

THE NIELS BOHR ARCHIVE

Annual Report 2009

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

Staff:

Director	Finn Aaserud
Academic Assistant	Felicity Pors
Librarian/Secretary	Anne Lis Rasmussen
Conservator	Judith Hjartbro
Scientific Associates	Aage Bohr († 8 September 2009) Jørgen Kalckar

Board of directors:

For the Vice-Chancellor of the University of Copenhagen	Carl Henrik Koch (until 6 October) Jesper Lützen (from 7 October)
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	Hanne Bohr (until 6 October) Vilhelm Bohr (from 7 October)

General remarks

The Niels Bohr Archive (NBA) - website: www.nba.nbi.dk - 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, after 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. In 1985 the NBA had only a couple of offices, its archival collections were scattered in various rooms and the unique book collection was stored in boxes. Since then, the Niels Bohr Institute has gradually provided the NBA with adequate office space, an adjacent library room and storage space for the archival collections. This has made it possible for the NBA's staff to place archival documents

in an acid-free environment in fire-proof safes, to register the collections and to service the many guest researchers.

The core of the collections comprises Bohr's scientific correspondence (6,000 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 - www.amphilsoc.org/guides/ahqp/ - 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 the "Bohr 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, whereas the "Bohr Political Papers" shed light on his considerable effort, beginning during the Second World War, for an "open world" between nations.

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, thumbnails of which can be seen on the website, is an especially popular resource. Finally, there are reprint, film, sound tape and video tape collections, as well as a growing library.

Over the last several years there has been a pilot project - supported by the Danish Ministry of Science - to find the best means to make information about the NBA's collections and selected documents in them, available on the internet. In 2009, a milestone has been reached in this regard (see below).

The main priority of the NBA practically since Bohr's death has been the publication of the *Niels Bohr Collected Works*, the first volume of which was published in 1972 and the last (Vol. 12) in 2006, A new edition of the entire series was published in 2008 with an additional volume containing a cumulative subject index. A list of the volumes is posted on the NBA website.

After the completion of the Collected Works the NBA is able to provide greater service for the many researchers making use of its collections, as well as concentrate on its activities, instituted in early 1999 upon consultation with the Ministry of Research, to disseminate natural science for the public, particularly gymnasium (high-school) students (for details,

see the website).

Activities in 2009

The pilot project to develop a procedure to place information about the NBA collections on the internet was completed in 2009. The results were presented for the Ministry of Science in June, and in December the information were made generally available on the website archon.nbi.dk. Most of the NBA collections are described in detail, in many cases down to document level. As part of the pilot project, the documents in selected collections were digitized, for reasons of preservation as well as to make them available from the website. The collections selected were those containing film and sound material, which are in a critical physical state, as well as the "Bohr Political Papers", a relatively small collection of substantial interest to researchers. In contrast to the information *about* the collections, the documents *in* them can only be accessed by *bona fide* scholars upon application for an ID and a password. The functionality of the website is still under improvement, and the NBA is currently applying for funding in order gradually to make also the documents in other collections available to researchers on the website.

Owing to Aage Bohr's illness, Aaserud's oral history interview with him and Ben Mottelson ended prematurely with the sixth session at the end of 2008. Thanks to a grant from Aksel Tovborg Jensens Legat, the interviews have been transcribed. Sound files, transcripts and supplementary material will be deposited at the NBA for the use of researchers.

Director of the NBA board, Professor Andrew D. Jackson, and NBA Director Finn Aaserud are both members of a committee established by the Vice-Chancellor of the University of Copenhagen overseeing events planned for the 2013 centennial of Bohr's publication of his atomic model. Among the many events, the NBA will be solely responsible for an international history of science conference and its published Proceedings, for a new edition of Bohr's trilogy of articles from 1913 with an extensive historical introduction by a prominent scholar, and for a book drawing on the NBA photograph collection coedited by Jackson. In addition, Aaserud has obtained permission from the Bohr family to prepare a historical publication on the origins of Bohr's atomic model employing the otherwise closed correspondence between Niels Bohr and his wife Margrethe.

Sadly, three of NBA's closest friends and supporters passed away this year. Aage Bohr (b.1922), who over the years has provided unique help and support in the NBA's work, died on 8 September. On 11 October, the physicist Jens Bang (b.1930), who has also followed the NBA's work closely, died. Finally, the Russian physicist Yury Gaponov, who has shared his historical interest and personal reminiscences with the NBA on many occasions, died on 21 December.

As usual, there have been many visitors at the NBA in 2009. In particular, Anja Skaar Jacobsen continues her research on Bohr's close collaborator

Léon Rosenfeld, the result of which will be submitted for publication to the publishing house World Scientific in 2010. Jens Gregersen continues his work on a biography of Bohr with special emphasis on his relationship with physics and politics in the Soviet Union. David Favrholt completed the work on his book *The Philosopher Niels Bohr* (in Danish), which was published later in the year. Philosopher of science Roberto Angeloni from Sardinia spent five months doing research for his doctoral thesis seeking a philosophical understanding of Bohr's presentation of his atomic model from 1913.

In 2009 there have been eight contributions in the NBA series of history of science seminars. They were provided (in chronological order) by Lars Becker Larsen, Loren Graham and Jean-Michel Kantor, Christian Joas, Gino Segrè, Christoph Lehner, Peter Robertson, Kristine C. Harper, and Rajesh Kochhar. More information on the seminars can be found on the NBA website.

As part of its dissemination programme, the NBA has hosted several lectures and guided tours as well as contributed to the well-attended arrangement at the Niels Bohr Institute on the annual *Kulturnatten* (Culture Night) in Copenhagen. Hanne Bohr has written a brief biography of Niels Bohr for school children, which is available from the NBA website.

Early in the year, the library was moved to the NBA's new quarters at the top of the K-building of the Niels Bohr Institute at Blegdamsvej, thus completing the NBA's latest move.

Publications

Finn Aaserud and Felicity Pors, "Historical Sites of Physical Science in Copenhagen", in *The Physical Tourist: A Science Guide for the Traveler*, J.S. Rigden and R.H. Stuewer (eds.), Birkhäuser, 2009, pp. 55-72.

Finn Aaserud, "Niels Bohr", Encyclopædia Britannica, 16th edition. Can be read at <http://www.britannica.com/nobelprize/article-9106088> (web address checked 2010-04-27).

A manuscript by Finn Aaserud served as the basis for Chapter 22, "Niels Bohr and his Institute", in *The University of Copenhagen: A Danish centre of learning since 1479*, Copenhagen: University of Copenhagen, 2009, pp. 166-175.

Anja Skaar Jacobsen, "Kreativ skepticisme: Einstein som rollemodel i en globaliseret verden," review of Walter Isaacson, *Einstein - Hans liv og univers* (translated into Danish from English by Jan Teuber), Gyldendal, 2007, in *1066, Tidsskrift for Historie* 39 (1), March 2009, 36-38