
Science Poetry in the Romantic Era
A Study of Shelley's Use of Science in *Queen Mab*

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ABSTRACT

When Erasmus Darwin declared that he would enlist imagination under the banner of science, imaginative writers in Britain confronted the growing expansion of scientific knowledge that was radically redefining human understanding and experience of the natural world, of human societies, and of the self. Romantic literature is a literature of change – itself a basic definition of science poetry – and is consistent with scientific and cultural views shaped by evolutionary notions. Percy Bysshe Shelley was one of those Romantic poets who dealt with questions raised by contemporary science in his poetry and prose as well, and, therefore, his influential perspectives contributed to the cultures and practices of science.

The current paper aims at exploring and trying to find out the linkage between poetry and science in Shelley's long revolutionary poem *Queen Mab* by showing how Shelley was able, through his poetic imagination, to synthesize both the developments and future possibilities of the new science and the new points of view explored by the Romantics, and to express, as well, the enthusiastic vindication and cautious trepidation for the unfolding of modernity. The paper also attempts at proving the idea, contrary to the dominating view, that Romantic poetry, and literature in general, is not one of mere passions devoid from reason, but it is a literature that brings together passion to reason in an amazing, well-knit process.

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From an early age, Percy Bysshe Shelley, perhaps even more than his older contemporaries, was engaged in an intellectual culture of science. His early liking of scientific matters is noted in the memoirs of Thomas Jefferson Hogg, his companion at Oxford. Hogg's account of Shelley was written forty years after they finished their school time and it is written in the same vein followed by his contemporaneous novelists. Hogg and Shelley soon became close friends, and they spent many hours together, so that Shelley could have access to his scientific apparatus. Hogg describes at various times Shelley's scientific interests at Oxford, and it is notable that at the very beginning of their acquaintanceship the chemical science was at the foreground of Shelley's interests. Nevertheless, as a gifted poet, Shelley recognized the lessons of the heart and turned over his scientific impulses to his poetic art, though he continued to maintain the scientific trends of his day and kept on synthesizing science into his poetic imagination.

Shelley's *Queen Mab* is a long revolutionary poem which shows an apparent influence of the poems of Erasmus Darwin. Similar to Darwin, Shelley mingles revolutionary politics with revolutionary science through poetry to envision a future when science is to help in the emancipation of the individual and society from the tyranny of the old order. Following Darwin's model, Shelley packs his verse with a series of eclectic notes addressing key issues in contemporary science. The science – fiction critic Darko Suvin states that *Queen Mab* is “the concluding chord in the great sequence of societal and cosmic anticipations accompanying the democratic revolutions in America and France,”¹ and thus enlists it into the emerging discourse of science poetry.

The investigations of Shelley's interests in the scientific ideas of his day was begun by Carl Grabo in his two books; *A Newton Among Poets* and *The Magic Plant*. Grabo noticed the bridges between Shelley's early years at Oxford, his subsequent study of Erasmus Darwin and its influence on *Queen Mab*, and Shelley's continued depiction of the same themes in his *Prometheus Unbound*. In his speculations, Grabo summed up that contrary to the prior critical opinion that science was only a passing interest in Shelley's youth, he continued to invest his work every now and then with the questions and implications of the new science, and that his later works were the culmination of themes that Shelley first dealt with in *Queen Mab*. Grabo thinks also that through Darwin Shelley was able to bring together scientific ideas from his early studies. Besides that, Darwin provided Shelley with a map for integrating science and poetry. As Grabo observes, the importance of Darwin lies in the fact that he suggested to Shelley the poetic possibilities of scientific matter, and opened his imagination to the far reaching speculations of scientific thought.²

It is a clear cut fact that Darwin had a profound influence on Shelley's thought, on a similar level as that of Godwin and Wordsworth. As the critic King-Hele notes, Shelley ordered Darwin's *Zoonomia* in 1812, the year he embarked on working on *Queen Mab* and also he would have read Darwin's *The Temple of Nature*. Thus, as King-Hele asserts, "evolution was handed to him on a plate."³ Yet, he thinks that Shelley was unwilling to take up the cause of evolution:

A world developing by the chancy and messy process of evolution was not a concept that attracted him. Perhaps the cruelty of the struggle for existence repelled him, and he couldn't accept that slaughter should be the agent of Earth's biological future. Or perhaps he just thought evolution unlikely: many people did, but we might expect Shelley to be more far-sighted.⁴

