

Byron in Space

Part I: Ptolemaic Residues

The great cosmological poem in English, and Byron's main point of reference as a cosmological poet, is *Paradise Lost*. The first part of this essay explores Byron's continuation of the Miltonic tradition of cosmological poetry, primarily with reference to *Cain*. Byron modernizes Milton for a decided Copernican age and amplifies the existential threat implied by the realization of (apparently) unstructured and infinite outer space. This, however, does not account for the play's Ptolemaic counter currents, which are related to Byron's close-tracking, and sophistication as a reader, of Milton. The latter's blending of ancient and modern astronomy into original forms of 'bricolage' (the term is Danielson's), is his keynote as a cosmological writer. Byron follows this method of combination, but within very different philosophical and historical contexts. Unlike Milton's, Byron's use of Ptolemaic ideas is pure anachronism. It signals, that is, a series of aesthetic choices and positions. Part II, building on these insights, considers the cosmological fragments of *Don Juan* as commentaries on the poem's Romantic counter-Enlightenment contexts.

As well as a repository of resonant imagery, the history of astronomy is a fascinating historical narrative. It is not a story of gradual, quiet advance, but one of dramatic antagonism, split by revolution and spilling over into politics, psychology, theology, and aesthetic theory. *Paradise Lost* emerged from the turbulent centre of this history, when traditional geocentric notions were giving way, but had not yet fully given way, to heliocentric conceptions of the universe. As Milton wrote, two very different models, with very different moral and aesthetic implications, were simultaneously in play. The old, Ptolemaic model, which placed Earth at the centre of the cosmos, offered a 'satisfying and orderly' idea of the

universe and allowed human beings to imagine themselves as centrally placed in God's Creation.¹ Beyond the moon was an unearthly substance, aether, and the cosmos was constituted by a hierarchy of spheres, which, in some versions, made music as they turned. Outer space was thought to be blue, like the sky, and the dark of night was explained as the earth's shadow. During the seventeenth century, this way of imagining the cosmos came under increasing pressure from the observations and deductions of astronomers, notably Galileo. The Ptolemaic gave way to the radically different heliocentric or Copernican model, which de-centred and cut human beings adrift amidst an unimaginable vastness. The historical trauma this inaugurated found iconic expression in the words of Pascal.²

Paradise Lost expresses Milton's own, and his century's, 'hesitation between the two astronomies'.³ The cosmological centre of poem is Book VIII, where Adam questions Raphael on the constitution of the cosmos:

When I behold this goodly frame, this world
Of heav'n and earth consisting, and compute
Their magnitudes, this earth a spot, a grain,
An atom, with the firmament compared
And all her numbered stars, that seem to roll
Spaces incomprehensible (for such
Their distance argues and their swift return

¹ Dennis Danielson, *Paradise Lost and the Cosmological Revolution* (Cambridge: Cambridge University Press, 2014), p. xiii. My summary also draws widely from C. S. Lewis, *The Discarded Image: An Introduction to Medieval and Renaissance Literature* (Cambridge: Cambridge University Press, 1964) and Hans Blumenberg, *The Genesis of the Copernican World*, trans. Robert M. Wallace (Cambridge, MA: MIT Press, 1987).

² 'Le silence éternel de ces espaces infinis m'effraye'. Blaise Pascal, *Pensées* (Londres: J. M. Dent, 1913), 217.

³ C. S. Lewis, *A Preface to Paradise Lost* (London: William Collins, 1942), 140.

Diurnal) merely to officiate light
Round this opacous earth, this punctual spot,
One day and night; in all their vast survey
Useless besides, reasoning I oft admire,
How nature wise and frugal could commit
Such disproportions, with superfluous hand
So many nobler bodies to create,
Greater so manifold to this one use,
For aught appears, and on their orbs impose
Such restless revolution day by day
Repeated, while the sedentary earth,
That better might with far less compass move,
Served by more noble than her self, attains
Her end without least motion, and receives,
As tribute such a sumless journey brought
Of incorporeal speed, her warmth and light;
Speed, to describe whose swiftness number fails.⁴

Adam's involved thinking assumes a Ptolemaic 'sedentary earth', which provides a starting point for Milton's analysis. What puzzles Adam is how a 'wise and frugal'

⁴ *Paradise Lost*, VIII, 15-38. Quoted throughout from John Milton, *Paradise Lost*, ed. Alastair Fowler (London: Longman, 1977).

