
A DISTANT LIGHT

SCIENTISTS AND
PUBLIC POLICY

Masters of Modern Physics

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A DISTANT LIGHT

SCIENTISTS AND PUBLIC POLICY

Henry W. Kendall

Foreword by
Howard Ris

**AIP
PRESS**



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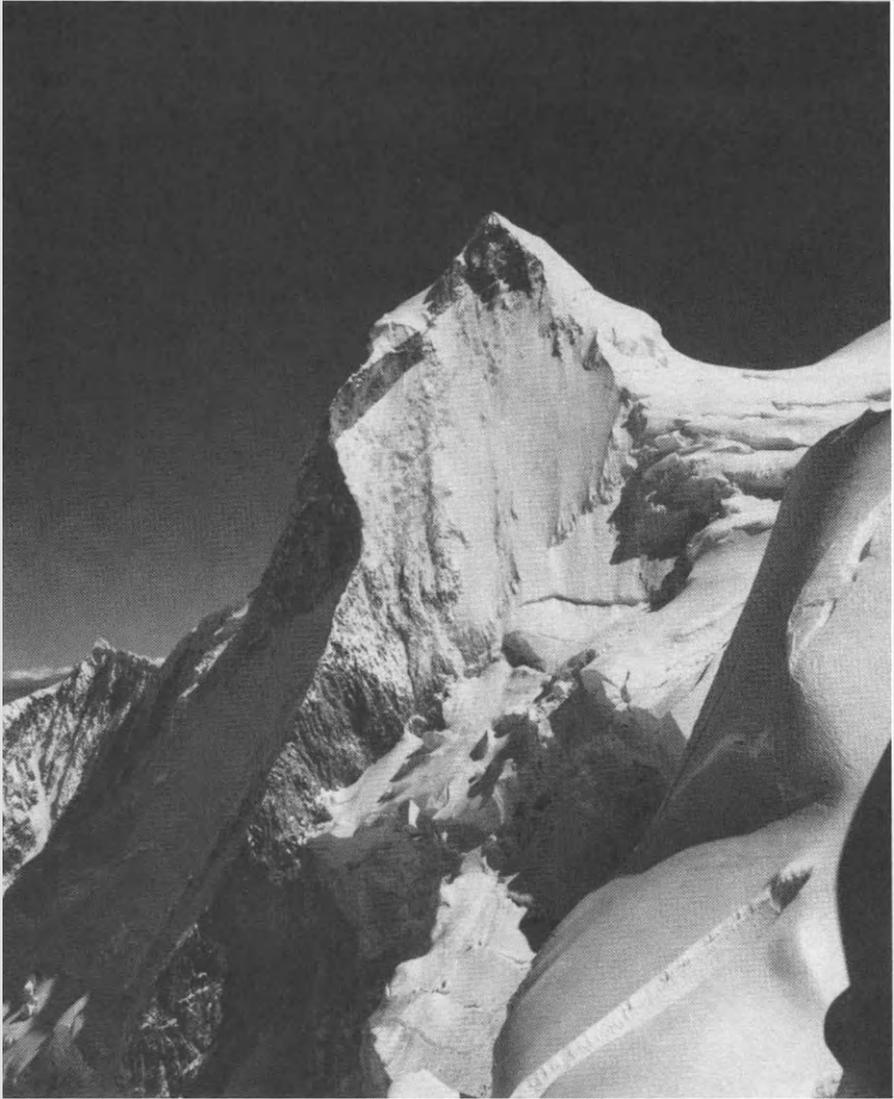
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*He was born with the gift of laughter
and a sense that the world was mad.*

Opening line, *Scaramouche*, Raphael Sabatini



The West Peak of Nevado Huandoy in the Cordillera Blanca, Peru. Photograph by the author.

FOREWORD

Henry Kendall reached the end of his life unexpectedly in February 1999. He died while scuba diving in the company of a National Geographic Society expedition in Wakulla Springs, Florida, doing what he loved best: exploring the world's great natural treasures.

At the time of Henry's death, he had not yet completed the task of assembling and proofing the final manuscript for this book. I volunteered for that task, having worked closely with Henry at the Union of Concerned Scientists for the last eighteen years and having provided some help in reviewing early drafts of the introductory material that he prepared for each section of the book. Working on this book reminded me yet again of the staggering breadth and depth of Henry's contributions to a great many fields, ranging from physics to the environment to national security. He was a truly remarkable human being; I was privileged to be his friend and colleague.