But King-Hele's view contradicts that of Grabo who regards Shelley to be in full concordance with Darwin's evolutionary ideas as he thinks that the influence of Darwin's evolutionary thought upon Shelley is not in minor and strictly scientific details but in the larger philosophy of evolution, the theory of the cause to which the evolution forms may be assigned. Here Shelley is wholly in accord with Darwin.⁵ In this sense, Shelley was an evolutionist, as he considered future as an unfolding of the natural processes of the world toward greater perfection. The idea that he did not fully pick up the biological implications does not mean that Shelley's thinking was not concerned with these questions. As with his fellow authors, the implications of this emerging new way of thinking with all its evolutionary underpinnings, were always at the forefront of his thinking, implicitly and explicitly. Ashton Nichols finds a good point in this regard. Writing on "Ode

to the West Wind,” Nichols asserts that while Shelley does not necessarily anticipate evolutionary thinking, his sense of natural history allows him to imagine ‘nature’ as an interdependent system rather than as distinct species incapable of interaction or variation.⁶

In *Queen Mab*, Shelley first shows his interest in diagnosing the landscape of the future. When the Queen first appears, her words speak directly to the future:

I am the Fairy Mab: to me ‘tis given
The wonders of the human world to keep:
The secrets of the immeasurable past,
In the unfailing consciences of men’
Those stern, unflattering chroniclers, I find:
The future, from the causes which arise.
(Canto I: ll, 167-72)

Mab claims that the past and the future are bound together in a continuum, i.e., just as the past is accessible through historical and imaginative analysis, so is the future. I.F. Clarke sees the idea of the future as being a focal one to the paradigm shift that characterizes modernity⁷, and Shelley puts his poem immediately in this discourse of expectation. The theme of the future is a recurrent one in Shelley’s poetic output and his prose as well. In Canto II Mab is clearly describing her mission: “Thou shalt behold the present; I will teach / The secrets of the future.” (Canto II: ll, 66-7) Then Shelley attempts to give his readers a given vision of the cosmos identical to that of Erasmus Darwin:

Below lay stretched the universe!
 There, far as the remotest line
 That bounds imagination's flight,
 Countless and unending orbs
 In mazy motion intermingled.
 Yet still fulfilled immutably
 Eternal nature's law.
 Above, below, around,
 The circling systems formed
 A wilderness of harmony;
 Each with undeviating aim,
 In eloquent silence, through the depths of space
 Pursued its wondrous way.

(Canto II: ll, 70-82)

The vision of celestial greatness goes on, as Shelley is able to portray the overwhelming awesomeness of the universe and the sublimity of the concept of time in a way similar to that of H.G. Wells will employ at the end of the century in *The Time Machine*. Thus, it is a matter of de facto that Shelley's vision was to affect Wells to a great extent:

But matter, space and time
 In those aerial mansions cease to act;
 And all-pervading wisdom, when it reaps
 The harvest of its excellence, o'erbounds
 Those obstacles, of which an earthly soul
 Fears to attempt the conquest.

(Canto II: ll, 91-6)

Mab brings things back down to an earthly perspective. The change of look from the macrocosmic view of the universe to the microcosm of the earth is a central process of the sublime which gives the reader the chance to realize the relativity of the human condition in relation to the larger cosmos. Finding one's self in such position, the human will be able to develop his ecological relationship to the planet he lives on. This may justify Sharon

Ruston's point that "Romanticism can be typified as a literature that explores man's new sense of his position within the universe."⁸ once it was established that the universe was much bigger than imagined before and the humanity's place in that universe may be significantly smaller than believed to be, then writers, like the Romantic poets, could imagine new possibilities and new configurations for human experience that attempt to account for this new understanding. Thus, Mab shows a different point of view from which one can reconsider the human existence:

The Fairy pointed to the earth.
 The Spirit's intellectual eye
 Its kindred beings recognized.
 The thronging thousands, to a passing view,
 Seemed like an anthill's citizens.
 How wonderful! That even
 The passions, prejudices, interests,
 That sway the meanest being, the weak touch
 That moves the finest nerve,
 And in one human brain
 Causes the finest thought, becomes a link
 In the great chain of nature.

