

Dante Gabriel Rossetti and Science

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In his memoir *Pre-Raphaelitism and the Pre-Raphaelite Brotherhood*, Holman Hunt drove a wedge between two halves of the Pre-Raphaelite movement. Medievalism of style and theme was mere 'Pre-Raphaelism'.¹ Pre-Raphaelitism proper was an altogether modern art movement, which invoked the painters before Raphael solely to identify their common goal of painting directly from nature. Hunt wanted to reclaim the term 'Pre-Raphaelitism' for his own ideal of the movement, defying the increasingly dominant view that the Romantic, literary paintings of Dante Gabriel Rossetti embodied its true spirit. Pre-Raphaelitism was his own and Millais's joint creation; Rossetti was a late comer who never properly understood what it was supposed to be about.

One of the most fundamental differences between their artistic ideals, according to Hunt, lay in their attitude to science. For Hunt, 'inexhaustible science' was 'of the greatest poetic and pictorial importance for modern art'. With its help, art could 'convey new messages of hope to fresh broods of men'. Rossetti, by contrast, 'despised' scientific enquiry and dismissed its relevance to art.² William Michael Rossetti confirmed this view of his brother as fundamentally anti-scientific in his *Memoir* of him, remarking that 'Science and metaphysics were totally out of Rossetti's ken'.³ In defending himself from Robert Buchanan's attack on the fleshliness of his poetry, Rossetti himself declared that 'the motive powers of art reverse the requirement of science', as the artist has to adopt 'an *inner* standing-point' rather than striving for objectivity.⁴

So far, so consistent. Yet there are clear problems with Hunt's account of the origins and aims of Pre-Raphaelitism. Hunt sets out to depose Rossetti as the leader of the Pre-Raphaelites, reclaiming what he sees as his own rightful place. But in the process he ends up as a king on a very lonely throne, with Millais alone for company. Ford Madox Brown, William Rossetti, Frederick George Stephens and other early associates of the Pre-Raphaelites—not to mention the second generation, led by Morris and Burne-Jones—are all dismissed as fellow travellers and camp followers of Rossetti. If Hunt were right on this score, then he would have conceded all but the title to Rossetti, leaving his own Pre-Raphaelitism diminished after all. In fact his account is deeply misleading, not so much because he overstates how important nature and science were to Pre-Raphaelitism, but because he understates how far the Pre-Raphaelite Brotherhood as a whole and their immediate circle shared these same values and goals.

The Pre-Raphaelites' written statements of their artistic objectives concur closely with Hunt's account fifty years later in his memoir. In his essay on 'The Purpose and Tendency of Early Italian Art' in *The Germ*, Stephens famously writes:

The sciences have become almost exact within the present century. Geology and chemistry are almost re-instituted. The first has been nearly created; the second expanded so widely that it now searches and measures the creation. And how has this been done but by bringing greater knowledge to bear upon a wider range of experiment; by being precise in the search after truth? If this adherence to fact, to experiment and not theory,—to begin at

¹ W. Holman Hunt, *Pre-Raphaelitism and the Pre-Raphaelite Brotherhood*, 2 vols (London: Macmillan, 1905), I, p. 135.

² Hunt, I, pp. 148-49.

³ William Michael Rossetti, *Dante Gabriel Rossetti: His Family-Letters with a Memoir*, 2 vols (London: Ellis and Elvey, 1895), I, p. 102.

⁴ *The Works of Dante Gabriel Rossetti* (London: Ellis, 1911), ed. by William M. Rossetti, p. 619.

the beginning and not fly to the end,—has added so much to the knowledge of man in science; why may it not greatly assist the moral purposes of the Arts?⁵

William Rossetti too insists on the importance of facts and observation in his poetry reviews for *The Germ*. In an article for the *Spectator* published a year later in 1851, he defines the mission of the Pre-Raphaelite artists, including his brother alongside Hunt and Millais, as ‘investigation for themselves on all points which have hitherto been settled by example or unproved precept, and unflinching avowal of the result of such investigation’.⁶ Other members of the early Pre-Raphaelite circle too look to science as a model for the arts, including the painter Walter Deverell, who pays tribute to Newton in his extended sonnet ‘The Garden’, and the sculptor John Lucas Tupper, who invokes science to show how the arts might emancipate themselves from out-dated conventions in another essay in *The Germ*.⁷

