

REVIEWS

In Search of Schrödinger's Cat, by John Gribbin (Wildwood House), 1984. Pp. 303, $8\frac{3}{4} \times 5\frac{1}{2}$ inches. Price £12.55.

Users of quantum mechanics are wont to forget just how very bizarre some of the implications of quantum mechanics really are to our everyday sensibilities. And just as people can survive (and even do astronomy) under quite appalling physical or psychological conditions, so quantum physicists learn to live quite happily with their particular corner of the world of quantum physics without feeling disconcerted by the strangeness of some of its consequences. Indeed, there is nothing new about this; scientists have often used powerful but exceedingly disconcerting new theories without having come to terms with their larger implications. Quantum physicists, like their predecessors, do this by getting on with the job at hand with the best and most useful tools around without arguing about the nature of causality, reality, or the philosophical and metaphysical implications of quantum physics. Once past undergraduate courses, one easily forgets the overall picture of quantum physics amongst the details of specialization and the minutiae of today's problems. The problematic nature of the two-slit experiment or the Uncertainty Principle may only be a vague memory. . . . So how do you reply to the dinnertime question about the very, very strange nature of quantum physics?

Gribbin's book, subtitled "The Startling World of Quantum Physics Explained" is a reasonable place to start, either to refresh the memory or as somewhere to send your questioner. "Explained" is a perhaps a dangerous word because *explaining* quantum mechanics, rather than *describing* it, is something that has not yet really been done satisfactorily—and that is one of the things that Gribbin stresses.

The author is an astrophysicist turned science journalist and science fiction writer, and this shows—both to the book's advantage and disadvantage. The book is unashamedly a low-level popularization, by and large it makes little pretence to anything else, and for its *genre* is mostly sound. It is readable, and technically competent for the most part, telling the standard story in a way that would get the educated lay reader quite far before nasties like Feynman diagrams, renormalization and gauge theories begin to appear, and it is written in a prose style that is never condescending or glib.

Like many more-or-less popularizing books about modern physics, it takes a historical approach, telling the story of the development of quantum mechanics from various late-19th-century problems to the 'full' quantum theory of Dirac, Heisenberg and Schrödinger in the mid-20s. It then describes some of its applications (particle physics and astrophysics, lasers, microchips, molecular biochemistry) and some of the more paradoxical or strange consequences of the theory. The story up to the old quantum theory and the Bohr atom (that is, before 1926) occupies the first of the three sections of the book, and while the story is perfectly standard, Gribbin does manage to convey something of the delicious confusion and angst of the physicists. He does fall into the trap of only telling the parts of the story that lead to the right answer, as if there were some inexorable direction and underlying logic leading to a slow-but-sure sorting out of the problems. And he does drop some awful clangers, like "Newton invented physics", or that "Bohr's model of the atom put chemistry on to a scientific footing". (It is one thing to notice what a powerful tool quantum mechanics has been for chemistry, another to deny that pre-quantum chemistry was *science*.)