

Newtonian Science and Poetry: William Wordsworth's "There was a Boy" and "Tintern Abbey"

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Introduction

Sweet is the lore which nature brings;
 Our meddling intellect
 Mis-shapes the beauteous forms of things;
 -We murder to dissect (Gill 61, ll. 25-28)

In "The Tables Turned: An Evening Scene, on the Same Subject", William Wordsworth criticizes the analytical capacity by making the contrast between the beauty of nature and man's analytical and rational faculties. His reaction against scientific thought - often presented as unchanging analytical and rational ideas - may lead to the impression that Wordsworth was an anti-rational poet. Critics like Tim Fulford explain that Wordsworth presents science and poetry as opposites in his works: "Wordsworth ...distinguished poetry from science, [he] accepted that the two discourses were polar opposites" (Fulford, Lee, and Kitson 4).

Like the poem just mentioned above, many of Wordsworth's poetical works often include discourses in which science (as a method of apprehending nature) is presented in opposition to poetry (another method of apprehending nature). Yet despite his antithetical presentation of poetry and science, it would be inaccurate to say that Wordsworth is excluding the natural sciences from his works. This essay explores the question of epistemology in Wordsworth's poems, especially in "There was a Boy"¹⁾ and "Lines Written a Few Miles above Tintern Abbey", and examines how nature is conceived within these poems. For Wordsworth, nature is what can be sensed and perceived as objects, but it is also something that is revealed by the deep focus of insight. In terms of the objective viewpoints, it is possible to see Wordsworth as having been influenced by the most remarkable scientist of the day, Issac Newton, and his theories.

I

Issac Newton (1642-1727) laid the foundation for modern mathematics and was the most influential scientist of his day. In the seventeenth century, nature was subject to scientific observation, and the mysteries of nature thus became part of the investigation that can be understood by reason. As

scholars have pointed out, the Christian view towards science was not necessarily negative in seventeenth-century England. Scientific truth was believed rather to increase the assurance of faith. Newton's laws of motion and the theory of universal gravitation made a great impact not only on the world of the natural sciences but also on the Romantic poets, who often worked into their own poetry their interest in scientific matters. As is evident in much of their poetry, science and poetry cannot be separated. Wordsworth is one of the more notable poets who employed scientific approaches in crafting his poems. Wordsworth had a high regard for "great Newton's own ethereal self" (qtd. in Wu 41) and for his achievements in science.

Newton's contributions helped to develop a scientific outlook that "dealt with processes of nature" (Nicolson 4), and revealed a new beauty that could be perceived in the natural world. For him, the mechanism of the natural world was that it could be discerned as fact, and its workings could be perceived as visible:

The universe was revealed as an ordered and rational economy in which things behaved the way they did because of a pre-established harmony that was comprehensible to humanity, or at least to a few individuals of genius, and could be communicated by these individuals to the rest of mankind. Those who looked deeply into nature, would see in its laws the hand of the beneficent lawgiver, who moved, or who had at one time moved, in all things. (Wu 505)

As Ian Wylie states, Newton takes the view that the universe can be understood as rational and orderly, as it is governed according to natural laws. However, this objective perspective of the natural world does not dismiss the role of Creator of Universe. The immutability of matter is stated in *The Optics*:

God in the Beginning form'd matter in solid, massy, hard, impenetrable, moveable Particles, of such Sizes and Figures, and with such other Properties, and in Such Proportion to Space, as most conducted to the End for which he form'd them... And therefore, that Nature may be lasting, the Changes of corporeal Things are to be placed only in the various Separations and new Associations and Motions of these permanent Particles. (541)

Though Newton assumes that the universe is a great universe, and that it moves according to mechanical laws, his system still allows room for and even promotion of religious views. Newton gave a "scientific demonstration of the necessity for the existence of a Supreme Being, if not necessarily the God of Christianity" (Durrant 40-41). He was the first to admit that there was much science to be done before we could penetrate all the mysteries of the universe.