The Pre-Raphaelites held science up as an ideal they hope to imitate in their own experimental modern art. As Sidney Colvin wrote, looking back in 1867 on the early days of Pre-Raphaelitism, ‘the scientific spirit, coupled with the disgust of earnest men at academic pretensions and their reaction from academic principles, constituted the very essence of præ-Raphaelitism’.⁸ Where, then, does Rossetti stand in relation to this scientific ideal of art? According to Hunt, he was almost wholly detached from, even hostile to, this aspect of the Pre-Raphaelite project. As Rossetti himself remarked in a doggerel letter to Tupper in 1850:

Though as to NATURE, Jack,
(Poor dear old hack!)
Touching sky, sun, stone, stick, and stack,
I guess I’m half a quack;
For whom tens lines of Browning whack
The whole of the Zodiac.⁹

In sponsoring John Orchard’s ‘Dialogue on Art’, which interrogates and contests the view that the arts have anything to gain from science, Rossetti initiated a debate on this subject in *The Germ*, challenging the party line rehearsed in earlier essays.¹⁰ When he was consulted by Ruskin on designs for the new Oxford University Museum of Natural History in the mid-1850s, he was very forthcoming in providing introductions for other artists, winning commissions for several statues of scientists for the Pre-Raphaelite sculptors Tupper, Thomas Woolner and Alexander Munro, but he persistently put off designing any scientifically-informed murals or carvings for the building himself.

Yet in spite of his apparent lack of interest in science and nature, Rossetti did not totally ignore the possibilities of science for the arts as Hunt later claimed. In several of his contributions to *The Germ* in particular he explores new ways of engaging with science in the arts that are less

⁵ Frederick George Stephens [as John Seward], ‘The Purpose and Tendency of Early Italian Art’, *The Germ* (1850), 58-64, p. 61.

⁶ William Michael Rossetti, ‘Pre-Raphaelitism’, *Spectator*, 24 (1851), 955-57, p. 956.

⁷ John Lucas Tupper, ‘The Subject in Art: I’, *The Germ*, 11-18. Deverell’s sonnet is printed by Marcia Werner in *Pre-Raphaelite Painting and Nineteenth-Century Realism* (Cambridge: CUP, 2005), p. 106.

⁸ Sidney Colvin, ‘English Painters and Painting in 1867’, *Fortnightly Review*, N.S. 2 (1867), 464-76, pp. 470-71.

⁹ D. G. Rossetti, *Works*, p. 270.

¹⁰ Although Orchard’s ‘Dialogue’ was printed in what turned out to be the last issue of *The Germ*, Stephens’s essay ‘Modern Giants’ in the same issue appears to be at least partly a reply to it.

programmatically and more imaginatively free than those envisaged by his fellow PRBs. Rossetti's story 'Hand and Soul' appears to embody precisely the medievalist, unreal side to Pre-Raphaelitism that Hunt repudiated, yet in Chiaro painting the image of his own soul, Rossetti created an emblem for the objective study of the self in art, engineering not an inner but an outer standing-point, not unlike that required by science. In his poems too Rossetti weaves together scientific and esoteric concepts and knowledge in ways which acknowledge the imaginative potential of science while refusing to be bound by its limitations.

One scientific concept that is refracted repeatedly in Rossetti's poems in *The Germ* is that of sound waves. The idea that sound is made up of waves vibrating in air is consistently associated with time in Rossetti's mind. In 'My Sister's Sleep', he visualises these vibrations directly:

Twelve struck. That sound, which all the years
Hear in each hour, crept off; and then
The ruffled silence spread again,
Like water that a pebble stirs. (ll. 33-36)

Here the reverberating chimes of the clock recede, dissipating their energy like the ripples from a stone dropped in water. In the first two lines of this stanza, abrupt off-centre caesurae and emphatic trochees and spondees disturb the regular iambic pulse of the verse. As silence returns—a stillness in the medium of air like that on the surface of the water—Rossetti restores the unobtrusive, regular rhythm that had been disturbed, 'ruffled', broken up, in these earlier lines.

