

## MODERN POETRY, MODERN SCIENCE –STRUCTURE, METAPHOR AND PHENOMENA

‘The remotest discoveries of the chemist, the botanist or mineralogist will be as proper objects of the poet’s art as any on which it can be employed, if the time should ever come when these things shall be familiar to us....’ Thus, in his preface to the second edition of *Lyrical Ballads* William Wordsworth grandly acknowledged that the aim and attitude of both the scientist and the poet in those days was keen observation of the natural world. But, as the Romantic warned in *The Tables Turned*, ‘we murder to dissect’. Keats, though trained in medicine, believed Newton had destroyed the poetry of the rainbow by reducing the arc to prismatic. Emily Dickinson too, though well educated in the natural sciences, abhorred reductivity:

‘Split the Lark – and you’ll find the music –  
Bulb after Bulb, in Silver rolled--....  
Scarlet experiment! Sceptic Thomas!  
Now, do you doubt that your Bird was true?’

She could have been describing how the seat of the soul is being uncovered by MRI!

To echo Wordsworth’s sonnet, science is too much with us these days, explaining and reducing, to be ignored by poets. Sordid boon or no, the poet is in haste to catch up with the latest eye-popping findings: how the universe began exactly 13.73 billion years ago, the origins (and evolution) of life on earth 3.8 billion years ago from elements cooked in the stars, the workings of consciousness in real time and, eventually, discovery of sex and death on other planets. Deep science, as I call it, demanding deep poetry. Several books over the past decade are devoted to such exploration: I have on my desk a philosopher’s extended disquisition on science and poetry (Mary Midgley’s *Science and Poetry*); two books of essays by poets and scientists discussing the connections (Kurt Brown, ed. *The Measured Word* and Robert Crawford, ed. *Contemporary Poetry and Contemporary Science*); and an anthology of 174 poems about science and mathematics (Kurt Brown, ed. *Verse & Universe*). As a taste of what our current poets are up to, here are some titles from the anthology: ‘He 2-104: A True Planetary Nebula in the Making’, ‘The Voice of the Precambrian Sea’, ‘The New Cosmology’, ‘The Anthropic Cosmological Principle’, and ‘Boolean Algebra:  $X^2 = X$ ’.

There may have been some prelapsarian time when poets and scientists lay down together – Coleridge working with Humphry Davy, for instance. But soon science became too arcane, too disrespecting of the flights of poesy. E.A. Poe:

‘Why preyest thou thus upon the poet’s heart,  
Vulture, whose wings are full of dull realities?’ (*To Science*)

The divide became a chasm by the time C.P. Snow wrote his manifesto on two cultures. If poets are chasing science, scientists aren’t yet responding, much. I know of only one world-class laboratory scientist who was also a world-class poet, Miroslav Holub, an immunologist. There’s also the Nobel Prize chemist Roald Hoffmann who cooks up pretty good verse. In the journal *Science* a scientist reviewed John Felsteiner’s recent anthology, ‘Can Poetry Save the Earth? A Field Guide to Nature

Poems’, and concluded snidely ‘If poetry were going to save the Earth, wouldn’t it have done so by now?’ Crawford’s edited book of essays included several eminent scientists commenting in prose on counterpart poets’ poetry, and on their face-to-face meetings. The tenor of the comments was exemplified by Eric Priest recounting his meeting with poet John Glenday: ‘I described what it was like for me to go about making scientific discoveries, and he did the same for constructing poems. It was amazing to find how close the two activities are’.

Well, yes, close in some respects. Intuition is necessary to both poet and scientist: both employ metaphor to gain surprising insight (Archimedes in the bath, Newton’s falling apple, Watson and Crick intuiting DNA’s double helix from Rosalind Franklin’s x-ray crystallographic plates). Poetry is as much about seeking solutions to structural and metric problems as any research project; and scientists and poets both eat and sleep near their physical and mental laboratory benches.

But no, not at depth. Deep science is about precision: precise mathematics and precise measurement – theoretical physicists building the physical field through mathematics, experimentalists trying to give observable, i.e., measurable authority to their equations. Any attempt to put the results into every day words is a pallid failure, though explain the scientist must, even to assuage one’s own sense of mental turmoil. What does it mean to say that ‘string theory’ works mathematically by positing eleven dimensions so small and wrapped up that no four-dimensional creature can envisage then? How does one atomic particle ‘know’ what property it *should* reveal when its twin is first measured some kilometers away. How is it that small particles can exist in two different places or states at once? Indeed, Holub commented that for the sciences, ‘words are an auxiliary tool’ (his own poetry seamlessly uses scientific terms because they were part of his deeply learned vocabulary). A poem is only made from words, with all their limitations of expression, and depends on sound and rhythm to entrain the reader’s brain resonances, depends even on imprecision to create an emotional field. As American poet Frank Bidart noted in a recent interview (The Wolf, Fall 2009), ‘On the one hand [the poem is] all made out of words, and words are crucial – if you don’t find the words you don’t have the poem. At the same time, the words are about things that are not words.’

Some poets have written poems using words that sound like they’ve just read the latest Scientific American, slipping in the key sciency terms like ‘dark matter’ ‘quarks’, ‘black hole’, and, of course, ‘big bang.’ As metaphors I suppose they suit, but like ‘chemo’ in cancer poems they become quite stale.