God could be responsible for the apparent disproportion implied by geocentrism, which places an ‘incomprehensible’ vastness at the service of the Earth, a mere ‘Atom’ in the scale of things. Adam, an ancestor of Byron’s Cain, is curious-minded, rational, and his vocabulary – ‘compute’, ‘argues’, ‘survey’ – has a clear scientific tendency. But his problem is not scientific as we would understand it. It is political and theological. Political because the superfluity of the cosmic ‘tribute’ does not sit well with Milton’s anti-monarchical, Protestant ethic. Theological because Raphael’s ‘solution’ is to re-assert the limits placed by God on human reason:

This to attain, whether heaven move or earth,
Imports not, if thou reckon right, the rest
From man or angel the great architect
Did wisely to conceal, and not divulge
His secrets to be scanned by them who ought
Rather admire; or if they list to try
Conjecture, he his fabric of the heavens
Hath left to their disputes, perhaps to move
His laughter at their quaint opinions wide
Hereafter, when they come to model heaven
And calculate the stars

(Paradise Lost, VIII, 70-80)

To 'reckon right' is not to experiment and speculate but to acknowledge the inscrutable nature of God and to accept that human reason cannot uncover what He has chosen to 'conceal'. It is more appropriate for us to 'admire' – a religious but also an aesthetic response – than to 'conjecture' and 'calculate'. Raphael's advice has been taken as evidence of Milton's opposition to the new science.⁵ But this is to misconstrue the entangled relationship between science and theology that was the norm in Milton's day. The 'seventeenth century', as Catherine Gimelli Martin argues, 'never witnessed anything like the divorce between science and spirit that marked the Newtonian revolution fully underway only in the eighteenth century'.⁶ To claim that Milton was anti-scientific is to force him into a dichotomy that did not exist for him in historically secure terms. Raphael's advice to Adam is, by the standards of the twentieth century, anti-scientific because it blocks the search for knowledge with assumptions based on faith. By the standards of his own day, however, he is distinctly open minded.

Paradise Lost is not antagonistic towards the new science on principle but does require it to accept its place within the poem's determining theology. Science is the pursuit of objective, universal laws that have no interest in the feelings and needs of particular people. Milton, however, is deeply careful of the individual and insists upon the subjective and emotional aspects of knowledge. Gravity may be indifferent to us, but God is not. When Eve learns about astronomy, it is not, as with Adam, from Raphael, but indirectly, from her husband, who employs very different pedagogical techniques, mixing in 'Grateful digressions', and seeking to 'solve high dispute / With conjugal caresses' (*Paradise Lost*, VIII, 54-6). The implied hierarchy predates modern feminism, but it is also characteristic of Milton's vision of knowledge as existing within an individuated human context. This mixing of the subjective and affective into the epistemological is an important point of reference for Byron, notably in the highly digressive and (in a loose sense) highly conjugal

⁵ See Fowler's invaluable notes to this passage and to Book VIII more generally.

⁶ Catherine Gimelli Martin, "'Boundless the Deep": Milton, Pascal, and the Theology of Relative Space', *ELH* 63 (1996): 45-78 (46).

Don Juan. Milton's Eve is the ancestor of *Cain's* Adah, who opposes familial love to Lucifer's reasonings. She is also a recurring presence in *Don Juan*, notably in Canto II, where Juan and Haidée rework Adam and Eve's 'conjugal' astronomy lesson:

And now, by dint of fingers and of eyes,
And words repeated after her, he took
A lesson in her tongue; but by surmise,
No doubt, less of her language than her look:
As he who studies fervently the skies
Turns oftener to the stars than to his book,
Thus Juan learn'd his alpha beta better
From Haidee's glance than any graven letter.

(*Don Juan*, II, 163)

Byron reverses Milton's gender dynamic by making Haidée the instructor. He also changes the subject from Astronomy to languages, but the former remains in mind as a simile. The astronomer-lover, 'who studies fervently the skies' and finds it difficult to focus on his books, is, like Juan, a sentimental learner, one for whom the emotional and aesthetic power of the subject (or teacher) cannot be separated from the process of learning.

