds” of which no “wilder, wilful-wavier/ Meal-drift moulded ever and melted across skies” now seems to reverse his somber, scientific position and embrace the act of human observation.⁴ He revels in metaphor, writing of the colors of a sunset (however objectively noted to have occurred between 6:15 and 6:30 Dublin time on October 19th, 1884) as “bronzy near the earth; above like peach, or of the blush colour on ripe hazels.”⁵ Personal

observation is revalued, both in Hopkins' evocative prose and his admission that commonplace but previously-unremarked natural occurrences may be revealed, not through the use of spectroscopes and anemometers, but by individuals in whom an “untrustworthy eye” has been made “unusually observant.”⁶ It is difficult not to identify the writer of this letter as one of those privileged observers, particularly when he closes by offering his own record of a strange phenomenon – a blue-tinged sunset:

Even since writing the above I have witnessed, though slightly, the phenomenon of a blue setting. The sunset was bright this evening, the sun of a ruddy gold, which colour it kept till nothing was left of it but a star-like spot; then this spot turned, for the twinkling of an eye, a leaden or watery blue, and vanished.⁷

The conditions under which subjective witnesses become “unusually observant” – and therefore, in Hopkins' view, more capable of making observations of scientific value – seem to be twofold. The first is intrinsic: a state of the psyche or the soul, an effect of education and temperament, a brand of sublimated tectonic drift. The second is extrinsic and sometimes volcanically catastrophic – having to do with the events of the physical world, over which the observer has no measure of control, but which alert him and heighten his senses and lift veils to let him see.

A propensity for careful observation of the natural world was ever-present in Gerard Manley Hopkins, as in others of his generation reared on the works of Ruskin and attracted to the ideals of the Pre-Raphaelite Brotherhood. Hopkins, with his artist's eye to witness and priestly vocation to voice a grandeur in the inscape of worldly things, was exquisitely prepared to make and record observations of nature – which he did, compulsively, in journals and letters and sketches and poems throughout his life. However, he recognized that it was in the conjunction of internalized, spiritual states with extrinsic, physical conditions that scientifically-valuable, “unusually observant” perception occurs. Hopkins' own observational talents and abiding interest in the problems of subjective and objective cognition required an external point of focus in order to reach greatest magnitude – to become viable for him in developing a personal philosophy of perception, and for us in analyzing his varied responses to opportunities for scientific observation.

On the 26th of August 1883, the physical world complied. For two days and two nights an enormous volcano erupted on the island of Krakatoa in the Straits of Java, a natural occurrence more catastrophic than any in recorded memory, **causing** tens of thousands of deaths, **generating** what is thought to be the loudest noise ever heard on the face of the planet, **bringing** vast destruction to the South Pacific, and **filling** Earth's atmosphere with a lasting cloud of ash and debris. The effects of the Krakatoa eruption were seen around the world in the form of sensational atmospheric events, including “prolonged and spectacularly-colored twilights, large coronas, green- and blue-colored suns and moons, and unusual hazes.”⁸

In England, these bizarre and much-discussed manifestations became visible in October and were sustained into the new year, with sporadic recurrences throughout 1884.⁹ At their advent, the sun set in such an unwonted “blaze of color” that local fire-brigades in England raced to the western horizon in pursuit of non-existent conflagrations; however, soon the cause of these phenomena was generally (although not universally) accepted, and they became the subject of much discussion.¹⁰ Not only did the atmospheric effects of the eruption of Krakatoa provide Victorians with a condition under which they could be made “unusually observant” of the natural world, but the event also occurred at a time during which Hopkins and many of his contemporaries were taking explicit interest in the inherent relationship between art and the absolute – between poetic and scientific brands of perception.

