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Scientific discovery and the poetic response

Joey Crundwell

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ABSTRACT

SCIENTIFIC DISCOVERY AND THE POETIC RESPONSE

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This thesis has two primary goals: the first is to explore the relationship between scientific discovery and poetry by surveying poetry from the last four hundred years and revealing instances where the two worlds have met. With the rise of modern science, profound scientific discovery has had a history of affecting how poets see themselves and the world in which they live, though an argument exists that claims that contemporary poets have ceased responding to scientifically on a personal level and are instead simply adopting the vocabulary and imagery of science. The second goal of this thesis is to respond to this claim with a manuscript of poetry that answers the call for a closer relationship between poetry and science. While I borrow some vocabulary and thematic material, the main thread is a personal reaction to the anxiety created by recent discoveries in neuroscience and, to a lesser extent, astrophysics.

Keywords: science and poetry

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SCIENTIFIC DISCOVERY AND THE POETIC RESPONSE

BY

JOEY CRUNDWELL
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INTRODUCTION

Both science and poetry are investigative tools, ways for us to better know ourselves and the world, galaxy, and universe in which we live. Just as the scientist will focus an electron microscope on a strand of deoxyribonucleic acid [DNA] to determine why we are the way we are, the poet might look inward and ask the same. But science and poetry are not the same, a few similarities aside. Science is often proactive, seeking answers through systematic observation and the occasional probe or prod. Poetry is often reactive, generating the human response to some of the same problems, large and small. It is this responsive nature that often brings the two fields together, with scientific discoveries that are occasionally so stirring that they change the cultures and societies around them, and the poet is often there to react in his or her work. This project will look at this relationship, examining how some influential discoveries in science have prompted poetic responses.

Because humans have practiced both science and poetry for thousands of years and in many languages, the scope of this paper – primarily western poetry and science from the last four centuries – will be relatively narrow in comparison, leaving room for future research and expansion. Aside from observing the poetic response to the science of previous centuries, this project will also address the issue of how the relationship has changed in contemporary western poetry and science, with the poet using science simply as subject or source rather than inspiration. The culmination of this paper is a manuscript of original poetry that seeks to speak to this issue, weaving the influence of science and discovery through a personal narrative spanning my own life, from birth to present day. Although I did not write these poems in direct response to

the research, it will, I hope, add to the conversation, if not outright answer the call for a closer relationship between the two fields.

A Changing World: The Rise of Modern Science

We have always lived on a round Earth that spins around a common star in a common galaxy. It is easy to take this for granted when it is all we and most of our recent ancestors have known, but when Nicolaus Copernicus published *De revolutionibus orbium* [*On the Revolution of the Heavenly Spheres*] in 1543, placing the sun at the center of the universe and the Earth as one of the planetary bodies circling it, a fervent debate began in academia and beyond. Many had a hard time believing that the solid, heavy Earth could be anything but the weighty center that hosted the sun and our sibling planets in a stable orbit. Given our contemporary vantage point, “it is difficult to imagine a conceptual change more profound than the one experienced during the first century of modern science,” says Alison Hawthorne Deming (1998, p. 182) in *The Measured Word: On Poetry and Science*.

By the time John Donne published “An Anatomy of the World” in 1611, “there were at least four distinct models of the universe floating through the intellectual air,” (Connor, 2004, p. 60) with God, the Earth, and the sun at the centers of varying sizes of universes. Donne (1896), like many, found it difficult to deal with such a potentially massive change in perspective, writing:

And the new philosophy calls all in doubt,
The element of fire is quite put out;
The sun is lost, and th’ earth, and no man’s wit
Can well direct him where to look for it.

And freely men confess that this world's spent,
 When in the planets, and the firmament
 ... 'Tis all in pieces, all coherence gone ... (p. 109-110)

Deming (1998) believes Donne was attempting “to integrate this new information about the nature of reality with his beliefs and emotions, to give a voice to his very process of confusion, his struggle for equilibrium in a newly unstable world” (p. 182). This underlines the impact that the mere suggestion that we might not be the center of the universe had on people. Even after the work of Johannes Kepler and Galileo Galilei strengthened the case for the Copernican model of heliocentrism, Donne’s faith in a geocentric system remained firm, but his poetry shows a struggle with the kind of doubt that profound discoveries can instill in many.

Just fifty years after Galileo found himself convicted of heresy by the Catholic Church for promoting Copernicus’ theory of a sun-centered system, Isaac Newton published *Principia*, which introduced the three universal laws of motion and the law of universal gravitation. The work of Copernicus, Kepler, and Galileo may have forced humans from the center of the universe, but it still left plenty of mystery about the reason for why the planets acted the way they did, giving the faithful a reason to ascribe these workings to a higher power. Newton’s work took even that away, explaining how massive bodies could come to orbit one another and move at such incredible speeds. The same forces, it seemed, governed the heavens, as the Earth, and “some theologians criticized [Newton] for leaving nothing for the Creator to do” (Tyson, 2007, p. 29).

Some people – and poets – embraced the new cosmos as laid out by Newton and his precursors. Alexander Pope, for instance, maintained his faith in God and argued that science

was not erasing God's influence so much as revealing it to man. In *An Essay on Man*, Pope (1805) ponders the possibilities proposed by the new cosmic laws while keeping God in his thoughts:

Thro' worlds unnumbered tho' the God be known,
 'Tis ours to trace him only in our own.
 He, who through vast immensity can pierce,
 See worlds on worlds compose one universe,
 Observe how system into system runs
 What other planets circle other suns,
 What varied Being peoples ev'ry star,
 May tell why Heav'n has made us as we are. (p. 10-11)

The discovery that Earth was just one planet of many, orbiting one star of many, with perfectly sound explanations for how they seem to hang unsupported in the heavens is not only inspirational to Pope, but actually seems to further strengthen his faith in God, for if God was thought to be great when he created just one Earth and one sun, how great he must truly be if he created many of both.