Haidée is resurrected and transformed, towards the end of *Don Juan*, in the figure of Aurora Raby, a connection that is made explicit: 'the difference in them / Was such as lies between a flower and gem'. Where Haidée is warm and immediate, a star watched fervently by her lover, Aurora is distant and cosmological:

The worlds beyond this world's perplexing waste

Had more of her existence, for in her
There was a depth of feeling to embrace
Thoughts, boundless, deep, but silent too as Space.

Aurora's 'existence' resonates more with the depths of outer space than the bustling social context of *Don Juan*'s English cantos. But it is the latter, the hypocritical world of the Amundevilles, Juan's hosts, that is diagnosed as cold and adrift. They are the moral equivalent of the vacuum Pascal feared. Unlike these socialites, wealth hoarders, and power brokers, Aurora has a 'depth of feeling'. She is silent and boundless, like Copernican space, but not empty, bereft. She is 'a young star who shone / O'er life' (*Don Juan*, XV, 43), a suggestion of redemptive energy rather than a cause for fear.

Before comparing the cosmological poetry of *Cain* and *Paradise Lost*, it will be useful to get a fuller sense of where astronomy stood in Byron's day. The headline is that by the beginning of the eighteenth century, serious Ptolemaic thinking about the cosmos had been 'totally and confidently abandoned'.⁷ If Adam's 'sedentary earth' has a vestige of scientific credibility when placed against its historical backcloth, any use of the old model by Byron would be deliberately anachronistic. A rough guide to the state of the science in Byron's day is John Bonnycastle's *An Introduction to Astronomy* (1786), which Byron owned in an 1807 edition. A professional mathematician, Bonnycastle moved in cultured circles, being a friend of Fuseli, the painter. He was also known to Leigh Hunt, who left an ambivalent account of him in *Lord Byron and Some of his Contemporaries*. Bonnycastle's *Introduction* is best known as a possible source for Keats's 'On first looking into

⁷ C. S. Lewis, *The Discarded Image*, Ch II, p.2. Although convenient, the Ptolemaic vs Copernican dichotomy is a simplification. There have been various influential models. Tycho Brahe, for instance, proposed a geo-heliocentric system, in which the moon and sun revolve around the Earth, but the other planets revolve around the sun.

Chapman's Homer', which may allude to Bonnycastle's account of Herschel's discovery of Uranus in 1781.⁸

Bonnycastle gives a sense of what an educated person, at the time, might have believed about the physical constitution of the universe. This was, however, a rapidly changing picture. Byron's lifetime may not have witnessed the astronomical upheaval of Milton's, but it was still a time of rapid-fire discovery, a fact attested to by the significant changes Bonnycastle was required to make across his various editions. In the first edition of 1786 the solar system has six planets (Mercury, Venus, Earth, Mars, Jupiter, Saturn), which is curious given that Herschel identified Uranus in 1781. By the seventh edition of 1816, the solar system has eleven 'planets': Mercury, Venus, Earth, Mars, Vesta, Juno, Pallas, Ceres, Jupiter, Saturn, and Uranus.⁹ Such direct experience of revision, cosmological and textual, might engender caution, but Bonnycastle remains a galloping optimist with an unshakable belief in Newton's principles and the scientific worldview in general. He is astronomy's Soame Jenyns, fortunate to cross paths with Leigh Hunt rather than Dr Johnson.

Despite Herschel's advances, Romantic-period astronomy, while competent in mathematical deductions about the solar system, suffered from very limited observational evidence and remained a myopic, error-prone business. The cosmos, defined by Bonnycastle as 'the whole frame of nature, as extended throughout infinite space', remained at the mercy of guesswork.¹⁰ Our idea of an expanding universe would not become established science for another two hundred years. Infinitude was assumed, as it had been by Giordano Bruno, on theological

⁸ Keats won Bonnycastle's *Introduction* in a school competition.

⁹ Ceres, discovered in 1801, Pallas in 1802, Juno in 1804, and Vesta in 1807 were all initially considered planets but were later classified as minor planets, dwarf planets, or asteroids. Neptune was not discovered (by mathematical predictions based on studying Uranus) until 1846.