Nature, where much of this conversation played out, was founded in 1869 and held a state of pre-eminence in the field throughout and far beyond the period of the Krakatoa sunsets. The journal exerted a profound influence on the Victorian scientific community. Its editors, however, did not wish to limit *Nature*'s scope of publication to wholly academic circles, and the increasing interest of the English public in matters scientific made the the serial a great popular success. In fact, David A. Roos suggests that one of the recognized goals of *Nature* was to mediate among occasionally antagonistic segments of Victorian society: “professional scientists and interested amateurs... scientific generalists and specialists, and

...specialists in different fields.” Publishers, editors, and contributors to *Nature* seem to have “understood their aims and intentions to be cohesive – and cohesive not simply in relation to science, but also in relation to the arts and humanities.”¹¹

Nature was a forum in which contributors as diverse as C. Piazzzi Smith, the astronomer royal for Scotland; Robert Leslie, a well-known painter and friend of Ruskin; C. J. Symons, meteorologist and chair of the Krakatoa Committee of the Royal Society; and an obscure Jesuit priest and teacher with poetic aspirations, Gerard Hopkins, could exchange ideas.¹² Although at times an established scientist like W. Clement Ley might be seen to criticize the opinions of a vocal amateur such as John Ruskin, the dominant tone of the articles and correspondence printed in the journal may be characterized as “genuinely open and inquisitive, indicating... the continuing accessibility of *Nature* to all interested readers.”¹³

However, a prolonged debate in the pages of the magazine, between 1883 and 1884, concerning the causes and effects of the Krakatoa sunsets and other meteorological phenomena, serves to illustrate a relationship both tense and synthetic, between artistic and scientific perception – in *Nature*, in late Victorian society, and in the work of one of the period’s most thoughtful poets.

Hopkins’ contributions to *Nature* began one full year before England experienced the brilliant green and blue sunsets of Krakatoa. His first letter, published in the issue of November 16th, 1882, was drafted in response to a report from Shanghai by

a correspondent (also a Jesuit, Father Marc Dechevrens) who offered a vision of *rayons du crepuscule*, or beams of varied light and shadow that sometimes form in the east – directly opposite the setting sun – at twilight.¹⁴ Dechevrens' letter was typical of those printed in the correspondence section of *Nature*; it offered a detailed and fluent description of a natural phenomenon and, therefore, took part in what Patricia Ball identifies as a Ruskinian “collaboration between a scientific curiosity, and aesthetic appreciation of colours, forms and relationships, and a verbal facility” common to observers in the latter half of the nineteenth century. [Theirs](#) was a culture, she writes, “where both the professional and the amateur in science respect the activity of the sensitive observer; and that observer counts as part of his equipment the literary skill to do justice to the niceties of his visual sense.”¹⁵

It is interesting to note that Hopkins' first public comments in *Nature* contain very little in the way of these conventionally Victorian scientific and aesthetic observations; instead, the poet addresses the act of perception itself. Fr. Dechevrens' comments on *rayons du crepuscule* suggested that sightings of the beams were far more common in China than in the skies of England, and that some conclusions about the respective atmospheres of the two regions might, therefore, be drawn. Hopkins, who claimed to have “several times seen in this country” the phenomenon described by Dechevrens (a fact corroborated by his early journals),¹⁶ objected to the speculation that Chinese and English skies were fundamentally different. Instead, he suggests, the rarity of such beam-sightings in England may

have more to do with human perception – with clarity of observation in familiar as well as unfamiliar environments:

There seems to be no reason why the phenomenon should not be common, and perhaps if looked out for it would be found to be. But who looks east at sunset? Something in the same way everybody has seen the rainbow; but the solar halo, which is really commoner, few people not readers of scientific works have ever seen at all... I may remark that things common at home have sometimes first been remarked abroad. The stars in snow were first observed in the polar regions; it was thought that they only arose there, but now everyone sees them with the naked eye on his coatsleeve.¹⁷

Hopkins' question "But who looks east at sunset?" places primary accountability for discovery on observers, rather than upon the outward reality of the objects of their gaze. It is not the atmosphere alone that dictates our perception of a sunset, but rather the agency we express as observers.

