

BOOKS

The Feynman Lectures on Physics, Richard P. Feynman, Robert B. Leighton, and Matthew Sands, Addison-Wesley, Reading, Mass. Volumes I, II (1964); Volume III (1965).

These lectures were given in 1961-1963 at California Institute of Technology by the eminent physicist, Richard P. Feynman, and were transcribed and worked up in book form by Professors Leighton and Sands.

The lectures are informal and yet well organized and accurate. Their spontaneity makes for pleasant reading, and the contagious enthusiasm of the lecturer radiates from every page. Professor Feynman has done an excellent job of sharing with his audience his almost boyish sense of delight in the discovery of the workings of Nature. And, in contrast to most textbook authors, he has taken great pains to indicate the frontiers of his field, to pin point the unsolved problems, and to summarize the shortcomings of current theories or techniques. He also occasionally digresses into subjects bordering on philosophy and religion.

The lectures are well balanced. In addition to the very modern subject material one finds novel and worthwhile treatments of a number of classical fields such as fluid dynamics, elasticity, optics, sound, and thermodynamics.

Although the mathematical level of the text is rather high, Feynman is quite careful to point out the distinction between mathematics and physics and in a small digression on the subject he states: "Mathematicians are often led astray when 'studying' physics because they lose sight of the physics." Throughout the lectures, Feynman is careful to emphasize the physical interpretation of the equations. In one of the chapters on fluid mechanics, he discusses in some detail the four flow regimes for tangential flow between rotating cylinders and emphasizes that, although we have every reason to believe that these regimes must be described by the Navier-Stokes equations, we do not have the mathematical power to perform the complete analysis. He concludes: "That we have written an equation does not remove from the flow of fluids its charm or mystery or its surprise."

R. B. BIRD
UNIVERSITY OF WISCONSIN

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