

SCIENCE AND POETRY

How did the scientific experiments of Robert Millikan and Ernest Rutherford and their discoveries of the nucleus and electrons change the ideas about the structure of the atom and influence poetry? Robert Frost's poems, "A Wish to Comply", "Version", and "The Secret Sits" teach science students about atomic theory.

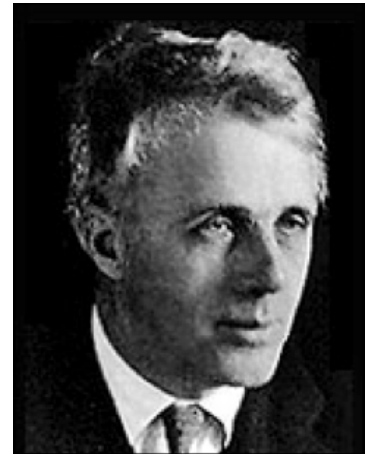
ROBERT FROST

Robert Frost (1874-1963) has for decades been widely regarded as one of America's premier poets. Frost is an artist who had an interest in nature that ran far deeper than images of the bucolic countryside, who kept abreast of the science of his day (his favorite magazine was *Scientific American*), and who found poetic expression for the exciting and provocative concepts concerning atoms and the proper language to describe their behavior.

A Wish to Comply

Frost's poem "A Wish to Comply" (1949) alludes to a well-known physicist (R. Millikan) and introduces readers to the epistemology and intellectual spirit of quantum physics.

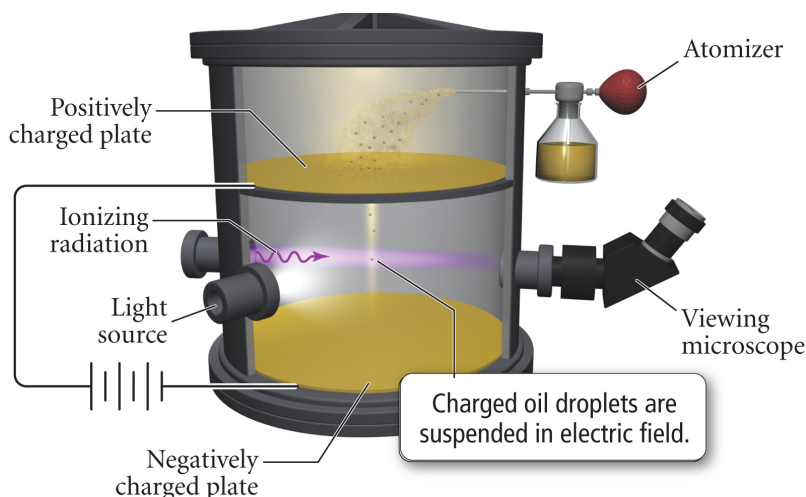
Watch Tyler DeWitt's video, [Charge of an Electron: Millikan's Oil Drop Experiment](#) (The year was 1913) and then, read the poem below and answer the following questions:



1. Who do you think is the speaker?
2. What is he referring to by the "Millikan mote" (line 2) and the "it" (line 1)?
3. In this poem Frost is alluding to the nature of knowledge in science. More specifically to the role played by bias in scientific discoveries. What lines of the poem present a concrete image of the thin line between the observed and the observer?
4. How is bias presented in the poem as related to the poems' title?
5. In your opinion is bias a good thing or a bad thing in Science? Defend your answer.

A WISH TO COMPLY

Did I see it go by,
That Millikan mote?
Well, I said that I did.
I made a good try.
But I'm no one to quote.
If I have a defect
It's a wish to comply
And see as I'm bid.
I rather suspect
All I saw was the lid
Going over my eye.
I honestly think
All I saw was a wink.



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Version

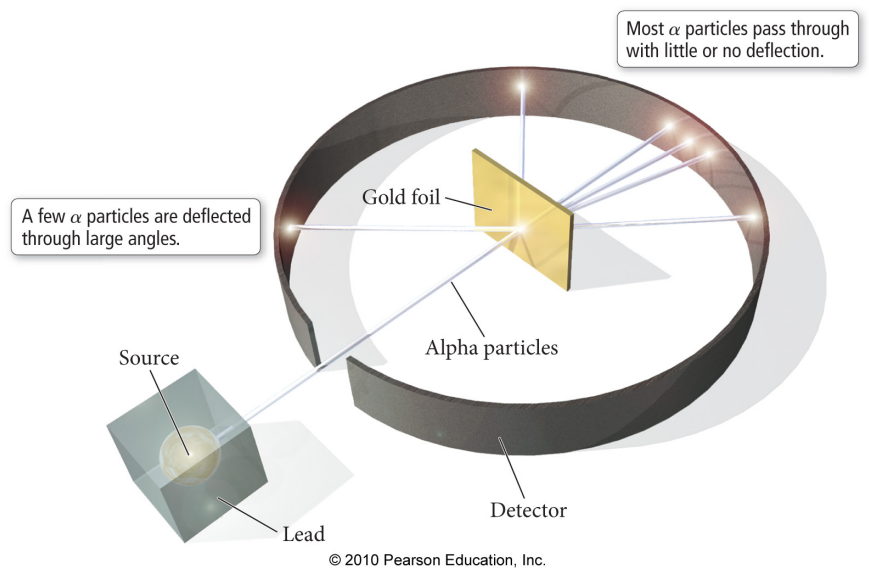
The poem entitled "Version" (1962) is Frost's seemingly whimsical ode to the discovery of the nuclear atom by Ernest Rutherford and his assistants Geiger and Marsden, an event of surpassing significance because it thoroughly revised our conception of matter.

Watch Tyler Witt's, Discovery of the Nucleus: Rutherford's Gold Foil Experiment (The year was 1911) and then, read the poem below and answer the following questions:

VERSION

Once there was an Archer,
And there was a minute
When He shot a shaft
On a New Departure.
Then He must have laughed:
Comedy was in it.
For the game He hunted
Was the non-existence
Of the Phoenix pullet
(The *Mηού* [not being] of Plato),
And the shaft got blunted
On her non-resistance,
Like a dum-dum bullet
Did in fact get splattered
Like a ripe tomato.
That's how matter mattered.

Rutherford's Gold Foil Experiment



6. How is Rutherford portrayed in the poem?
7. What does the "shaft" (line 3) represent?
8. What does Frost mean by The "New Departure" (line 4)
9. Why is the term "non-resistance" (line 12) ironic?
10. By ways of an unusual metaphor Frost tells us that the atom loses its virginity. How is this illustrated in the poem i.e. what are the elements used in the metaphor?
11. More than that, perhaps, science itself loses its virginity. Using the information gathered in this activity (from the Greeks to Rutherford's findings) to write a conclusion about this statement.

The Secret Sits

We dance round in a ring and suppose,
But the Secret sits in the middle and knows.

Written by Robert Frost in 1942. This is a couplet (two lines of poetry). What is your interpretation of this poem?

Adapted from the following website:

<http://physicsquest.homestead.com/poetry.html>