Hopkins' own facility for observation and interest in issues of perception may be credited in part to the education he received from a long-term reading of Ruskin, whom Richard Cronin recognizes as his "principal teacher."¹⁸ Hopkins demonstrates a sensuous joy and educated interest in the visual, and follows Ruskin in placing great emphasis on color. His journals become scientific and aesthetic record-books filled with entries in which he analyzes and fixes terms for the colors

of the natural world – a practice which would serve him well in the later light of Krakatoa sunsets. Take, for instance, this 1864 “Note on green wheat:”

The difference between this green and that of long grass is that the first suggests silver, latter azure. Former more opacity, body, smoothness. It is the exact complement of carnation. Nearest to emerald of any green I know, the real emerald stone. It is lucent. Perhaps it has a chrysochase bloom.¹⁹

His visits in April and May of 1874 to the Kensington Museum and the Royal Academy prompted a flurry of jottings and notes about color. Hopkins' lengthy lists of gemstones seen at Kensington (“opalescent blue-green, some/ blue-green with sparkles, some/ dull yellow green, dull olive... beautiful half-transparent green, some/ dull with dark cloudings... milky blue flake in brown... white, madder, sherry-colour... wallflower red...”) ²⁰ and his notes on paintings demonstrate an aptitude for careful analysis of tints and hues:

There was in the picture [“Old Damascus: Jews' Quarter, “ by Lord Leighton] a luscious chord of colour (which grew on me) – glaucous (blue, with green and purple sidings) & browns (with reds to match). In the green scale, which was part of the glaucous or blue faction, were [several elements of the picture, likewise] in the red scale... there was a beautiful flush of dark.²¹

In records like these, Hopkins seems to have fully accepted Ruskin's 1857 account of color as the basis for all visual experience (“Everything you see around you presents itself to your eyes only as an arrangement of patches of different colours variously shaded”).²² It seems unlikely, however, in light of his own opinions on objective and subjective observation, that Hopkins would have agreed unreservedly with the statement Ruskin goes on to make:

The whole technical power of painting depends on our recovery of what may be called the **innocence of the eye**; that is to say, of a sort of childish perception of these flat stains of colour, merely as such, without consciousness of what they signify, – as a blind man would see them if suddenly gifted with sight.²³

We may consider the Ruskinian “technical power of painting” to be, like our inherited understanding of scientific observation, mimetic and objective – even pre-interpretive. But might an *overly*-innocent capacity for perception pose problems? Should observations of scientific value – the sort of records of color which Hopkins was to submit to *Nature* in the wake of the Krakatoa eruption – be more mature and considered than childlike and revelatory?²⁴ In some ways, Ruskin's “innocence of the eye” seems dangerously close to that “hazardous thing,” the “untrustworthy eye” that Hopkins decried in his fourth and final contribution to *Nature*.

Hopkins addresses the issue of perceptive innocence in a private letter to his friend Canon Richard Dixon, when he critiques what he calls Dixon's "most delicate and touching" lyric, "Fallen Rain" – a poem in which raindrops tell of being courted by a rainbow:

While on the one hand delighting in this play of imagination, a perverse overperspectiveness of mind nudges me that the rain could never be wooed by the rainbow which only comes into being by its falling nor could witness the wooing when made any more than the quicksilver can look from the outside back into the glass. However, it is the imagination of the 'prescientific' child that you here put on.²⁵

Hopkins suggests that only a person so innocent as to be wholly without scientific sensibilities might legitimately make the sorts of observations – and assumptions about observation – that are implicit in Dixon's poem. It is noteworthy that it is not the pathetic fallacy in the verse to which Hopkins objects, but rather to technical and logistical impossibilities of perception. The phrase "perverse overperspectiveness of mind" suggests not only a kind of apologetic acknowledgment that his observations on this point may be too precise for Dixon's taste. It also suggests a brand of thought, an "over**perspectiveness**," that insists on attention to the positioning of observers, a concept with which Hopkins had already wrestled (and indeed, in the context of rainbows) in an 1864 lyric:

It was a hard thing to undo this knot.
 The rainbow shines, *but only in the thought*
Of him that looks. Yet not in that alone,
For who makes rainbows by invention?
 And many standing round a waterfall
 See one bow each, *yet not the same to all,*
 But each a hand's breadth further than the next.
 The sun on falling waters writes the text
 Which yet is in the eye or in the thought.
 It was a hard thing to undo this knot.²⁶ [*my emphasis*]