Rossetti experiments more freely with the conception of sound as a wave in two poems published in the third issue of *The Germ* which he wrote on the trip he took with Hunt to Paris and Belgium in autumn 1849. 'The Carillon' is a study of sound—the uninterrupted chimes of church bells in Antwerp and Bruges—though it is not a study *in* sound, in that it makes no attempt to imitate this chiming onomatopoeically. Most strikingly, Rossetti responds to sound as a tactile as well as an auditory experience. Climbing the stairs in a church in Antwerp, he feels 'the urgent weight of sound' (l. 8). That night, as he stands at the harbour on the River Scheldt, 'the flow was heard and felt' (l. 16). Taking the train to Bruges, he describes the ringing in his ears from the noise of the engine as a 'singing numbness' (l. 20), while at the top of the church in Bruges he stands so near to the bells 'That my flesh felt the Carillon' (l. 36). The waves of sound in air form a continual if intermittently ebbing flow, like that of the Scheldt itself. Feeling them as vibrations in his own body, Rossetti elides the distinction between hearing and touch.

In the second of these poems, 'From the Cliffs: Noon', written at Boulogne the day after their crossing from Folkstone, the sound is that of the sea:

The sea is in its listless chime:
Time's lapse it is, made audible,—
The murmur of the earth's large shell.
In a sad blueness beyond rhyme
It ends: sense, without thought, can pass
No stadium further. Since time was,
This sounds hath told the lapse of time.

No stagnance that death wins,—it hath
The mournfulness of ancient life,
Always enduring at dull strife.
As the world's heart of rest and wrath,
Its painful pulse is in the sands.

Last utterly, the whole sky stands,
Grey and not known, along its path.

In taking the sea as an image of the immeasurable age of the world, far beyond the reach of the traditional Biblical chronology, this poem joins other mid-Victorian poems such as Tennyson's *In Memoriam*, Arnold's 'Dover Beach' and Swinburne's 'The Triumph of Time' as a meditation on the existential implications of Charles Lyell's uniformitarian geology. (Lyell's father, as it happens, was Rossetti's godfather.) At the same time, it enacts a remarkable synaesthesia. In the 'listless chime', the waves of the sea become sound waves, like the chimes of bells in 'The Carillon'. These markers of time are imagined later in the poem as a physical 'pulse'. As a 'blueness beyond rhyme', the colour of the sea transcends both this regular pulse and the sonic patterning of the poem itself. To reach into the receding vista of the seascape, we need not only 'sense'—sound, sight and touch—but also 'thought'. Even then, the sky remains unknown, seemingly unknowable. The only certainty in the poem remains the perpetual motion of sea, embodying an 'ancient life'—both the symbolic, ever-lasting life of the sea itself, and the literal life within it, 'enduring' over lengths of time that belittle human existence.

Of all the poems where Rossetti engages with science in *The Germ*, 'The Blessed Damozel' is at once the most surprising, the most explicit and the most richly imaginative. The cosmology of this poem as printed in *The Germ* is subtly different from in other, later versions of the text. The materiality of the dead damozel's existence has often been commented on—Rossetti's spiritual vision in this poem is famously bodily—but it is only in this early text that it is clear how far the material universe she inhabits is constructed on scientific principles. Three stanzas in particular show this, the third being unique to this text of the poem:

It was the terrace of God's house
That she was standing on,—
By God built over the sheer depth
In which Space is begun;
So high, that looking downward thence,
She could scarce see the sun.

It lies from Heaven across the flood
Of ether, as a bridge.
Beneath, the tides of day and night
With flame and blackness ridge
The void, as low as where this earth
Spins like a fretful midge.

But in those tracts, with her, it was
The peace of utter light
And silence. For no breeze may stir
Along the steady flight
Of seraphim; no echo there,
Beyond all depth or height. (ll. 25-42)

Many years later, Rossetti's friend the physician and poet Thomas Gordon Hake objected to the scientific inconsistency of this cosmology:

I do not feel that the antique moulding of this poem is a fair excuse for it being illogical in places. The sun was so far off that it was scarcely visible—say two billion miles or so, like Uranus or Neptune [...] That she can see the earth spin like a fretful midge, does not please

the logical understanding, when that body is at least as far off as the scarce-visible sun. We are comparatively close to our neighbouring orbs, Venus and Mars, which do not exhibit the slightest motion to our eyes—how then should a world as remote from the damozel as Uranus is from us be seen in motion?¹¹

Hake's critique is a delightful and unanswerable piece of pedantry. It does not only highlight the inaccuracies of Rossetti's science, however. It inadvertently reveals how far the damozel's universe is in fact described in scientific terms after all.

