

FEYNMAN'S RAINBOW

LEONARD MLODINOW

Mark compared our theory to the usual theory and called one night to report that they didn't agree. I looked up the fifteen-year-old paper in which the old theory was first presented, and sure enough, our results, though similar, had a major conflict. Obviously, one or the other of the theories was wrong, and we figured it was us. Somewhere we had either made a mathematical error or made an assumption that that was not justified. I figured finding it would be a great problem to discuss with Feynman.

Feynman grasped the idea behind our theory immediately, proving to me that there indeed was no problem in the world of physics into which he couldn't provide the greatest insight. In fact, in the next half hour he provided me with more insight into it than I had had in the two months I had been thinking about it. I should have been discouraged by the ease with which he surpassed my own thinking, but instead I was excited because he liked our idea.

Then I told him about the conflict with the other theory.

"Do you understand their theory?" he said.

"I read the paper. I followed most of it."

"Followed it? Just because you are following someone doesn't mean you are going down the correct path. When you can derive it yourself," he said, "then you understand it. And maybe you can believe it." After a moment he added, "Of course, you might find that it is bullshit. I suspect it is, because it looks to me like you did everything correctly."

"But the theory has been around for fifteen years," I said.

"Okay," he said. "So not only is it bullshit, it is old bullshit."