¹⁰ John Bonnycastle, *An Introduction to Astronomy. In a Series of Letters, from a Preceptor to his Pupil* (J. Nunn et al.: London, 1816), 23. Hereafter *1816*. The first edition strikes a more biblical tone: 'By the universe then, we are to understand the whole frame of nature, even to the utmost extent of the creation'. *An Introduction to Astronomy. In a Series of Letters, from a Preceptor to his Pupil* (London: J. Johnson, 1786), 25.

grounds. Where empirical evidence runs dry, Bonnycastle is only too happy to fall back on intelligent design assumptions. His rushing confidence takes him closer, at times, to Margaret Cavendish's proto-sci-fi *Blazing World* (1666) than its more cautious contemporary, *Paradise Lost*. The moon and other planets, Bonnycastle speculates, are most likely inhabited because 'We cannot suppose that the creative powers of the Deity have been employed only in peopling our little globe, which is but an atom in the universe' (366). Saturn's ring, he similarly concludes, 'serves as a sort of perpetual moon to enlighten the inhabitants' of that planet (350). Astronomy, in Bonnycastle's version of it, involves a fair amount of guesswork about God's design choices.

In *Cain*, the first scene of Act II is set in 'The Abyss of Space', a phrase more resonant of Pascal's Copernican trauma than Ptolemy's orderliness.¹¹ The modern sense of space as overwhelmingly vast and largely unknown is crucial for the play because it is exploited by Lucifer to manipulate Cain. As the pair travel at high speed through the unnerving sprawl of the cosmos, Lucifer seeks to inspire not fear but philosophical uncertainty, the very scepticism that Philonous wishes to banish. Always tracking Milton and forging ironies in his wake, Byron has Lucifer promise to show his companion 'the history / Of past, and present, and of future worlds' (*Cain*, I. ii. 25-25). This alludes to Milton's God watching Satan: 'Him God beholding from his prospect high, / Wherein past, present, future he beholds' (*Paradise Lost*, III, 77-78). The deceit lies in the play of the allusion. God has a special mode of perception that encompasses all of space and time at once. They

¹¹ It is also used by Berkeley's Philonous: 'Yet if you take the telescope, it brings into your sight a new host of stars that escape the naked eye. Here they seem contiguous and minute, but to a nearer view immense orbs of light at various distances, far sunk in the abyss of space. Now you must call imagination to your aid. The feeble narrow sense cannot descry innumerable worlds revolving round the central fires; and in those worlds the energy of an all-perfect mind displayed in endless forms. George Berkeley, *Three Dialogues between Hylas and Philonous*, ed. Jonathan Dancy (Oxford: Oxford University Press, 1998), 96. Byron is quoted, unless otherwise stated, from *Byron: The Oxford Authors* (Oxford: Oxford University Press, 1986).

are a function of Him. Human perception, compared to this, is a mere glimpse, a thin furrow of present moments utterly myopic in scope. In Berkeley's terms, our 'feeble narrow sense' is a mere dot within the infinite machine of total perception that is God. Where Raphael counsels Adam to limit his curiosity to the level of his cognitive powers, Lucifer deliberately mismatches perspective and perception. 'Point me out the site / Of Paradise', he gloats, as they hurtle deeper into space. 'How should I?', a bewildered Cain replies:

As we move

Like sunbeams onward, it grows small and smaller,
And as it waxes little, and then less,
Gathers a halo round it, like the light
Which shone the roundest of the stars, when I
Beheld them from the skirts of Paradise:
Methinks they both, as we recede from them,
Appear to join the innumerable stars
Which are around us; and, as we move on,
Increase their myriads.

(*Cain*, II. i. 34-43)

Cain's fixed points of reference – Eden, the moon, the Earth itself – are lost in the vastness of space. Lucifer, who hovers between evil tempter and philosophical sage, repackages the trope of cosmic perception with a very old piece of philosophical scepticism that uses variations of perspective to cast doubt upon the inherent reality of the object perceived. If the Earth – the anchor and ground zero

of our experience – is so perceptually unstable, then where are we to place our faith? Surely not in the maker of such a wavering, irrelevant thing.