A Response from the Romantics

There were others that were still hesitant to accept the ever-evolving universe, and the Romantic era was rife with artists opposed to science and what it sometimes suggested. Poet and painter William Blake (1805) attacked Newton in a painting titled *Newton*, which portrays the scientist as bent over and producing geometric shapes with his back to nature and his head toward darkness. Paul Privateer believes Blake felt that Newton was "mechanically defining the universe in laws that denied the imagination its supreme place in human experience," (as cited in Feynman, 2005, p. 365). Blake (1820) further condemns science in the poetic notations on his

inscription *Laocoon*, stating firmly “Science is the Tree of Death, / Art is the Tree / Of Life.” Martin Priestman (1999), author of *Romantic Atheism: Poetry and Freethought, 1780-1830* is convinced that Blake’s allegiance to faith over science was not so certain, though, claiming the language in Blake’s “The Tyger” and “Jerusalem,” though “seem[ing] to affirm his strong religious belief in an all-powerful creator-God ... grammatically ... are questions, which remain unanswered throughout the remainders of their respective poems” (p. 80). Regardless of where Blake’s faith truly fell, his work clearly demonstrates the influence of the scientific discoveries of his time.

John Keats was also critical of Newton and science in general during this period, believing that scientific discovery and exploration stole the mystery behind the beauty in the world. In 1820’s *Lamia* he writes “Philosophy will clip an Angel’s wings, / Conquer all mysteries by rule and line ...” (1863, p. 167). These types of responses to science from those in the arts gave rise to the concept that science and art were somehow at odds, with science the cold and calculative measurement of the world, and poetry and art the warm appreciation of it. Noticing this apparent divide, William Wordsworth (1802) addresses the issue in the preface to the second edition of his *Lyrical Ballads*, proclaiming “if the labours of Men of science should ever create any material revolution, direct or indirect, in our condition ... the Poet ... will be at his side, carrying sensation into the midst of the objects of the science itself” (para. 20). Richard Altick (1973) believes Wordsworth “was hopeful of an eventual reconciliation between the Poet and the Man of Science because both dedicated their lives to the pursuit of truth” (p. 259). In this attempt to negotiate a sort of peace between the two groups, Wordsworth is making even more apparent the effect that science was having on poets during the period. Romantic poets, so

enamored with nature and its beauty, were having difficulty transitioning from a world of mystery and metaphor to a world of literal explanations and exact descriptions. “Science had rationalized the soul out of man,” says Robert Langbaum (1970, p. 6). But to this point in time the science had primarily centered on man’s physical place in the universe – the position of the Earth in relation to the sun, the behavior of the heavens – so the true nature of the human species had yet to be challenged. This would soon change.

The Victorian Era Further Complicates Things

While astronomers in the 17th and 18th centuries shuffled the heavens around, leaving poets to reassess their place in the universe, the biologists and geologists of the 18th and 19th centuries would call to question not just humankind’s place in the cosmos, but the nature of humankind itself. Physiologist William Lawrence was one of these scientists, and though his influence is usually associated with Mary Shelley’s *Frankenstein*, his ideas on human thought originating in the brain and human beings being a species – like any other animal – made him unpopular with his contemporaries in 1819 but quite influential in the decades to come, planting seeds that would sprout in the Victorian era (Priestman, 1999, p. 180).

One such seed, the one associated with humans as a species, bore proverbial fruit when geologist Charles Lyell published *Principles of Geology* beginning in 1830. This groundbreaking work introduced the fossil record to the world, and the implications of it went beyond the ability to study fossilized bones. The discovery of entire species no longer found on the planet along with lesser developed exhibits of very similar animals that still existed, and evidence indicating the Earth was much older than theologians had thought, made many reconsider Lawrence’s

claims and wonder if humans, too, could one day perish entirely. Those who might have come to terms with the belief that their God might not have placed them at the center of the universe would now have to struggle with the concept that that same God may have destroyed scores of species of animals and, because there were no human fossils to be found, he may have created those animals before he created man.

Professor Teufelsdröckh of Thomas Carlyle's novel *Sartor Resartus* is stricken with the kind of religious doubt that these discoveries raised in many. He – and by extension, Carlyle – wonders, “Is there no God, then; but at best an absentee God, sitting idle, ever since the first Sabbath, at the outside of his Universe, and seeing it go?” (2001, p. 209). Atheism was not a new concept in the Victorian era, having begun in some earnestness during the Romantic era (Priestman, 1999, p. 14), but it was certainly not common and many Victorians were conflicted about these new scientific revelations. None, perhaps, more famously than Alfred Lord Tennyson.

Tennyson makes brief mention of the idea of strata in his poem “Ulysses,” with the speaker saying:

...Life piled on life
 Were all too little, and of one to me
 Little remains: but every hour is saved
 From that eternal silence ... (Martin, 1964, p. 48-49)

This would do little to convince anyone that Tennyson was legitimately concerned with Lyell's discoveries, but when his famous poem “In Memoriam A.H.H.” is also considered, the conflict and inner turmoil seem far more real. Though the poem is primarily a vehicle for Tennyson to

grieve the loss of his dear friend – Arthur Henry Hallam – there are also clear examples of the author’s struggle to come to terms with the implications of recent scientific discovery:

... Is this an hour
 For private sorrow’s barren song,
 ...When Science reaches forth her arms
 To feel from world to world, and charms
 Her secret from the latest moon? (Martin, 1964, p. 67)

And the tension seems to rise notably when his doubts extend to his faith, as in the well-known section LV, which asks “Are God and Nature then at strife?” and points out that “...of fifty seeds / She often brings but one to bear...” while blatantly announcing Tennyson’s newfound tentative skepticism: “I falter where I firmly trod...” (p. 88). Section LVI, too, makes mention of “scarp’d cliff and quarried stone” and portrays nature as unfeeling: “A thousand types are gone: / I care for nothing, all shall go” (p.89). In the face of his friend’s death, Tennyson was having difficulty finding consolation in nature or God like many of the poets of the previous era. Science had changed his worldview and his concept of nature as something that would not necessarily embrace and comfort, but something that was “red in tooth and claw” (89).