(Canto II: ll, 97-108)

Not long after, Shelley shifts to the theme of the mutability of human cultures, a theme that is currently repeated in much of his later work, including his famous poem "Ozymandias" and his lesser known prose fragments; "The Assassins" and "The Coliseum," all containing utopian visions which are ultimately brought to ruin:

The earthquakes of the human race;
 Like them, forgotten when the ruin
 That marks their shock is past.

(Canto II: ll, 122-25)

Here the influence of Volney is clearly seen reaching Shelley's thought. As King-Hele finds out, Volney's *Ruins of Empire* and Darwin's *Botanic Garden* are of the influential models that Shelley likely drew upon in constructing his poem.⁹ But once Shelley had collapsed human utopian ambition by showing the past "earthquakes of human race," he moves to a future perspective, when ruin and decay might be slowed down by human progress, which looks like to be inspired mainly by Darwin's *The Temple of Nature*:

There's not one atom of you earth
But once was living man;
Nor the minutest drop of rain,
That hangeth in its thinnest cloud,
But flowed in human veins.

(Canto II: ll, 211-15)

Here Shelley figures out the linkage between all natural things. The dance of atoms assures that all of the various physical constitutions of matter on earth are, totally intertwined, and so the earth itself is the human's mother. And that the dust that was once a portion of a human or human civilization, spreads itself around the earth, mixing all in the ecological web of animate and inanimate matter. Shelley's "deep ecology" leads him to ask about the arrogant hypothesis of humanity's special place within the chain of life:

How strange is human!
 I tell thee that those living things,
 To whom the fragile blade of grass,
 That springeth in the morn
 And perisheth ere noon,
 Is an unbounded world;
 I tell thee that those viewless beings,
 Whose mansion is the smallest particle
 Of the impassive atmosphere,
 Think, feel and live like man;

 As the majestic laws
 The rule you rolling orbs.

(Canto II: ll, 225-34, 242-43)

Here, Shelley's vision of "unbound worlds" reflects his endeavour to express, through poetic imagination, the operations of nature on a microcosmic level. He amazingly foreshadows the fictional worlds of minute possibility and minute vision that can be traced in later works of science fiction like Fitz-James Obrien's *The Diamond Lens*, Ray Cumming's *The Girl in the Golden Atom*, and Richard Matheson's *The Shrinking Man*. Similar to *Queen Mab*, these stories assert the possibilities for the imagination in the opening up of the macrocosm of the universe and of the microcosm of the atom.

Most of the rest of the poem concerns itself with the political implications of contemporary tyranny and the reader is given the first indications of Shelley's political program which he will state plainly in his essay "A Philosophical View of Reform." It is worth noting that Shelley's political notions are shaped by a perspective formed through the implications of the new sciences. Science was revolutionizing the way

people perceived and understood the natural world. And as science overturned previous clichés and hypotheses about nature, Shelley believed it a natural thing that science should help overturn the human political nexus which was also refined by those same basic assumptions. Science was to pave the way to social and political reform. This connection between scientific progress and political change is best expressed in Canto V:

A brighter morn awaits the human day,
 When every transfer of earth's natural gifts
 Shall be a commerce of good words and works;
 When poverty and wealth, the thirst of fame,
 The fear of infamy, disease and woe,
 War with its million horrors, and fierce hell
 Shall live but in the memory of time,
 Who, like a penitent libertine, shall start,
 Look back, and shudder at his younger years.
 (Canto V: ll, 249-57)

The lines bring to mind Shelley's sentiments during his conversations with Hogg when he shed light on the possible better benefits to the human condition through the development of the chemical sciences. The empires of the past had collapsed because they did not cope with the new science or the new understanding of the universe; the ruined past failed to embrace the larger vision necessary to sustain life. The utopian future which Mab discloses in the poem is liberated by the progress in science which conducts to a progress in human understanding. Mab speaks about a utopian future when there are no more horrors of treacheries of the past and present:

The present now is past,
 And those events that desolate the earth
 Have faded from the memory of Time,
 Who dares not give reality to that
 Whose being I annual. To me is given
 The wonders of the human world to keep,
 Space, matter, time, and mind. Futurity
 Exposes now its treasures; let the sight
 Renew and strengthen all thy failing hope.

