Scientists Fallen Among Poets

Algis Valiunas

When one mentions the Romantics, poetry and not science is the first thing that comes to mind. The iconic Romantic image of the scientist is William Blake's highly unflattering *Newton* (1795), a color print finished in watercolor, hanging in London's Tate Gallery. The scientist appears as a heroic nude, imposingly muscled like a triumphant warrior. However, the figure's pose is a far cry from the virile address of Michelangelo's David or Cellini's Perseus. Newton sits on a rock ledge, folded over so that his chest rests on his knees—an attitude that, assumed for more than thirty seconds, would serve as an acute stress position under enhanced interrogation. With a geometrician's compass he is inscribing a semicircle within a triangle, and he embodies the mathematical order in which he is rapt. The muscles outlining his back ribs form a perfect row of rhomboids; an equilateral triangle set on its vertex and a larger triangle that caps the first define the junction of his hip and lower back; his left hand drops from his wrist at a right angle, quite uncomfortably, it would seem, and the fingers of that hand are bent to form a triangle along with one leg of the compass that they hold, so that the hand appears to be of a piece with the instrument; his left foot protrudes from beneath the ledge he is sitting on, as though he were riveted to matter; and he is clearly oblivious to everything but the figure he is drawing, the calculations he is making. What Newton cannot see is the spectacular iridescence of the immense rock he is perched on, and the tremulous darkness of the night sky that one would expect to entrance a natural philosopher, as it clearly does the artist. The appropriate amazement at nature's magnificence is far beyond poor Newton. He is a grind, without imagination, without insight, without a chance of ever understanding what he is supposed to be doing on this earth.

This Newton is a consummate specimen of a particular human type, and it is a type that Blake despises. Indeed, Newton's long, hunched torso can only be a deliberate recollection of Blake's *Nebuchadnezzar* (also 1795), which shows the Babylonian king on all fours, reduced to beastliness and insanity

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by a vengeful God sick of his monstrous sinfulness (Daniel 4:33). The mathematical physicist's universe, Blake teaches, with a vengeance, is a form of pernicious unreality, akin to the moral dementia of the downright vicious. Science, as exemplified by its preeminent genius to that time, had no more determined antagonist than this visionary poet and painter, who when he looked at the sun saw not a round disc of fire resembling a gold coin, but rather "an Innumerable company of the heavenly host crying 'Holy, Holy, Holy is the Lord God Almighty.'" It's hard for even the highest mechanics to argue with that.

Not every Romantic poet shared Blake's animus toward science in general or Newton in particular. In the revised version of *The Prelude*, William Wordsworth recalls the inspiring proximity of his student rooms at St. John's College, Cambridge, to the Trinity College chapel just over the wall, where the most distinguished intelligence the university had ever produced was memorialized.

> And from my pillow, looking forth by light
> Of Moon or favouring stars, I could behold
> The Antechapel where the Statue stood
> Of Newton, with his prism and his silent face,
> The marble index of a Mind for ever
> Voyaging through strange seas of Thought, alone.

Wordsworth believed that poets and scientists ought to voyage together through the strangest seas of thought, and thereby discover new worlds where modern men could fulfill their need for astonishment and eventually learn their true place in this enchanted universe.

Richard Holmes, the much-honored biographer of the Romantic poets Percy Bysshe Shelley and Samuel Taylor Coleridge, has now written *The Age of Wonder: How the Romantic Generation Discovered the Beauty and Terror of Science*, and he demonstrates what certain poets, scientists, and adventurers of the late eighteenth and early nineteenth centuries in Britain had in common: amazement that the world and the human mind's capacity to understand it should be such a congenial fit, and hope that the enriched mind would transform the world for human benefit. Holmes has produced a

Romantic history of Romantic science, with an expert biographer's emphasis on the passionate lives that gave rise to feats of daring and flights of genius: he treats such figures as Joseph Banks, sailor with Captain Cook, botanist, pioneer anthropologist, and scientific impresario; William and Caroline Herschel, brother and sister astronomers peerless in their day; Mungo Park, the African explorer superbly doomed; Humphry Davy, master chemist, heroic inventor, and sometime poet; John Abernethy and William Lawrence, the medical men who instigated the vitalism debate as to whether human life was animated by a God-given soul or propelled by random electrical discharges; and Mary Wollstonecraft Shelley, who made the most famous contribution to that debate, the novel *Frankenstein*. Their erotic lives, sometimes flamboyant and disorderly, get considerable play—they may be scientists, but they are Romantics after all—yet it is their consuming intellectual fire that deservedly blazes throughout Holmes's eloquent pages. Theirs is the forgotten, or at least neglected, generation of scientists, consigned to inconsequence in the shadow of the illustrious poets who were sometimes their friends and admirers, but whom history has pretty well declared their triumphant rivals. Holmes's outstanding study, scholarly with a popular touch, fervently begins to make amends for this gross injustice to our rightful intellectual forebears.