We come now to the great divide in poetry: structured versus unstructured, plain as day poetry versus poetry intentionally of no meaning (called here, for convenience, ‘language’ poetry). The same divides are found in other arts – Mozart versus John Cage, Hopper versus Pollock, Duke Ellington (‘If it sounds good, it IS good’) versus recent Larry Ochs. For the language poets science is like catmint. In Kurt Brown’s edited book of essay, poet Alice Fulton drew on theories of fractals and chaos to justify ‘fractal poetry’, dispensing with fidelity to the ‘normal’ by the use of chaotic lines on the page, much white space, odd line breaks, disjointed images and syntax, and so on, to generate another kind of order. ‘As free verse broke the pentameter, fractal verse breaks the poem plane’; ‘radical artifice’, she called it, noting that Emily Dickinson may have been the first ‘fractal poet.’ (Pollock’s drip paintings are thought

to reveal repeating fractals.) But Bidart wisely continued his insight by saying, ‘The idea that it’s only words does not account for the power I feel from all the works of art I really love.’ As Marc Chagall said of painting, ‘There are no laws, only chemistry.’”

There is one difficulty I find with ‘radical artifice’ and that is how one judges whether it’s any good or not. A computer can also turn out random language in chaotic structures. Don Paterson pointed out that computer-generated poetry appears ‘poetic’ because of our brain’s intense desire to impose structure even where none exists (Poetry Review, Fall 2007), and the same may be true of ‘language’ poetry. Samuel Beckett’s quasi-poetic prose paragraphs in ‘Lessness’ were generated and built from randomly written and ordered sentences, begging us to see meaning in them. The matter of fact is, however, that so-called chaos actually reveals deep and even predictable patterns of form, beautiful form, self-organizing form. As Wallace Stevens presciently wrote in *Connoisseur of Chaos*: ‘A great disorder is an order.’

The universe is full of beautiful form. Einstein insisted that theory and its mathematics must be ‘beautiful.’ Elegant. Consider how Pi shows up in seemingly unrelated equations of physics; or how the Fibonacci number sequence manifests in so many natural forms (petals, leaves, beehives, our hand bone joints, etc.). Consider the golden ratio known to ancients, or the physicist’s fine-structure constant that expresses with a single number how everything is held together electromagnetically, such that were the number any larger or smaller, we wouldn’t exist. We may insist that poetry show the same predilection.

Science and poetry are yet to unite. Perhaps it will come when we accept there are phenomena that can never be explained, but which poetry can and must explore. First, has that millimicroscopic dense, hot substance that became the Big Bang ‘always’ existed as a quantum fluctuation potential? Has something like our universe happened before, in a time we can never know, in a space we can never access? Singular or not, if ‘something’ has the potential to come from another ‘something’, we have to accept the notion of infinity, which by definition is inexplicable. As physicist Steven Weinberg wrote, ‘The more the universe seems comprehensible, the more it also seems pointless.’ (Ah, the stuff of poetry).

Second, at the sub-atomic level, particles behave so strangely as to make physicists scratch their heads and speak of ‘quantum weirdness’. The particles’ behaviors can be observed, measured, described mathematically and put to daily use in practical applications such as mobile phones and computers. What is ‘weird’ is that we can’t explain what’s going on using everyday words or common sense. From our constricted and macroscopic four-dimensional view of matter, we may not realize that the whole of the universe is interconnected in some kind of unitary web, the true reality of which we see only a fraction. At the beginning of the universe, all energy, space and time were in fact blended, like cream agitating into pea soup. Perhaps this is the way the universe still works at its fundamental level. The universe, and ourselves, as ‘mere manifestation of frequency rates’, as Don Paterson put it (Poetry Review, Summer 2007); a quantum dance of energetic, massless particles.

The third phenomenon defying explanation is self-consciousness: the ‘I’ that exists uniquely but temporarily within a shell I call my body. Before I was born and after I

die, no such existence. Worse: we take only on faith that, when absent, others do now and have previously existed. The Eastern religions suggest a way out of the conundrum: we are part of a great web of existence, selfness being but an illusion. This explanation may suggest that something like a soul exists (would any other combination of egg and sperm have produced the same 'me'?), perhaps not the easy notion of one soul per person, but one Great Soul dividing itself into identical parts, interconnected, capable of instantaneous transmission across infinite space; in other words, we are ourselves are 'quantum weirdness.' But for some fluctuation potential, *we do not exist*. Wallace Stevens captured the puzzle perfectly in his signal poem, *The Snowman*, published in 1923, anticipating the physicists' debates that gave birth to quantum theory:

One must have a mind of winter  
To regard the frost and the boughs  
Of the pine-trees crusted with snow;

And have been cold a long time  
To behold the junipers shagged with ice,  
The spruces rough in the distant glitter

Of the January sun; and not to think  
Of any misery in the sound of the wind,  
In the sound of a few leaves,

Which is the sound of the land  
Full of the same wind  
That is blowing in the same bare place

For the listener, who listens in the snow,  
And, nothing himself, beholds  
Nothing that is not there and the nothing that is.

Sebastian Barker said it well (Acumen, September 2009): "Art is what happens when science gets to the end of its road."

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