(Canto VIII: ll, 44-52)

Amusingly, Shelley's utopian future vision seems to anticipate the contemporary realities of global warming. Though, for Shelley, the warming of the earth leads to paradise not to the fearful apocalypse of now, as it will result in greater comfort and habitability:

The habitable earth is full of bliss;
 Those waters of frozen billows that were hurled
 By everlasting snow-storms round the poles,
 Where matter dared not vegetate or live,
 But ceaseless frost round the vast solitude
 Bound its broad zone of stillness, are unloosed;
 And fragrant zephyrs there from spicy isles
 Ruffle the placid ocean-deep, that rolls
 Its broad, bright surges to the sloping sand,
 Whose roar is wakened into echoings sweet
 To murmur through the heaven-breathing groves
 And melodize with man's blest nature there.

(Canto VIII: ll, 58-69)

Despite that Shelley is positing an ecological vision, he is unaware how such systems really work. But his vision of humanity living in harmony with nature and with one another keeps on being an imaginative eco-perspective; he knows the need for balance and harmony.

Canto VIII continues to illustrate Shelley's vision of a golden age, which Grabo says it is an "evolutionary philosophy of nature."¹⁰ The opinions about evolution have changed since Grabo wrote in the 1930s and this perhaps shows the difference between his perspective and that of King-Hele. But in many ways Grabo is right: Shelley is presenting an "evolutionary philosophy" even if Shelley's imaginative evolutionary vision distinctly differs from the evolutionary vision of biological science. Literature's engagement with science in the nineteenth century is not about a strict and boring adherence to findings and theories of evolutionary science, but rather concerns itself with the implications it offers to the imagination and the possibilities for further imaginative explorations. In this sense, like all science poetry, Shelley's poetic engagement with science is implicitly evolutionary. So Grabo is totally right to suggest so, not only in his time, but even for today. As with his ecology, Shelley's evolutionary vision is restricted in some ways, but what matters is that his imaginative engagement with such ideas is adequate to the apprehension of these notions.

The influence of Erasmus Darwin on *Queen Mab* is most clear in the notes that Shelley concluded his poem with, though King-Hele claims that "all the ideas in *Queen Mab*, apart from vegetarianism, can be found in Darwin."¹¹ Interestingly, King-Hele, who is Darwin's advocate, first discovered Darwin while researching an early book on Shelley, a classic of Shelley scholarship in its own right. As King-Hele notices: "the machinery of the poem – the goddess in a magic car – is exactly the same as Darwin's, too. And it is unlikely that Shelley would have chosen to include long scientific notes – almost as long as the poem – if he had not Darwin before him as a model."¹² Shelley's notes picture his familiarity with Darwin's poems and here Shelley is trying to imitate in form if not in style, Darwin's

revolutionary poems. In Canto I, where Shelley describes Mab's arrival in a "magic car" which approaches "Earth's distant orb," (anticipating the modern starship!), the accompanying notes describe contemporary astronomical ideas:

Beyond our atmosphere the sun would appear a rayless orb of fire in the midst of a black concave. The equal diffusion of its light on earth is owing to the refraction of the rays by the atmosphere and their reflection from other bodies. Light consists either of vibrations propagated through a subtle medium, or of numerous minute particles repelled in all directions from the luminous body.

(Canto I: Notes, p.135)

Shelley's instructive objective sounds like Darwin's creed of "enlisting the imagination under the banner of science." The young Shelley clearly intended his poem to educate and inform, the same didactic intent found in his reform essays that followed his poem, and in them all, Darwin was his pedagogical model.

The next note explains the notion of the plurality of worlds, which is to become a frequent device in later science poetry. Indeed, it is still one of the most recurrent themes in the genre. Shelley's note begins with a definition of the concept that is most significant for his sense of the sublime magnificence of the universe, which is then used to begin a denial of his Christian beliefs:

The plurality of worlds – the indefinite immensity of the universe is a most awful subject of contemplation. He who rightly feels its mystery and grandeur, is in no danger of seduction from the falsehood of religious systems, or of deifying the principle of the universe. It is impossible to believe that the Spirit that pervades the infinite machine, begat a son upon a Jewish woman; or is angered at the consequences of that necessity which is a synonyme of itself.