Teasing out the implications of Wordsworth's reverence for Newton, Holmes identifies certain aspects of the Romantic idea of science that remain an essential part of our own beliefs, whether these happen to be quite true or not. Thus scientific genius works in sublime solitude, driven by impulses of imperious ferocity, indifferent to ordinary human needs and moral strictures, defying Heaven itself in the quest for knowledge, enjoying ecstatic moments of revelatory apprehension in which the great questions receive their answer. The poets have had more to do with promoting this image than have actual scientists. *Frankenstein* and Goethe's *Faust* have profoundly shaped the modern view of the scientist who will stop at nothing to lay bare the secrets of the universe. But on a closer look, this image of scientists plainly resembles Romantic poets' understanding of *themselves*; and some of the poets have derived this self-image from their admiration for scientists of genius—genius that even poets in all their vanity acknowledge to rival their own. This complicated relation between poetry and science is a theme that Holmes continually retrieves and reexamines, and it forms a principal interest of this fascinating book.

Humphry Davy (1778-1829) was the foremost chemist of his day, and his day saw the ascent of chemistry to the very pinnacle of scientific prestige. In his early twenties he conducted perilous experiments inhaling

gases of unknown properties, almost killing himself on occasion, but thereby discovering the anesthetic quality of nitrous oxide, which he was known to employ for purposes of conviviality and frolic, though he failed to follow through on exploring its surgical potential. He studied galvanism; he invented electro-chemical analysis; he devised a coal-miner's safety lamp that vastly reduced the incidence of horrific underground explosions; he served as president of the Royal Society. And he wrote poetry all his life, publishing his youthful efforts in the *Annual Anthology* edited by Robert Southey, and after 1800 scribbling tirelessly in his laboratory notebooks, for private viewing only; his brother would gather some of these later poems in a posthumous memoir. Southey, for his part, was a less than sterling poet—Byron said he would be read after Virgil was forgotten, and not till then—best known for his biography of Lord Nelson and the tale "Goldilocks and the Three Bears," which just might be read after Virgil is forgotten. Southey sucked down laughing gas with Davy, and the pair of highbrow huffers became fast friends in Bristol in 1799, conversing with the delectable abandon of fledgling polymaths.

Coleridge, already on his way to becoming an opium fiend, joined them for a dose of the gas, and he coined the word *psychosomatic* to evoke its combined effect on body and mind. When Davy came up to London for the first time in his life in November 1799, Coleridge introduced him at dinner to William Godwin, Charles Lamb, and other artistic types, who all thought Davy would be doing a disservice to his extraordinary gifts by confining himself to chemistry. Coleridge daydreamed of establishing a "little colony" for joint poetic and scientific endeavor, comprising himself, Davy, and Wordsworth—though the latter two had not yet met. Godwin tried to disabuse Coleridge of his mostly ignorant passion for chemistry, but, as Coleridge boasted to Davy about his retort to the philosopher, the besotted poet "affirmed that [chemistry] united the opposite advantages of immaterialising the mind without destroying the definiteness of the Ideas—nay even while it gave clearness to them."

Clearness was a virtue that Coleridge reserved for special occasions; he did deploy it, however, when he went on to tell Davy of his surpassing esteem for science: "being necessarily performed with *the passion of Hope*, it was poetical." Poets were to join scientists in realizing the highest aspirations of the new era. To penetrate the laws of nature was necessarily to discern and promulgate the moral law, and poets and scientists alike were seeing to it that the moral law was ever more refined and amenable to human need. As Holmes writes, science and poetry focused "moral energy and imaginative longing" on a happy and fulfilling future for humanity. Davy shared Coleridge's ardent belief in the leading social and political role they were to play, "and 'Hope'

became one of his watchwords." Lightning bolts of expectation flashed in their correspondence. In November 1800, Davy wrote, "I have made some important galvanic discoveries which seem to lead to the door of the temple of life." Coleridge pressed accolades and exhortations upon the young wizard, and in his own notebooks began to display a flair for precise natural description that could be called scientific. "He felt that the new poetry and the new science were so closely entwined that they must somehow merge, and invited Davy to move north and establish a chemistry laboratory in the Lake District. Coleridge announced: 'I shall attack Chemistry, like a Shark.'"