In another letter to Dixon, Hopkins describes his plans for “a sort of popular account of Light and the Ether... meant for the lay or unprofessional student who will read carefully so long as there are no mathematics and all technicalities are explained.”²⁷ Hopkins wished to make his reader, presumably the same sort of layman who might peruse *Nature*, more conscious of his corporeal and mental positioning in relation to the material world – better educated, and therefore more observant:

The study of physical science has, unless corrected in some way, an effect the very opposite of what one would suppose. One would think it might materialise people... but in fact they seem to end in conceiving only of a world of formulas – it being properly speaking in thought, towards which the outer world acts as a sort of feeder, supplying examples for literary purposes.²⁸

An appreciation of the physical should be the end result of an education in physical sciences: students should become “materialised,” or more sensitive to and observant of the material world. This observational sensitivity is not described in terms of reliance on instruments and precise measurement. Instead, science has something of an artistic function, and the “literary purposes” to which the outside world may be put include (despite Hopkins' disapproval of Dixon's amorous pre-rain rainbow) poetic license and metaphor-making.

Hopkins goes on to tell of a recent dispute over a technicality in Shakespeare: “Some learned lady having shewn by the flora that the season of the action of *Hamlet* is from March to May, a difficulty is raised about the glowworm's ineffectual fire in the first act, since glowworms glow chiefly from May to September.” However, it is learned that the glow-worm grub shines as well as the full-grown insect and may be seen as early as March, “and so all is saved.” Hopkins writes:

Does not this strike you as a great trifling? Shakspeare had the finest faculty of observation of all men that ever breathed, but it is ordinary untechnical observation, neither scientific nor even, like a farmer's, professional, and he might overlook that point of season. But if he knew it he would likely enough neglect it. There are some errors you must not make, as an eclipse at halfmoon... but others do not matter.²⁹

It is within this loose Shakespearean matrix of careful perception and metaphoric liberty that Hopkins seems to place himself as a poet and a scientific observer – a position tacitly endorsed by the publishers and chief writers of *Nature*. Editor Norman Lockyer's extensive reviews of the Royal Academy of Arts exhibitions in 1878, 1883, and 1887 often (as did Hopkins himself) censure painters for depicting “moons in impossible phases, rainbows painted in perspective, and similar atrocities,”³⁰ but the very presence of serious art criticism in a scientific journal suggests deep interplay between these two fields in Victorian thought.

Another contributor to *Nature*, John Brett, was, by virtue of his membership in both the Royal Academy of Arts and the Astronomical Society, particularly well-placed to support the bridging of art and science. His 1870 lead article, “Natural Science at the Royal Academy,” makes Hopkins’ thesis explicit, suggesting that a general heightening of observational skills would result in a sounder partnership between the two praxes:

What is the moral of all of this? Simply that the scientific men pay too little attention to the broader aspects of the visible world; while artists on their part pass by the clear fountain of natural beauty and content themselves with dreamily sipping lukewarm water from the corroded vessels of their forefathers, the one group of doers standing apart from the other; whereas, if either would go to school with the other, they would, in my opinion, each

stimulate and aid the labours of the other and divide between them a far larger share of the spoils of the world.³¹

Brett's exhortation has as much to do with the practice of observing "the broader aspects of the physical world" as with the prospects for a joint education of artists and scientists. The practice of "paying attention" – of being perceptive and active in engaging with the physical world, **is** that of looking east at sunset, or of becoming aware of the ways in which the outer world might, as Hopkins wrote to Dixon "act as sort of a feeder, supplying examples for literary purposes."