Cain's exposure to the 'Abyss' contributes to a process of existential disorientation that ends in tragedy. But Byron's play is more than a jaded update to *Paradise Lost* aimed at the religious and political hypocrisies of its day. It is grounded in a choice that is presented to Cain in the figures of Adah and Lucifer. Cain's mind may be boggled by vast changes in perspective, but his soul aches at the beauty of the vistas he is shown. This instinct for the beautiful is marked in his language by images and ideas drawn from ancient astronomy:

Oh, thou beautiful And unimaginable ether! And
Ye multiplying masses of increased
And still-increasing lights! What are ye? What
Is this blue wilderness of interminable
Air, where ye roll along, as I have seen
The leaves along the limpid streams of Eden?
Is your course measured for ye? Or do ye
Sweep on in your unbounded revelry
Through an aërial universe of endless Expansion –
At which my soul aches to think –

(*Cain*, II.i.98-108)

This suggests a good working knowledge of the old model. 'Ether', or aether, in medieval theory, is the superlunary substance that conveys light (although Newton

also theorizes a version of aether, which retained some scientific currency into the nineteenth century). ‘Sweep on in your unbounded revelry’ hints, perhaps, at the music of the spheres, and is certainly unlike Pascal’s dreadful silence. Outer space is also blue – a ‘blue wilderness’ that is un-Miltonic and radically anachronistic. This choice of cosmic colouring is easily overlooked, and many readers, in imagining the closest drama’s setting, will instinctively choose black. Careful readers, however, are presented with something more unfamiliar and astonishing.

Cain, like *Paradise Lost*, weaves together Ptolemaic and Copernican ideas without resolution. Milton’s ‘hesitation’ is made explicit in Cain’s apostrophe: ‘Is your course measured for ye? [...] Or, do ‘ye / Sweep on [...] Through an aërial universe of endless Expansion’. Do the celestial bodies move in fixed orbits, or are they strewn across infinite and unknowable space? No answer is given, except the fact of the poetry, its beautiful weaving of the Ptolemaic into the Copernican. If the symbolic integrity of Aurora Raby resists the false glare of the Amundevilles, the post-Miltonic ‘Abyss’ of *Cain* has an unspoken answer to the devilry of Lucifer.

The Ptolemaic residues of *Cain* can only be explained as deliberate artistic choices. Their combination with the ideas of modern astronomy, in *Cain*’s Miltonic bricolage, suggests a high level of critical sophistication in Byron’s reading of *Paradise Lost*. The presence of ancient cosmology in *Cain* also links to the poet’s classical leanings, his preference for tangible structures over vanishing sublimities. The mark of Byron’s classicism, however, is not stale traditionalism but tethered innovation. He used the old to reinvigorate the new. Like the serio-comic mode adapted for *Don Juan*, Milton’s cosmological ‘bricolage’, as a mobile and endlessly suggestive composite, was well-suited to this purpose. It is to the latter poem, and its scattering of cosmological fragments, that we now turn.

Part II

The Astronomer as Poet

Although *Paradise Lost* has been misconstrued as anti-scientific through the application of anachronistic categories, the poem cautiously embraces the science of its day, granting it a broad liberty of speculation that could not be taken for granted elsewhere. This is tempered by a warning, expressed directly in Raphael's advice to Adam, that we must respect God's wise limiting of human knowledge. Byron wrote during a later stage in the history of astronomy, when anti-Enlightenment anxieties about the sterilization of reality at the hands of science gave new impetus to literary thought. The perceived problem is evident in Bonnycastle, who, although he dabbles in the sublime and leans on God, also stands with the unweavers of rainbows. In the past, he observes, unusual celestial events such as comets were received with superstitious awe. Now, however, we are 'taught, by Astronomers, to look upon comets and eclipses with tranquillity and composure'.¹² Keats may have found material in Bonnycastle, but he is unlikely to have appreciated the conversion of wonder into 'composure'. Astronomy, in 'On first looking into Chapman's Homer', is primarily an act of feeling, of astonishment, and linked to the discoveries of imaginative reading: 'Then felt I like some watcher of the skies / When a new planet swims into his ken'.¹³ The astronomer here does not offer us 'composure', but a re-wondering of a universe that, in Keats's view at least, had become overly subject to rule and line.