I know that Henry very much wanted this book to serve not just as a summary or memoir of his work, but as a guide and inspiration for other scientists whose participation in the public policy process is badly needed. I hope any changes or corrections I have made will serve that purpose well, and I am grateful to the staff at Springer-Verlag and WordCrafters Editorial Services for remaining steadfast in their desire to see this book published.

*Howard Ris
Executive Director
Union of Concerned Scientists
Cambridge, Massachusetts*

ABOUT THE SERIES

Masters of Modern Physics introduces the work and thought of some of the most celebrated physicists of our day. These collected essays offer a panoramic tour of the way science works, how it affects our lives, and what it means to those who practice it. Authors report from the horizons of modern research, provide engaging sketches of friends and colleagues, and reflect on the social, economic, and political consequences of the scientific and technical enterprise.

Authors have been selected for their contributions to science and for their keen ability to communicate to the general reader—often with wit, frequently in fine literary style. All have been honored by their peers and most have been prominent in shaping debates in science, technology, and public policy. Some have achieved distinction in social and cultural spheres outside the laboratory.

Many essays are drawn from popular and scientific magazines, newspapers, and journals. Still others—written for the series or drawn from notes for other occasions—appear for the first time. Authors have provided introductions and, where appropriate, annotations. Once selected for inclusion, the essays are carefully edited and updated so that each volume emerges as a finely shaped work.

Masters of Modern Physics is overseen by an advisory panel of distinguished physicists. Sponsored by the American Institute of Physics, a consortium of major physics societies, the series serves as an authoritative survey of the people and ideas that have shaped twentieth-century science and society.

PREFACE

Like many scientists, I have always had interests far different from those of my professional life. Among them has been the challenges of dealing with the array of problems humanity faces, including how to exploit the earth's bounty without damaging it and how to deal with the conflicts between nations, for which extraordinarily destructive weapons stand at the ready. At issue are not just the unwanted side effects of a few technologies but the cumulative impact of a host of technologies and human activities that appear to threaten humanity and the global environment in a deep way.

For many years such matters—what I call survival issues—have claimed much of my time and attention, providing extensive experience in a variety of public controversies, most involving substantial scientific or technical matters. This volunteer work in the quasipolitical world of public policy debate has proved vastly different from my professional work as an experimental particle physicist. It was my good fortune to find a second home base—the Union of Concerned Scientists—whose course I helped guide and from which I could research issues, publish my findings, and involve myself and others in the effort to shape public policy.

In 1992 the American Institute of Physics' publishing division approached me with an invitation to prepare a volume for its series *Masters of Physics*. A typical volume in this series is based mainly on the author's principal scientific publications. In the course of preparing some material for the World Bank on public policy problems, a different approach seemed appropriate in my case: to devote the proposed volume primarily to material dealing with science and public policy problems. The book could serve as a stimulus and a resource for others in the scientific community who might also wish to turn their attention to such concerns. The scientific community has many fine minds that can advance understanding of public problems and nudge society toward sensible policies. The key is getting enough scientists involved in sustained and constructive ways.

This focus would require a very different mix of material than would a collection of physics reprints. It would also include written matter that customarily does not appear on publication lists, such as news releases, public statements, and declarations, for example, that can be of great importance to those engaged in debates

over public policy; they frequently require very careful writing. Based on this approach, the form and selection of material for the volume took its present form: a volume intended to communicate the nature of the controversies that swirl about some of humanity's great problems. My challenge was to illuminate the behavior both of allies and opponents, to set out the lessons that I, with numerous colleagues, have learned, and, in some small way, to make a contribution that could provide useful guidance for other scientists.

The arrangement of the book's material is very roughly chronological. The Introduction concerns public controversies and includes material regarding the Union of Concerned Scientists (UCS), a public interest organization to which I have devoted much time and effort. Nuclear power and the major controversy that was associated with reactor emergency systems is next, followed by a section on the only physics topic included, a technical article and a popular article on experimental studies of the internal structures of the proton and neutron that I helped to guide. This is followed, in turn, by sections on national security issues, global environmental problems, radioactive contamination of the US nuclear weapons production facilities and, before the Epilogue, articles concerned with burning oil wells and anti-personnel mine clearing.

The illustrations, aside from those that accompany the reprinted articles, are drawn, for the most part, from an exhibit of my pictures, *Arctic and Expeditionary Photographs*, at the MIT Museum in 1992.

Henry W. Kendall
Cambridge, Massachusetts

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