Hopkins' second letter to *Nature*, in November of 1883, again takes up the issue of *rayons du crepuscule*, and is considerably less didactic in tone than are his later comments on the "untrustworthy eye" and the unobservant public. On this occasion, he writes with the intent of providing a simple and accessible description of the sunbeam event:

The phenomenon of beams of shadow meeting in the east at sunset... was beautifully witnessed here today and yesterday... Yesterday the sky was striped with cirrus cloud like swaths of a hayfield; only in the east there was a bay or reach of clear blue sky, and in this the shadow- beams appeared, slender, colourless, and radiating every way like a fan wide open... It is merely an effect of perspective, but a strange and beautiful one.³²

Hopkins' metaphor-making indicates his willingness to express scientific observation in literary language – he writes of hayfields, architectural bays, and open fans in describing the skyscape – but the aim of the report is precision and objectivity. The vision of twilight rays is, he writes, “merely an effect of perspective;” however, Hopkins' recording of it, his submission of the statement to a public, scientific forum, and his appreciation of its “strange and beautiful” nature, places implicit value on careful, personal and deeply-felt observation. The sunbeams are “beautifully witnessed” – a phrase which suggests equal value in the quality of observation as in the clarity of the phenomenon itself. We see a similar alliance in the sonnet “Hurrahing in Harvest,” in which the poet twice links the simultaneous lifting-up of *heart* and *eyes*. [Of autumnal beauty he writes](#), “these things were here and but the beholder / Wanting.”

Part of the beauty in witnessing, for Hopkins, lay in the eloquence and precision with which observations might be expressed. His linguistic interest and expertise is well documented; Hopkins was deeply engaged with the burgeoning field of Victorian philology.³³ Language itself was, for this poet/naturalist/priest, both a metaphoric and a scientific tool – and it was in those linguistic instances in which poetry and precision met that Hopkins identified a near-mystical union. The “call of the tall nun,” for instance, in his *Wreck of the Deutschland*, gains its spiritual and poetic power from observational, scientific precision:

Ah! there was a heart right! There was single eye!
 Read the unspeakable shock night
 And knew the who and the why;
 Wording it how but by him that present and past,
 Heaven and earth are word of, worded by? –³⁴

The embodiment into words of that which is witnessed by a “single eye” – in this case, the name of Christ – is the greatest of heroic acts. The tall nun easily succeeds in observing and voicing that for which Hopkins strains his sight:

But how shall I... make me room there:
 Reach me a... Fancy, come faster –
 Strike you the sight of it? Look at it loom there,
 Thing that she... There, then! the Master!”³⁵

Powerful, emotional, and disjointed observation suddenly is made complete by precise utterance. The subjective heart and objective mind must both come into play: “But here was heart-throe, birth of a brain,/ Word, that heard and kept thee and uttered thee outright.”³⁶

The desire to serve as an inspired witness, and therefore for “wording” observations perfectly, is as evident in Hopkins' scientific writing as it is in his poetry. Henry Marchant, a science instructor from his days of Jesuit training at Stonyhurst

Seminary, wrote of Hopkins: “He had a keen eye for peculiarities in *nature*, and hunted for the *right word* to express them, and *invented* one if he could not find one.”³⁷ Hopkins himself, in a letter to the poet Robert Bridges, described a projected treatise on rhythm as “full of new words without which there can be no new science.”³⁸

It is, therefore, no surprise that when the astonishing atmospheric effects of the Krakatoa eruption began to make themselves felt in late 1883 – when, as Ruskin put it, the “ashes of the Antipodes” began to “glare through the night” – Gerard Manley Hopkins put linguistic inventiveness in service of his keen perceptive skills.³⁹ His letters to *Nature* from this period are remarkable for their lyric quality and observational rigor. Hopkins' language contrives to reconstruct, for a burgeoning popular science audience, some of the most extraordinary solar phenomena ever witnessed. One neglected indication of his poetic power is this willingness to use unconventional metaphors and heightened phrasing to achieve a paradoxically objective effect.

