

Beyond Weird: Why Everything You Thought You Knew about Quantum Physics Is Different

Philip Ball

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If so great a physicist as Richard Feynman once claimed that “nobody understands quantum mechanics,” what hope do we laypeople have? Luckily, Philip Ball, a freelance writer (formerly of *Nature* magazine) who has published widely on the history of science, tackles the subject in a user-friendly yet thorough introduction, *Beyond Weird*.

Ball starts by acknowledging that it can be awfully hard to get our heads around the notions at the heart of quantum physics. It’s “one of the most obscure and difficult subjects in all of science,” yes, and can be “beguiling [and] maddening,” but it also sparks creativity by encouraging us to rethink our usual assumptions. After all, the common interpretations of aspects of quantum theory—things like wave–particle duality, superposition, the uncertainty principle, and the many-worlds interpretation—are often misleading, Ball reveals. To discover what such concepts really mean requires an open mind and a fertile imagination.

The book charts the genesis of quantum theory through profiles of the often eccentric scientists behind it, such as Albert Einstein and Erwin Schrödinger. Physics benefits from a terrific cast of characters, and storytelling and metaphors (“this isn’t really how things are, but just a manner of speaking”) are as much a part of Ball’s explanations as hard science is.

He also asks lots of questions, including rhetorical ones, and uses words like “we” and “let’s” to turn readers into collaborators. The tone is reassuring; he never talks down to nonscientists. Instead, he invites them to join in exploring this “new and unfamiliar logic” in which what we understand and how we measure something has an effect on what we observe. Replacing “obscure terminology” with accessible ideas and drawings, Ball makes would-be physicists of us all.

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