What can be acknowledged from this is that Newton's static view toward objects - analyzed and

formulated mathematically – does not preclude the possibility for the belief in God. Newton's idea of knowing the creation of God is presented through mathematical analysis and his outlook of nature is rational. But just because Newton's thesis allows for the existence of a universe-creating God does not mean that Newton's idea of nature is not mechanical.

In "The System of the World" section from his *Principia Mathematica*, Newton portrays humans as guided by a divinely ordained cosmic system: "This most beautiful system of the sun, planets, comets, could only proceed from the counsel and dominion of an intelligent and powerful Being" (544). Here Newton attempts to "subject the phenomena of physical Nature to mechanical law" (677). He observes humans and nature as separate entities, as is made clear in the following lines from *Principia*:

And God and Man divided, as they ought,
Between them the great system of the world
Where man is sphered, and which God animates. (Cajori, L. II. 266-68)

Newton does not mention the direct correspondence between human and God, though his idea of God tends to be pantheistic. He thinks that God cannot be presented in finite temporal or spatial terms, and instead conceives of a God that exists everywhere and at any moment in time.

In terms of the relation between man and nature, Wordsworth, in his poem "Tintern Abbey", discusses not only the objective aspects of nature but also his deep insights into nature's spiritual aspects. This could be understood from the reciprocal exchange between Wordsworth and nature. Nature is not only looked upon as an object that is to be sensed, observed and understood by the intellect; rather, nature reveals itself through the active intermediary— i.e., Wordsworth's mind— which is a participatory, imaginative agent, and not simply a passive receptor of sensation. The mind, Wordsworth argues, also approaches the workings of nature. Nature is built by the working form, which the mind "half creates":

...Therefore am I still
A lover of the meadows and the woods,
And mountains; and of all that we behold
From this green earth; of all the mighty world
Of eye and ear, both what they half-create,
And what perceive (Gill 64, ll. 103-08)

Considered from the epistemological perspective, human knowledge is acquired not only through the experience of sensation. Wordsworth's nature often leaves natural objects to look as though they can only be analyzed scientifically. However, his nature also possesses a supernatural, spiritual aspect:

... And I have felt
A presence that disturbs me with the joy
Of elevated thoughts; a sense sublime
Of something far more deeply interfused,
Whose dwelling is the light of setting suns,
And the round ocean, and the living air,
And the blue sky, and in the mind of man. (Gill 64, ll. 94-100)

The benevolent features of nature are spiritual, and it is these aspects that inspire the mind and its creativity.

II

In "There was a Boy", Wordsworth brings again to his poem the theme of the boy and the universe. Here, the beauty of the natural object is emphasized just as in the Newtonian perspective of objective nature. The poem starts from the scene where the boy is left alone in this objective nature. Nature here consists of several natural objects, with which the boy confronts in an attempt to approach nature:

There was a Boy, ye knew him well, ye Cliffs
And Island of Winander! many a time
At evening, when the stars had just begun
To move along the edges of the hills,
Rising or setting, would he stand alone
Beneath the trees, or by the glimmering Lake,
And there, with fingers interwoven, both hands
Press'd closely, palm to palm, and to his mouth
Uplifted, he, as through an instrument,
Blew mimic hootings to the silent owls
That they might answer him. (*Prelude*, V. ll. 389-99)

After the boy's hootings to the owls, there at once seems to be a correlation between the boy and the surrounding natural world. However, this correspondence is interrupted by the unexpected silence:

... And when it chanced
That pauses of deep silence mock'd his skill,
Then sometimes, in that silence, while hung
Listening, a gentle shock of mild surprize

Had carried far into his heart the voice
Of mountain torrents; or the visible scene
Would enter unawares into his mind
With all its solemn imagery, its rocks,
Its woods, and that uncertain Heaven, receiv'd
Into the bosom of the steady Lake. (*Prelude*, V. ll. 404-13)