Throughout, the letters concentrate on Hopkins' own perception of “the pageant or phenomena we call sunset,” and he structures the longer of the reports around six fundamentally visual observations. Nearly all of these deal with the finer points of color, such as purity of tone, regularity of coloration, and the synaesthetic texture of twilight. Hopkins attempts to make a precise and comprehensive study of the

Krakatoa sunsets without the aid of a spectroscope – relying only, in fact, on his “untrustworthy eye.”⁴⁰

Hopkins reconciles his wariness about the subjectivity of personal perception with his hopes for its value by placing trust in language. He is, as readers of his poetry would expect, typically unafraid of the creation of new metaphors and unconventional juxtapositions. The guiding principle of Hopkins' scientific writing is similar to that of his verse: language should express observation vividly, and if it does not seem to do so of its own accord, its obedience is to be enforced. The exactness of phrasing and sheer comprehensiveness of these records, which at times approach the catalogue-quality of Hopkins' journal entries on color in gems and paintings, constitute their scientific value. He writes:

The glow is intense... on December 4, I took note of it as more like inflamed flesh than the lucid reds of ordinary sunsets. On the same evening the fields facing west glowed as if overlaid with yellow wax. But it is also lustreless. A bright sunset lines the clouds so that their brims look like gold, brass, bronze, or steel. It fetches out those dazzling flecks and spangles which people call fish-scales. It gives to a mackerel or dappled cloudrack the appearance of quilted crimson silk, or a ploughed field glazed with crimson ice.⁴¹

This is a pied beauty, for which Hopkins employs entirely subjective metaphors, expressing the sight in terms of his own psychological and aesthetic associations.

However, the cumulative effect of such a concrete description is to permit the readers of *Nature* to reproduce this vision mentally, and therefore to draw systematic conclusions about its relation to the Krakatoa [event](#).

Hopkins' grappling toward precise terms for colors, too, adds to the objective quality of his account:

The green is between an apple-green or pea-green (which are pure greens) and an olive (which is a tertiary colour): it is vivid and beautiful, but not pure. The red is very impure, and not evenly laid on. On the 4th it appeared brown, like a strong light behind tortoiseshell, or Derbyshire alabaster. It has been well compared to the colour of incandescent iron. Sometimes it appears like a mixture of chalk with sand and muddy earths. The pigments for it would be ochre and Indian red.⁴²

By citing specific pigments, Hopkins participates in [the best attempt of](#) British science at capturing this transitory phenomenon in an era before color photography. The Krakatoa Committee of the Royal Society had already commissioned oil painters in London to record as precisely as possible the colors present in affected sunsets. Several of the resulting paintings were published in the Committee's 1888 report, *The Eruption of Krakatoa and Subsequent Phenomena*. It is no surprise that one of Hopkins' letters to *Nature* is quoted in this official report.

In his earlier letters on twilight rays, painterly and comparative catalogues of color – “materialised,” in Hopkins’ terms – had combined with a discussion of the perspectival foreshortening of sunbeams through atmospheric vapor, to present an artistic framework for a scientific study.⁴³ Post-Krakatoa, Hopkins becomes even more explicit in his melding of artistic appreciation with scientific observation. On the quality of light, he writes that

The two things together, that is intensity of light and want of lustre, give to objects on the earth the peculiar illumination which may be seen in studios and other well-like rooms, and which itself affects the practice of painters and may be seen in their works, notably Rembrandt's, disguising or feebly showing the outlines and distinctions of things, but fetching out white surfaces and coloured stuffs with a rich and inward and seemingly self-luminous glow.⁴⁴

The willingness of *Nature's* editors to print a letter drawing so heavily on the subjective visual arts to make its technical points suggests the breadth of the publication and the inclusiveness of Victorian scientific amateurism. Analogies between a Dutch master's incandescence and the afterglow of a volcanic eruption were welcome in England's premiere journal of natural history.

Clear as it may be that Hopkins participated eagerly in scientific debate, his discussion of the “inward and seemingly self-luminous glow” of the sunsets may

indicate the root of his attraction to these meteorological oddities. An influenced atmosphere, by his own description, cast the world into a state in which the Hopkinsian *inscape* of things might become evident to any “untrustworthy eye,” now made “unusually observant.”⁴⁵ Richard Altick is right to assess the Krakatoa-influenced poetic output of Hopkins’ contemporaries – Swinburne, Tennyson, and Bridges – as failures. But the meeting of one peculiarly-sensitive observer with this strange and wondrous volcano-light seems beyond serendipity. The skies over Europe in the early 1880s provided Hopkins with perfect illumination for a developing theory of scientific perception, and served as a case on which he could try his capacities for precision in descriptive language.