Similar concerns led Wordsworth to develop an experimental style ill-suited to extend the cosmological tradition of Milton. Where the latter pulls astronomy into the orbit of his verse, Wordsworth, in *Lyrical Ballads*, tends to filter out scientific detail in the interests of psychological purity. He writes with immense dramatic power about the contents of the night sky, but usually from a deliberately unscientific point of view. Celestial bodies feature as idiosyncratic, subjective perceptions, often associated with heightened or superstitious states of mind. The

¹² 1816, 5.

¹³ Quoted from *Keats's Poetry and Prose*, ed. Jeffrey N. Cox (New York: Norton, 2009).

narrator's lunar fixation in 'Strange fits of passion I have known', for instance, is a compelling sketch of psychological aberration. But, as with 'The Thorn' – among other poems – its drama and insight depends upon its narrator's proneness to the irrational.

Byron often reveals his distance from Wordsworth in coming close to him. Where scientific incuriosity is a cultivated aspect of Wordsworth's art, Byron's inquisitiveness is uncontrolled. He is always looking at things from different angles, a mode of perception he turns into great art with *Don Juan*. In the earlier and, in some respects, pseudo-Wordsworthian third canto of *Childe Harold's Pilgrimage*, a general attentiveness to the natural world includes a digression on the stars:

Ye stars! which are the poetry of heaven!
If in your bright leaves we would read the fate
Of men and empires, – 'tis to be forgiven,
That in our aspirations to be great,
Our destinies o'erleap their mortal state,
And claim a kindred with you; for ye are
A beauty and a mystery, and create
In us such love and reverence from afar,
That fortune, fame, power, life, have named themselves a star.

All heaven and earth are still – though not in sleep,
But breathless, as we grow when feeling most;
And silent, as we stand in thoughts too deep: –

All heaven and earth are still: From the high host
Of stars, to the lull'd lake and mountain-coast,
All is concentred in a life intense,
Where not a beam, nor air, nor leaf is lost,
But hath a part of being, and a sense
Of that which is of all Creator and defence.

(*Childe Harold's Pilgrimage*, III, 88-89)

The second stanza, with its 'intense', 'concentred' experience acknowledges its debt to Wordsworth with an intransitive adaptation of the Immortality Ode's final line. Yet there are differences within the general similarity. Byron's opening apostrophe and epic register ('Ye stars! Which are the poetry of heaven!') evoke a tradition of formal, classical rhetoric that the Wordsworth of *Lyrical Ballads* declared at odds with true poetry. This classical element has an objective leaning. Unlike the close subjectivity of 'Strange fits', the narrator's experience here is generalized: it is 'we' who 'grow' and 'we' who 'stand'. There is a categorizing tendency to Byron's thought that Wordsworth filters out into his theoretical prose. Byron also prefaces his experience with an anthropological stanza, in which a condescending view is taken of those who would 'read the fate / Of men and empires' in the 'bright leaves' of the stars. Although only part of a complex and (at times) contradictory process of thought, this condescension is of an opposite tendency to Wordsworth's curation of a less explicated world.

Byron's 'concentred' experience mimics the Wordsworthian privileging of neo-mystical experience. Yet there is a tension between this cultural mimesis and the narrator's curiosity, his scholarly, categorizing tendency. Byron's mobile consciousness, in a poem about the afflictions of the un-homed self, is not

perfectly at home. But when Wordsworth and the stars are paired again in the satirical, serio-comic environment of *Don Juan*, the situation is very different. In the later poem, the Wordsworthian mode is parodied rather than mimicked and scientific details become disruptive indicators of a world that is anything but monotone. In Canto I, a haplessly overloaded Juan becomes a love-struck teenager, a parody of Wordsworth, and an amateur astronomer all at once:

Young Juan wander'd by the glassy brooks

Thinking unutterable things; he threw

Himself at length within the leafy nooks

Where the wild branch of the cork forest grew;

There poets find materials for their books,

And every now and then we read them through,

So that their plan and prosody are eligible,

Unless, like Wordsworth, they prove unintelligible.

