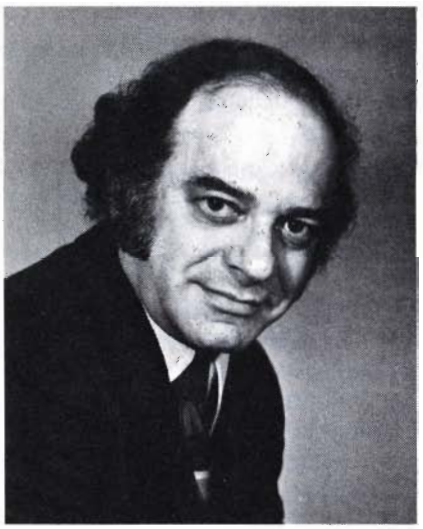
Robert Resnick: Oersted Medalist for 1974

E. Leonard Jossem
Chairman
AAPT Committee on Awards
(Delivered 30 January 1975)

Remarks by the Chairman of the Committee on Awards in presenting Robert Resnick the award of the 1974 Oersted Medal in recognition of his notable contributions to the teaching of physics.



It is a well documented phenomenon of undergraduate behavior that students tend to remember their textbooks by the color of the cover rather than by the title or by the name of the author. But if the book in question is a text in introductory physics and if the color of the cover is purple, it is almost a sure bet that what the student was using had the title *Physics* and that the authors were Halliday and Resnick. Few books in the last two decades have left their imprint on the teaching of physics as strongly as has this one. This text, which because of its purple cover is known to its authors and publishers as "The Great Eggplant," has been translated into Arabic, Chinese, Dutch, French, Hindi, Italian, Japanese, Pakistani, Polish, Portuguese, Romanian, Russian, Spanish, and Telugi. It is estimated that it and its shorter version, *Fundamentals of Physics* (bound in orange and so known as "The Great Pumpkin"), have been used by something of the order of two million students. Robert Resnick has to his credit also several other physics texts: *Introduction to Special Relativity,* which is published also in German, Italian, Portuguese and Spanish editions; *Basic Concepts in Relativity and Early Quantum Theory;* and most recently *Quantum Physics of Atoms, Molecules, Solids, Nuclei and Particles,* co-authored with Robert Eisberg.

But it is not only as the author of widely used and respected texts that Robert Resnick has made important contributions to the teaching of physics. Over the years he has used his energies and talents in the service of a number of national projects on physics instruction. For example, he was for eight years an active member of the Commission on College Physics. He was strongly influential in the establishment of the PSNS project and a major contributor to its direction and guidance. He was a consultant to Harvard Project Physics and a contributor to the Project Physics materials. He served as co-director of the AAPT project which prepared the two-volume work on physics demonstration experiments and was himself a contributor to it. Those who have known and worked with him on these projects are high in their praise of the qualities of mind and spirit that he has brought to them, of his breadth and depth of knowledge of physics, his insight into the difficulties that students have in comprehending and assimilating certain concepts in physics, and his willingness to give unstintingly of himself to insure clarity, precision, and overall quality in the work.

Robert Resnick's interest in the teaching of physics began early in his career. After receiving his Ph.D. from the Johns Hopkins University in theoretical nuclear physics in 1949 he took a position at the University of Pittsburgh. Although a theorist, he concerned himself strongly with the student laboratories in the introductory courses and wrote a laboratory manual published by the University of Pittsburgh Press. His interest in physics teaching and his efforts to improve it were recognized while he was at Pittsburgh by an Esso Foundation Award for "outstanding teaching and general merit" and by his being elected President of the Western Pennsylvania Section of the AAPT. In 1956 he moved to RPI and soon became chairman of that institution's High School Lecture Series and director of the pilot program for the revision of general physics courses there. In 1967 his contributions to the teaching of physics through his texts and other ways earned him a Distinguished Service Citation from the AAPT. RPI recognized his contributions to its own development through the establishment of a very effective research group in physics education there and in other ways by conferring upon him its Distinguished Faculty Award in 1971.

On the personal side Robert Resnick is well known for the thoughtfulness, consideration, and helpfulness that goes into his interactions with others, and for his integrity, his wisdom, and his sense of humor. He is an inveterate collector of limericks and has a tremendous collection of them, many of them printable. I am told that on one occasion in an all night session he bested a whole fraternity of RPI students by supplying the rest of any limerick to which he was given the first line. I have myself seen one of his examinations in which the questions were limericks about physics to which the student was required to supply the last line.

It seems not inappropriate therefore to depart somewhat from formal precedent and to conclude with a limerick which I believe not even Robert Resnick has heard before.

For advancing the cause of good teaching
With his contributions far reaching
Robert Resnick's the name
We now honor the same
With the Oersted Medal for Teaching.

STYLES OF RESEARCH

. . . [Fermi's] pragmatic approach to soluble problems which would lead to a reasonably quick "pay-off" differed fundamentally from the method in some other centres. For example, Chadwick testified to the fact that he looked for neutrons on and off for a period of about 12 years after joining Rutherford in 1920. The research grant of the Cavendish being about 2000 pounds a year for all the work which had to be supported, Chadwick felt that he could not obtain or afford the necessary equipment for trying out certain of his ideas. He persisted, nevertheless, as best he could. In recounting the abortive experiments, he rather proudly added, "I wasted my time—but no money." Lengthy investigations with admittedly inadequate apparatus would have been much less likely in a laboratory run along the lines of the Italian group.

Another style which Fermi's group eschewed was that associated with Niels Bohr, who in many ways was completely different from Fermi, and who in turn tended to regard Fermi's solution as too simple to be profoundly important. As one observer has said: "Bohr is such a bad authority on these [Fermi] papers because Bohr really had it in his mind that there was some profound problem with neutrinos and energy and so on, and didn't want to have it solved except in a mystical and deep way. It was solved by Fermi in 'too elementary' a way." Bohr's favourite procedure was to drive contradictions patiently to their ultimate extreme, and to ponder the ensuing conceptual conflict as a necessary preparation for its ultimate resolution. From the beginning, Fermi quite consciously and explicitly rejected as somewhat mystical and too philosophical the approach of Bohr, and indeed of others whose theoretical work dominated the scene. Fermi would say, though smiling and not with doctrinaire belief, "We proceed according to the rules of Bacon. . . . The facts. We will make our experiments and then the experiments will tell what it is."

—Gerald Holton, Minerva **12**(2), 164 (1974)