

THE NIELS BOHR ARCHIVE

Annual Report 2011

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

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General remarks

The Niels Bohr Archive (NBA) - website [here](#) - 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, covering part of the 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 supplemented its income by using 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 provided the NBA with office space, library rooms and storage space for the archival collections. This has given better possibilities for the NBA staff to place archival documents in an acid-free environment in fireproof 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 - website [here](#). 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, of Niels Bohr's close collaborator, Stefan Rozental, and of Danish solid state physicist, Allan Mackintosh, - have also been deposited. Finally, the NBA houses photocopies of the papers of astrophysicist Bernard Peters and the papers of *Selskabet for Naturlærens Udbredelse* (SNU, the Danish Society for the Dissemination of Science, founded by H.C. Ørsted in 1824). 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, video tape and DVD 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. As part of this project, all the documents in the Bohr Political Papers as well as the majority of the NBA's films and sound recordings were digitized and placed on the Internet. Since then, digitization of archival documents has continued and the resulting files placed on the Internet, where they can be accessed by means of the Archon archives software developed at the University of Illinois. Webaddress [here](#)

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 [here](#).

After the completion of the *Collected Works* the NBA is able to conduct limited independent historical research as well as 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.

Activities in 2011

On 9 June the NBA celebrated its 25th anniversary with a series of lectures, leading up to a special celebratory lecture by the prominent historian of science John L. Heilbron. The lectures were video recorded and can also be read at the NBA's website [here](#). They were followed by a dinner for specially invited participants at Carlsberg Academy which, as the Honorary Mansion, was Niels Bohr's residence from 1932 to 1962.

During the heavy rainfall in July, archival material - temporarily placed in cardboard boxes directly on the basement floor while the regular archive rooms were re-furbished - was severely water damaged. The papers include papers of some of the prominent Danish physicists in the generation after Niels Bohr. Although the papers were sent to a company to be dried, development of mould could not be avoided. Funding is being sought for conservation, arrangement, registration and secure maintenance of the material, which is presently kept in boxes on pallets from floor to ceiling in two rooms at the Niels Bohr Institute, where the material is practically inaccessible.

An independent digital catalogue of the NBA library holdings, administered by the Royal Library of Denmark, has been inaugurated. The catalogue can be accessed directly from the NBA website as well as from bibliotek.dk. The library has been supplemented with book collections of about 100 volumes each after deceased physicists Aage Bohr and Jens Bang. Pages with annotations by Niels Bohr in the book collection that the Bohr family is selling through a Danish antiquarian bookseller will be photographed and the scanned documents will be made part of NBA's collections, supplementing the Niels Bohr book collection already deposited at NBA.

The work to scan documents in the NBA archival collections, both as backup copies and as material to be made available to researchers on the internet, continues. The Supplement to the Niels Bohr Scientific Correspondence - a substantial collection comprising relevant documents found since the original Scientific Correspondence was microfilmed in the early 1960s - has been scanned. Documents in the original paper collection of the Scientific Correspondence that for various reasons were not microfilmed, will also be scanned and placed on the internet.

Sofie Lindskov Hansen and Jan Hansen have defended their bachelor and master theses, respectively. Roberto Angeloni has defended his Italian doctoral degree based on extensive visits to and research at NBA. Anja Skaar Jacobsen submitted the manuscript for her biography on Bohr's close collaborator Léon Rosenfeld for publication, and Jens Gregersen has continued work on his book on Niels Bohr and the Soviet Union. Both books are based to a great extent on extensive research stays at NBA.

There have been close to 100 individual visitors. Some fifteen high school classes or other large groups have visited as part of NBA's dissemination programme. NBA has also contributed to the well-attended arrangement at the Niels Bohr Institute on the annual KulturNatten (Culture Night) in Copenhagen. Finn Aaserud, as well as board members Vilhelm Bohr and Andrew Jackson, have given talks at the Copenhagen "People's University" ("*Folkeuniversitetet*"). Aaserud has given several lectures both in-house and out-house and has served as censor for a Ph.D. dissertation at the University of Oslo.

In 2011 there have been three contributions in the NBA series of history of science seminars. They were provided (in chronological order) by Alexei Kojevnikov, Zuoyue Wang, and D.J. Kinney.

The preparations for the 2013 celebrations of the centennial for Niels Bohr's atomic model continue. As for publications and arrangements directly under the auspices of the NBA, Aaserud's article written on the basis of the early (and otherwise closed) letters between Niels Bohr and his fiancée (and future wife), Margrethe Nørlund, will be published, together with a new historical introduction by John L. Heilbron, in the reissue by Oxford University Press of the 1913 "trilogy" of articles in which Bohr introduced his model. The Carlsberg Foundation has provided support for an international history of science conference commemorating Bohr's atomic model to be held at the

Royal Danish Academy for Sciences and Letters from 12 to 14 June 2013; it will possibly be followed by a "Bohr Day" when selected participants will give a series of public lectures. Many authors have agreed to contribute to another book, in Danish, on Niels Bohr as seen from a variety of perspectives under the editorship of Helge Kragh, Finn Aaserud and Lone Bruun. The NBA is also involved in the planning of an international conference, to be held in November 2013, on contemporary international political issues taking Bohr's idea of an "open world" as its point of departure.

After several years of negotiations the NBA, as of 1 January 2012, is an independent institution under the supervision of the University of Copenhagen. New statutes have been approved and a new board of directors, with a representative from the Danish National Archives (Rigsarkivet) replacing the representative of the Danish Ministry of Science, Technology and Innovation, has been appointed. In connection with the NBA's new status, the Ministry has agreed to increase the annual support provided through the University of Copenhagen to cover fully the salaries of its small staff and day-to-day expenses. This means that the NBA no longer needs to rely on external support for its survival, which gives substantial freedom to apply for funding for new and innovative archival, historical and outreach projects.