He, Juan (and not Wordsworth) so pursued

His self-communion with his own high soul

Until his mighty heart, in its great mood,

Had mitigated part, though not the whole

Of its disease; he did the best he could

With things not very subject to control,

And turn'd, without perceiving his condition,

Like Coleridge, into a metaphysician.

He thought about himself, and the whole earth,

Of man the wonderful, and of the stars,

And how the deuce they ever could have birth;

And then he thought of earthquakes, and of wars,

How many miles the moon might have in girth,

Of air-balloons, and of the many bars

To perfect knowledge of the boundless skies;

And then he thought of Donna Julia's eyes.

In thoughts like these true Wisdom may discern

Longings sublime, and aspirations high,

Which some are born with, but the most part learn

To plague themselves withal, they know not why:

'Twas strange that one so young should thus concern

His brain about the action of the sky;

If *you* think 'twas philosophy that this did,

I can't help thinking puberty assisted.

(*Don Juan*, I, 90-93)

The broad terms of the satire, as an attack on the Lake School's perceived metaphysical self-absorption and narrow sense of life, are clear enough (I set aside questions of how fair or accurate Byron is being). What distinguishes this from similar satire, including Byron's own *English Bards and Scotch Reviewers*, is its balancing of reaction with creativity. Byron's correction of the Lake School, in other words, inaugurates the performance of an alternative. If Wordsworth's style and diction are condemned as 'narrowness', Byron responds with unrestrained fullness of diction and tone. Astronomy, as a nuts-and-bolts discipline that also touches upon the great mysteries of the universe, is well-suited to his purposes. As Juan's excited 'brain' (a down-to-earth alternative to his 'high soul') flits between various thoughts, it moves – across a rhyme – from the 'birth' of stars to the more mundane question of 'How many miles the moon might have in girth'. Astronomy covers high speculation worthy of Milton, but also the kind of workaday facts found in Bonnycastle.¹⁴ *Don Juan* diagnoses Wordsworth's profundity as rhetorical and rhetorically monotone, as a way of speaking – 'Longings sublime, and aspirations high' – rather than thinking. Can such poetry, Byron asked, fully engage and tell of life as it really is? The modern poet surely requires a prismatic language to describe a prismatic world. And surely this would involve a way of including – rather than filtering out – the modes of thought and discourse associated with science.

The relationship between scientific and poetic genius preoccupied Byron and his contemporaries. This found a focus in Sir Isaac Newton, who was frequently refigured as a Christian or counter-Enlightenment ally. Few were willing to accept the blank, mathematical universe that is the raw implication of Newtonianism. At the other extreme, Blake's path of violent rejection, given Newton's status and achievement, was equally unappealing. Newton as prophet or

¹⁴ In Letter XVII, 'Of the Distances and Magnitudes of the Sun, Moon, and Planets', Bonnycastle explores the calculations relevant to modern astronomy. As far as I can see, he does not specifically mention the moon's circumference ('girth'), although he does mention the 'diameters and bulks of the planets', which includes the moon (1816, 284) as well as the moon's 'radius' (1816, 335).

poet was an obvious middle path. An early instance is Pope's easy running together of Christianity and Enlightenment, a compromise that gives little sense that a compromise is being made.¹⁵ This Leibnitzian optimism, shared and sublimed by Bonnycastle, makes God a brilliant mathematician and the universe an expression of his rational principles. God has also given us the genius of Newton – a scientific new Adam – to decipher and systematize the rules. This Enlightenment God, Blake's compass wielding Urizen, has the downside of reducing the great mysteries of existence to a set of equations that can be summarized in a textbook like Bonnycastle's. Where Pope waved this through, the Romantics were faced with a problem. Coleridge made Newton one of the 'Coadjutors of God', a category that, tellingly, is otherwise composed of poets and philosophers.¹⁶ Keats's 'Herschel' moves the trope away from Christianity while also relocating the astronomer to the sphere of literary aesthetics. Wordsworth, after Byron's death, enshrined Newton's reclassification as Romantic poet in the 1850 *Prelude*: 'Newton with his prism and silent face, / The marble index of a mind for ever / Voyaging through strange seas of Thought, alone.'¹⁷

Byron's version of the Newton trope in *Don Juan* is dense, allusive and multilinear:

When Newton saw an apple fall, he found

In that slight startle from his contemplation—

'Tis said (for I'll not answer above ground

¹⁵ 'Epigraph. Intended for Sir Issac Newton, in Westminster Abbey' (English version). Quoted from *The Poems of Alexander Pope* (one volume edition), ed. John Butt (London: Routledge, 1965).