Rossetti begins with a trope from pre-Copernican cosmology, locating Heaven at the outer edge of the universe. But in characterising 'Space' within this universe, he follows a much more modern astronomy. From such a remote vantage point, the sun appears as a distant star would to an observer on earth. As Hake notes, it would hardly be possible for the damozel to see the earth itself at this distance, let alone to see it spin, but the poem records it spinning on its axis and moving through space nonetheless. According to Hunt, Rossetti was dismissive of astronomy: 'what could it matter, he said, whether the earth moved round the sun or the sun circled about the earth'.¹² Yet he is careful here not only to give the correct Copernican answer, but to make that scientific detail significant within the poem as a whole. The image of the earth fretfully spinning deftly captures the difference between the bereaved lover's earthbound sense of time and how much more rapidly time passes for the equally bereaved damozel looking down from Heaven.

'Space' itself Rossetti characterizes as a 'flood / Of ether', the medium postulated by Victorian scientists to explain the movement of light in waves. In her book *Space and the 'March of Mind'*, Alice Jenkins discusses how ether was contested within Victorian science, as scientists debated whether it was an actual substance, or just a metaphor to express the properties of space. This ambiguity, Jenkins suggests, makes it difficult to establish how far 'literary allusions to ether reflect scientific ideas rather than metaphorical diction'. In referring to ether as a 'flood', Rossetti is using a conventional metaphor in both science and literature.¹³ Even so, it is striking that his 'ether' has the properties attributed to it by science. While light can travel through it, neither 'breeze' nor 'echo'—the sound waves which recur in the three other poems—can. As a consequence, the Heaven that lies beyond 'Space' remains a 'peace of utter light / And silence'.

Rossetti's incorporation of modern scientific concepts into his medievalist Art-Catholic vision in 'The Blessed Damozel' is particularly intriguing. The poem's quasi-scientific cosmology is not so much a half-hearted adoption of the Pre-Raphaelite principle that art should be true to science, as his own highly original synthesis of the two. Rossetti does not simply reject or ignore science here, as Hunt later claimed. Instead he participates in the Pre-Raphaelite project of incorporating science into art, in this case poetry, but on his own terms. In their essays, Stephens and Tupper value science for its progress towards the truth as it rejects its own false preconceptions. But for all that Rossetti is careful to use a modern scientific concept—ether—accurately in his poem, he is happy too to let obsolete and current science co-exist, much as when he takes the Zodiac as his example of natural knowledge in his comic letter to Tupper. The damozel imagines herself and her lover together when he too has died and joined her in heaven 'Finding some knowledge at each pause | And some new thing to know' (ll. 89-90). Yet like 'From the Cliffs', the poem itself makes no claim to be expanding the realm of knowledge, even self-knowledge. 'The Blessed Damozel' is no 'investigation', to use William Rossetti's term. Instead it uses science to

¹¹ Thomas Gordon Hake, *Memoirs of Eighty Years* (London: 1892), p. 217.

¹² Hunt (1905), I, p. 149.

¹³ Alice Jenkins, *Space and the 'March of Mind': Literature and the Physical Sciences in Britain, 1815-1850* (Oxford: 2007), pp. 181, 183.

expand the realm of the imagination, reimagining a medieval cosmos with the same physical properties and the same materiality as the universe of modern astronomy.

In his early poetry, Rossetti's makes imaginative play with the empirical facts of science, even as he refuses to be constrained by them. 'The Blessed Damozel' is like a fantasy which borrows from science-fiction but refuses to play by its rules. It reads not as a reluctant contribution to the Pre-Raphaelite project of grounding the arts in scientific method, but as a flagrant flouting of its strictures. At the same time, like his other poems in *The Germ*, it reveals that Rossetti recognised how science can enrich our imaginations. In later life Rossetti repudiated science, arguing that artist's work was the diametric opposite of the scientist's. But in his early poetry he embraces it, not as a model for the arts, as Hunt and the other Pre-Raphaelites did, but as a source of new ideas and images which the poet can make his own.