Works Cited

- Abbott, C. (ed.). *The Correspondence of Gerard Manley Hopkins and Richard Watson Dixon*. London, 1935.
- Altick, R. "Four Victorian Poets and an Exploding Island" in *Victorian Studies*. Vol. 3, March 1960: pp 249-260.
- Ball, P. *The Science of Aspects: The Changing: Role of Fact in the Work of Coleridge, Ruskin, and Hopkins*. London, 1971.
- Brett, J. "Natural Science at the Royal Academy." *Nature*, vol.2 (1870).
- Costantini, M. "Hopkins and the Scientific Dilemma." *RSV* 4 (1997): 85-103.
- Cronin, R. *Colour and Experience in Nineteenth-Century Poetry*. London, 1988.
- House, H. (ed.). *The Journals and Papers of Gerard Manley Hopkins*. London, 1959.
- Lockyer, T. *Life and Work of Sir Norman Lockyer*. MacMillan and Co., 1928.

- Milroy, J. *The Language of Gerard Manley Hopkins*. Deutsch Ltd: 1977.
- Nixon, J. "From Pap to Poison: Gerard Manley Hopkins and the Poetics of Darwinism" in *Gerard Manley Hopkins and Critical Discourse*. E. Hollahan, ed. New York: 1993.
- Phillips, C. (ed). *Gerard Manley Hopkins*. Oxford: 1987.
- Plotkin, C. *The Tenth Muse: Victorian Philology and the Genesis of the Poetic Language of Gerard Manley Hopkins*. Illinois: 1989.
- Roos, D. A. "The 'Aims and Intentions' of *Nature*," in *Victorian Science and Victorian Values*. Paradis and Postlewait, eds. Rutgers U: 1985. (161ff).
- Ruskin, J. "The Storm-Cloud of the Nineteenth Century," Cook and Wedderburn, eds. *Works of John Ruskin*, Library Edition (1902-12) XXXIV, 78.
- Ruskin. "The Elements of Drawing" (1857). *The Complete Works of John Ruskin*, Wedderburn and Cook, eds. London, 1903-12.
- Zaniello, T. "The Spectacular English Sunsets of the 1880s," in *Victorian Science and Victorian Values*. Paradis and Postlewait, eds. Rutgers U: 1985. (247ff).
- Zaniello, T. *Hopkins in the Age of Darwin*. Iowa U Press: 1988.

Biographical Notice

Bethany Nowviskie is Director of Digital Research & Scholarship at the University of Virginia Library and Associate Director of the Mellon-funded Scholarly Communication Institute. Active in the digital humanities since her work as Design Editor of the *Rossetti Archive* in the mid-1990s, Nowviskie is Vice President of the

Association for Computers and the Humanities and a founder of NINES, the design of which was the focus of her postdoctoral work at the University of Virginia. Her current scholarship centers on the expression of spatial and temporal subjectivity in interpretive digital environments.

¹ *Nature*, 30 October 1884; collected in Ball, *The Science of Aspects: The Changing Role of Fact in the Work of Coleridge, Ruskin, and Hopkins*. London, 1971. Appendix (148- 150).

² *ibid.* 148-149.

³ *ibid.*, 150.

⁴ Gerard Manley Hopkins: Wreck of the Deutschland, 1.37; "Hurrahing in Harvest," 2-4.

⁵ Ball, 150.

⁶ *ibid.*

⁷ *ibid.*, 140-150.

⁸ Altick, "Four Victorian Poets and an Exploding Island" in *Victorian Studies* (vol.3, March 1960). pp 249-260.

