



Gathering the human stories of science

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There is much more to science than appears in refereed journals and textbooks. Oral history preserves the backstories.

History: old dead stuff, a mere recitation of names and dates, boring. Or history: stories of interesting lives full of curiosity, ambitions, false starts, and sometimes great accomplishments. Although some history teachers and historians, just like some science teachers and scientists, can transform an inherently exciting topic into dust, history is human and can be made engaging. One of the best ways to humanize and enliven history is through recording the life stories of interesting people. That practice of interviewing and of creating oral histories is essential to historical investigation of recent times. To be sure, historians rely on documentary evidence—publications, notebooks, correspondence, and so forth—but when the shapers of history are still alive, it also makes sense to ask them directly about events they experienced.

An urgent undertaking

By the 1950s the public saw physics as the model of science, courtesy of discoveries about the atom, the power of the atomic bomb, and the fame of scientists such as Albert Einstein and J. Robert Oppenheimer. The scientists who brought forth general relativity and quantum mechanics, however, were quickly aging. Einstein died in 1955 and was never interviewed in depth by a historian about his life and career.

Enter Elmer Hutchisson, an industrial physicist who was the executive director of the American Institute of Physics (AIP) from 1957 to 1964 and the founding editor of the *Journal of Applied Physics*. In the late 1950s, Hutchisson engaged Gerald Holton at Harvard University in planning a project to document the history of recent physics. Holton saw new critical needs: to preserve and make available the correspondence of physicists and to interview physicists to get behind-the-scenes stories. In 1961 AIP, with the help of a five-year grant from NSF, set up the Project on the History of Recent Physics to ensure the preservation of archives and to conduct interviews.

The next year a handful of historians and physicists went to Copenhagen to interview Niels Bohr. Over a three-week period, Bohr answered questions for five short sessions of an hour or so each; he was 77 years old and quite weak. In the final interview, on 17 November, Bohr responded to a question about free will with an apologetic “perhaps I will try to clear my thoughts another day.” But Bohr died the next day.

There could be no better evidence of the urgent need for oral history.

Systematic and unsystematic histories

In its half century of existence, AIP’s Center for History of Physics has recorded the stories of roughly 1500 scientists. Of those, more than 1100 are available on our oral histories website listed in the additional resources. That scholarly resource, maintained by AIP’s Niels Bohr Library & Archives, draws more page visits per year than any other part of the center’s website. Historians and science writers have published hundreds of articles and books based on the archived interviews. AIP staff members have carried out oral history projects on astrophysics, geophysics and space science, multi-institutional collaborations, industrial physics, entrepreneurial physics, and more. We’ve just begun to work on one concerning solar-terrestrial relations—that is, the impact of solar activity on Earth and its atmosphere. Those projects have been sustained by revenue from AIP’s successful journals, by grants, and by generous endowments from donors.

It is not just AIP that conducts and archives oral histories in the sciences. Other major programs are sponsored by the Chemical Heritage Foundation, the IEEE History Center, the Atomic Heritage Foundation, the HistoryMakers (who focus on African Americans), and the American Meteorological Society. Clearly, our areas of interviewing overlap. Who interviews a physical chemist? A solid-state physicist? A Manhattan Project scientist? An African American scientist? An atmospheric physicist? The answer is that the need is so great that we all do our best and work together.

Oral history programs focused on science also flourish outside the US. In the UK, the British Library sponsors a model exemplar. In India, the Tata Institute of Fundamental Research documented its own history through a series of 35 oral histories with its scientists. There are also projects in China, Australia, Europe, and elsewhere.

In addition to those systematic efforts, many historians, science writers, and journalists interview scientists on their own initiative as part of their writing projects. Some researchers squirrel away their recordings after they are done with them and never take the important next step of depositing the interviews in an archive. A cassette tape in a shoe box or a digital



SCENES FROM ORAL HISTORIES. Mildred Dresselhaus was a condensed-matter theorist and advocate for women in science and engineering. This portrait is a still from an interview conducted in 2007 as part of MIT's Infinite History project. The entire interview is at <https://infinitehistory.mit.edu/video/mildred-s-dresselhaus>. On three occasions between April 2012 and April 2013, I interviewed atomic theorist Edward Gerjuoy. He is seen here reviewing the transcript of one of our sessions.

file on an abandoned hard drive does not help future scholars. An oral history is not complete until it is archived and made available to others.

Get behind the scenes

How does the Center for History of Physics decide who should be interviewed? It's an important question, given the 120 000 physical scientists in AIP's member societies and the many scientists who do not join a society. We have only two staff members at the center who work on oral histories, and even those efforts are just part-time. The mathematics is daunting. First, we concentrate on thematic projects that can attract outside funding. Most of the AIP projects listed in the previous section were supported by NSF or private foundations. Second, we depend heavily on scholars who want to interview scientists as part of their individually driven research projects. Most of those scholars apply for one of our grants in aid. Those grants are cost-effective because AIP only reimburses travel expenses and does not pay for the time of the interviewer. The downside is that they produce a patchwork of interviews.

Our current project on solar-terrestrial relations began when the center submitted a proposal to NASA's heliophysics science division to select and interview 50 scientists and engineers who, during the past half century, have been working on the topic. We assembled a preliminary list of important researchers by combing through the literature and by talking with scientists in the field. I'm happy to say the grant will allow us to bring several predoctoral fellows on board to help with the interviews.

If you would like to conduct an oral interview and have never done so before, I recommend that you read AIP's webpage "Oral History Interviewing" cited in the Additional Resources. There you will find a link to the how-to pages of the Oral History Association (whose homepage is also cited below), the US Army Center of Military History, and George Mason University. You will also find a link to AIP's "List of suggested

questions." The online version of this Quick Study includes some tips to help you prepare for and conduct an oral interview. It also describes some of the important work you need to do after the interview is completed.

As an oral history interviewer, you must remember that your goal is to produce a useful and permanent historical record that will be archived and used by scholars who may not even be born yet. Respect the interviewee. Your task is not to produce a gossipy, tell-all interview, but rather to get behind the scenes of discovery, to uncover the ups and downs and ins and outs of a scientific career. You need to be curious. The interviewee must be not only an important figure but also one whose memory is sharp. The interview might be a life interview and reach back as far as the interviewee's childhood and early education. Or it might focus on a five-year career slice that is especially interesting to you. Your questions must be informed and carefully worded. Ambiguous questions produce vague answers. You must also let the interviewee speak, and you should encourage them to do so. The interview is about them, not you.

Remember, the goal of AIP's Center for History of Physics and Niels Bohr Library & Archives is to preserve and make known the history of the physical sciences. Oral history is our best way to get behind the curtain of publication and find the humanity that underlies the science.

Additional resources

- The Niels Bohr interviews mentioned in this Quick Study are available at "Niels Bohr—Session I," www.aip.org/history-programs/niels-bohr-library/oral-histories/4517-1.
- American Institute of Physics, "Oral History Interviews," www.aip.org/history-programs/niels-bohr-library/oral-histories.
- American Institute of Physics, "Oral History Interviewing," www.aip.org/history-programs/physics-history/oral-history-interviewing.
- Oral History Association, www.oralhistory.org. PT