The sudden silence is then followed by a shock that reaches "far into his heart". John Blades points out that "far" is "the sublime potency of the human heart and mind" (25). Wordsworth makes several comments in a 1815 preface to the poem about what occurs in his mind after the disturbance of the silence:

The Boy, there introduced, is listening, with something of a feverish and restless anxiety, for the recurrence of the riotous sounds which he had previously excited; and, at the moment when the intenseness of his mind is beginning to remit, he is surprised into a perception of the solemn and tranquillising images which the Poem describes. (*Shorter Poems* 639)

What can be speculated from Wordsworth's reference to the internal mind is that, though he presents the beauty of the natural objects (in a manner reminiscent of Newton's thoughts on nature), Wordsworth also brings to the picture the importance of the internal mind. However, the intervention of the sudden silence presents a separation between nature and the boy. The dissociation is not only to be understood in the sense that Wordsworth shows great understanding to the objective matters, just as Newtonian science had presented. Though he acknowledges the great achievement of the natural sciences, his interest lies more in the supernatural and mysterious ideas that cannot be easily analyzed by any universal, objective viewpoint. Therefore, by presenting a separation through the disturbance of silence, the importance of the internal mind becomes incontrovertible. The relation between boy and nature, which seems to have been interchanged by the boy's hootings to the owls, is different from the relationship presented in "Tintern Abbey". However, he puts great emphasis on what cannot be perceived by sensation. This is also what Ben Ross Schneider points out as "Wordsworth's insistence on having sense experience of the 'presence' he describes, his more inductive temper of mind, stands out immediately" (261).

Thus, Wordsworth's poetry is not anti-scientific, and he was interested in the physical aspects of nature as analyzed by Newton. But what differs is that Wordsworth goes further into the subjective minds of men, all of which "have been thought to be essentially personal and emotional [yet] sometimes involve a rigorous considering of the conditions of human existence in such a universe" (Durrant 18).

The contrast that is seen in both "Tintern Abbey" and "There was a Boy" has been explained by

Geoffrey Durrant, who comes to the conclusion that the doubts Wordsworth has concerning science and the scientist is not an attack on their intelligence, but rather a critique of “those persons of ‘limited intellect’ who rely on the analytical process exclusively” (5). Like Durrant’s point of view, Peter J. Kitson also mentions the reliability of reason and goes further into the limitation of the analysis that Newton introduces. Romantic poets are not dismissing the science of the age. For them, it is the way Newton analyzed creation in the universe that needed to be reevaluated:

It was not science but Newtonian science that the Romantics reacted against. It was as though the banishing of the divine from nature had emptied the world of its mystery. It was this demystification of nature that they resented. (Wu 41)

The same thing can therefore be said of Wordsworth’s understanding of nature. As seen in “Tintern Abbey”, Wordsworth recalls the pleasant days of his childhood, and reveals the intuitive feelings experienced as a child and his belief in the capability of child’s imagination. For him, apart from the belief in the significance of Newton’s science, he seems to believe that the love of nature can lead to a deeper knowledge of God and his creation.

Science and poetry are depicted in the episode of the Arab Dream, in Book five of *The Prelude*. In the dream, the dreamer meets “an Arab of the Bedouin Tribes” (*Prelude* V. ll. 78). The Arab is carrying “A Stone” in one hand and “a Shell” under the other arm and tells the dreamer that they are books. The Arab’s treasures, the stone and the shell, are contrasting objects shown as symbols of geometry and poetry. The Stone is “Euclid’s Elements”, while the Shell represents poetry. The latter is more valuable:

... the Arab told him that the Stone,
To give it in the language of the Dream,
Was Euclid’s Elements; and this,’ said he,
‘This other,’ pointing to the Shell, ‘this Book
Is something of more worth.’ (*Prelude*, V. ll. 86-90)

