

MR. ELIOT'S GUIDE TO QUANTUM THEORY

April is the fooliest month.

John Lowell

Last year was the centenary of T. S. Eliot, perhaps the most influential of 20th-century poets writing in English. That Eliot pursued careers in publishing and banking in addition to his literary work is widely known, but many of his readers will be astonished to learn of the discovery last year of manuscripts that suggest he might at one time have been a student of physics. Published here for the first time, the poems are strongly influenced by the quantum theory that was growing vigorously when Eliot was a young man. They exhibit unmistakable echoes of "The Waste Land," "Four Quartets" and *Old Possum's Book of Practical Cats*. (They also show remarkable physical prescience: Several of the ideas hinted at postdate Eliot's death in 1965.)

The Waste Lecture

Momentum is not well defined, being
Canonical to place, failing
To commute exactly, leaving
Necessary doubt.
Newton spoke firmly, writing
Definitive equations, moving
His particles on clean trajectories.

And when we were pupils, studying the rudiments,
How confident we were, precisely calculating
 x and p (not one but both!) with such abandon.
But at the university our teachers—
Murmuring of commutation—frown, and flunk us.
We read, much of the night, but are none the wiser.

*(Rayleigh, Jeans
Had not the means,
Einstein didn't want 'em;
It took Niels Bohr
And several more
To figure out the quantum.)*

Ultraviolet catastrophe
Came on us unaware;
Came up the Strand
To Carlton Terrace, down the stair
At Piccadilly Underground, where I, Max Planck,
Am wont to play an anharmonic air
Upon my violin, so marvellously tuned
To modes of hydrogenic unison.

But where are the short-wave rays that fail to light
The incandescent blackness? I have found
Degrees of freedom powerlessly bound
In chains of integer constraint,
And atoms, governed by the selfsame laws
Quiescent, in a cold ground state.



And when the spectrum slides
Beyond the violet end,
Touched by the last dim rays
The silver surface spits electrons and displays
The undivided energy of light!
(O James Clerk Maxwell I can sometimes see
A wave, like you, sometimes a particle like me
—Can both of us be right?)

And I Max Planck,
Old man of schizophrenic views,
Have brought you more
And even stranger news,
A prettier pebble:

P. Dirac, the well-known theorist
Renormalises constants and is known to be
A dab hand when it comes to conjugating charge,
Reversing time or violating parity.
This sea, he said, is full of latent holes,
And each a replica
(Apart from certain signs)
Of that which empties it.

But on the other hand it's

*Quark, quark, I'm in the dark
I think I'll never see
Why some have two with coloured glue
And baryons have three.*

John Lowell is a senior lecturer in physics at the University of Manchester Institute of Science and Technology, UK. His research interests include solid-state physics, especially the origins of static electricity, of which cat's fur is a classic source—hence his interest in Eliot's "practical cats."

What the Photons Said

We can point up, or just as easily point sideways,
Or up and sideways both at once
(Providing we contrive to circumvent
The forced decisions of your solar spectacles).
And pointing up, and at the same time sideways,
Is tantamount to pointing in a circle.
We can then point clockwise. On the other hand
We can as easily point widdershins.
Or both of these together, which of course
Is tantamount to pointing up, or sideways.

Essence of existence, tenuously filling
Insubstantial peaks of polynomials;

Psi
Psistar;

What can we do?
To move from one place
We must leave the place we occupied before.
And the former place will then be empty.
And the strange doctrine of our omnipresence
Is not to be found in the pages of *Principia*
Nor clarified in fits of easy reflection