Interestingly, not all of Tennyson’s references point solely toward Lyell’s geological discoveries – which he learned in part from Robert Chambers’ *Vestiges of the Natural History of Creation* – but some hint at the evolution of man as a species, specifically from apes:

Till at the last arose the man;
 Who throve and branch’d from clime to clime,
 The herald of a higher race ...
 Move upward, working out the beast,
 And let the ape and tiger die. (p. 137)

Langbaum (1970) points out that “Tennyson anticipated the discussion that was to follow the publication of Darwin’s *Origin of the Species* in 1859” (p. 52). Most of Tennyson’s inclusion of

science in this poem are reflective of a sadness or even scorn for what he sees as a violent, mindless force that cares little for his own life or the memory of his friend, but he does manage to maintain his religious faith in the face of the doubts that science seems to have raised. The last series in the poem ends with:

That God, which ever lives and loves,
One God, one law, one element,
And one far-off divine event,
To which the whole of creation moves. (p. 149)

And further, in “The Higher Pantheism,” the speaker says “Earth, these solid stars, this weight of body and limb, / Are they not sign and symbol of thy division from Him?” (p. 194-95). So, while Tennyson walks away with his faith mostly intact, the doubt present throughout “In Memoriam A.H.H.,” which was written over the course of several years, shows that the science of his time was never far from his mind. As T.S. Eliot points out, the poem “is not religious because of the quality of its faith, but because of the quality of its doubt. Its faith is a poor thing, but its doubt is a very intense experience” (as cited in Langbaum, 1970, p. 54).

Tennyson was not the only Victorian poet who found himself shaken by the significant scientific discoveries of the era, of course. For much of Robert Browning’s life “he was a devout believer in the Incarnation of Christ and in personal immortality ... [though] in later years he flirted briefly with atheism” (Martin, 1964, p. 201-202). The concept of ‘flirting’ with abandoning one’s faith only to return to it is common during this era, and the doubt and questioning shows up in many of the science-related poems of the period. Browning’s “Caliban Upon Setebos; or Natural Theology in the Island” sees Shakespeare’s *The Tempest* character contemplating his existence and the creation of man in the image of its creator. The “Natural

Theology” in the subtitle, Martin tells us, is “the attempt to estimate the character of God from the evidence of nature. It was, of course, given impetus by Darwinian theory” (p. 301).

Published in 1859, Charles Darwin’s *On the Origin of the Species* added significant observational data to support the theory of evolution suggested in part by Lyell’s previous discoveries in geology and, thanks to clear and concise writing, became a popular and well-respected piece of scientific work. While Lyell’s work hinted at the idea that humans may share lineage – and perhaps a fate – with many of the planet’s common animals, Darwin’s theory made it quite clear, “even though he abstained from mentioning man” (Altick, 1973, p. 227). It also strengthened the concept that nature was a force unsympathetic to human struggle. The implications of these findings call much into question, including threads in Christian creation myths and humanity’s place in ‘the great chain of being.’ While Browning maintained his faith in God, the doubt and confusion embodied by his portrayal of Caliban reveal the kind of serious internal interrogation that many poets of the period put their own beliefs through.

Commenting on the religious rift that seemed to be forming, the speaker of Matthew Arnold’s “Dover Beach” says:

The Sea of Faith
Was once, too, at the full, and round earth’s shore
Lay like the folds of a bright girdle furl’d.
But now I only hear
Its melancholy, long, withdrawing roar ... (Martin, 1964, p. 491-492)

The doubt caused by the scientific discoveries of his time affected Arnold more than Tennyson and Browning. Martin (1964) says that Arnold “could not believe totally in the dogma of Christianity, [though] he felt it was an unparalleled guide for conduct and morality, and ... he

longed for its consolation, but could not accept intellectually any of its traditional formulations” (p. 371).

There are echoes of the impact of Lyell and Darwin’s work in George Meredith’s “Dirge in the Woods” as well, as the speaker points out that “we drop like the fruits of the tree, / Even we, / Even so” (Martin, 1964, p. 557), reflecting on the fact that humans are dictated by the same natural laws as other living things. Even Walt Whitman’s “When I Heard a Learn’d Astronomer” has the speaker retreating from the well-received lecture of a scientist after feeling ill, only to observe the night sky on his own. And of all Victorian poets whose work reflects the ideological shock caused by science, Thomas Hardy may have been the most obviously affected. Though he was quick to dodge the label of atheist, he did believe that “the Cause of Things [must be] either limited in power, unknowing, or cruel” (Martin, p. 732). His pessimistic view of humankind’s plight can be seen in “God-Forgotten” which, as its name implies, is about a God who has totally forgotten about the planet and creatures that he’s created, and also in “The Darkling Thrush,” which shows hopelessness represented by the speaker’s inability to sympathize with the cheerful singing of an “aged thrush, frail, gaunt, and small” (Martin, p. 743).

Poetry’s Response to Contemporary Science

It is an understatement to say that science has come far since the Victorian era. Albert Einstein first published a complex version of his famous equation $E=mc^2$ in 1905 and it helped him develop his theory of special relativity, which he published in 1908. In 1915 he published his theory of general relativity – which astronomer Arthur Eddington helped to prove in 1919 – revealing some of the universe’s greatest mysteries, including how light travels and reacts to

massive bodies, the existence and behavior of black holes, the concept of spacetime, and the introduction of dark energy, which Einstein called “funny energy” (Aczel, 1999, p. 216). In 1922, Edwin Hubble used observational data to confirm that our own Milky Way galaxy was not, in fact, the entire universe, but only one of an immense number of galaxies. His later work, along with that of Henrietta Swan Leavitt, contributed to Georges Lemaître’s discovery that the universe is not static but expanding. Though Gregor Mendel did much of his work with plants, revealing inherited traits, in the mid-19th century, it wasn’t until the early 20th century when work in genetics began to unravel the mysteries of DNA, with 99% of the human genome mapped successfully by 2003.

These are just a few of the enormous strides science has made in the last century, with their technological fruits enabling us to peer deep into the smallest living cell, see remnants of the light created by the ‘big bang’ at the edge of the known universe, land on and return safely from the moon, send gold records outside of our own solar system, understand the invisible forces behind many human behaviors, and more. Scientists pass new milestones so frequently that we tend to take them for granted. Deming suggests “the dizzying changes in chaos and quantum and genome theories, in the neurophysics of the brain and the biotechnology of reproduction, and in the search for the Theory of Everything can send the amateur science watcher into a state of permanent vertigo,” (Brown, 2001, p. 182) showing that the poet of the 21st century has far more science to absorb and contemplate than those who came before.

