

Old artifacts and new challenges: The future of history

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During the 20th century physics has not only changed our vision of the universe but also revolutionised our way of life. The history of physics not only allows us to understand these changes but can also help us to be better prepared to face the future. The high complexity of contemporary physics, its intricate relationships with the industrial world, with the military complex and with the political arena present a challenge to historians. Their efforts can be fruitful only if supported by the collaboration of the different actors of this complicated scenario.

Some practical problems which seem to me particularly important today are presented below:

Scientific Instruments of Historical Interest

Scientific instruments, are indispensable material evidence for the historians of science. Until a few decades ago, their importance was generally underestimated by historians. They focused their attention to written documents, while considering historical instruments as antiquarian curiosities. Due to new historiographical trends paying more attention to laboratory practices, to the transmission of scientific knowledge, to experiments (and their replication), and to the role of material culture, scientific instruments have become much more interesting for historians of science. These comprise not only the more ancient instruments, but also the apparatus of the 19th century. Many collections had been rediscovered, catalogued and reordered.

But, now it is time to turn our attention to 20th century instruments, which present new challenges. In the second half of the 20th century the rise of 'big science' called for instruments (or better instrumental systems) which were huge machines. Their preservation as historical artefacts will be impractical, far too expensive and thus often impossible. Because of the very rapid progresses in electronics and computer technology they also became extremely complicated. Furthermore, the obsolescence of instruments, whose variety and typologies are today enormous if compared to the ones

of only a few decades ago, is extremely fast. Finally, the aesthetic appeal of contemporary instruments, compared to the glittering brass and glass apparatus of the past, is very poor. A lot of them are indistinguishable and hermetic boxes, difficult to display and to present in a museum. A 19th century spectroscope or a galvanometer are beautiful objects, whose function can be easily understood and explained. Unfortunately, this cannot be said of early NMR apparatus.

For the above mentioned reasons a large part of the historical heritage of late 20th century physics is in risks of being scrapped. Thus, historians and physicists must try to find a way to conserve the most important part of these heritage or at least to preserve the memory of it (by collecting written and oral documents, drawings, photographs, films, software, etc).

In this context, I propose here to strengthen the collaboration between physicists and historians of instruments. First I would like to encourage some members of the EPS, who are interested in these problems, to participate and contribute with their personal experiences to the XIX Scientific Instrument Symposium, which

"We must establish a closer co-operation between physicists and historians. Too often these two communities, notwithstanding the fact that they have a series of common interests, tend to ignore each other."

will be organised this year in Oxford (4th to 9th of September) by the Scientific Instrument Commission (SIC) of the International Union of History and Philosophy of Science (IUHPS). A special session of the Symposium will be dedicated to 20th century instrument. (See the web site: <http://www.sic.iuhps.org/conf2000/in-text.htm>)

Secondly, in my role as vice-president of the SIC and of chairman of the IGHP I would like to support and encourage every kind of project which could involve the preservation, study and the cataloguing of instruments and apparatus which have been important for the development of 20th century physics. A simple example: a group of physicists could compile a first list of apparatus, which they judge particularly relevant for the history of physics af-

ter 1945. This would establish priority in the field of museology and preservation.

Documents and Archives

Another important problem is the preservation of scientific archives. Until only a few years ago correspondence, laboratory notebooks, protocols of experiments, drafts of articles, technical drawings and plans, and the like, were printed on paper. Today, most of these documents reside in magnetic memories. For the historians it will be in most cases impossible to follow in the classical way the history of a theory, a concept or an experimental project because of lack of information. Corrections, modifications, and changes which witness the evolution of an article or of a book from its draft to its definitive version, can be seen and analysed thank to the paper archives, but often disappear in the new world of software. It will be very difficult for the future historian to fully retrace and to understand the genesis of ideas.

But there is another danger. How long will our magnetic memories last? How many scientists will keep in their computer (or in their electronic archives) their scientific documents? Will the e-mail correspondence remain somewhere? The progress of computer technology is so fast that it is today almost impossible to read 'old' magnetic records because the related software and the machines able to run them are scarcely available.

I do not pretend to propose solutions to these problems but only wish to point out the necessity to seriously consider them.

