

# **A Century of Physics**

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# A Century of Physics

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Springer

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To Vickie

# Preface

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When I was invited to deliver the opening plenary talk at the Centennial Meeting of the American Physical Society, scheduled for Atlanta in March 1999, the meeting was two years in the future and in classic ancient Samoan fashion (counting one, two, three, infinity) I felt that I had an almost infinite time to prepare. How short those two years actually were!

In September of 1998 I wrote to a large number of my friends asking for their input and assistance and both were given generously. So also were historically significant photographs, and I am especially grateful to Spencer Weart of the AIP Center for the History of Physics for giving me access to its Emilio Segrè Visual Archives. Fortunately, too, I have been collecting such photographs myself over the years and so I had on hand many of those included here.

Particularly in view of the availability of these photographs, I have chosen to treat the first half of our century in physics from an historical point of view, focusing on the major discoveries that provided the foundation for the explosive growth of physics—and indeed all of science—in the second half of our century.

The fragmentation that accompanied this growth is reflected in my somewhat arbitrary selection of specific areas of discovery, and application of physics, in the post-World War II period. The selection was necessarily a very personal one, and I recognize that I have not given many areas of physics—for example, optics and acoustics—the emphasis that they deserve.

Happily, as we come to the end of our century, it has become clear—as I hope will become clear to the reader—that after this period of increasing fragmentation, during which many of my colleagues have despaired about our future in physics, the fundamental underlying unity of our science has begun to reassert itself in area after area.

Preparing this report has been a very educational process, and my only regret is that space and time limitations prevented me from including much excellent physics that I would have liked to bring to my reader's attention.

In a global review of a major scientific field such as physics, I have found that to include specific references was simply not possible; instead, I have attempted to include names and institutions in the text so that follow-up can be accomplished when and if desired. If I were to list, in a report such as this, the names of all those whose work I have quoted and from whom I have received information and illustrations and with whom I have had useful discussions, the list would occupy more space than the report itself. As at the outset, however, I would take this opportunity to thank all of those who have been so generous in providing assistance, and my sincere apologies go to all those whose work I have not been able to include.

Finally, let me thank Michael Skrzyniarz and Mary Anne Schulz for all their help in assembling this report. It would not have been possible without them. And it has been a pleasure working with Tom von Foerster of Springer Verlag.

D. Allan Bromley  
New Haven, Connecticut  
May, 1999

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