With this flood of science and discovery to consider, it is no wonder that there is a fairly healthy number of contemporary poems written using science as the topic or theme. The relationship has changed from centuries past, however. In the poetry we’ve covered thus far, the

authors were reacting personally to discoveries that dramatically changed the worlds in which they lived and affected them in some way, be it internally or externally, but there was a common thread among some of them that pointed to a strained link between poet and scientist. Pattiann Rogers says, “the past three or four centuries suggest that the relationship between knowing and making has been at best uneasy, and occasionally confrontational,” but goes on to note that “literature and science, despite the appearance of separation, have always maintained an interest in each other” (Brown, 2001, p. 15). Robert Crawford (2006), editor of *Contemporary Poetry and Contemporary Science*, is even more specific, claiming:

...over the past few decades the relationship between poetry and science has been assumed to be antagonistic; or simply, and to the annoyance of at least some poets and scientists, it has been taken for granted that scientists and poets have no interest in each other’s work. (p. 9)

And the thesis to Bryan Walpert’s 2011 book *Resistance to Science in Contemporary American Poetry*, in his words, is “that despite publicly expressed sentiments of rapprochement, [a] ‘hostility’ ... remains alive and well on poetry’s side of [the] divide” (p. 3-4) between science and poetry.

It is clear, however, by reading what both poets and scientists say in Kurt Brown’s *The Measured Word: On Poetry and Science* and *Verse and Universe: Poems about Science and Mathematics*, and Crawford’s previously mentioned book, along with a general survey of contemporary poetry, that the relationship is not so easy to define. The noted hostility aside, poets seem to approach science in different ways. Kelly Cherry points to the idea that many poets gravitate toward scientific terminology without truly engaging the subject matter and its implications:

I know that when black holes began to be talked about in *Time* and *Newsweek*, they were suddenly cropping up in poems everywhere (mine too), as if the mere importation of a scientific term into a poem were enough to freight the poem with new meaning. It isn't, of course. No, the challenge of using science in poetry lies in using it in a way that results in stronger poetry, a poetry that incorporates as much as possible of the real world. (Brown, 2001, p. 27)

Miroslav Holub, too, sees this problem and adds the argument that the two fields are incompatible because of it:

The assumption that a poet using words, scientific vocabulary, could produce writing that would be closer to science and its spirit, without being a scientist himself is – to paraphrase Waddington – like rendering Shakespeare in the language and philosophical framework of an evening newspaper. ... Even a gifted poet and a major scientist in one person, like the Nobel laureate for chemistry in 1981, R. Hoffman, cannot render the essence of his science in poems and writes rather about circumstances. There is no common language and there is no common network of relations and references. (Brown, 2001, p. 54-55)

Many of the Romantic and Victorian era poems discussed in this paper deal less with the strict adoption of vocabulary and terminology and more with how the science personally moved the writer or, perhaps, those that they observed. This is a new issue in the relationship between poet and scientific discovery, and it must in part be due to the aforementioned deluge of science news that most people are subjected to on a daily or weekly basis.

Not all contemporary poets feel so negatively about the situation, though. Paul Lake believes that “the laws governing the evolution of living and other natural forms are the same laws that govern the creation of poetry” (Brown, 2001, p. 169). While this image might be an effective parallel for describing the creation process for poetry to someone passingly familiar with how evolution works, it does also reveal another case in which the poet is using a scientific concept in the poem rather than responding to the way that it affects or inspires them personally. Holub claims that a science-minded poet “doesn't like too much of his personal presence in his

poems. He finds that his approach and eventual (very rare) ideas are personal enough” (Crawford, 2006, p. 14). This idea that there is a sort of forced disconnect between poet and science-as-subject shows the relationship to be less antagonistic than it was in the 18th and 19th centuries, perhaps, but more detached and impersonal. Edwin Morgan highlights this, saying “in my poetry in general, I was more interested ... in the workings of the imagination, and how scientific facts and discoveries could be opened out fictionally within a broader context of human experience” (Crawford, p. 40). While this might not be indicative of a poet who is detached from the impact of scientific discovery, it is the furthest from an honest and immediate personal response to the emotions that the subject creates in the poet.

A Personal Response: Manuscript Rationale

In researching the relationship between science and poetry, the idea that the two were somehow at odds surprised me. I have, for most of my life, had an intense fondness for both, and I realized at some point in my recent past that I have always used them separately to examine myself and the events in my life. I use science to explain, when it can, and poetry to examine, if I can. So I contemplated marrying the two, using science to investigate how I might have become who I am and exploring the results through poetry. To my surprise, most contemporary poetry that deals with science does not attempt such a relationship. It is, as we have seen, primarily about using scientific terminology or describing scientific concepts in interesting – sometimes even fictional – ways. This may, I believe, be in part what contributes to the issue of a supposed strained relationship between the two fields, one that I hope to help alleviate, if even in a minor

way. If passionate poets write about science in an engaged and personal way, it's hard to imagine where a perceived disconnect might lay.

I chose to structure the manuscript in a narrative series of poems that loosely conforms to my life to this point. When poets react personally to the implications of science, as with Tennyson's attempt to come to terms with death and an uncaring nature in "In Memoriam A.H.H.," they seem to do so in part by applying their feelings or anxieties to real situations and experiences. This is my goal in examining specific concepts through events in my own life.

The science that I find most useful in inspecting my life comes chiefly from the fields of astrophysics and neurochemistry. The former acting as a parallel for certain themes and events, and an inspiration in many ways, and the latter being a way to explore both my own actions, thoughts, and feelings, and those of people that have been instrumental in my life. Some of the implications of studies in neurochemistry can be unsettling when attempting to explain behavior. The more scientists discover about the strong influence of genes on human behavior, the less it seems we have control over some of the urges and impulses that once seemed to be the product of environmental or social factors. For instance, a father may pass on to his child an allele that influences fidelity, increasing the likelihood that the child, male or female, will seek affection from sources other than their primary partner or leading to generally unstable relationships with their preferred sex. Humans pride themselves on their ability to make choices based on logic, thanks to our advanced brains, so many would claim that even if the urge to be unfaithful should be stronger in some than others we are advanced enough in mental ability that anyone should be able to control the urge.

Controlling the urge does not eliminate it, however, and the uncertainty of not knowing whether genetic influence or free will controls your wants and needs creates a complicated issue that informs much of the anxiety behind my manuscript. This is only one example, but the personal response to recent scientific discovery and the added use of several science-centered themes and metaphors, is what separates this manuscript from so much of the contemporary poetry that some critics argue does little to bridge the perceived gap between science and poetry.