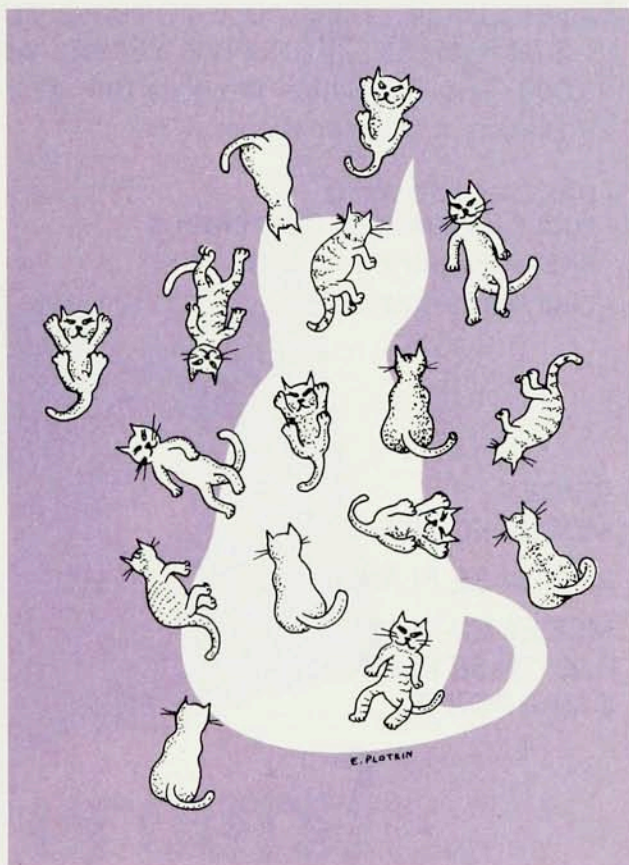
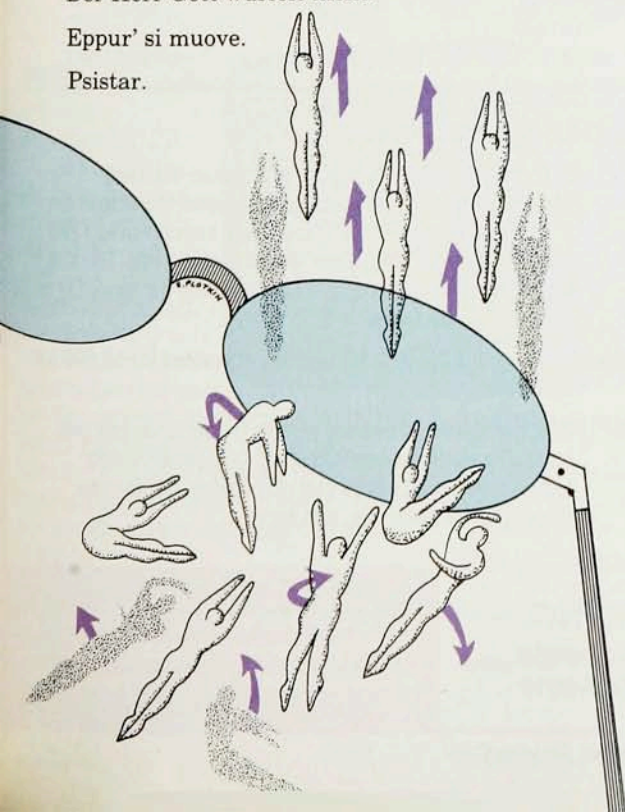
(I know not what
I may appear to the world).

We are poured out like water
Seeking temporary form
In a momentary observation.

Der Herr Gott würfelt nicht.

Eppur' si muove.

Psistar.



From Old Possum's Book of Quantum Vivisection

Schrödinger's cat's a mystery cat, he illustrates the laws;
The complicated things he does have no apparent cause;
He baffles the determinist, and drives him to despair
For when they try to pin him down—the quantum cat's not
there!

Schrödinger's cat's a mystery cat, he's given to random
decisions;
His mass is slightly altered by a cloud of virtual kittens;
The vacuum fluctuations print his traces in the air
But if you try to find him, the quantum cat's not there!

Schrödinger's cat's a mystery cat, he's very small and
light,
And if you try to pen him in, he tunnels out of sight;
So when the cruel scientist confined him in a box
With poison-capsules, triggered by bizarre atomic clocks,
He wasn't alive, he wasn't dead, or half of each: I swear
That when they fixed his eigenstate—he simply wasn't
there!