However, while Coleridge was becoming ever more enthusiastic over the prospect of a united front of genius that would transform the world, Southey was becoming convinced that science disabled its practitioners for poetry, and that the example of Davy proved his point. In February 1800 Southey dismissed Davy's chances of ever developing into an excellent poet: to make himself a first-rate chemist required all of Davy's powers, and the talents he was cultivating were in any case incompatible with a poet's soul. In August 1801 Southey wrote to Coleridge, "I wish it were not true, but it unfortunately is, that experimental philosophy always deadens the feelings; and these men who 'botanize upon their mothers' graves,' may retort and say, that cherished feelings deaden our usefulness;—and so we are all well in our way." The animus here is as sharp as in Blake's picture of Newton. Science in Southey's view extinguishes wonder, to which poetry has exclusive rights. That Southey is a mediocrity, Goldilocks notwithstanding, makes him Holmes's ideal foil for the undeniable genius of Coleridge and Davy. (Blake is a tougher case, and Holmes circumspectly avoids taking him head-on.)

Coleridge of course resisted Southey's animadversions. In January 1802 Coleridge attended Davy's remarkably popular lectures on agricultural chemistry, which ranged exhilaratingly beyond their putative subject, hailing chemistry as the foundation of scientific advance; trumpeting the ascent of man from superstition and moral torpor to genuine knowledge of himself and his world; and predicting the striking improvement of ordinary life in the near future, "a bright day of which we already behold the dawn." Later that year Coleridge collaborated with Wordsworth on the Preface to the third edition of their *Lyrical Ballads*, and there Davy could be seen striding before them into a future glorious for science, for poetry, and for humanity pure and simple:

> If the labours of Men of science should ever create any material revolution, direct or indirect, in our condition, and in the impressions which we habitually receive, the Poet will sleep no more than at present; he will be

> ready to follow the steps of the Man of science, not only in those general indirect effects, but he will be at his side, *carrying sensation into the midst of the objects of science itself.* The remotest discoveries of the Chemist, the Botanist, or Mineralogist, will be as proper objects of the Poet's art as any upon which it can be employed.

Here science marches in the vanguard, and poetry follows its heroic lead, certainly not without a heroism all its own, but nevertheless admitting its subordinate role—although such subordination evidently does not sit comfortably with poets of the highest rank, for in the same sentence poetry goes from being a follower to taking its place right beside science, so Coleridge and Wordsworth do not concede all primacy to Davy and his profession. In any event, poetry needs science, which lifts the veil from nature, and science needs poetry, which elaborates for public appreciation the beauty of the secrets that have been unveiled.

In 1807 Davy raised his magniloquent voice in praise of the seekers of truth and beauty, which are so nearly allied:

> The perception of truth is almost as simple a feeling as the perception of beauty; and the genius of Newton, of Shakespeare, of Michael Angelo, and of Handel, are not very remote in character from each other. *Imagination, as well as the reason, is necessary to perfection in the philosophic mind. A rapidity of combination, a power of perceiving analogies, and of comparing them by facts, is the creative source of discovery.* Discrimination and delicacy of sensation, so important in physical research, are other words for taste; and love of nature is the same passion, as the love of the magnificent, the sublime, and the beautiful.

As John Keats would later write in "Ode on a Grecian Urn," in Romantic poetry's most famous lines, "'Beauty is truth, truth beauty,'—that is all / Ye know on earth, and all ye need to know." The scientist of genius would have agreed with the poet on this point, at least in part—although the scientist would have insisted that there is always more you need to know.