CRONUS AND THE QUIET DEATH OF A UNIVERSE

Joey Crundwell

I Must Have Been Green

There are no memories
but I imagine there were
hands that guided me.
Hands that cradled me,
cleaned me of the blood and fluids of life,
lifted me to the light
that haloed the blurry figures
standing all around.
I couldn't have seen
but I must have felt the hands
and heard the muffle of speech,
and the sound of my own living.

I must have been like a seed sprouting
from its shell
to find itself among large, looming shadows
that block out the sun.
One day I'd grow to reach that light,
but at that moment I was small
and new,
without leaves or limbs
to reach up and out.

There are no memories
but I imagine I was inspected.
Passed from person to person,
given a name,
told that my eyes are from my mother,
who held me in her hands for the first time
and who, I imagine,
loved me.

Maternal-neonate Separation

Sometimes, she said,
she would just leave me in a corner
and let me cry
because she was sad and didn't want to deal.
She also says I was not a very fussy baby
and I very rarely cried.
I suppose I learn quickly.

Neuroplasticity

There are many memories
from when I was small, untouched, green
to the world, which would guide my growth,
twist my psyche as the earth does its own flesh, pressure
and heat to shape it, lessons for the spirits in my cells,
which would keep me from falling

from the brick wall, as I almost did when I was five. Falling
from the three stories I'd climbed, my memories
of Spider-man guiding me, and he sells
Silly Putty, shooting web on the green
package of the one I almost stole under pressure
of not getting what I wanted and lacking the growth

and maturity to take no for an answer. Growth
that might have kept me from falling
for Fiona Garcia in second grade, the pressure
of impressing her immense, though my memories
of Valentine's Day 1993 are mostly green,
fresh with the excitement that tickled my cells

when she got my secret gift, all the best Jewel-Osco sells
to a ten year old on a budget. Sometimes growth
comes hard, as it did when I fell fast from my neon green
Huffy, metal and concrete there to interrupt my falling
and breaking my bones. Lessons, memories
such as this, a result of the pressure

to make an impression, the pressure
to be noticed and never forgotten. My cells
collect the data and bend alleles, genetic memories
that lead, if you're lucky, to lasting growth.
I remember right field, a baseball falling
toward me, championship game. The green

grass was soft and springy, and I was green,
which is why I was in right and not left or center. The pressure

to win was insurmountable, but the falling
ball kept coming, sweat squeezed from strained cells,
and I ran forward, like an idiot, a growth
of guilt instantly spreading across my gut, memories

like the stretching, eager, green cells
of a plant, defying the pressure of gravity in its pursuit of growth,
leaves and seed eventually, unavoidably falling to the earth, like memories.

When did You Find God?

I

An odd errand to be running with me by your side.
You rarely made the time.
I didn't care much, though, or think of it until years later.
She worked with you. Dark skin, bright smile, narrow hips.
She needed your help to caulk a window.
You both thought that was funny and
I didn't know why.
You were always convinced we would break things,
because we were kids and that's what we do,
but you let me play with the caulking gun
while you and she went into the other room
to talk.
How does this gun even shoot?
I remember looking out her window,
white paint peeling from the frame,
but not what I saw outside.
You came back into the dull white room
and you both made a point to talk about the caulk again.
*Your father is a very nice man. Very sweet to come
over and help me with my window.*
I was probably proud, but now I wish I had been smarter than that.
You pretended to smile shyly,
you looked at each other, said some things
I don't remember. And then
Joe, she wants to buy your Nintendo and all your games.
I was surprised. I said I didn't know, I think.
I have a son and... something.
She'll give you \$75 for everything. That's a good deal.
What do you think?
I didn't know. I didn't want to,
but you both smiled at each other,
or was that earlier,
and you said it was a good deal
and I was so proud, maybe,
so I did it

and never saw a red cent.

II

When I die
don't let them bury me,
you said.
We don't know,
brains might still be alive after death
and you don't want to be buried alive,
staring at your eyelids
at darkness
forever.
You want to be cremated.
Burn you up to ashes.

III

My brief relationship with Christ
came after Father Karras flung himself
from Regan's bedroom window.
I was maybe 7.
I slept with a cross for a month
but grew tired of the silence.

I asked you once
if you believed in god.
You thought a little
and said that you never really thought about it
until one time
when you really needed money
for something really important
you said
and you just happened to check the pocket
of an old jacket
in the closet where I would later find
your magazines with the naked women
and you found twenty dollars
and that was when you knew
god was looking out for you
and, likely, your coke habit.

Barbarella

Something happened to me,
watching Jane Fonda float weightless
pulling off her spacesuit,
slow but deliberate.
She flashed slender hands,
then smooth legs,
shimmied her sandy hair free
from her helmet
and began to undo her suit.

I was ten
and only the time when I was five
and the nurse began to undress
in *A Nightmare on Elm Street 3*
and my mom told me to cover my eyes
and I peeked but not enough
do I recall such electric curiosity.

And excitement.
Slinking from the rest of her suit
the credits bounced and swayed,
hiding the parts I wanted to see
the parts that revved my heart
and heavied my lungs
and then,
reluctantly,
a flash of nipple
and that was all it took.

Grandpa Frank

The hospital hallways smell like
dead people, my cousin says,
medicine, says my aunt,
cleaner, my sister claims.
It smells like hospital hallway to me.
The nurse says we can join the rest of the family
inside the room,
and mom says it's okay to cry.
Everyone already is.
You can say your goodbye now,
they tell me, though I have no idea what that means.
I approach.
He smells like warm skin,
slightly baked, scrubbed with soap,
his mouth an O and tubes hanging at his side,
patchy hair, closed eyes,
liked a tattered doll,
slightly baked, scrubbed with soap.
I wait. I don't know how long I am supposed to stand here.
I wait,
then walk away. It's okay to cry, they say again.
Should I?
I was supposed to love him
because he is family and we always love family,
they say.
I don't remember love.
I remember Cubs games and corny jokes,
free rides in the limo he drove,
blurry blue forearm tattoo,
occasional rant about 'the niggers.'
I don't remember love.
But I cry.
Because I am supposed to.

