SOURCE MATERIALS FOR THE HISTORY OF RECENT PHYSICS

By ***W. James King***

THE American Institute of Physics has undertaken a project on source materials for the history of recent physics in the United States. One part of the project will be to locate materials that document significant work by twentieth-century physicists, and to take steps toward the preservation and the cataloging of such material. Another part of the project will be to encourage and initiate historical researches by scholars upon these materials. The project promises to be an important step toward greater efforts by the physics community to document the story of recent developments in physics in the United States for the benefit of contemporary historians of science and—even more—for the benefit of historians of the future.

Last year, the AIP Committee on the History and Philosophy of Physics considered the need to preserve and catalog source materials of historical value and drafted a proposal to carry this out. The proposal met with the enthusiastic approval of the physicists and historians of science among whom it was circulated, and funds for the project were subsequently obtained from the National Science Foundation. The project has been under way since July 1961, with the author as its director and with the assistance of an Advisory Committee consisting of Gerald Holton of Harvard (chairman), Sanborn C. Brown and C. S. Smith of the Massachusetts Institute of Technology, C. C. Gillispie of Princeton, T. S. Kuhn of the University of California at Berkeley, R. B. Lindsay of Brown, D. J. De Solla Price of Yale, Hilliard Roderick of UNESCO, R. J. Seeger of the National Science Foundation, and G. E. Uhlenbeck of the Rockefeller Institute.

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At the same time that this project was being developed, plans were going forward for the establishment of a library of the history of physics as a part of the addition to the AIP headquarters building in New York. To be named the Niels Bohr Library of the History of Physics, it will contain archival materials as well as a general collection of books and journals dealing with the history and philosophy of physics. A storage vault for important documents and library services will also be available. The library was made possible by a gift of $40 000 from Mr. Dannie M. Heineman. Professor Niels Bohr, when informed that the new library will be named for him, wrote: ". . . its realization shall be an honour and a pleasure to me."

The major objectives of the project on the history of recent physics in the United States are these:

(1) To locate documents of potential significance for studying the development of physics, both as a research discipline and a profession, and to locate the apparatus used in significant research. The period investigated begins when physics in America became comparable in breadth, if not in depth, with research in Europe, a period beginning about the last decade or so of the last century, and will be carried down to the present.

(2) To take steps toward the preservation of documentary materials. The project staff will recommend to the institution where the research was originally carried out, that primary source material, either manuscripts or apparatus, be preserved and catalogued. If that institution should not be interested in taking active steps towards its preservation, recommendations will be made to appropriate libraries or museums. An archival collection of documentary materials will be established in the Bohr Library of the American Institute of Physics.

(3) To make and record interviews with physicists associated with some of the more fundamental discoveries made in the United States and to obtain a photographic or other record of apparatus used in important researches. The photographic record is particularly important where the equipment would not be otherwise preserved.

(4) To organize a biographical-bibliographical collection of data on American physicists and to organize a locator file of historical materials in physics in the United States.

(5) To assist physics instructors, historians of science, science museums and others interested in studying or presenting the history of physics by making available to them the information preserved in the American Institute of Physics archives or by referring them to collections of important materials elsewhere.

(6) To encourage and initiate the use by scholars of archival material at the American Institute of Physics. For example, plans are under development to prepare some guides, and possibly a *catalogue raisonné* based upon the material, dealing systematically with the development of recent physics in America within the framework of historical development of physics throughout the world.

The work now getting under way at the American Institute of Physics will proceed in cooperation with other projects having objectives complementary to ours. A very promising related project is that on Sources for the History of Quantum Physics, sponsored by the Joint Committee of the American Physical Society and the American Philosophical Society on the History of Theoretical Physics in the Twentieth Century. Professor Thomas S. Kuhn of the University of California at Berkeley is the director of this project, which will be concerned with the documentation of the development of quantum physics. Other societies, libraries, museums, and individual scholars are working in the history of physics, and a determined effort will be made by the staff of the AIP project to keep them informed of our work and to avoid duplication of effort.

The necessity for projects of this kind can be understood if we consider the nature of scholarly work in the history of physics, keeping in mind the extremely rapid growth of physics during this century. The scholarly pursuit of the history of physics, the understanding not only of what happened but why it did, is one of the youngest of studies. Much has been achieved in a brief time, particularly where the primary source material for the historian was on hand, and where scholars had begun to digest and organize that information. Published material, such as books and scientific journals, can supply only a portion of the information required by the historian. He wants to know how the scientist arrived at his concepts, who influenced him in his researches, and why the latter took the turn they did. Thereby one can attain an understanding not only of the individual's intellectual development but also of the passage of scientific concepts from one person to another. The historian must have access to the original laboratory notebooks, correspondence, diaries, or whatever other record of day-by-day thinking may have been kept. It is the written rather than the printed page that is one of the historian's primary sources. Another is original apparatus; such material has been examined very little so far, but it is to be hoped that it will be used in the future to throw light on crucial developments. A third type of primary source, added during the twentieth century, is the photographic film and the taped interview.

In spite of their importance to the historian of science, source materials in the history of recent physics

are often not preserved. Although apparatus of historical value may be kept around the laboratory for a time, usually it is soon relegated to a corner of a storeroom or attic, provided it is not cannibalized for other research or used in an advanced laboratory class. When the person originally interested in preserving the apparatus retires, the equipment generally is thrown out, either because no one knows what it is, or because by then (if not before!) space is badly needed for burgeoning research. Seldom is a place made for equipment of "merely" historic importance in a new building when the department or the laboratory staff moves into it. As with apparatus, so with laboratory notebooks and other documents. Thus, one might suspect that there is a serious lack of adequate source materials for research in the history of recent physics in the United States.

On the other hand, much has been done to gather and to exploit the documentary material extant from the earlier periods of physics, notably that deriving from the work of the great early physicists—Galileo, Descartes, and Newton, to name a few. However, a preliminary survey by our project staff confirmed the suspicion that comparatively little has been done to ensure that comparable material—personal letters, photographs, apparatus, laboratory records, and annotated books and reprints, for example—will be preserved from our busier and more impersonal time for the future historian of physics. Nor have adequate steps been taken to collect source materials that illuminate other developments in the recent growth and organization of physics in the United States—for example, the activities of the professional societies, the contributions of scientists from other countries to physics in the United States during the period 1930–1950, and the influence of developments in scientific education. It is not appropriate in this brief announcement to the readers of *Physics Today* to go into detail concerning the resources of the present depositories of documentary material in the history of physics or the historical studies—some of them excellent, but all too few—that have been published in this field.

These are the main reasons why the project was undertaken, and you now have a summary of its chief goals. In announcing the project, we also wish to solicit the help of the physics community. Without this assistance, our efforts cannot succeed. As our search begins, we shall appreciate the help of any reader in our efforts to locate manuscripts or to learn the location of original scientific apparatus of historical significance. It will suffice for this purpose to send a letter or brief note addressed to the author at the American Institute of Physics, 335 East 45th Street, New York 17, N. Y.

Perhaps the heart of the matter can be expressed in a rhetorical question: Is it not fitting and proper for physicists to help to preserve the records of their contemporaries and, by taking this first step, to assist historians in interpreting achievements in physics for our own and future generations?