¹⁶ Plato, Socrates and Milton. See 'Religious Musings, l. 364. Quoted from Samuel Taylor Coleridge: *The Complete Poems*, ed. William Keach (London: Penguin, 1997).

¹⁷ Book III, 61-63. Quoted from William Wordsworth, *The Prelude: The Four Texts (1798, 1799, 1805, 1850)*, ed. Jonathan Wordsworth (London: Penguin, 1995).

For any sage's creed or calculation)—
A mode of proving that the earth turned round
In a most natural whirl, called 'Gravitation,'
And this is the sole mortal who could grapple,
Since Adam, with a fall, or with an apple.

Man fell with apples, and with apples rose,
If this be true; for we must deem the mode
In which Sir Isaac Newton could disclose
Through the then unpaved stars the turnpike road,
A thing to counterbalance human woes;
For ever since immortal man hath glowed
With all kinds of mechanics, and full soon
Steam-engines will conduct him to the Moon.

And wherefore this exordium? – Why, just now,
In taking up this paltry sheet of paper,
My bosom underwent a glorious glow,
And my internal Spirit cut a caper:
And though so much inferior, as I know,
To those who, by the dint of glass and vapour,
Discover stars, and sail in the wind's eye,

I wish to do as much by Poesy.

In the Wind's Eye I have sailed, and sail; but for

The stars, I own my telescope is dim;

But at least I have shunned the common shore,

And leaving land far out of sight, would skim

The Ocean of Eternity: the roar

Of breakers has not daunted my slight, trim,

But *still* sea-worthy skiff; and she may float

Where ships have foundered, as doth many a boat.

(*Don Juan*, X, 1-4)

Byron neatly enfolds biblical myth with modern astronomy ('Man fell with apples, and with apples rose'), but this new rising through technology is treated with due scepticism. Paving the 'poetry of heaven' with a 'turnpike road' sounds like an ambivalent achievement at best, especially when compared to its Miltonic original. God's 'broad and ample road, whose dust is gold / And pavement stars' (*Paradise Lost*, VII, 577-78) runs from heaven to Earth to facilitate His visits. It has a clear beginning, end, and purpose. Less evident, for all its inventions and machines, is the moral trajectory of humankind. These anti-Enlightenment tendencies are thoughtful and comparative rather than complacent or aggressive. Byron avoids any simple replacement of scientist by poet, preferring a nuanced process of equivalence. 'I wish to do as much by poesy' is ambitious and humble at once. It is framed with limitations ('I own my telescope is dim'), but rebounds into Harold-like defiance: 'at least I have shunned the common shore'. Where Keats implies a

telescope but keeps it hidden, Byron puts one on the page. His astronomers, ‘those who, by the dint of glass and vapour’, have a rhythm and diction more attuned to the Herschels’ workshop than their silent wonderment. The honesty, as usual, comes from *Paradise Lost*. When Satan arrives on Earth, Milton imagines seeing him alight through Galileo’s telescope (with reference to the latter’s discovery of sunspots):

There lands the fiend, a spot like which perhaps
Astronomer in the sun’s lucent orb
Through his glazed optic tube yet never saw.

(*Paradise Lost*, III, 588-90)

These are not the poem’s most elegant lines. Our passage through ‘lucent orb’ and ‘glazed optic tube’, although not as rough as Satan’s journey, is by no means smooth. Fowler’s curt footnote to ‘optic tube’ – ‘Not poetic diction’ – is to the point. This is not laboured circumlocution, but language as it really was at the time of Galileo. Milton is not a great cosmological poet because of his (disputed) ideological commitments, but because of the integrity, power, and craft of his language. Byron channels Milton to ask a question of his contemporaries. If we need to filter our subject matter to suit our style, then what does that tell us about that style? His poetic interest in astronomy and astronomers, while fragmentary, is an important presence in some of his most intellectually far-reaching work.