Half in Love

Nick Carraway had his Fifth Avenue women, drifting in and out of his dreams, leggy, languid, unknowing ingénues, symbols of love and lust, to both extremes. My Fifth Avenue existed in high school hallways. Girls both familiar and not gliding past and entering into my life, feeding dreams of passion, love, the hot and sensual ether of teenage thought. Katie was, I thought, my first true love, though I had only spoken to her once, caught a few facts, learned all I needed to know. She was only the first in a long line of women that I wanted to make mine.

Lydia, my witchy goddess, was my first kiss, even if I turned away, red in the face and embarrassingly shy. A new school, a new crush. Kathy ended up prom queen, but I will most remember the Sleeping Beauty Valentine's Day card she gave me because it sparked an ember of hope (even if there was no regard for who got Ariel and who got Belle). Amy R. had that dark hair pale skin thing going on, and she was so smart and well-spoken. My psychiatrist said to bring her to a bookstore for coffee and I ended our visits rather than just try.

Melanie was a wisp of a girl, blue eyes and a rock n' roll heart. I once heard that I creeped her out. It may have been true, for all I know. Kimberly was demur and played the viola, though I was most taken by her sincerity and grace, even at such an age. And like a ghost,

Bonnie's nebulous eyes and flawless face followed me, making me wish for furtive glances or guts to even just approach her and say hi. I was more assertive with Jennifer Ever, though some reproach is deserved. I realized far too late that our walk to get smoothies was a date.

Olivia taught me how to make out, and she was inspiring. With teasing lips and a playful tongue, she settled the doubt that I might never taste lovely tulips. Though she could not convince me to commit, Amanda's barbelled tongue inspired teen lust and as my eager hands wandered, she bit my lip and chemicals in my head must have bloomed and burst. My fondness for Bekah was far less sexual, as her acting talent and quick intellect was extra alluring. My attempt at attracting her attention failed, and I was to find my prom invite was politely declined.

Amy C. and her faultless smile and sweet voice made my heart jump and my brain jumble, which logically explains my great defeat at asking her out, able to fumble out an *I like you* and that was the end. Sarah was another vain fantasy, the curvature of her body would rend me unable to avoid perverse glee at the visions that sprang up in my mind. But just as Nick's ladies smiled and faded into warm darkness, so too would I find the memories of these women fated to shudder and dissolve, leaving only the brightest of bits, stranded and lonely.

Phone Call from an Aunt

Caller ID flashes a number
unrecognizable

I answer with a newly aged voice
unrecognizable

to the woman

my mother's sister

on the other end

she has no idea

that I know she fucked my father

and she says

You sound just like him.

Pictures of beautiful women

are tacked on nearly every square inch

of my bedroom wall and ceiling.

Gwen Stefani, Nicole Kidman, Marilyn Monroe,

a girl from an ad for gel-pens.

They stare at me or pout away,

eyes tender ink stains.

It's crazy.

You sound just like him.

Climate Change

Most of the good bits were covered with gaudy dots or stars
 but there were still breasts,
 full, flat, pointed,
 clutched or licked,
 nipples of pink or brown,
 staring back at me,
 imploring me to call now or order fast.
 On some pages there were the vaguest hints of slits
 and who knows what lay beyond,
 but my imagination would run wild
 and open, prod, taste, explore.
 If only I could call now or order fast.

*This is bad, do you understand?
 It's wrong. It's gross and disgusting
 and you shouldn't be looking at it.
 You're too young. But even your dad
 shouldn't look at this stuff.
 Do you understand?
 And with a nicotine frown
 she tossed it out the car window,
 in front of a high school,
 where it would end up someone else's treasure.*

He handed me the unlabeled VHS tape
 and I ran home, eager and aroused
 at just the thought. I hid it in
 a Donkey Kong Country demo video case.
 A forest of pre-rendered trees camouflaged
 my newest prize. Jenny McCarthy
 danced for me, when I was alone
 and could fully appreciate her impossible
 curves and bust and almost everything,
 but not quite, being a Playboy production.

*Where did you get this?
 Don't you understand the damage this can do?*

You'll end up a pervert. Do you want that?

Do you want to end up a pervert

who no one likes

and who girls think is disgusting?

Donkey Kong, you failed me
and my prize was stolen away,
impossible curves and all.

But she couldn't toss the Internet out of a window
or wag it in front of my face,
and the bounty was plentiful.

Bouncy breasts with tiny pink nipples,
supple butts, gripped and worshipped,
lesbian tongues licking everything,
penises penetrating and being
tugged, sucked, and tucked
between tits sheened with sweat
and spit and later, semen,
and cum on faces, smiling,
framed by wavy red or blonde or brown
or pink or blue or short or long hair,
anal, group, fetish, animated,
sex, sex, sex.

Do you understand?

You Sound Just Like Him

Am I destined to become
the absent father
the adulterer
the drug addict, smooth talker,
the nicotine fiend who sues Big Tobacco
while sucking down smoke on his death bed.
The husband who sleeps with his wife's sisters
and co-workers
and employees.
Or will I let it happen to me
and forgive and forget
like it never fucking happened.
Will I be the uncle who has
one, two, too many
but I can drive I swear it.
Will I gather up all my selfish self-loathing and pity
and wear it like a loud, garish suit,
begging for everyone to see me,
to see how much I hurt.
Will I leave my baby in a corner.
Will I be the one to choose my life over theirs.
I will.
I will.
I will.

U.S.A.F.

With test results like that you
can do pretty much what you
want, the recruiter told me.

Computers were the future
and came with a nice signing
bonus, so I made my choice.

But first there were push-ups and
rifles and gassings and boot
shining and endless running.

I ran away from my life
but still cried on my first night,
wishing things were different.

Bahraini Woman

In the pre-deployment briefing,
they teach us about the climates
(actual, political, religious)
of the area that we're going to.
They tell us to avoid routines
(and thus, kidnappings)
and to not discuss religion or politics
(nobody wins)
and to stay away from the people who hate us
(but who are they?).

But the thing that sticks with me the most
the thing I remember them saying again and again:
Do not look at their women.
They are protective of their women.
Do not look at their women.
If you see a woman, don't make eye contact.
Don't speak with them.
If they approach you, act polite but don't engage.
If there is a man with them, speak to them first.
Do not flirt. Do not joke.
Do not look at their women.