Sometimes the truth is not so beautiful, however. That men and women who consecrate their lives to knowledge will risk all in its pursuit is another tenet of Romanticism, and the example of Mungo Park (1771-1806) testifies to the bitter fate that knowledge sometimes holds in store. Not that there weren't moments of high adventure and rare insight along the way. In 1794 Park set out on an expedition to explore the territory of the River Niger, with only two African servants to accompany him. He hoped to reach the legendary city of Timbuctoo, but eventualities intervened. A Moorish

chieftain abducted the servants, and held Park captive; the chieftain's wife and her female retinue inspected him to determine "whether the rite of circumcision extended to the Nazarenes, as well as the followers of Mahomet… I thought it best to treat the business jocularly."

In due course Park made his escape, and one evening a woman who had been working in the fields by the river took him in. She and several other women of her family fed him and sang him to sleep—a plaintive extemporized lullaby whose subject was Park himself. The song told of the African women's compassion for this lone white man buffeted by winds and pelted by rain, exhausted and forlorn, with neither wife nor mother to care for him. As Holmes writes, "The women reversed all Park's assumptions about his travels in Africa." He was not the intrepid bearer of civilization to the pitiable natives, but was himself pitiable, an importunate stranger. "It was he who came and sat under *their* tree, and drank at *their* river."

Park was to find out just how pitiable and importunate he was—and then how splendid. Having turned back from his attempt to reach Timbuctoo, he was waylaid by Moorish marauders, who robbed him of nearly everything—horse, compass, all his clothing but his trousers, boots, and hat, where his travel journal was stuck in the band. Leaving him to waste away slowly in the wilderness was evidently richer Moorish amusement than butchering him on the spot. Five hundred miles from the nearest European outpost, Park resigned himself to death. But then, as he records in *Travels in the Interior of Africa* (1799), scientific wonder and its concomitant religious hope saved him from despair:

> At this moment, painful as my reflections were, the extraordinary beauty of a small moss in fructification, irresistibly caught my eye. I mention this to show from what trifling circumstances the mind will sometimes derive consolation; for though the whole plant was not larger than the top of one of my fingers, I could not contemplate the delicate conformation of its roots, leaves, and capsula, without admiration.

If God could lavish such care upon so apparently insignificant a plant, would He abandon indifferently a noble creature made in His own image? You bet He wouldn't: and thus inspired, Park got up and kept going, soon coming upon two amicable shepherds, and eventually making his way home, paying for food and shelter by writing Koranic phrases on bits of paper from his journal that he sold as talismans.

Park's *Travels* made him famous and well-off; he married his childhood sweetheart and tried to settle into a quiet life as a country doctor in Scotland. Boredom and wanderlust, however, got the better of him, and he was off to

West Africa again in 1805, this time under the auspices of the Colonial Office, which in the midst of the Napoleonic wars was determined to stake out an imperial trade route down the Niger. Forty British volunteer troops set out under Park's leadership; five hundred miles later, when the expedition made it to the river, only twelve were left alive, the rest taken by malaria and dysentery, Park himself tormented by illness.

Improvising a so-called schooner from two native canoes knocked together, Park and his depleted crew took off downriver. His strange refusal to pay tribute money to the tribal chiefs along the way apparently maddened the locals, who attacked them at every turn. At last, some five hundred miles downstream of Timbuctoo—which Park never did enter, for fear of the natives—Tuareg tribesmen ambushed the boat, and Park met his end. The sole survivor of the attack, an African slave, said that when everyone else on board was dead or dying, Park leapt into the water, holding another white man in his arms. That was the last sight of him.

Park's exploits captivated the public, and naturally the poets too, as Holmes details. In an early version of *The Prelude*, Wordsworth envisioned the explorer "alone and in the heart of Africa," prostrated by the desert sun and expecting to die, only to recover his senses and find his horse waiting patiently beside him, as the sun was forgivingly setting. In the end Wordsworth cut this section, deferring to Southey, who in his epic poem *Thalaba the Destroyer* (1801) had leaned heavily on Park's harrowing adventures. Southey's long note to the poem makes the connection explicit: "Perhaps no traveller but Mr. Park ever survived to relate similar sufferings." Here Southey came up short as usual, Holmes avers, inserting the needle: "But this is a case where the historical fact is more powerful than the fiction based upon it. Park's quiet, fresh, limpid prose has easily outlasted Southey's gaudy, melodramatic poem."