(Canto I: Notes, p.135)

What Shelley is trying to convey here is that it is impossible to believe what he sees as exploded religious systems given the clear reality of the immense universe. Shelley's argument is vital not only for his own work, where, as he grew older, he sought to reconcile the spiritual with the new cosmic reality, but also for the necessity of later spiritual writers to merge religion within the larger cosmos. Beyond his indignation at religion, Shelley provides additional information on the current understanding of the universe that again echoes the pedagogical content of the later science poetry genre:

The nearest of the fixed stars is inconceivably distant from the earth, and they are probably proportionately distant from each other. By a calculation of the velocity of light, Sirius is supposed to be at least 54,224,000,000,000 miles from the earth. That which appears only like a thin and silvery cloud in the heaven, is in effect composed of innumerable clusters of suns, each shining with its own light, and illuminating numbers of planets that revolve around them. Millions and millions of suns ranged around us, all attended by innumerable worlds, yet calm, regular, and harmonious, all keeping the paths of immutable necessity. (Canto I: Notes, p.136)

Shelley's including of the immensity of the universe into his imaginative work places him in the emerging discourse of expectation which will metamorphose into science poetry. This further affirms the idea that science poetry has its origins in the series of revolutions that changed the intellectual and cultural landscape during the Romantic period.

Shelley incorporated several more notes of scientific, historical, religious, and philosophical speculations which lead to an impression of a collection of the intellectual debates of that time. The stress on the contemporary concept as supplements to the artistry of the poem makes *Queen Mab* a striking comparative text to Darwin's poems, and as a result,

an early original text of science poetry. Perhaps like no other work of Shelley, *Queen Mab* is most comparable to the novels of his future wife, Mary. Shelley's engagement in the science of his day is thus vivid and was recognized by Alfred North Whitehead who said:

What the hills were to the youth of Wordsworth, a chemical laboratory Was to Shelley. It is unfortunate that Shelley's literary critics have, in This respect, so little of Shelley in their own mentality. They tend to Treat as a casual oddity of Shelley's nature what was, in fact, part of The main structure of his mind, permeating his poetry through and Through. If Shelley had been born a hundred years later, the twentieth Century would have seen a Newton among chemists.¹³

Whitehead's claims for the scientific awareness of the Romantic poets is important in the point it makes about how the scientific connections had been stripped away from the Romantic poets by generations of critics who wished to see the Romantics as above scientific matters. Thus, Whitehead focuses on what McGann later rejected as the "Romantic Ideology,"¹³ the view that puts Romanticism in an everlasting opposition to science and reason, and in Shelley's case this historical – critical distortion is most evident and a far more clear cut fact of that wrong and insufficient understanding of that great literature and this amazing poet.

Notes

- ¹ Darko Suvin, *Metamorphoses of Science Fiction* (New Haven: Yale University Press, 1979), p.123.
- ² Carl Grabo, *A Newton Among Poets: Shelley's Use of Science in Prometheus Unbound* (Chapel Hill: University of North Carolina Press, 1936), p.36.
- ³ Desmond King-Hele, *Shelley Revalued*, Ed. Kelvin Everest (Leicester: Leicester University Press, 1983), p.132.
- ⁴ Ibid.
- ⁵ Carl Grabo, pp.69-70.
- ⁶ Ashton Nichols, "The Anxiety of Species: Toward a Romantic Natural History." *Wordsworth Circle*, Vol.28, No.3 (Summer 1997), p.134.
- ⁷ I.F. Clarke, "Preface," *The Last Man* by Jean-Baptiste de Grainville, Trans. I.F. Clarke and M. Clarke (Middletown: Wesleyan University Press, 2002), p.xiii.
- ⁸ Sharon Ruston, *Shelley and Vitality* (London: Palgrave, 2005), p.3.
- ⁹ Desmond King-Hele, *Shelley: His Thought and Work*, 3rd ed. (Rutherford: Fairleigh Dickinson University Press, 1984), p.31.
- ¹⁰ Carl Grabo, p.21.
- ¹¹ King-Hele, *Shelley Revalued*, p.143.
- ¹² Ibid.
- ¹³ Alfred North Whitehead, *Science and the Modern World* (New York: Macmillan, 1925), p.123.
- ¹⁴ Jerome McGann, *The Romantic Ideology* (Chicago: University of Chicago Press, 1983), p.5.

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