On my very first day in Bahrain
my new coworkers bring me to a market.
That sounds very exotic
and you might imagine men in thobes
shouting from thatched stalls
but your memory would be better served by conjuring
a Sam's Club
with taller, unreachable, shelves.
I buy a Coca-Cola,
Arabic writing on the bottle,
and some chocolate.

As we leave,
Sgts Ricky and Rose walk ahead,
I see a woman in a jellabiya and hijab
emptying her cart into the trunk of her car.
Two children scramble into the back seat.
She struggles with some piece of furniture.

Excuse me, sir?

Do not look at their women.

Do not look at their women.

Sir? Excuse me?

I look at their women.

Could you help?

She nods at the large box.

The PowerPoint slides and computer-based quizzes

from my predeployment training

come to mind. I would help her

and men with AK-47s would pop out of hiding

push me in the trunk

and rush me off to be ransomed

or beheaded.

They would shout at me

and I should take note of my surroundings

and memorize turns

and focus on staying conscious.

I will probably be killed

but I should be vigilant.

Help will come.

I help her load the furniture into the car

and she thanks me profusely

and she has pretty eyes and a bright smile

and I walk away with a sense of

rebellious pleasure.

I looked at their women.

This Is Where I Run: Bahrain

This is where I run.
The days are dusty dry
and over a hundred with the sun.
So I run at night
when it is still muggy and somewhere in the mid-eighties
but there is no sun
and fewer people.
I run because I can.
Because I have weight to lose
and people to impress.
I jog to the base wall,
half a mile,
and I run sprints.
Six sets, 30 seconds.
My quads burn and I want to vomit
but I can handle it.
Then I run two miles around the base
and I think about how I might look
when all the weight is gone
and I am fit and trim.
For breakfast, I have a granola bar.
Lunch is a cup of grilled chicken soup
and a cup of applesauce or Nutri-grain bar.
Dinner is a low calorie microwavable meal.
Sometimes I allow myself a Hershey's bar with almonds
because it is the lowest calorie candy bar at the base exchange.
I run
and the weight comes off
and I run.

A White Goddess

You blister sulfur hot through my spirit
dropping tulips and bees,
never caring, only wandering here
then there, weaving and steeling yourself
for another blow, another bit of
passion or neglect, sun or shade.
You insist that you loved him
but we are mastered by chemicals unseen
and when you saw him they reacted,
whispered sensuously to your nerves,
no magic, no heavenly prod.
Ephemeral chemistry
which we rationalize
or reach for something logical
but the first principle is
that you must not fool yourself
and you are the easiest person to fool,
says Feynman,
made more frightening by the chemicals,
those god damned chemicals,
because how can you know?

Maybe it was really you, your firm
mind, completely in control,
choosing to love him of your own accord.
Was that how it happened?
Or did you feel it
somewhere unnamable,
sliding electric and overwhelming?
If so, my dear,
my wonderful girl,
it was the chemicals.

Yet I cannot claim I wouldn't have given it all
to be the focus of your passions,
manic fire, violent swings, and all.
I think I would have loved you,

or
at the very least
my chemicals might have reacted,
fooling me into thinking it all meant something.

Denise

Can I have some chips?

You were cute enough,
with the purple streaked hair
and eyebrow stud. Lip curves and pointed nose,
olived skin and strange French surname.
But you were a sophomore and I was a senior,
so our relationship was defined by sharing a lunch table
with mutual friends and

Can I have some chips?

I tried not to mind too much,
but I got \$1.50 for lunch,
so my two measly bags of Cheetos and can of Pepsi
were all I had on most days. Not much,
especially when sharing.

And it felt like I barely knew you.
A friend of a friend and, on good days,
an almost-crush.

I snapped at you that one day,
do you remember? Scolded you
for never bringing fifty cents for your own bag.

Can I have some chips?

And then you got the news
that your family was moving to California
over winter break. You came with a friend to our band practice,
and asked me for a ride home.

I can remember thinking

Can I have some chips?

that you always asked so much of me,
and who was I, but you were leaving.
In the car you said you didn't want to leave
and you were going to miss your friends
and when I pulled up outside your house
your lips curved sweet
and your eyes smiled in their own way,
but that was it. You were gone.

This echoed on through life,

me wondering at various points if it ever meant anything.
I would cast some lines
but I could never find you in the sea of social media.
A general search would eventually produce results
Can I have some chips?
but maybe I should have stopped looking.
The obituary itself was vague and unhelpful.
But comments from the guestbook
would confirm that this was the right girl,
the lip curves and pointed nose,
olive skin and strange French surname.
Later, I found something
that said it was a car accident. Nothing else.
I had no right to grieve.
You were just a girl who sat at my lunch table
and came to a band practice
and had pouty lips and a purple stud
in her brow, and
Can I have some chips?
a long wallet chain that swung from baggy jeans,
and those purple streaks in your short, shiny hair,
and a pointed nose that twitched when you talked,
and a snaggly tooth and crazy French name
and eyes that tried to tell me something, maybe.
And who was I?

Selenic Son

The Moon was once alive, you know.
Birthed by some celestial father who bumped the Earth
and spun off into blackness,
leaving behind enough silica and star stuff
to form a fevered offspring.
Heated from within by a magmatic heart,
heated from without by the impact of lesser heavenly bodies.
But it slowed and stilled and lost its heat,
becoming a lifeless stone
hanging in the sky.

When I was young I never looked to the night sky
to see an ancient, gaudy corpse,
scarred and hanging, motionless.
I never saw my mother; old and still,
heavily made-up, surrounded by white stargazers.
I never saw my grandfather,
mouth agape, tangled in tubes.
I never saw Denise; peaceful but pale,
stiff and resistant
to attempts at bringing color back to her face,
still young and somehow beautiful.
I never saw my father.

I see it now.
The Moon.
It used to be alive, you know.

The Train It Won't Stop Going

It's a dive bar, cluttered with fixed-gear hipsters,
thirsty for the latest craft. An acquired taste,
or, something to choke down until you can convince
yourself it's worth the cool points. I agree to some karaoke
and after someone's sloppy "Friends in Low Places"
and a rompy "Rebel Rebel"

I try my hand at some Jethro Tull
my father's old favorite, though I like them
on my own terms (I hope).
I feel good about my "Locomotive Breath,"
and when I finish, a stranger shakes my hand
and he says

You sound just like him.

