

# SCIENCE

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## THE TREND OF THOUGHT IN PHYSICS<sup>1</sup>

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THE retiring vice-president for Section B is in the position of an electron who two years ago was hurled from his normal state of repose into a new orbit in which, according to true classical laws, he does nothing, and is not expected to do anything, but from which he is not allowed to return without emitting his quantum. And so, I appear before you to-day to emit my quantum in the form of an address. I am not unmindful of the fact that the emission of quanta takes place according to laws which are restricted by no precedent, so, on this occasion, I feel free to wander as I please in the realms of speculation.

From the quietude of a quarter of a century ago, when it appeared to many that physics had exhausted itself and all that was worth discovering had been discovered, and when would-be Ph.D.'s went about like roaring lions seeking something to measure and finding nothing but the density of a gas or the viscosity of a solid, from a state where the line of demarcation between what we could hope to probe further and what was apparently beyond our reach forever was so sharp, from a state where the mechanism of what was known was so very clear and the mechanism of what was unknown was so very obscure, we have, in a few short years, evolved a situation in which nothing is very clear and nothing is very obscure, but in which we have found courage to peer into the innermost shrines of nature with a hope of comprehension of what we may there find. And what have we found? We have found as part of the same mechanism phenomena which take place according to our most primitive and naïve conceptions and phenomena which appear to violate some of our most cherished ideas as to how we think nature ought to work. We might have been serenely happy in a state of mind where electrodynamics remained untouched, and it was necessary to appeal to the occult to explain the atom; but, when the atom draws upon electrodynamics just sufficient to spoil it and yet leave us bound to it, we may be excused for a feeling of confusion and for a tendency to join in the cynicism of the wag who said that atomic theory is classical

<sup>1</sup> Address of the retiring vice-president and chairman of Section B—Physics—American Association for the Advancement of Science, Washington, December 30, 1924.

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