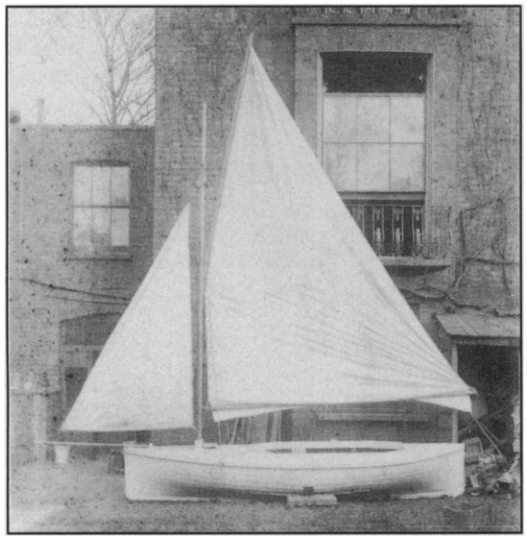
# BOOK REVIEWS

## A Classical Physicist

**The Life and Legacy of G. I. Taylor**. GEORGE BATCHELOR. Cambridge University Press, New York, 1996. xvi, 285 pp., illus. $75 or £45. ISBN 0-251-46121.

Geoffrey Ingram (G. I.) Taylor has a strong claim to having been one of the most important physical scientists of the 20th century. Unlike many others who encountered J. J. Thomson at the Cavendish Laboratory in the period before World War I, and who then worked on the new and exciting field of elementary particles, Taylor turned toward "classical" physics. Over the next six decades he made major contributions to the fields of fluid and solid mechanics, including meteorology, physical oceanography, fracture mechanics, plasticity, turbulence, and much else.

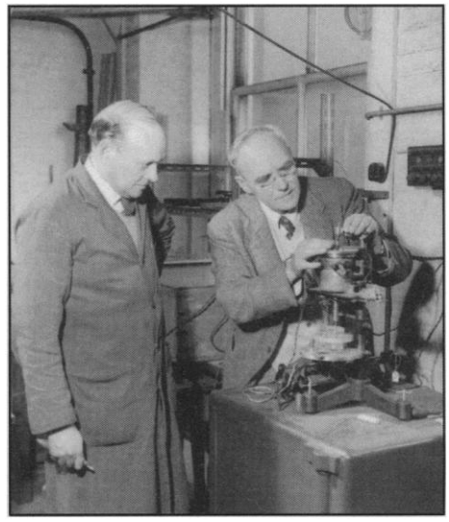


Boat built by the young G. I. Taylor in his bedroom. "My bedroom was 14 ft by 10 ft, on the second floor. My boat was 13 ft 6 in by 5 ft 3 in wide, and my bedroom window was about six inches narrower. People were always telling me of Robinson Crusoe's famous unmovable boat. But I had my plan. I rigged a joist out from the window of my parents' bedroom, fixing the inner end under my parents' bed . . ." [From *The Life and Legacy of G. I. Taylor*]

The distinguished fluid dynamicist George Batchelor, a research student of Taylor's, has devoted great effort to documenting and memorializing the latter's work and life. He has now written the first, brief, biography. As Batchelor himself states, the volume is more an extended version of the sort of "biographical memoir" published by the National Academy of Sciences or the Royal Society upon the death of a member than it is a conventional biography. Taylor, at least as depicted by Batchelor, had an essentially placid life outside his science. There is little grist for a Freudian mill, and whatever drama one can find is almost purely intellectual and connected with Taylor's scientific ideas and experiments.

This is not to say that Taylor's life was uneventful, merely that he apparently was able, either by great good fortune or by subtle skill, to live and work in conditions that permitted him to do what he wished scientifically and socially. Taylor was the illegitimate grandson of two domestic servants on his father's side, and his maternal grandfather was the famous mathematician and logician George Boole. Mathematical ability apparently was an inherited trait among several of Taylor's maternal relatives. Taylor regarded himself as an applied mathematician, and his formal powers were clearly very great. Although the family was quite poor, the British system of his day (circa 1900) had the flexibility to recognize talent and foster it. Taylor entered the University of Cambridge on a scholarship, and that experience set the course of his career. Early on he was given a Royal Society professorship, with its own source of "hard money" support; he was virtually forbidden to teach and thenceforth had a seemingly ideal working environment within the Cavendish Laboratory.

Batchelor tells this story clearly and plainly, with the elegance he sought. The focus is on Taylor's scientific work, ranging across most of his interests. Batchelor describes G. I.'s early work at sea and his learning to fly so he could work on the problems of aviation during World War I. The culmination of his "big science" work occurred during the Manhattan Project and



G. I. Taylor "in 'retirement' in 1955 (age 69), in the Cavendish Laboratory with his assistant Walter Thompson." [From *The Life and Legacy of G. I. Taylor*]

was vital to its success. Taylor's later years, in which he focused on small-scale phenomena through extremely clever laboratory experiments, are perhaps most often identified as his style, but they offer a misleading picture of what he actually accomplished. Batchelor leads the reader through much of the breadth of Taylor's ideas, and good use is made of extended quotations from Taylor's own writing. The normal lubricants of technical writing are equations and diagrams. These are a bit sparse in the book, and some of Batchelor's descriptions present a challenging mental puzzle to the reader.

Taylor apparently had no strong political or philosophical views. He was comfortable with leaving to others worries about the legitimacy of the application of science to warfare. His marriage lasted 42 years until his wife's death; she is a nearly complete cipher in the story. There were no children and no evidence of *Sturm und Drang*: Taylor seems to have been happy and fulfilled. His one passion outside work was sailing—a singularly apt avocation in one who had strong interests in the air-sea boundary layer. Scientists who have encountered any of the remarkable number of Taylor's ideas in classical physics will find this book interesting to read and will be able to make their own judgment on Batchelor's claim that Taylor was more original than Rayleigh, Kelvin, or Reynolds—and a better experimentalist, too.

***Carl Wunsch***
*Department of Earth, Atmospheric, and Planetary Sciences, Massachusetts Institute of Technology, Cambridge, MA 02139, USA*