The Stone represents science and mathematics and can be described as static, unchanging and universal. The Shell of poetry is related to a more active, changeable image and individual contemplation. Wordsworth emphasizes the power of poetry rather than the objective knowledge of geometry. However, according to Theresa M. Kelley, the Stone and the Shell are knowledge of past and future and they are complements:

This complementary of structure suggests further that as symbols both present kind of knowledge which require each other. As traditional mathematical knowledge, the stone cannot be discarded; it has endured for centuries and will continue to be a foundation for

future knowledge. On the other hand, the shell is the greater treasure because it has the capacity to acknowledge its origins and yet continue to grow. (575-76)

At the very least it is clear that geometry and poetry are not to be treated apart; rather, are both equally necessary and legitimate.

Conclusion

In his works, Wordsworth at once emphasizes his anti-rational attitudes by presenting his belief in the power of nature. Though the idea of nature in his poetry is often presented as spiritual (as can be seen in "Tintern Abbey"), it is also often discussed in both scientific and mysterious ways. It is from these ambivalent views that show Wordsworth as a poet who, on the one hand, accepts the laws of Newtonian science, but who also believes in the supernatural power of nature. As is partly discussed in this essay, the question of epistemology is one of the main themes in Wordsworth's poetry, and his pursuit of nature's truths is not solely dependant upon analytical methods.

Despite the influence of Newtonian science and his investigation of the relation between science and religion, Wordsworth goes further into the consideration of science and its relation to imagination. In other words, Wordsworth's view of the outer world is rationality alone does not offer a reliable account of its total reality; the world that he senses cannot be understood only through cause and effect. What are more important are the humans feelings shown in the relation between the individual and the whole. Also for Wordsworth, the experience of intuitional sensation in childhood is of chief importance, and the impression of this is what Wordsworth sought to convey in his poetical works. What is absolutely certain is that Wordsworth, while accepting the scientific method as one way of perceiving reality, seeks as his destination a point beyond science— a point which is arrived at through poetry.

Note

- 1) "There was a Boy", written in 1798, was later incorporated into *The Thirteen-Book Prelude*. All the quotations of this poem are from *The Prelude or Growth of a Poet's Mind*, edited by Ernest de Selincourt, published by Clarendon Press in 1959.

Works Cited

- Blade, John. *Wordsworth and Coleridge: Lyrical Ballads*. New York: Palgrave Macmillan, 2004.
- Cajori, Florian. *Sir Issac Newton's Mathematical Principles of Natural Philosophy and His System of the World*. Vol.2. Berkeley: University of California Press, 1966.
- Durrant, Geoffrey. *Wordsworth and the Great System: A study of Wordsworth's Poetic Universe*. London: Cambridge University Press, 1970.
- Fulford, Tim, Debbie Lee and Peter J. Kitson. *Literature, Science and Exploration in the romantic Era: Bodies of Knowledge*. Cambridge: Cambridge University Press, 1994.
- Gill, Stephen, ed. *William Wordsworth; Selected Poems*. London: Penguin, 2004.

- Kelley, Theresa M. "Spirit and Geometric Form: The Stone and the Shell in Wordsworth's Arab Dream."
Studies in English Literature 1500-1900 22.2 (1982)
- Newton, Issac. *Mathematical Principles of Natural Philosophy: Optics*. London: Encyclopaedia Britannica, 1952.
- Nicolson, Marjorie Hope. *Newton Demands the Muse: Newton's Opticks and the Eighteenth Century Poets*. Princeton: Princeton University Press, 1966.
- Schneider JR, Ben Ross. *Wordsworth's Cambridge Education*. Cambridge: Cambridge University Press, 1957.
- Wordsworth, William. *The Prelude or Growth of a Poet's Mind*. Ed. Ernest de Selincourt. 2nd ed. Oxford: Clarendon Press, 1959.
- . *Shorter Poems, 1807-1820*. Ed. Carl H. Ketcham. New York: Cornell University Press, 1989.
- Wu, Duncan, ed. *A Companion to Romanticism*. Oxford: Blackwell, 1998.