Percy Shelley, however, made something lasting of his imaginative response to Park's ordeals, the epic *Alastor, or the Spirit of Solitude* (1815), which in Holmes's description "deeply reflects the spiritual loneliness of the desert traveller who pursues a perilous river, and knows he will probably never return." Romantic poets loved the lone wanderer probing the dark places of the earth, braving death, and often finding it; and poetry like Shelley's elevated the scientific or the commercial undertakings of an explorer like Park into "an unearthly Miltonic quest for the strange and magnificent limits of the known world." Romantic poetry at its best made Romantic exploration even more wondrous than it already was.

William Herschel (1738-1822), an émigré from Germany to England, a composer and professional musician, and a self-taught astronomer

of uncanny abilities who built his own reflector telescopes, more powerful than any others of that time, discovered the seventh planet in the solar system, Uranus, in 1781—the first such discovery in over a thousand years, since Ptolemy. Scanning the heavens on March 13, Herschel noted "a curious either nebulous star or perhaps a Comet." On the 17th he decided the heavenly being must be a comet, for it had moved across the sky. He tried to measure the comet with a micrometer of his own recent devising, and on the 28th observed that its diameter had increased, so that it must be coming nearer. But on April 6 he remarked that the object did not have a tail or "coma" and therefore could not be a comet after all. The only thing it could be was a "wanderer"—a planet.

His more distinguished colleagues, including the Astronomer Royal, Nevil Maskelyne, initially doubted Herschel's report. Not only was Herschel lacking in credentials, but the previous year he had published a paper in the Royal Society's *Philosophical Transactions* of staggering eccentricity, declaring that his nonpareil homemade telescope had made him privy to a visionary's knowledge: he had seen forests on the moon, and believed that "in all probability" lunar creatures dwelled there. But Maskelyne looked at the supposed new planet himself, and after some hesitation, pronounced himself in agreement with Herschel. During the spring and summer, French, German, Italian, and Swedish astronomers joined in assent. In October the Russian mathematical virtuoso Anders Lexell computed the planet's orbit, and placed the huge planet at an incredible distance from the sun, doubling the span of the known solar system. Seven months after Herschel's sighting, the French Académie des Sciences officially acknowledged the planet's existence, based on the orbital calculation of Jérôme Lalande. Lalande believed "Herschel" would be the appropriate name for the planet. His suggestion never caught on.

The gradual and painstaking confirmation process, which involved the combined efforts of the international scientific community, did not suit the Romantic notions that Herschel had of his own momentous discovery. In an autobiographical sketch Herschel wrote in 1809, he insisted that on first sight of the planet he had known what he was looking at: "the goodness of my telescope was such that I perceived its planetary disk as soon as I looked at it; and by application of my micrometer, I determined its motion in a few hours." Holmes is forgiving of Herschel's tall tale about this "Eureka moment," which in fact required weeks of observation for him and months of verification by his far-flung colleagues: "It is hardly surprising that over the years he continued romantically to refine the story, and compressed his discovery into a single wondrous night, the inspired work of a glorious 'few hours.'" This after all was the way Romantic science was supposed to be done—by the

solitary genius intoxicated with astonishment, taking vast gulps of the night sky, singing his findings like an ancient bard.

Holmes points out that Keats sang of Herschel, if without naming him, in his sonnet "On First Looking into Chapman's Homer," written in a four-hour burst of inspiration early one morning in October 1816. The ancient bard, the astronomer, and the explorer Cortez (whom the poet confuses with Balboa) flame in Keats's mind as heroes for the ages, and he believes that to commemorate their genius in a Romantic poem of genius gives them some slight portion of the glory they deserve:

> Then felt I like some watcher of the skies
> When a new planet swims into his ken;
> Or like stout Cortez when with wond'ring eyes
> He stared at the Pacific—and all his men
> Looked at each other with a wild surmise—
> Silent upon a peak in Darien.

Thus Herschel is to be remembered along with Homer. This is not only supreme exaltation; it also proved to be wishful thinking, for two centuries later Herschel is largely unknown. At best, "some watcher of the skies" might get an identifying footnote in a scholarly edition of Keats. The Romantic poetry that honored Romantic science enjoys greater cultural currency today than the science that was being honored. This is hardly true of the comparative esteem in which most poetry and science are generally held.