⁹ *ibid.*, 251

¹⁰ Zaniello, "The Spectacular English Sunsets of the 1880s," in *Victorian Science and Victorian Values*. Paradis and Postlewait, eds. Rutgers U: 1985. (247ff).

¹¹ Roos, "The 'Aims and Intentions' of *Nature*," *ibid.*, p. 161. Note, too, that *Nature's* mission statement, explicitly privileging the interests of a generalist *over* a scientific audience, was not revised until the 2000s, when the ordering was reversed to read: "First, to serve scientists..." (<http://www.nature.com/nature/about/>).

¹² Zaniello, *Hopkins in the Age of Darwin*. Iowa U Press: 1988. (119)

¹³ Roos, 173.

¹⁴ Zaniello (1988), 83.

¹⁵ Ball 115-116.

¹⁶ See particularly journal entries for 24 May and 16-17 September 1871, and 14 August 1874 in *The Journals and Papers of Gerard Manley Hopkins*, H. House (ed.). London, 1959.

¹⁷ *Nature*, 16 November 1882. Collected in *The Correspondence of Gerard Manley Hopkins and Richard Watson Dixon*. C. Abbott (ed.). London, 1935. Appendix II, 161.

¹⁸ Cronin, R. *Colour and Experience in Nineteenth-Century Poetry*. London, 1988. (174)

¹⁹ undated note in journal of 1864, (H. House, ea., p.20).

²⁰ journal, 9 April 1874. The list constitutes an extensive catalogue of color and approaches verse-form in its structure. (ibid, 242).

²¹ ibid 246. (24 May 1874.)

²² "The Elements of Drawing" (1857). *The Complete Works of John Ruskin*, Wedderburn and Cook eds. London, 1903-12 (vol.15, p.27).

²³ ibid.

²⁴ See Paradis and Postlewait, p.248.

²⁵ letter IV, 10 March 1879. (Abbott, 20).

²⁶ For further discussion, see Costantini, Mariaconcetta. "Hopkins and the Scientific Dilemma." *RSV* 4 (1997): 85-103.

²⁷ ibid. letter XIV, 7 August 1886. (p. 139).

²⁸ ibid.

²⁹ ibid, p. 140.

³⁰ Lockyer and Lockyer, *Life and Work of Sir Norman Lockyer*, p.99. See also *Nature* vols. 18, 28, and 36 for Lockyer's reviews of the Royal Academy exhibitions.

³¹ *Nature*, vol.2 (1870), p.158 and Roos, pp. 171-2. For evidence that Hopkins was familiar with *Nature* from the early 1870s, see Nixon, J. "From Pap to Poison: Gerard

Manley Hopkins and the Poetics of Darwinism" in Gerard Manley Hopkins and Critical Discourse. Hollahan E., ed. New York: 1993.

³² *Nature*, 15 November 1883. Collected in Abbot, Appendix II, pp.161-2.

³³ See particularly Plotkin, C. *The Tenth Muse: Victorian Philology and the Genesis of the Poetic Language of Gerard Manley Hopkins*. Illinois: 1989. and Milroy, J. *The Language of Gerard Manley Hopkins*. Deutsch Ltd: 1977.

³⁴ Wreck of the Deutschland, 11.225-230.

³⁵ *ibid*, 217-220.

³⁶ *ibid*, 238-240.

³⁷ House, p.421 (note 229.4, his emphasis). Marchant also comments on Hopkins as a metaphor-maker: "He was not always judicious in his sermons; he once compared the Church to a milk cow and the tits to the seven sacraments. But great genius must be excused eccentricities."

³⁸ quoted in Zaniello (1988), p.7

³⁹ "The Storm-Cloud of the Nineteenth Century," *Works of John Ruskin*, Library Ed. (1902-12) ed. E.T. Cook and A.D.O. Wedderburn, XXXIV, 78.

⁴⁰ Abbot, pp.162-166 and Ball, pp. 148-150.

⁴¹ Abbot, pp. 163-4.

⁴² *ibid*, 164.

⁴³ Ball, 149.

⁴⁴ Abbott, 164.

⁴⁵ Ball, 149 and Abbott, 161.