There is a pretty girl at the bar,
plastic-rimmed glasses and a
Smashing Pumpkins t-shirt.
She glances at me,
eyes tender ink stains.

It's crazy.

You sound just like him.

A Metaphor

Newton said gravity was a pull,
an attraction between objects,
each rushing to meet another.
It's sort of sweet to think of the earth
loving us so much
it can't let us go.
But Einstein corrected this concept,
revealing that gravity is a push,
an oppressive force
created by a warping of space
in response to mass.
The fabric of space pushes against the earth's existence.
Pushes, crushes.
Condemns.

This Is Where I Run: Montgomery, AL

This is where I run.
Sticky hot, humid,
ninety degrees and with the sun.
It feels like I'm breathing sweat.
Alabama in August.
Green trees on either side,
stretching up, dappling me with shade.
It is hard.
I run because I have to. It is my job.
My brain is illogical, telling me something is wrong
I am going to die
I can't breath, my lungs won't fill with sweet air
my feet will fall off
or my shins will split
or something will happen
and I will die.
But I don't.
I run and I sweat
I breath and I sweat
and I run.

Allele 334

Two happy voles meet on the bank of a violent river,
a handsome and healthy male and a beautiful and fierce female.
We can make it across if we swim together, she says.
I would be more than honored, he replies.
And so they swim
and the river rages,
but when they are halfway across,
the male sees another female back on the shore
and lets go of the first.
What are you doing, she cries, we'll both drown.
I couldn't help it, he says, his lungs filling with fluid.
It's in my nature.

Even We, Even So

We humans
we love to elevate ourselves
above all the other animals
above prairie voles and penguins
leeches and lizards
because of our Eiffel Towers
and our Nighthawks,
Jurassic Parks, snow globes,
our Sgt. Peppers, our Bell Jars
and Birthday Letters,
Apollo landings and cell phones.
Our penchant for rationalizing
and communicating our fears
and fantasy
our dreams, confusions, prejudices.
But we are animals.
Prairie voles, penguins,
lizards and leeches.

Enlightenment

Prometheus brought us fire,
and it did more than heat our food
and warm our homes.
It blazed through our minds,
throwing light on shadowed secrets
and empowered us to know the world.
Copernicus and his spheres,
Lyell and his stone bones,
Darwin and his tortoises.
And we mourned their implications.
Donnes' coherence,
Tennyson's seeds,
Arnold's Sea of Faith.
And Free Will now burns
in the flames of subcellular influence.
Maybe he belongs on that mountain.

The Coriolis Effect

In sickness and health, for richer or poorer, 'til death do us part?
I do. Except that inside I know it's all wrong,
but what I plant in you will grow either way.
Grow and blossom and mimic everything

I do. Except that inside I know it's all wrong
and I should never have started down this path.
Grow and blossom and mimic everything,
like I did. I will love and hurt and leave,

and I should never have started down this path.
It will come out with your eyes, but It will lie
like I did. I will love and hurt and leave
and I will wonder how I ended up lonely.

It will come out with your eyes, but It will lie
awake and wonder what mine might look like,
and I will wonder how I ended up lonely.
I used to think I wanted It, and I lie

awake and wonder what mine might look like.
But what I plant in you will grow either way.
I used to think I wanted It, and I lie:
in sickness and health, for richer or poorer, 'til death do us part.

This Is Where I Run: DeKalb, IL

This is where I run.
Late in the night
on empty streets lined with lights,
settled between fields of corn or soy,
no one to watch but the smallest of frogs
and the biggest of toads,
a large barn owl that swoops from pole to pole,
a tiny, blind shrew that I tried to catch in my shoe,
geese that honk from nearby ponds,
a playful coyote that wanted a chunk of my calf,
skunks that run with upward flung tails,
and spiders, worms, caterpillars, beetles
and dramatic killdeer, overreacting as usual.

I run and I feel good,
I feel like I do in my dreams,
gliding over the pavement
swift and mercurial.
I run longer and farther,
faster and with less strain,
I lesson plan and practice presenting,
I draft and I dream,
and I run.

Life Among the Ruins

I was always too busy with History.
The parceling of Mesopotamia,
the Roman Empire sweeping
the known world
and being swatted back,
mile by mile.
The Great Wars
which weren't so great,
I suppose.

I was too busy to see the science
of life. The majesty
of the cell, and its story
of division, then revision,
then result: a seed
that can become anything.
A colony of green,
spread across miles of sea,
obeying the waves
and illuminating the night.
A root that defies the earth,
thrusting its way through stone
and slate, nestling itself
beyond the reach of soil
and sometimes sun.
Cooperative lichens,
one part fungus, one part algae.
A beautiful symbiosis
that allows them to survive
in the polar regions,
where light is scarce
and warmth is only a dream.

These things, these wondrous, green things
were there, providing the backdrop
for every history lesson I learned.
They were there before everything.
Walls and cities and swords and bombs.
Will they be there in the end?
Were they there, on Mars,

before the air bled into space
and the soil turned to icy dust?
Did they span its oceans?
Find and fill every crevice
on Olympus Mons?
Are they there now,
hiding in the ice,
where light is scarce
and warmth is only a dream?

Such Evil Dreams

At dusk, I see the sun setting,
or just spinning brightly in place
while we turn away to darkness.
I wonder if it feels itself
dying, bleeding light and getting

colder. Mars, a wandering child,
is dead already. The tender
green that may have swayed is replaced
by red. Dusty, dry red, devoid
of the life that might have grown wild,

like ours. But even we have our
ghost, drifting in darkness, running
from the sun. Our reminder that
even the divine son of two
worlds can burn, dim, quiet and scar

before dying. And if they can
do it, so can she. And she did.
I can only guess that she was
still young and somehow beautiful,
with a pierced eyebrow and a plan

to escape, just as you once had.
Something about you planted a
seed. I wrote you in moments of
desolation and you opened
like a flower in the star-clad

desert where I lay, trying to forget
the past. My father and his girls,
my mother and her crass absence,
my grandfather and history
lessons. Blurred, now, in silhouette,

soon to be lost. Is Nature fair?
I see her on my day of birth,
and see her raise me to the light,
and finding that of fifty seeds
she often brings but one to bear.

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