In his sinuous wanderings among the poets and scientists, Holmes winds his way back to the received idea with which he began his book, and which he wrote the book in large part to examine critically and to challenge: that Romantic poetry was necessarily at odds with science. This "mythical" antipathy, as Holmes calls it, acquired emphatic momentum at the "Immortal Dinner" that Benjamin Haydon hosted for Keats, Wordsworth, Charles Lamb, and others in December 1817, in celebration of his reaching the halfway mark, three years in, with his gigantic painting *Christ's Entry into Jerusalem.* The picture featured Newton and Voltaire, Keats and Wordsworth, in subordinate but quite noteworthy turns. Most everyone at the Dinner, which was really a long lunch heavy on alcohol, got agreeably lit, and Haydon's painting occasioned boisterous talk on Reason and Imagination.

> The destructive and reductive effects of the scientific outlook were mocked. Warming to the theme, Lamb mischievously described Newton as "a fellow who believed nothing unless it was as clear as the three sides of

> a triangle." Keats joined in, agreeing that Newton had "destroyed all the poetry of the rainbow, by reducing it to a prism." Haydon jovially records: "It was impossible to resist them, and we drank 'Newton's health, and confusion to Mathematics.'"

The most pious of fundamentalist Christians, Haydon thought science the work of the Beast, and subscribed to the love of unmolested Nature that Wordsworth extolled in "The Tables Turned," from which Holmes quotes:

> Sweet is the lore which Nature brings:
> Our meddling intellect
> Misshapes the beauteous forms of things:—
> We murder to dissect.

However, this poetic distaste for science, Holmes nicely instructs, was hardly the whole story. Wordsworth after all had written this famous diatribe as long ago as 1798, and he had decidedly reversed that opinion in the 1802 Preface to *Lyrical Ballads* and his encomium to Newton in *The Prelude*, both cited above. And had Coleridge or Shelley attended the Immortal Dinner, the table talk and the place of science in the history of Romanticism might well be remembered differently. Coleridge had performed scientific demonstrations with prisms, and his protean intellect subsumed both the rational understanding and the imaginative appreciation of the rainbow. Shelley was the scourge of "religious superstition"—his taunting phrase for Haydon's Christian belief—and upheld the intellectual inviolability of science with verbal fire and sword.

With impressive scholarship and critical skill, Holmes traces connections between the poets' perfervid attitudes toward science, pro and contra, and the debate on vitalism, tentatively begun in the 1780s and dramatically joined between the surgeons John Abernethy and William Lawrence in 1816—"the first great scientific issue that widely seized the public imagination in Britain." There exists in man a "super-added" life force, Abernethy contended, analogous to electricity and tantamount to a God-given soul. To this his sometime protégé Lawrence retorted that a surgeon cutting never sees anything resembling a soul, and a human being's visceral reality is so overwhelming that it is easy to suppose that is all there is to him: "An immaterial and spiritual being could not have been discovered amid the blood and filth of the dissecting room," Lawrence thundered. Shelley was Lawrence's patient from 1815 to 1818, and the doctor did the poet a world of good for ailments ranging from suspected tuberculosis to writer's block. More significantly, the poet and his wife, Mary Wollstonecraft Shelley, came under Lawrence's

theoretical influence, and the doctor, "with his unusual knowledge of French and German experimental medicine…helped turn the Shelleys' joint scientific speculations along a more controversial path." Mary Shelley's *Frankenstein, or The Modern Prometheus* (1818) is steeped in "Lawrence's reflections on the metaphysics of the dissecting room and the theory of brain development." In accordance with Lawrence's teaching, the mind of Frankenstein's creature is a strictly material concern, and it develops from abject infantile primitivism to cultivated subtlety. As Holmes puts it, "Although galvanized into life by a voltaic spark, the creature has no 'divine spark' from Heaven. Yet perhaps his life could be called, in the phrase of the medical student John Keats, a 'vale of soul-making.'"

It is poets who are widely supposed to have souls, while scientists must be content, according to the common view, which has been largely established by poets such as Blake, to have only minds. Holmes shows poets and scientists alike in full possession of both mind and soul, which are more interesting in combination than is either on its own. Blake got Newton wrong, after all: Newton was a man of profound, even extravagant, religious sensibility, as singular and strange as Blake's own. Holmes barely mentions Blake, and lets him off too easily, but for the most part he has written a path-breaking work of intellectual history, examining with subtlety and charm the way poetry and science were interfused (to use a choice Romantic word), sometimes with poets following scientists' lead, sometimes with scientists taking inspiration from poets. Holmes has done the historian's gritty work with elegance, panache, and an admirable sense of wonder.

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