

THE NIELS BOHR ARCHIVE

Annual Report 2002

The Niels Bohr Archive is an independent institution,
presently under the Ministry of Science, Technology and Innovation

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For the Vice-Chancellor of the University of Copenhagen	Hanne Andersen
For the Niels Bohr Institute	Andrew D. Jackson, chair
For the Royal Danish Academy of Sciences and Letters	Jørgen Christensen Dalsgaard
For the Minister of Science, Technology and Innovation	Kirsti Andersen
For the family of Niels Bohr	Vilhelm Bohr

General remarks

The Niels Bohr Archive (NBA) is a repository of primary material for the history of modern physics, pertaining in particular to the early development of quantum mechanics and the life and career of Niels Bohr. Although the NBA has existed since shortly after Bohr's death in 1962, its future was only secured at the centennial of Bohr's birth in 1985, when a deed of gift from Bohr's wife, Margrethe, provided the opportunity to establish the NBA as an independent not-for-profit institution. Since 1985, the NBA has had its own board of directors and has received a fixed annual sum for running expenses from the Danish Ministry of Education (1985-1998 and 2000-2001), the Ministry of Research (1998-2000) and the Ministry of Science, Technology and Innovation (from 2001); it has also made ample use of its privilege to apply for project support from private sources.

The core of the collections comprises Bohr's scientific correspondence (6000 letters and drafts) and manuscripts (500 units). This material was catalogued and microfilmed in the early 1960s as part of the Archive for History of Quantum Physics (AHQP), a project sponsored by the American Philosophical Society and the American Physical Society. The outcome was 290 microfilms of various relevant historical material, which have been placed in several repositories world-wide, including the NBA.

In addition, the NBA houses several historical collections that cannot be consulted elsewhere. Thus, in 1985 the Bohr family donated the bulk of Bohr's private correspondence, which includes letters to and from central personalities in culture and politics inside and outside Denmark. The equally extensive "Bohr General Correspondence" documents Bohr's substantial administrative involvement.

Among papers of Bohr's closest colleagues deposited in the NBA, only the George Hevesy

Scientific Correspondence has been microfilmed, but the papers of among others H.A. Kramers, Christian Møller, Oskar Klein, and Léon Rosenfeld are also of great historical interest. Some papers of more recent origin - notably those of Niels Bohr's son, Aage Bohr, Niels Bohr's close collaborator, Stefan Rozental, and Danish solid state physicist Allan Mackintosh - have also been deposited. The large collection of photographs relating to Bohr's career is an especially popular resource. Finally, there are reprint, film, sound tape and video tape collections, as well as a growing library.

The NBA continues the publication - through Elsevier - of the *Niels Bohr Collected Works*, the first volume of which appeared in 1972. A complete list of the ten volumes published so far is posted on the NBA's website, www.nba.nbi.dk. Volume 11 (edited by Finn Aaserud and the only one remaining) will cover Bohr's activities outside science and philosophy, prominently including some of Bohr's previously unpublished writings on his idea of an "open world," developed during and after World War II.

In early 1999, upon consultation with the Research Ministry, the NBA increased its special activities disseminating natural science for the public, particularly gymnasium (high-school) students (for details, see the website).

Activities in 2002

In 2002 the NBA organised the release of Bohr's notes and drafts pertaining to Werner Heisenberg's visit to Copenhagen in September 1941. The documents were presented in February on the NBA website and as a special edition of *Naturens Verden*, a reprint of which can be bought at the NBA.

The release provoked substantial international interest and gave rise in particular to a large increase in the number of applications to the NBA as regards both general information and use of archival material. A couple of days after the release on 6 February, the number of daily hits on the NBA's home page rose from about 50 to 15,000 and has subsequently stabilised at about 500.

As one of many consequences of the release, NBA participated in the documentary film "The Copenhagen Fallout" made by BBC television about the historical background for Michael Frayn's play *Copenhagen*, which dramatises in particular the 1941 meeting between Bohr and Heisenberg. This documentary has been broadcast in Britain and the USA, as well at the NBIFAfG in cooperation with *Commutator*.

The NBA continues its effort to organise and catalogue its historical collections with the help of outside funds. In 2002, work has been conducted on the collections of physicists Aage Bohr and Allan Mackintosh, with support from the American Institute of Physics and the Danish Science Ministry.

Work on the last volume of the *Niels Bohr Collected Works* (Volume 11), edited by Finn Aaserud, continues with support from the Lounsbery Foundation.

Finn Aaserud participated in conferences in Washington, D.C. in connection with the production there of *Copenhagen* and in Karlskrona, Sweden on the topic "Mathematics and War." He has also talked at the Nobel Museum, Stockholm, on Bohr and the Nobel Prize and has given several lectures for *Folkeuniversitetet* (People's University) at several Danish locations. Aaserud's lecture on Norwegian National Radio about the life of Niels Bohr will subsequently be published.

There have been eight events in the NBA's series of History of Science Seminars, with prominent speakers (see the website).

The NBA continues to attract historians and other researchers from all over the world, and was visited in 2002 by a record number of people.

As part of the dissemination programme, the NBA has hosted or co-hosted several lectures and contributed to the well-attended NBI arrangement on the annual *Kulturmatten* (Culture Night) in Copenhagen as well as the biennial *Dansk Naturvidenskabsfestival* (Danish Natural Science Festival).

Publications

The list below includes only publications by NBA staff. On our web site we hope to develop a more general list of publications based on any research carried out using the NBA's archival resources.

Release of documents relating to 1941 Bohr-Heisenberg meeting, www.nba.nbi.dk, and (with photos) *Naturens Verden* 84 (2002), No. 8-9, pp. I-XL. Reprint of latter available for USD8/EUR8/DKK50 at NBA.

Finn Aaserud:

"Niels Bohr, Om atomernes bygning - Efterskrift" in *Højdepunkter i dansk naturvidenskab*, Jan Teuber (ed.) (Copenhagen: Gads Forlag, 2002), pp. 162-169.

Finn Aaserud:

"Niels Bohr and the Nobel prizes" in *Historical Studies in the Nobel Archives: The Prizes in Science and Medicine*, Elisabeth Crawford (ed.) (Tokyo: Universal Academy Press, 2002), pp. 39-64.

Finn Aaserud:

"The Bohr-Heisenberg Meeting from a Distance," Symposium on "The Copenhagen Interpretation: Science and History on Stage," National Museum of Natural History of the Smithsonian Institution, March 2, 2002, <http://web.gc.cuny.edu/ashp/nml/artsci/aaserud.htm>

Finn Aaserud:

"Werner Heisenberg's besøk hos Niels Bohr i 1941: Drama og dokumentasjon" in *Forskningspolitik* No. 3, 2002, pp. 14-15, 17.

Abraham Pais:

"The Image of Physics" in *The Changing Image of the Sciences*, Ida H. Stamhuis, Teun Koetsier and Cornelis de Pater (eds.) (Dordrecht, etc.: Kluwer, 2002).